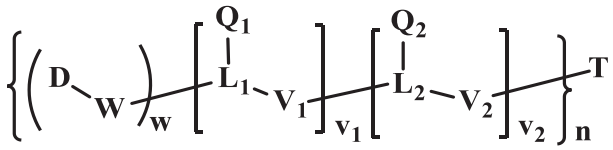
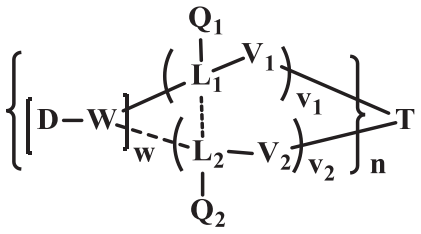
CLAIMS

What is claimed is:

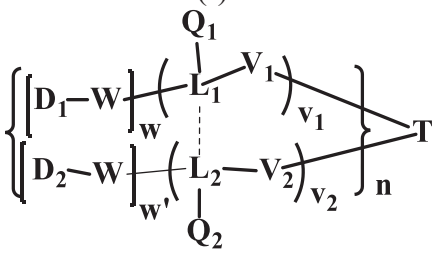
1. A side chain-linked conjugate compound of the Formula (I), (II) and (III):



(I)



(II),



(III),

wherein

"—" represents a single bond; n is 1 to 30;

T is a cell-binding agent/ molecule, selected from the group consisting of an antibody, a single chain antibody, an antibody fragment that binds to a target cell, a monoclonal antibody, a single chain monoclonal antibody, a monoclonal antibody fragment that binds to the target cell, a chimeric antibody, a chimeric antibody fragment that binds to the target cell, a domain antibody, a domain antibody fragment that binds to the target cell, an adnectin that mimics antibody, DARPins, a lymphokine, a hormone, a vitamin, a growth factor, a colony stimulating factor, a nutrient-transport molecule (a transferrin), and/or a cell-binding peptide, protein, or small molecule attached on albumin, a polymer, a dendrimer, a liposome, a nanoparticle, a vesicle, or on a (viral) capsid;

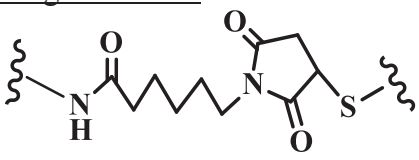
L_1 and L_2 are, the same or different, independently selected from O, NH, N, S, P, NNH, NHNH, ~~$N(R_3)$,~~ $N(R_{12})$, $N(R_{12})N(R_{12'})$, CH, CO, C(O)NH, C(O)O, NHC(O)NH, NHC(O)O, polyethyleneoxy unit of formula $(OCH_2CH_2)_pOR_{12}$, or $(OCH_2CH\text{-}(CH_3))_pOR_{12}$, or $NH(CH_2CH_2O)_pR_{12}$, or $NH(CH_2CH(CH_3)O)_pR_{12}$, or $N[(CH_2CH_2O)_pR_{12}]\text{-}[(CH_2CH_2O)_{p'}R_{12'}]$, or $(OCH_2CH_2)_pCOOR_{12}$, or $CH_2CH_2(OCH_2CH_2)_pCOOR_{12}$, wherein p and p' are independently an integer selected from 0 to about 1000, or combination thereof; C_1-C_8 of alkyl; C_2-C_8 of heteroalkyl, alkylcycloalkyl, heterocycloalkyl; C_3-C_8 of aryl, Ar-alkyl, heterocyclic, carbocyclic, cycloalkyl, heteroalkylcycloalkyl, alkylcarbonyl, heteroaryl; or $(Aa)_r$, r =1-12(one to 12 amino acid units), which is composed

from natural or unnatural amino acids, or the same or different sequences of dipeptide, tripeptide, tetrapeptide, pentapeptide, hexapeptide, heptapeptide, octapeptide, nonapeptide, decapeptide, undecapeptide or dodecapeptide unit;

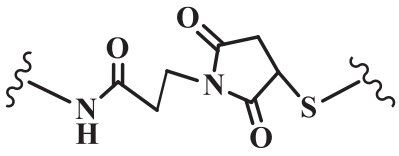
W is a stretcher unit having C_1-C_{18}, normally a self-immolative spacer, a peptidyl unit, a hydrazone, a disulfide, a thioether, an ester, or an amide bond; w is 1 or 2 or 3;

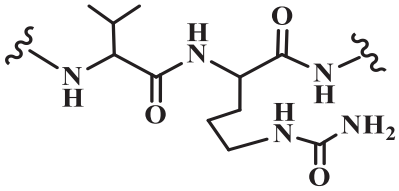
V_1 and V_2 are independently a spacer unit and selected from O, NH, S, C_1-C_8 alkyl, C_2-C_8 heteroalkyl, alkenyl, or alkynyl, C_3-C_8 aryl, heterocyclic, carbocyclic, cycloalkyl, alkylcycloalkyl, heterocycloalkyl, heteroaralkyl, heteroalkylcycloalkyl, or alkylcarbonyl, or $(Aa)_r$, r =1-12(one to 12 amino acid units), which is composed from a natural or unnatural amino acid, or the same or different sequences of dipeptide, tripeptide, tetrapeptide, pentapeptide, hexapeptide, heptapeptide, octapeptide, nonapeptide, decapeptide, undecapeptide or dodecapeptide unit; or $(CH_2CH_2O)_p$, p is 0-1000; and v_1 and v_2 are independently 0, 1 or 2, but v_1 and v_2 are not 0 at the same time; when v_1 or v_2 is 0, it means one of the side chain Q1 or Q2 fragment is absent; or

wherein W, L_1, L_2, V_1, and V_2 independently contain one or more linker components of the following structures:



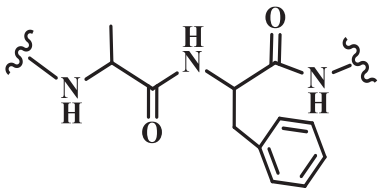
6-maleimidocaproyl (MC),

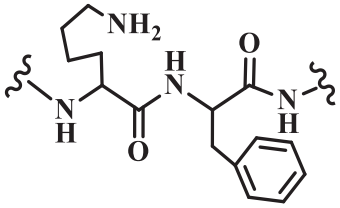




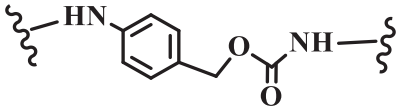
maleimido propanoyl (MP),

valine-citrulline (val-cit),



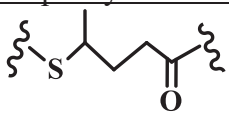


alanine-phenylalanine (ala-phe),

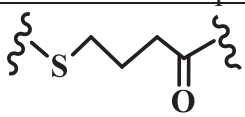


lysine-phenylalanine (lys-phe),

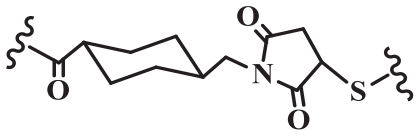
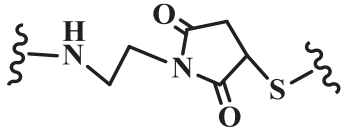
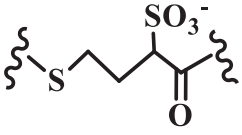
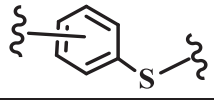
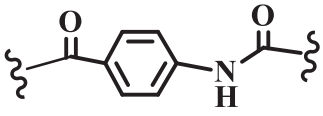
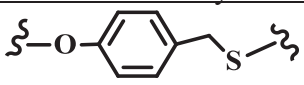
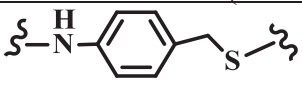
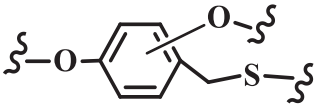
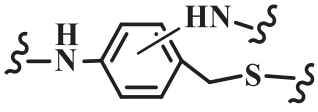
p-aminobenzyloxycarbonyl (PAB),

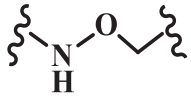
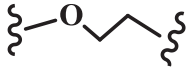


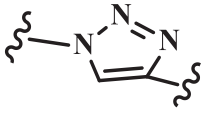
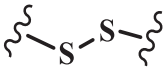
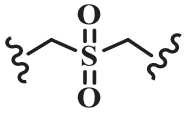
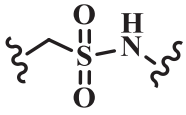
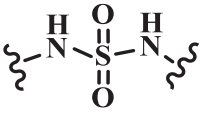
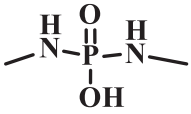
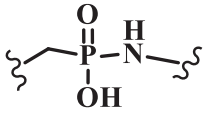
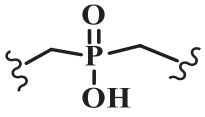
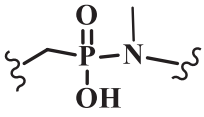
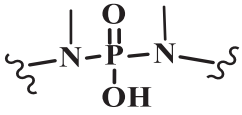
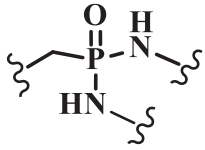
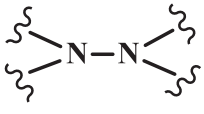
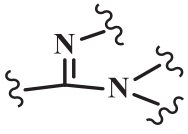
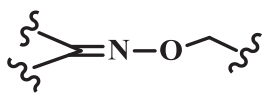
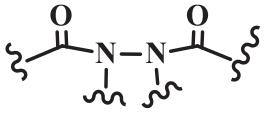
4-thio-pentanoate (SPP),

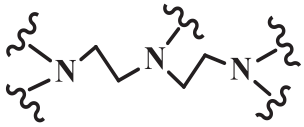
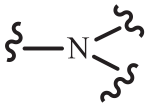


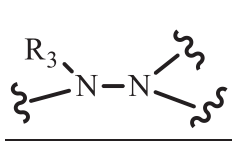
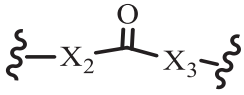
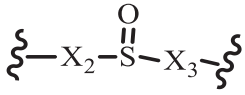
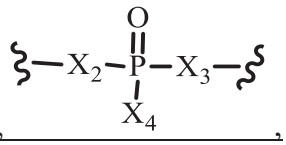
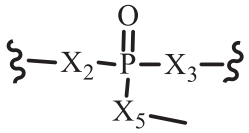
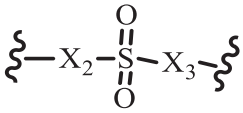
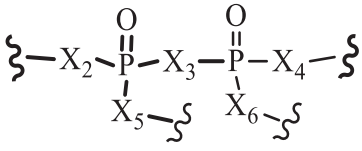
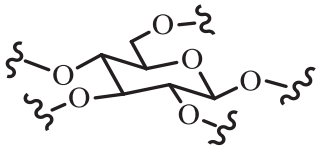
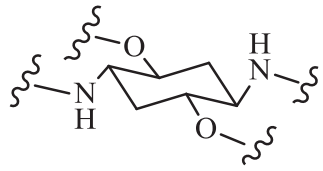
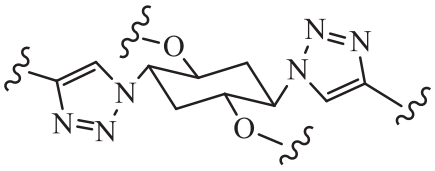
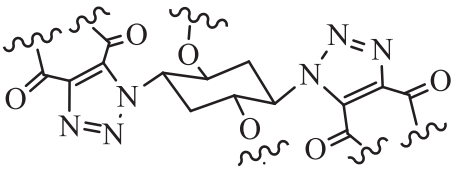
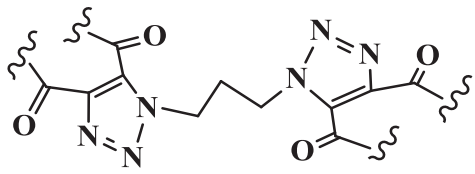
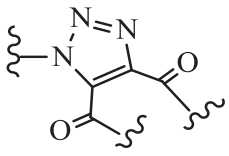
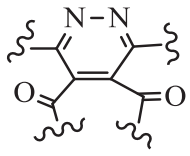
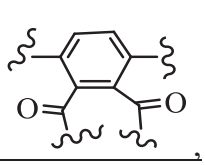
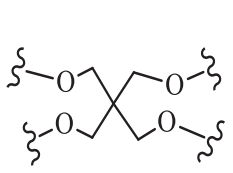
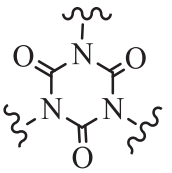
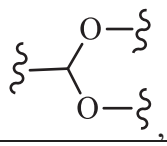
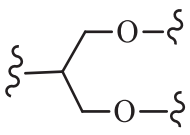
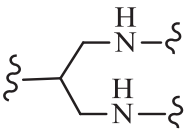
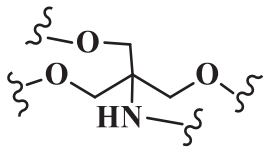
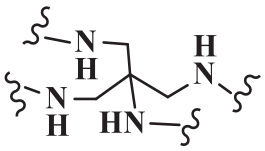
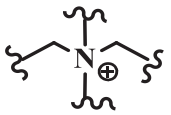
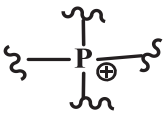
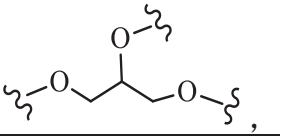
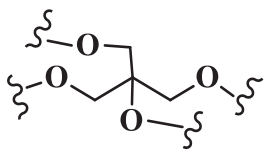
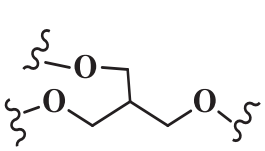
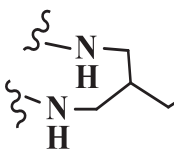
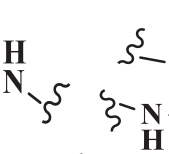
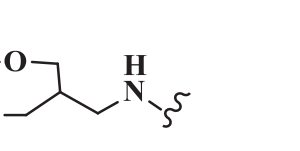
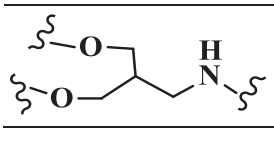
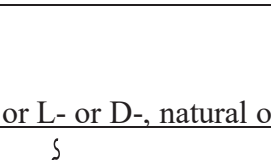
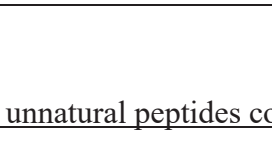
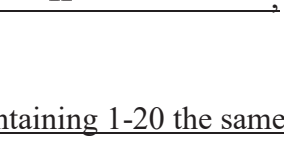
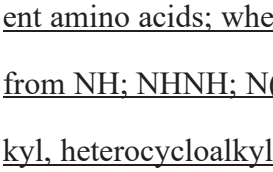
4-thio-butyrate (SPDB),


4-(N-maleimidomethyl)cyclo-hexane-1-carboxylate (MCC),

maleimidoethyl (ME),

4-thio-2-hydroxysulfonyl-butyrate (2-Sulfo-SPDB),

aryl-thiol (PySS),

(4-acetyl)aminobenzoate (SIAB),

, oxylbenzylthio,

aminobenzylthio,

dioxylbenzylthio,

diaminobenzylthio,

amino-oxylbenzylthio,

alkoxy amino (AOA),

ethyleneoxy (EO),

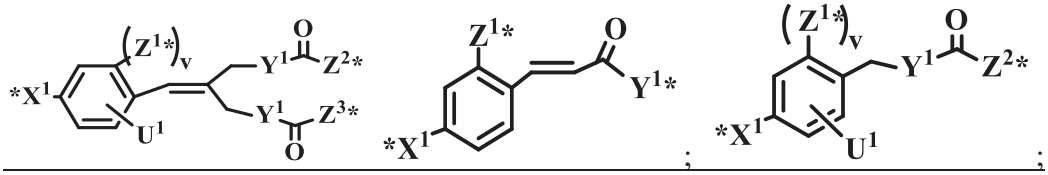
4-methyl-4-dithio-pentanoic (MPDP),

triazole,

dithio,

alkylsulfonyl,

alkylsulfonamide,

sulfon-bisamide,

Phosphondiamide,

alkylphosphonamide,

phosphinic acid,

N-methylphosphonamidic acid,

N,N’-dimethylphosphon-amidic acid,

N,N’-dimethylphosphondiamide,

hydrazine,

acetimidamide;

oxime,

acetylacetohydrazide,

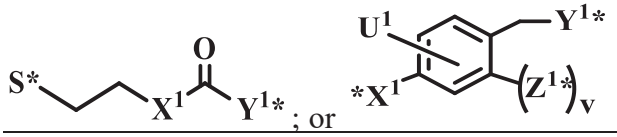
aminoethyl-amine,

aminoethyl-aminoethyl-amine,

,




































, or L- or D-, natural or unnatural peptides containing 1-20 the same or different amino acids; wherein  is the site of linkage; X_2, X_3, X_4, X_5, or X_6, are independently selected from NH; NHNH; N(R_{12}); N(R_{12})N($R_{12'}$); O; S; C_1-C_6 of alkyl; C_2-C_6 of heteroalkyl, alkylcycloalkyl, heterocycloalkyl; C_3-C_8 of aryl, Ar-alkyl, heterocyclic, carbocyclic, cycloalkyl, heteroalkylcycloalkyl, alkylcarbonyl, heteroaryl; CH_2OR_{12}, CH_2SR_{12}, CH_2NHR_{12}, or 1~8 amino acids; wherein R_{12} and $R_{12'}$ are independently H;C_1-C_8 of alkyl; C_2-C_8 of hetero-alkyl, alkylcycloalkyl, heterocycloalkyl; C_3-C_8 of aryl, Ar-alkyl, heterocyclic, carbocyclic, cycloalkyl, heteroalkylcycloalkyl, alkylcarbonyl, heteroaryl; or 1-8 carbon atoms of esters, ether, or amide; or polyethyleneoxy unit of formula $(OCH_2CH_2)_p$ or $(OCH_2CH(CH_3))_p$, wherein p is an integer from 0 to about 1000, or combination above thereof; or

wherein W, L_1, L_2, V_1, and V_2 independently contain:

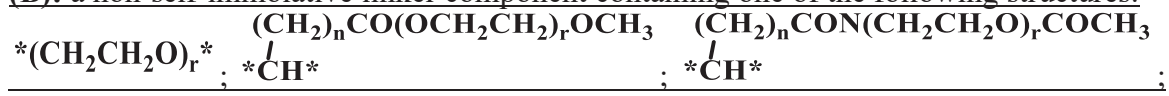
(A): a self-immolative component, peptidic units, a hydrazone bond, a disulfide, an ester, an oxime, an amide, or a thioether bond; the self-immolative unit includes aromatic compounds that are electronically similar to the para-aminobenzyl-carbamoyl (PAB) groups, 2-aminoimidazol-5-methanol derivatives, heterocyclic PAB analogs, beta-glucuronide, and ortho or para-aminobenzylacetals; or one of the following structures:


;
;
;

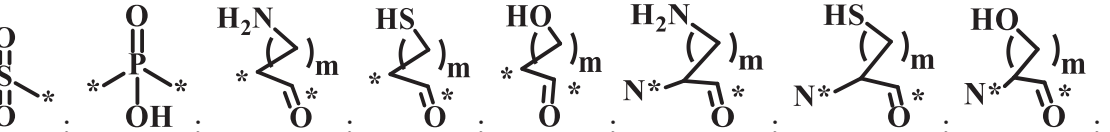

; or
wherein the (*) atom is the point of attachment

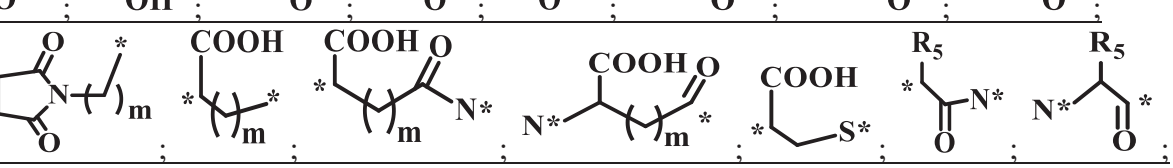
of another component; X^1, Y^1, Z^2 and Z^3 are independently NH, O, or S; Z^1 is independently H, NHR_1, OR_1, SR_1, COX_1R_1, wherein X_1 and R_1 are defined above; v is 0 or 1; U^1 is independently H, OH, C_1~C_6 alkyl, $(OCH_2CH_2)_n$, F, Cl, Br, I, OR_5, SR_5, NR_5R_5', N=NR_5, N=R_5, NR_5R_5', NO_2, SOR_5R_5', SO_2R_5, SO_3R_5, OSO_3R_5, PR_5R_5', POR_5R_5', $PO_2R_5R_5$', $OPO(OR_5)(OR_5')$, or $OCH_2PO(OR_5(OR_5')$, wherein R_5 and R_5' are independently selected from H, C_1~C_8 alkyl; C_2~C_8 alkenyl, alkynyl, heteroalkyl, or amino acid; C_3~C_8 aryl, heterocyclic, carbocyclic, cycloalkyl, heterocycloalkyl, heteroaralkyl, alkylcarbonyl, or glycoside; or pharmaceutical cation salts;

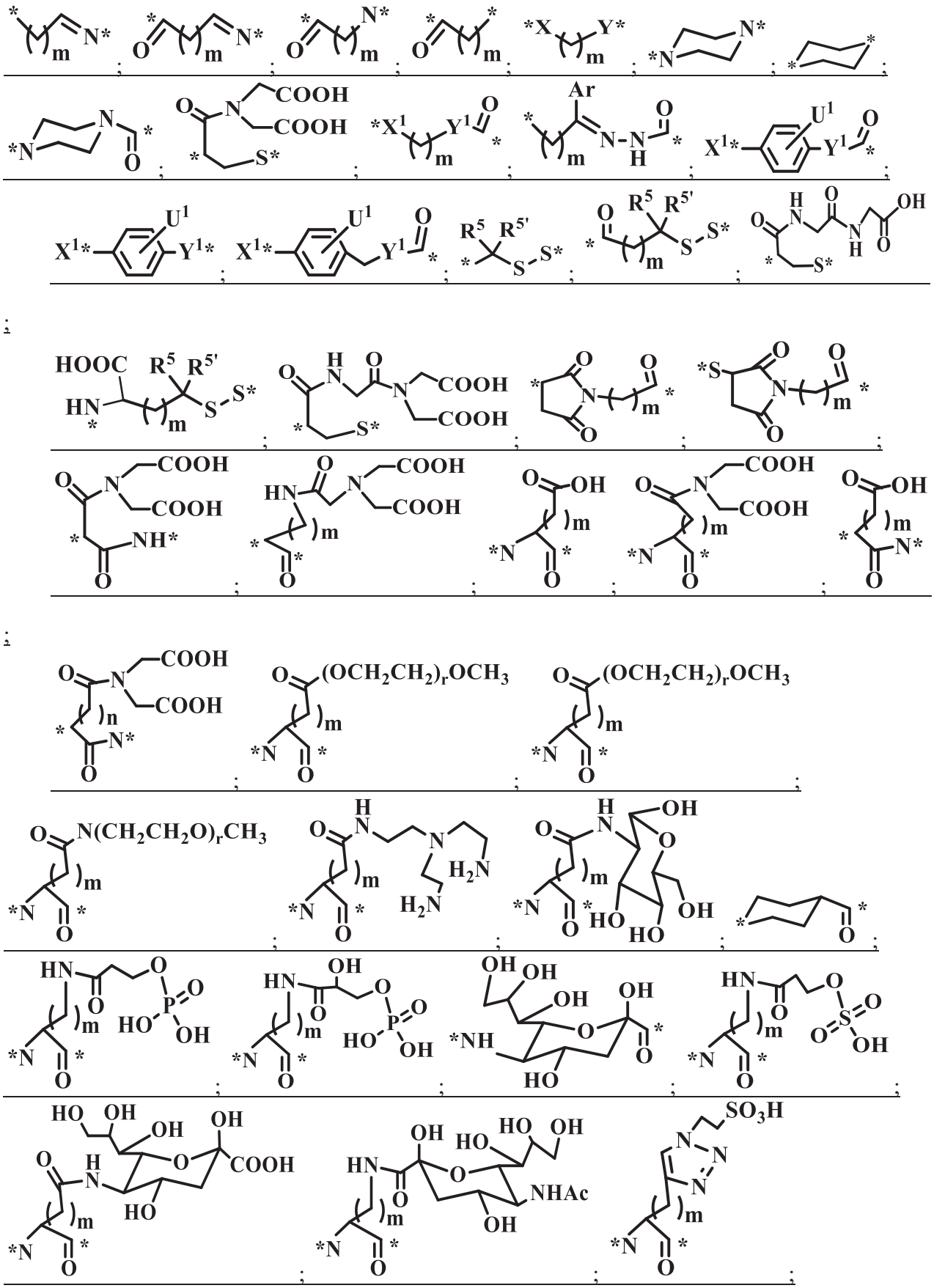
(B): a non-self-immolative linker component containing one of the following structures:

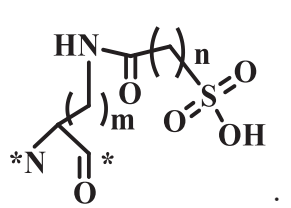
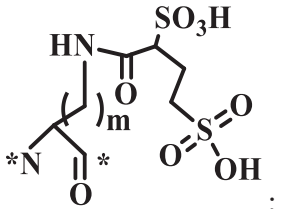
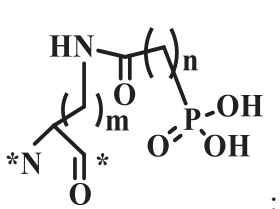

;


;


;


;



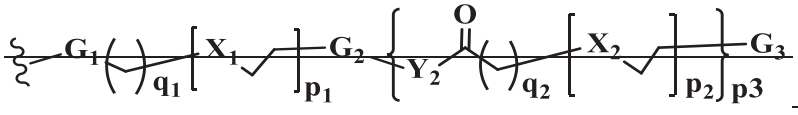
wherein the (*) atom is the point of attachment of additional spacer or releasable linkers, the cytotoxic agents, and/or the binding molecules; X^1, Y^1, U^1, R^5, $R^{5'}$ are defined as above; r is 0~100; m and n are 0~20 independently;

(C): a releasable component that at least one bond that can be broken under physiological conditions: a pH-labile, acid-labile, base-labile, oxidatively labile, metabolically labile, biochemically labile or enzyme-labile bond, which having one of the following structures:

$-(CR_{15}R_{16})_m(Aa)r(CR_{17}R_{18})_n(OCH_2CH_2)_t-$, $-(CR_{15}R_{16})_m(CR_{17}R_{18})_n(Aa)_r(OCH_2CH_2)_t-$, $-(Aa)_r-(CR_{15}R_{16})_m(CR_{17}R_{18})_n(OCH_2CH_2)_t-$, $-(CR_{15}R_{16})_m(CR_{17}R_{18})_n(OCH_2CH_2)_r(Aa)_t-$, $-(CR_{15}R_{16})_m(CR_{17}=CR_{18})(CR_{19}R_{20})_n(Aa)_t(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m(NR_{11}CO)(Aa)_t(CR_{19}R_{20})_n-(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m(Aa)_t(NR_{21}CO)(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m(OCO)(Aa)_t-(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m(OCNR_{17})(Aa)_t(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m-(CO)(Aa)_t-(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m(NR_{21}CO)(Aa)_t(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m-(OCO)(Aa)_t(CR_{19}R_{20})_n-(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m(OCNR_{17})(Aa)_t(CR_{19}R_{20})_n-(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m(CO)(Aa)_t(CR_{19}R_{20})_n-(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m$-phenyl-$CO(Aa)_t-(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_m$-furyl-$CO(Aa)_t(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_m$-oxazolyl-$CO(Aa)_t(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_m$-thiazolyl-$CO(Aa)_t(CCR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_t$-thienyl-$CO(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_t$-imidazolyl-CO-$(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_t$-morpholino-$CO(Aa)_t-(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_t$-piperazino-$CO(Aa)_t(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_t$-N-methylpiperazin-$CO(Aa)_t(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_m-(Aa)_t$phenyl-, $-(CR_{15}R_{16})_m-(Aa)_t$furyl-, $-(CR_{15}R_{16})_m$-oxazolyl$(Aa)_t-$, $-(CR_{15}R_{16})_m$-thiazolyl$(Aa)_t-$, $-(CR_{15}R_{16})_m$-thienyl-$(Aa)_t-$, $-(CR_{15}R_{16})_m$-imidazolyl$(Aa)_t-$, $-(CR_{15}R_{16})_m$-morpholino-$(Aa)_t-$, $-(CR_{15}R_{16})_m$-piperazino-$(Aa)_t-$, $-(CR_{15}R_{16})_m$-N-methylpiperazino-$(Aa)_t-$, $-K(CR_{15}R_{16})_m(Aa)r(CR_{17}R_{18})_n(OCH_2CH_2)_t-$, $-K(CR_{15}R_{16})_m(CR_{17}R_{18})_n(Aa)_r(OCH_2CH_2)_t-$, $-K(Aa)_r-(CR_{15}R_{16})_m(CR_{17}R_{18})_n(OCH_2CH_2)_t-$, $-K(CR_{15}R_{16})_m(CR_{17}R_{18})_n(OCH_2CH_2)_r(Aa)_t-$, $-K(CR_{15}R_{16})_m-(CR_{17}=CR_{18})(CR_{19}R_{20})_n(Aa)_t(OCH_2CH_2)_r$, $-K(CR_{15}R_{16})_m(NR_{11}CO)(Aa)_t-(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-K(CR_{15}R_{16})_m(Aa)_t(NR_{21}CO)(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-K(CR_{15}R_{16})_m(OCO)(Aa)_t(CR_{19}R_{20})_n-$

$(OCH_2CH_2)_r$-, -$K(CR_{15}R_{16})_m(OCNR_{17})(Aa)_t(CR_{19}R_{20})_n(OCH_2CH_2)_r$-, -$K(CR_{15}R_{16})_m(CO)(Aa)_t$-$(CR_{19}R_{20})_n(OCH_2CH_2)_r$-, -$K(CR_{15}R_{16})_m(NR_{21}CO)(Aa)_t(CR_{19}R_{20})_n$-$(OCH_2CH_2)_r$-, -$K(CR_{15}R_{16})_m$-$(OCO)(Aa)_t(CR_{19}R_{20})_n(OCH_2CH_2)_r$-, -$K(CR_{15}R_{16})_m(OCNR_{17})(Aa)_t$-$(CR_{19}R_{20})_n(OCH_2CH_2)_r$-, -K-$(CR_{15}R_{16})_m(CO)(Aa)_t(CR_{19}R_{20})_n(OCH_2CH_2)_r$-, -$K(CR_{15}R_{16})_m$-phenyl-$CO(Aa)_t(CR_{17}R_{18})_n$-, -K-$(CR_{15}R_{16})_m$-furyl-$CO(Aa)_t(CR_{17}R_{18})_n$-, -$K(CR_{15}R_{16})_m$-oxazolyl-$CO(Aa)_t(CR_{17}R_{18})_n$-, -$K(CR_{15}R_{16})_m$-thiazolyl-$CO(Aa)_t$-$(CR_{17}R_{18})_n$-, -$K(CR_{15}R_{16})_t$-thienyl-$CO(CR_{17}R_{18})_n$-, -$K(CR_{15}R_{16})_t$imidazolyl-CO-$(CR_{17}R_{18})_n$-, -$K(CR_5R_6)_t$morpholino-$CO(Aa)_t$-$(CR_{17}R_{18})_n$-, -$K(CR_{15}R_{16})_t$-piperazino-$CO(Aa)_t$-$(CR_{17}R_{18})_n$-, -$K(CR_{15}R_{16})_t$-N-methylpiperazin-$CO(Aa)_t(CR_{17}R_{18})_n$-, -$K(CR_{15}R_{16})_m$-$(Aa)_t$phenyl, -K-$(CR_{15}R_{16})_m$-$(Aa)_t$furyl-, -$K(CR_{15}R_{16})_m$-oxazolyl-$(Aa)_t$-, -$K(CR_{15}R_{16})_m$-thiazolyl$(Aa)_t$-, -$K(CR_{15}R_{16})_m$-thienyl-$(Aa)_t$-, -$K(CR_{15}R_{16})_m$-imidazolyl$(Aa)_t$-, -$K(CR_{15}R_{16})_m$-morpholino$(Aa)_t$-, -$K(CR_{15}R_{16})_m$-piperazino$(Aa)_t$G, -$K(CR_{15}R_{16})_m$-N-methyl-piperazino$(Aa)_t$-; wherein m, Aa, m, n, R_{13}, R_{14}, and R_{15} are described above; t and r here are 0 – 100 independently; R_{16}, R_{17}, R_{18}, R_{19}, and R_{20} are independently chosen from H; halide; C_1~C_8 of alkyl or heteroalkkyl, C_2~C_8 of aryl, alkenyl, alkynyl, ether, ester, amine or amide, C_3~C_8 of aryl, which optionally substituted by one or more halide, CN, $NR_{12}R_{12'}$, CF_3, OR_{12}, Aryl, heterocycle, $S(O)R_{12}$, SO_2R_{12}, -CO_2H, -SO_3H, -OR_{12}, -CO_2R_{12}, -$CONR_{12}$, -$PO_2R_{12}R_{13}$, -PO_3H or $P(O)R_{12}R_{12'}R_{13}$; K is NR_{12}, -SS-, -C(=O)-, -C(=O)NH-, -C(=O)O-, -C=NH-O-, -C=N-NH-, -C(=O)NH-NH-, O, S, Se, B, Het (heterocyclic or heteroaromatic ring having C_3-C_{12}); or peptides containing the same or different 1- 20 amino acids;

~~Q_1 and Q_2 are independently represented by Formula (I-q1):~~



~~(I-q1);~~

~~wherein ~~~ is the site linked to L_1 or L_2; G_1 and G_2 are independently OC(O), NHC(O), C(O), CH_2, NH, OC(O)NH, NHC(O)NH, O, S, B, P(O)(OH), NHP(O)(OH), NHP(O)(OH)NH, CH_2P(O)(OH)NH, OP(O)(OH)O, CH_2P(O)(OH)O, $NHS(O)_2$, $NHS(O)_2NH$, $CH_2S(O)_2NH$, $OS(O)_2O$, $CH_2S(O)_2O$, Ar, $ArCH_2$, ArO, ArNH, ArS, $ArNR_1$, or $(Aa)_{q1}$; G_3 is OH, SH, OR_{12}, SR_{12}, $OC(O)R_{12}$, $NHC(O)R_{12}$, $C(O)R_{12}$, CH_3, NH_2, NR_{12}, $^+NH(R_{12})$, $^+N(R_{12})(R_{12'})$, C(O)OH, $C(O)NH_2$, $NHC(O)NH_2$, BH_2, $BR_{12}R_{12'}$, $P(O)(OH)_2$, $NHP(O)(OH)_2$, $NHP(O)(NH_2)_2$, $S(O)_2(OH)$, $(CH_2)_{q1}C(O)OH$, $(CH_2)_{q1}P(O)(OH)_2$, $C(O)(CH_2)_{q1}C(O)OH$, $OC(O)(CH_2)_{q1}C(O)OH$,~~

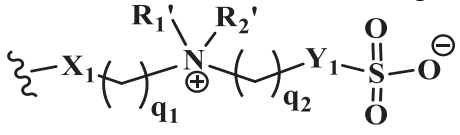
~~$NHC(O)(CH_2)_{q1}C(O)OH$, $CO(CH_2)_{q1}P(O)(OH)_2$, $NHC(O)O(CH_2)_{q1}C(O)OH$, $OC(O)NH(CH_2)_{q1}C(O)OH$, $NHCO(CH_2)_{q1}P(O)(OH)_2$, $NHC(O)(NH)(CH_2)_{q1}C(O)OH$, $CONH(CH_2)_{q1}P(O)(OH)_2$, $NHS(O)_2(CH_2)_{q1}C(O)OH$, $CO(CH_2)_{q1}S(O)_2(OH)$, $NHS(O)_2NH(CH_2)_{q1}C(O)OH$, $OS(O)_2NH(CH_2)_{q1}C(O)OH$, $NHCO(CH_2)_{q1}S(O)_2(OH)$, $NHP(O)(OH)(NH)(CH_2)_{q1}C(O)OH$, $CONH(CH_2)_{q1}S(O)(OH)$, $OP(O)(OH)_2$, $(CH_2)_{q1}P(O)(NH)_2$, $NHS(O)_2(OH)$, $NHS(O)_2NH_2$, $CH_2S(O)_2NH_2$, $OS(O)_2OH$, $OS(O)_2OR_1$, $CH_2S(O)_2OR_{12}$, Ar, ArR_{12}, ArOH, $ArNH_2$, ArSH, $ArNHR_{12}$, or $(Aa)_{q1}$; $(Aa)_{q1}$ is a peptide containing the same or different sequence of natural or unnatural amino acids; X_1 and X_2 are independently O, CH_2, S, S(O), NHNH, NH, $N(R_{12})$, $^+NH(R_{12})$, $^+N(R_{12})(R_{12'})$, C(O), OC(O), OC(O)O, OC(O)NH, NHC(O)NH; Y_2 is O. NH, NR_{12}, CH_2, S, NHNH, Ar; p_1, p_2 and p_3 are independently 0 -100 but are not 0 at the same time; q_1 and q_2 are independently 0 -24; R_{12}, $R_{12'}$, R_{13} and $R_{13'}$ are independently H, C_1~C_8 alkyl; C_2~C_8 heteroalkyl, or heterocyclic; C_3~C_8 aryl, Ar-alkyl, cycloalkyl, alkylcycloalkyl, heterocycloalkyl, heteroalkylcycloalkyl, carbocyclic, or alkylcarbonyl;;~~

~~Y_2 is O. NH, NR_1, CH_2, S, NHNH, Ar;~~

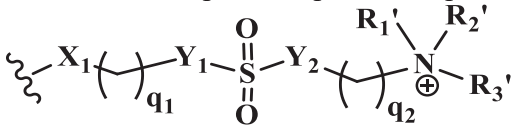
~~p_1, p_2 and p_3 are independently 0 -100 but are not 0 at the same time;~~

~~q_1 and q_2 are independently 0 -24;~~

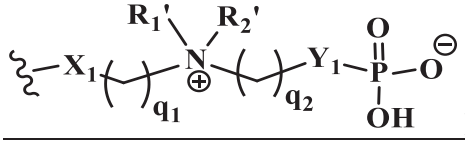
wherein Q_1 and Q_2 are independently selected from Iq-01 to Iq-06 and Iq-08 to Iq-36 below:



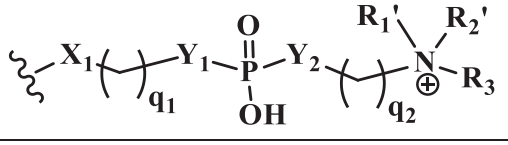
Iq-01,



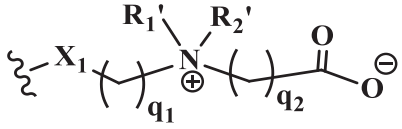
Iq-02,



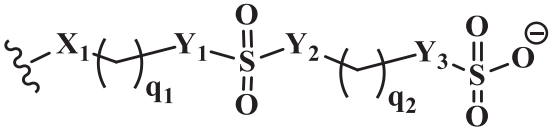
Iq-03,



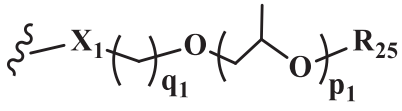
Iq-04,



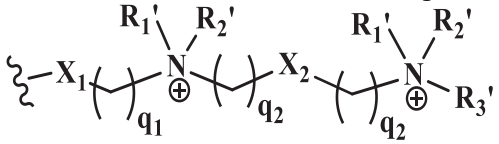
Iq-05,



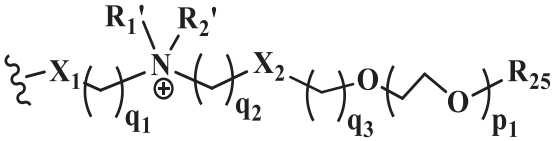
Iq-06,



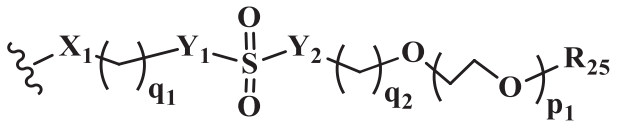
Iq-08,



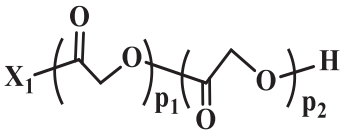
Iq-09,



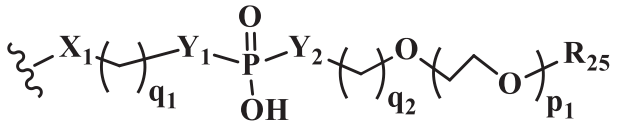
Iq-10,



Iq-11,



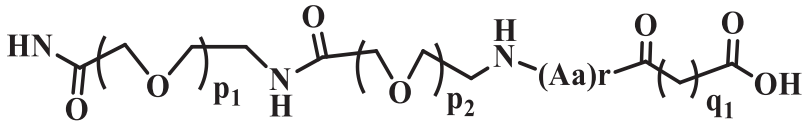
Iq-12,



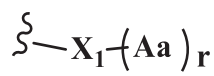
Iq-13,



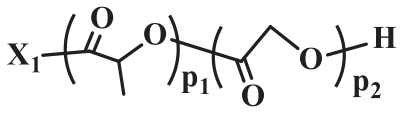
Iq-14,



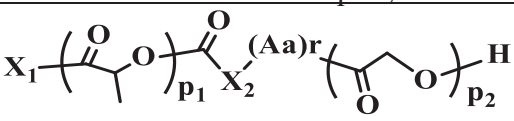
Iq-15,



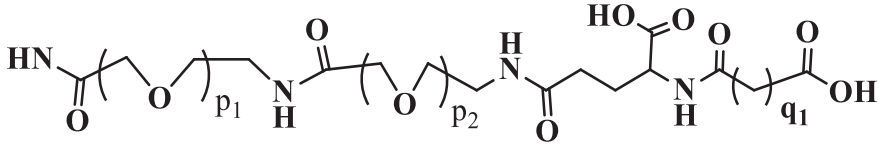
Iq-16,



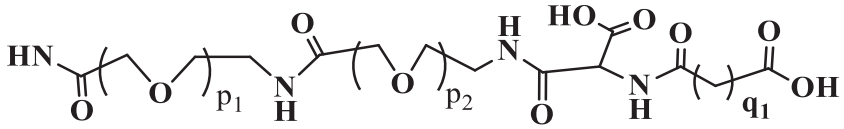
Iq-17,



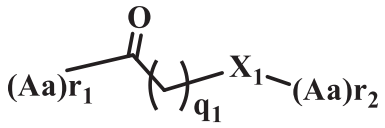
Iq-18,



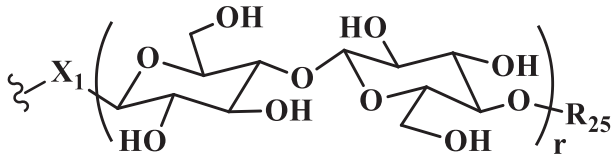
, Iq-19,



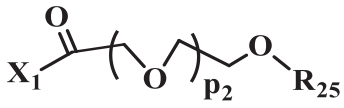
Iq-20,



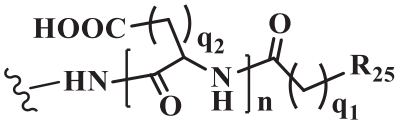
Iq-21,



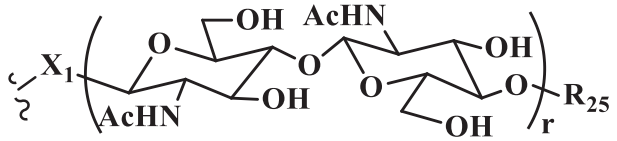
Iq-22,



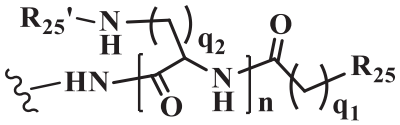
Iq-23,



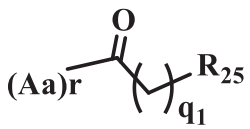
Iq-24,



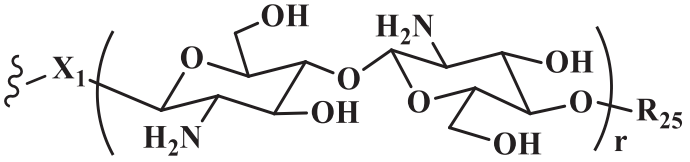
Iq-25,



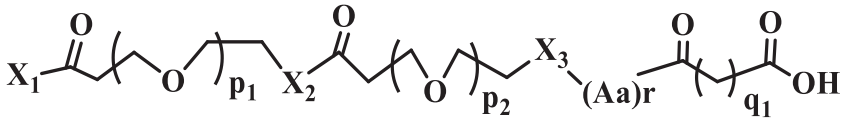
Iq-26,



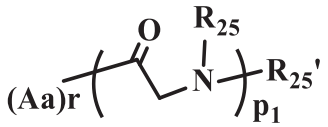
Iq-27,



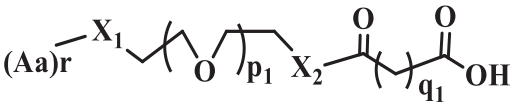
Iq-28,



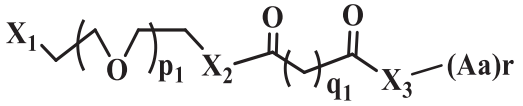
Iq-29,



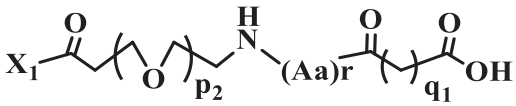
Iq-30,



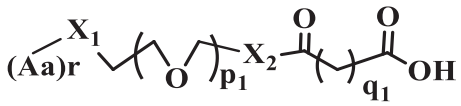
Iq-31,



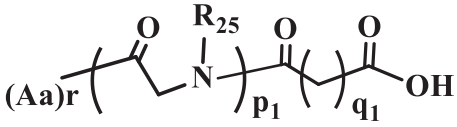
Iq-32,



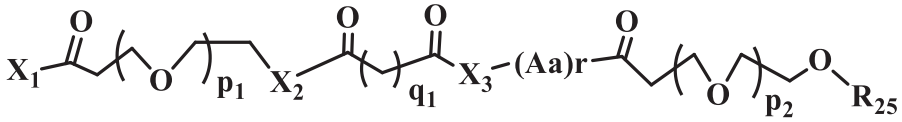
Iq-33,



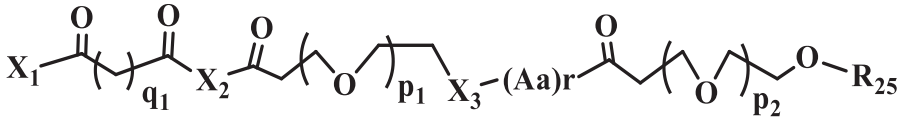
Iq-34,



Iq-35,



Iq-36,



Iq-37,

wherein R_{25} and $R_{25'}$ are independently selected from H; HC(O), $CH_3C(O)$, $CH_3C(NH)$, $NHCH_3$, COOH, $CONH_2$, $CONHCH_3$, C_1-C_{18} alkyl, C_1-C_{18} alkyl, alkyl-Y_1-SO_3H, C_1-C_{18} alkyl-Y_1-PO_3H_2, C_1-C_{18} alkyl-Y_1-CO_2H, C_1-C_{18} alkyl-Y_1-$N^+R_{12}R_{13}R_{13}'R_{14}$, C_1-C_{18} alkyl-Y_1-$CONH_2$, C_2-C_{18} alkylene, C_2-C_{18} ester, C_2-C_{18} ether, C_2-C_{18} amine, C_2-C_{18} alkyl carboxylamide, C_3-C_{18} Aryl, C_3-C_{18} cyclic alkyl, C_3-C_{18} hyterocyclic, 1~24 amino acids; C_2-C_{18} lipid, a C_2-C_{18} fatty acid or a C_2-C_{18} fatty ammonium lipid;

X_1 and X_2 are independently selected from NH, $N(R_{12}')$, O, CH_2, S, C(O), S(O), $S(O_2)$, P(O)(OH), NHNH, CH=CH, Ar or $(Aa)q_1$, q_1 = 0 - 24 (0-24 amino acids, q_1=0 means absent);

X_1, X_2, X_3, X_4, Y_1, Y_2 and Y_3 are independently selected from NH, $N(R_{12}')$, O, C(O), CH_2, S, S(O), NHNH, C(O), OC(O), OC(O)O, OC(O)NH, NHC(O)NH, Ar or $(Aa)q_1$,

X_1, X_2, X_3, X_4, Y_1, Y_2 and Y_3 can be independently absent;

p_1, p_2 and p_3 are independently 0 -100 but are not 0 at the same time;

q_1, q_2 and q_3 are independently 0 -24;

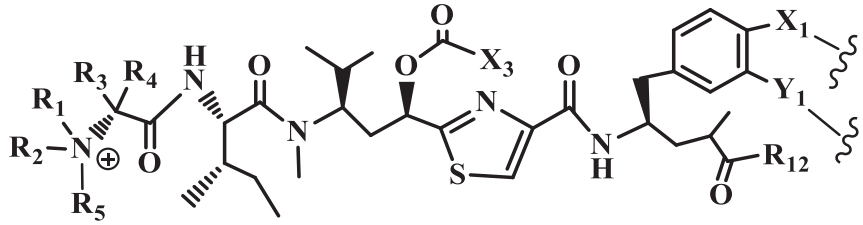
R_{12}, R_{13}, R_{13}' and R_{14}' are independently selected from H and C_1-C_6 alkyl; Aa is natural or unnatural amino acid; Ar or $(Aa)q_1$, is the same or different sequence of peptides; q_1=0 means $(Aa)q_1$ absent~~Alternatively Q_1 and Q_2 are independently, lineal or branched, a C_2-C_{100} polycarboxylacid, a C_2-C_{90} polyalkylamine, a C_6-C_{90} oligosaachride or polysaccharide, a C_6-C_{100} zwitterionic betaines or zwitterionic poly(sulfobetaine)) (PSB)s that consist of a quaternary ammonium cation~~

~~and/or a sulfonate anion, a C_6-C_{100} biodegradable polymer, such as composed of poly (lactic/glycolic acid) (PLGA), poly(acrylates), chitosans, copolymer of N-(2-hydroxypropyl)methacrylamide, poly[2-(methacryloyloxy)ethyl phosphorylcholine] (PMPC), poly-L-glutamic acid, poly(lactide-co-glycolide) (PLG), poly(lactide-co-glycolide), Poly(ethylene glycol)(PEG), poly(propylene glycol)(PPG), poly(lactide-co-glycolide), poly(ethylene glycol)-modified peptides, poly(ethylene glycol)-containing an amino acid or peptides, poly(ethylene glycol)-modified lipids, poly-glycine, poly-N-methyl-glycine, poly(ethylene glycol)-modified alkylcarboxic acid, poly(ethylene glycol)-modified alkylamine, poly(lactide-co-glycolide, hyaluronic acid (HA) (glycosaminoglycan), heparin/heparan sulfate (HSGAGs), chondroitin sulfate/dermatan sulfate (CSGAGs), poly(ethylene glycol)-modified alkylsulfate, poly(ethylene glycol)-modified alkylphosphate, or poly(ethylene glycol)-modified alkyl quarternary ammonium~~;

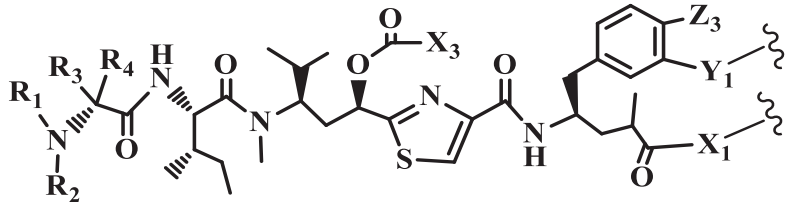
Alternatively, any one or more of W, Q_1, Q_2, L_1, L_2, V_1, or V_2, can be independently absent but Q_1, and Q_2 are not absent at the same time;

D is a cytotoxic agent that is independently selected from calicheamicins, maytansinoids, camptothecins, taxanes, anthracyclines (daunorubicin/doxorubicin), vinca alkaloids, auristatins, eribulins, (pyrrolo)benzodiazepines (PBDs), CC-106/duocarmycins, tubulysins, ~~amatoxins (such as amanitins),~~ protein kinase inhibitors, MEK inhibitors, KSP inhibitors, nicotinamide phosphoribosyltransferase (NAMPT) inhibitors, or immunotoxins, ~~analogs or prodrugs~~ of these compounds above thereof;

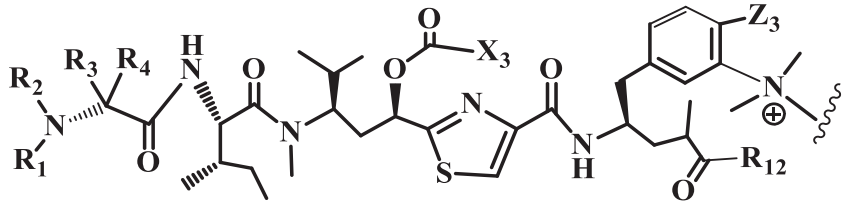
wherein the tubulysin and its analogs is selected from



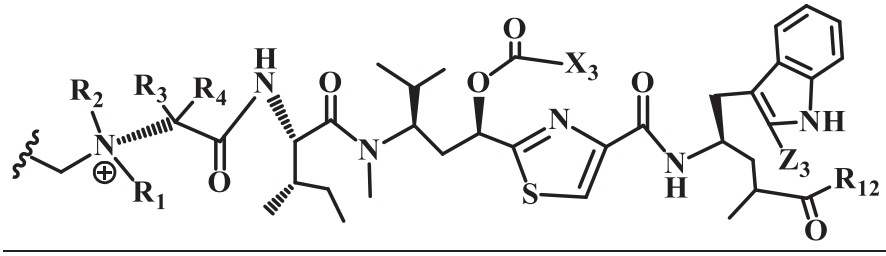
Tb02,



Tb03,



Tb08,

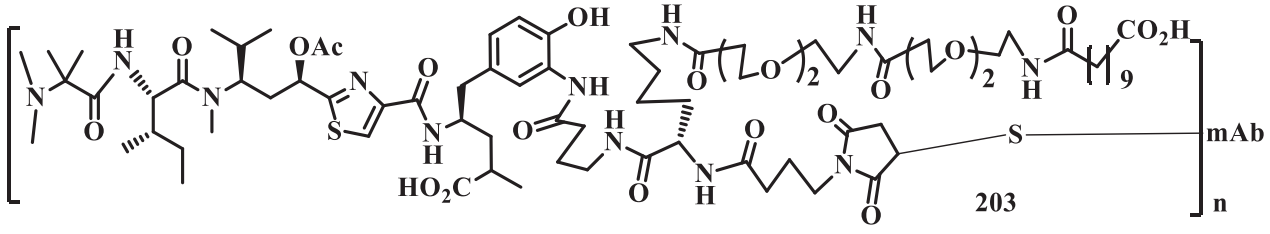


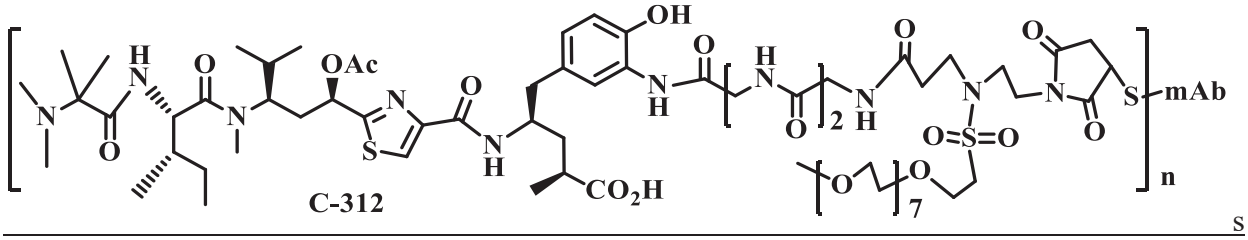
Tb10,

or an isotope of one or more chemical elements, or pharmaceutically acceptable salts, hydrates, or hydrated salts; or the polymorphic crystalline structures of these compounds; or the optical isomers, racemates, diastereomers or enantiomers; wherein X_1, and Y_1 are independently O, NH, NHNH, NR_5, S, C(O)O, C(O)NH, OC(O)NH, OC(O)O, NHC(O)NH, NHC(O)S, $OC(O)N(R_1)$, $N(R_1)C(O)N(R_1)$, $CH_2C(O)NHNHC(O)$ and $C(O)NR_1$; mAb is antibody, preferably monoclonal antibody; R_{12} is OH, NH_2, NHR_1, $NHNH_2$, NHNHCOOH, O-R_1-COOH, NH-R_1-COOH, NH-$(Aa)_n$COOH, $O(CH_2CH_2O)_pCH_2CH_2OH$, $O(CH_2CH_2O)_pCH_2CH_2NH_2$, $NH(CH_2CH_2O)_pCH_2CH_2NH_2$, NR_1R_1', NHOH, $NHOR_1$, $O(CH_2CH_2O)_pCH_2CH_2COOH$, $NH(CH_2CH_2O)_pCH_2CH_2COOH$, NH-Ar-COOH, NH-Ar-$NH_2$, $O(CH_2CH_2O)_pCH_2CH_2NHSO_3H$, $NH(CH_2CH_2O)_pCH_2CH_2NHSO_3H$, R_1-$NHSO_3H$, NH-R_1-$NHSO_3H$, $O(CH_2CH_2O)_pCH_2CH_2NHPO_3H_2$, $NH(CH_2CH_2O)_pCH_2CH_2NHPO_3H_2$, OR_1, R_1-$NHPO_3H_2$, R_1-OPO_3H_2, $O(CH_2CH_2O)_pCH_2CH_2OPO_3H_2$, OR_1-$NHPO_3H_2$, NH-R_1-$NHPO_3H_2$, $NH(CH_2CH_2NH)_pCH_2CH_2NH_2$, $NH(CH_2CH_2S)_pCH_2CH_2NH_2$, $NH(CH_2CH_2NH)_pCH_2CH_2OH$, $NH(CH_2CH_2S)_pCH_2CH_2OH$, NH-$R_1$-$NH_2$, or $NH(CH_2CH_2O)_pCH_2CH_2NHPO_3H_2$, wherein Aa is 1-8 aminoacids; n and m_1 are independently 1-20; p is 1 -5000; R_1, R_1', R_2, R_3, and R_4 are independently H, C_1-C_8 lineal or branched alkyl, amide, or amines; C_2-C_8 aryl, alkenyl, alkynyl, heteroaryl, heteroalkyl, alkylcycloalkyl, ester, ether, heterocycloalkyl, or acyloxylamines; or peptides containing 1-8 aminoacids, or polyethyleneoxy unit having formula $(OCH_2CH_2)_p$ or $(OCH_2CH(CH_3))_p$, wherein p is an integer from 1 to about 5000; The two Rs: R_1R_2, R_2R_3, R_1R_3 or R_3R_4 can form 3~8 member cyclic ring of alkyl, aryl, heteroaryl, heteroalkyl, or alkylcycloalkyl group; X_3 is H, CH_3, CH_2CH_3, C_3H_7, or X_1'R_1', wherein X_1' is NH, $N(CH_3)$, NHNH, O, or S; R_1'

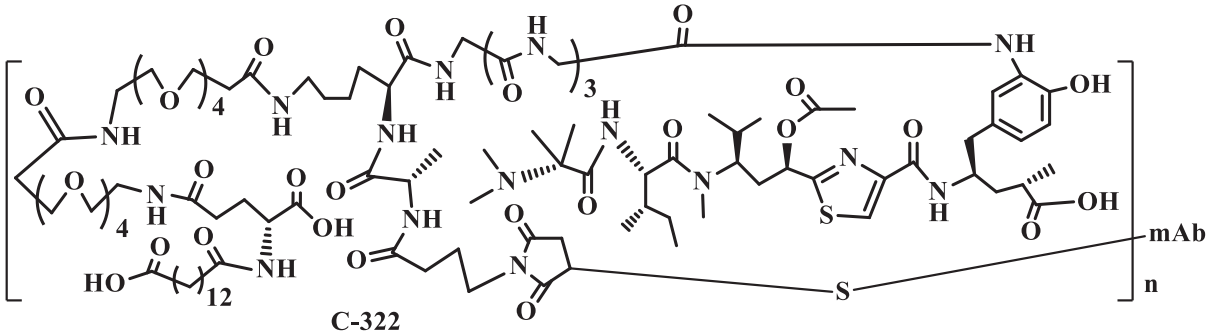
is H or C_1-C_8 lineal or branched alkyl, aryl, heteroaryl, heteroalkyl, alkylcycloalkyl, or acyloxylamines; R_3' is H or C_1-C_6 lineal or branched alkyl; Z_3 is H, $COOR_1$, NH_2, NHR_1, OR_1, $CONHR_1$,$NHCOR_1$, $OCOR_1$, $OP(O)(OM_1)(OM_2)$, $OCH_2OP(O)(OM_1)(OM_2)$, OSO_3M_1, R_1, O-glycoside (glucoside, galactoside, mannoside, glucuronoside/glucuronide, alloside, fructoside, etc.), NH-glycoside, S-glycoside or CH_2-glycoside; M_1 and M_2 are independently H, Na, K, Ca, Mg, NH_4, $NR_1R_2R_3$; and

or wherein the side chain linked conjugate is

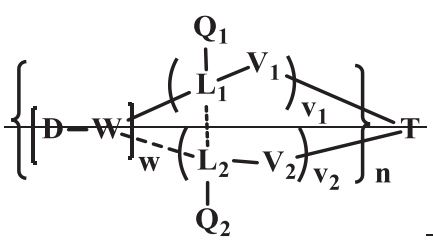




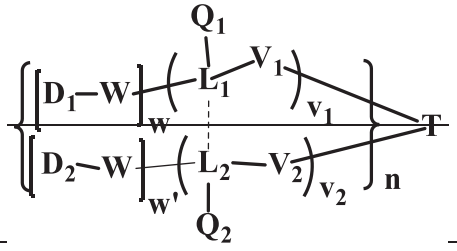
S



~~**2.** A side chain-linked conjugate compound of the Formula (II) and (III):~~



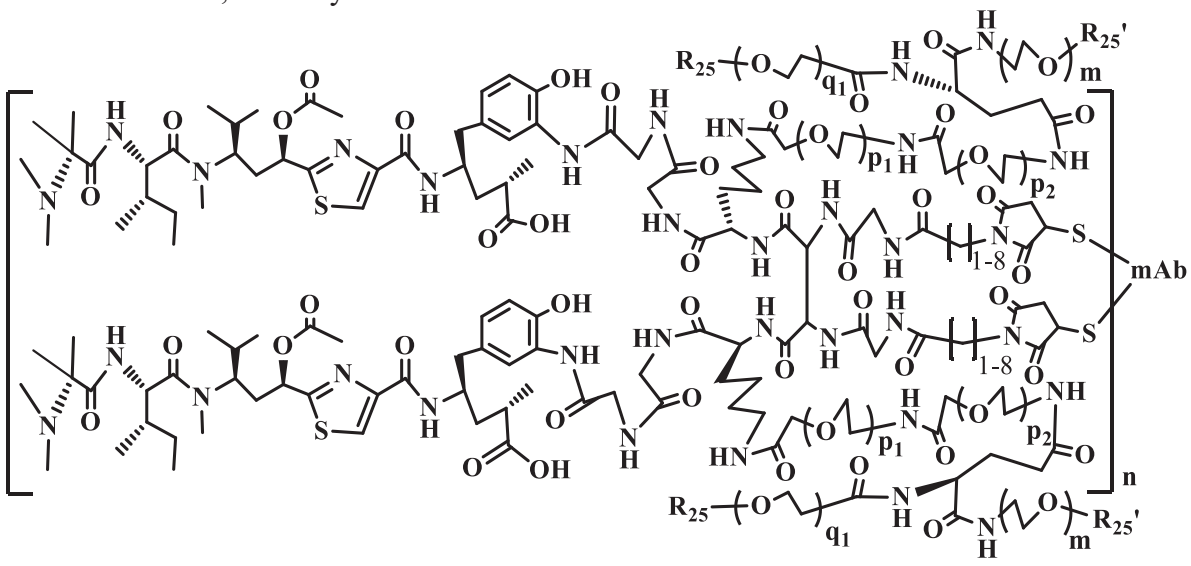
~~(II),~~



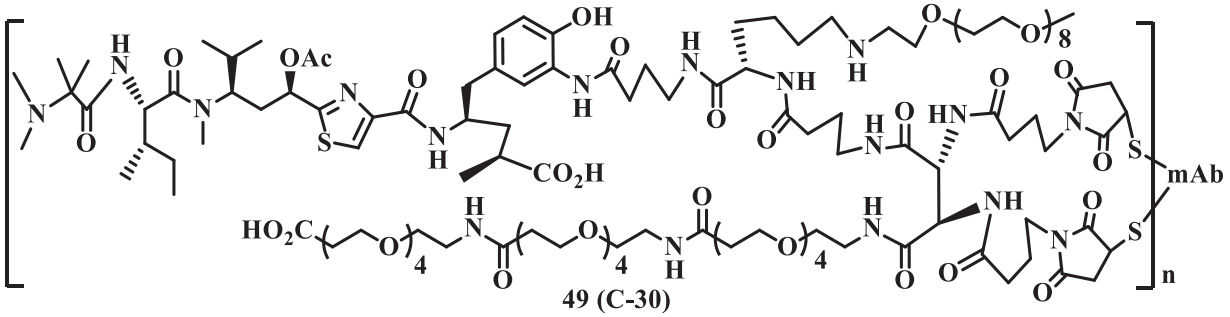
~~(III),~~

~~wherein D, W, L_1, L_2, Q_1, Q_2, V_1, V_2, v_1, v_2, n, T are defined the same as in Claim 1; w and w' are independently 1, 2 or 3; and ---- is a single bond, double bond or absent, D_1 and D_2 are the~~

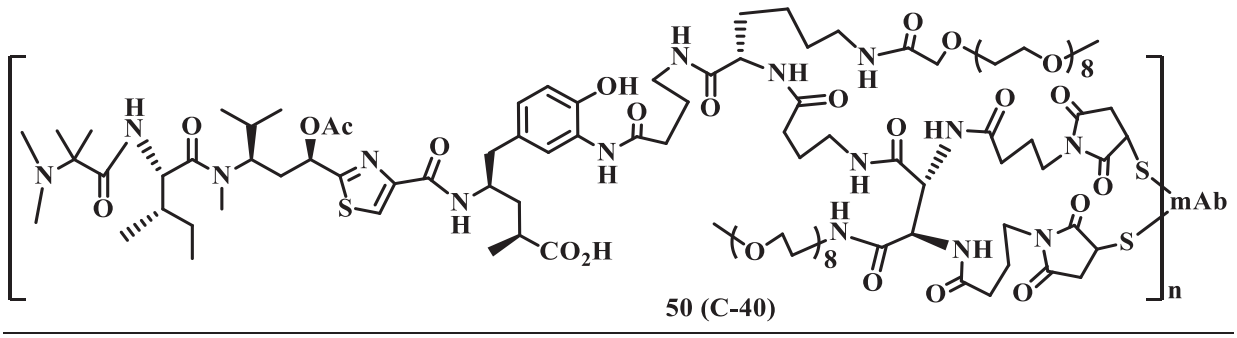
~~same or different, and they are defined the same as D~~



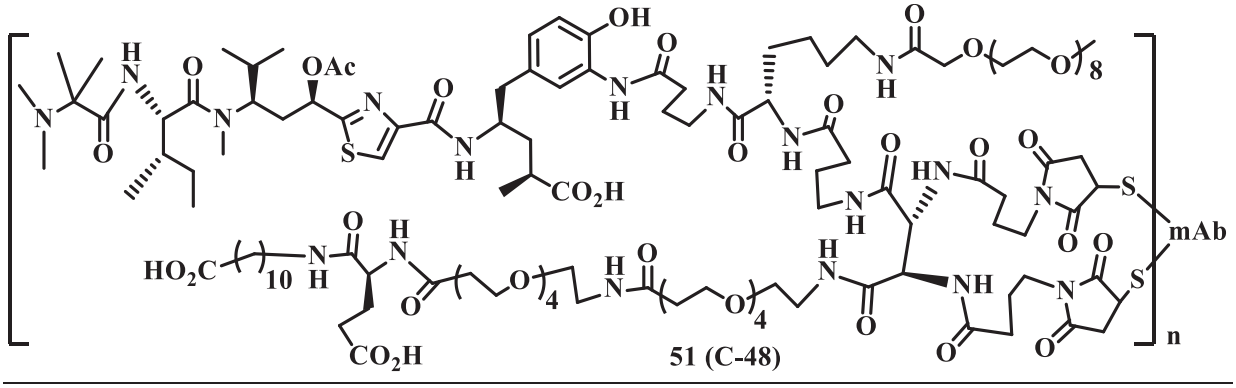
a196,



49 (C-30)

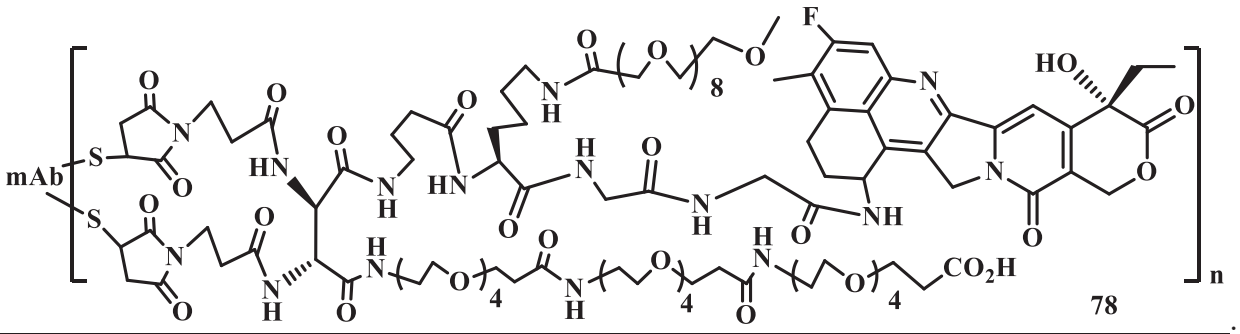


50 (C-40)

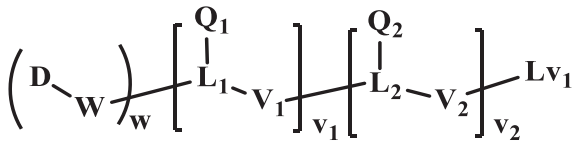


51 (C-48)

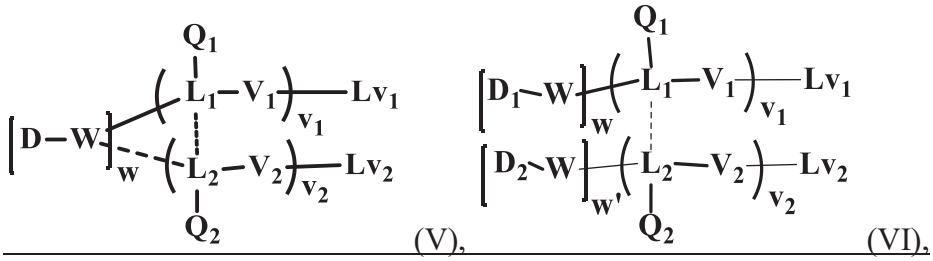
5



23. A side chain-linkage compound of Formula (IV), (V), or (VI) which can readily react to a cell-binding molecule T to form a conjugate of Formula (I), (II), or (III) as defined in claim 1:



(IV),



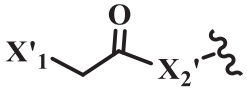
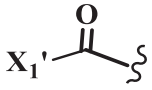
(V), (VI),

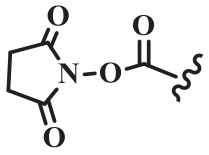
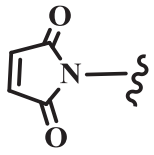
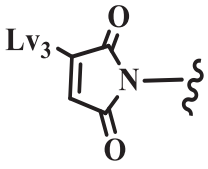
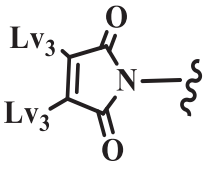
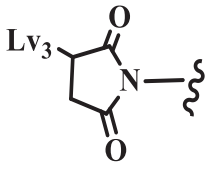
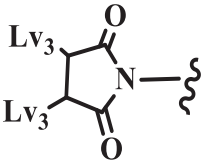
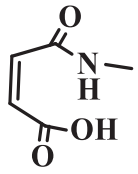
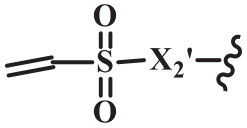
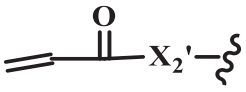
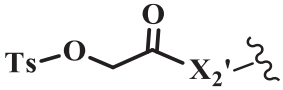
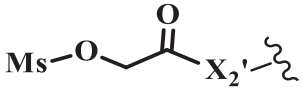
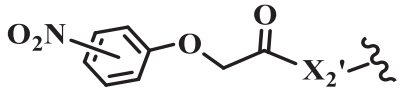
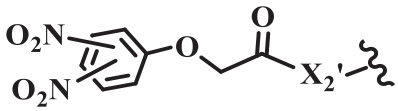
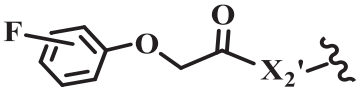
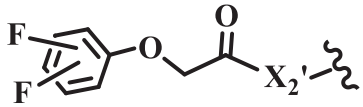
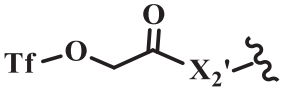
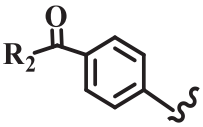
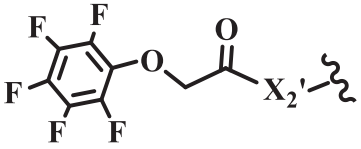
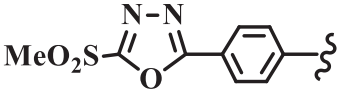
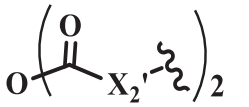
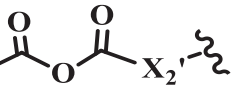
wherein ~~D,~~ W, w, L_1, L_2, Q_1, Q_2, V_1, V_2, v_1, v_2, and n, are defined the same as in Claim 1;

Lv_1 and Lv_2 are~~is~~ a reacting group that can be reacted with a thiol, amine, carboxylic acid, selenol, phenol or hydroxyl group on a cell-binding molecule and~~. Lv1~~ are independently~~is~~ selected from OH; F; Cl; Br; I; nitrophenol; N-hydroxysuccinimide (NHS); phenol; dinitrophenol; pentafluorophenol; tetrafluorophenol; difluorophenol; mono-fluorophenol; ~~pentachlorophenol,~~ triflate; imidazole; dichlorophenol; tetrachlorophenol; 1-hydroxybenzotriazole; tosylate; mesylate; 2-ethyl-5-phenylisoxazolium-3′-sulfonate, anhydrides formed its self, or formed with the other anhydride, e.g. acetyl anhydride, formyl anhydride; or an intermediate molecule generated with a condensation reagent for peptide coupling reactions, or for Mitsunobu reactions;~~.~~ t~~T~~he condensation reagents are selected from: EDC (N-(3-Dimethylaminopropyl)-N′-ethylcarbodiimide), DCC (Dicyclohexyl-carbodiimide), N,N′-Diisopropylcarbodiimide (DIC), N-Cyclohexyl-N′-(2-morpholino-ethyl)carbodiimide metho-p-toluenesulfonate (CMC, or CME-CDI), 1,1′-Carbonyldiimi-dazole (CDI), TBTU (O-(Benzotriazol-1-yl)-N,N,N′,N′-tetramethyluronium tetrafluoroborate),

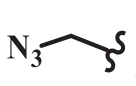
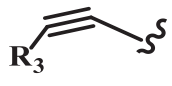
N,N,N′,N′-Tetramethyl-O-(1H-benzo-triazol-1-yl)-uronium hexafluoro-phosphate (HBTU), (Benzotriazol-1-yloxy)tris(dimethylamino)-phosphonium hexafluorophosphate (BOP), (Benzotriazol-1-yloxy)tripyrrolidinophosphonium hexafluorophosphate (PyBOP), Diethyl cyanophosphonate (DEPC), Chloro-N,N,N′,N′-tetra-methylformamidiniumhexafluorophosphate, 1-[Bis(dimethylamino)methylene]-1H-1,2,3-triazolo[4,5-b]pyridinium 3-oxid hexafluorophosphate (HATU), 1-[(Dimethylamino)-(morpholino)methylene]-1H-[1,2,3]triazolo[4,5-b]pyridine-1-ium 3-oxide hexafluoro-phosphate (HDMA), 2-Chloro-1,3-dimethyl-imidazolidinium hexafluorophosphate (CIP), Chlorotripyrrolidinophosphonium hexafluorophosphate (PyCloP), Fluoro-N,N,N′,N′-bis(tetramethylene)-formamidinium hexafluorophosphate (BTFFH), N,N,N′,N′-Tetramethyl-S-(1-oxido-2-pyridyl)-thiuronium hexafluorophosphate, O-(2-Oxo-1(2H)pyridyl)-N,N,N′,N′-tetramethyluronium tetrafluoroborate (TPTU), S-(1-Oxido-2-pyridyl)-N,N,N′,N′-tetramethylthiuronium tetrafluoroborate, O-[(Ethoxycarbonyl)-cyanomethylenamino]-N,N,N′,N′-tetramethyluronium hexafluorophosphate (HOTU), (1-Cyano-2-ethoxy-2-oxoethylidenaminooxy) dimethylamino-morpholino-carbenium hexafluorophosphate (COMU), O-(Benzotriazol-1-yl)-N,N,N′,N′-bis(tetramethylene)-uronium hexafluorophosphate (HBPyU), N-Benzyl-N′-cyclohexyl-carbodiimide (with, or without polymer-bound), Dipyrrolidino(N-succinimidyl-oxy)carbenium hexafluoro-phosphate (HSPyU), Chlorodipyrrolidinocarbenium hexafluorophosphate (PyClU), 2-Chloro-1,3-dimethylimidazoli-dinium tetrafluoroborate(CIB), (Benzotriazol-1-yloxy)dipiperidino-carbenium hexafluorophosphate (HBPipU), O-(6-Chlorobenzotriazol-1-yl)-N,N,N′,N′-tetramethyluronium tetrafluoroborate (TCTU), Bromotris(dimethylamino)-phosphonium hexafluorophosphate (BroP), Propylphosphonic anhydride (PPACA, T3P®), 2-Morpholinoethyl isocyanide (MEI), N,N,N′,N′-Tetramethyl-O-(N-succinimidyl)uronium hexafluorophosphate (HSTU), 2-Bromo-1-ethyl-pyridinium tetrafluoroborate (BEP), O-[(Ethoxycarbonyl)cyano-methylenamino]-N,N,N′,N′-tetramethyluronium tetrafluoroborate (TOTU), 4-(4,6-Dimethoxy-1,3,5-triazin-2-yl)-4-methylmorpholiniumchloride (MMTM, DMTMM), N,N,N′,N′-Tetramethyl-O-(N-succinimidyl)uronium tetrafluoroborate (TSTU), O-(3,4-Dihydro-4-oxo-1,2,3-benzotriazin-3-yl)-N,N,N′,N′-tetramethyluronium tetrafluoro-borate (TDBTU),1,1′-(Azodicarbonyl)-dipiperidine (ADD), Di-(4-chlorobenzyl)azodi-carboxylate (DCAD), Di-tert-butyl azodicarboxylate (DBAD),Diisopropyl

azodicarboxylate (DIAD), Diethyl azodicarboxylate (DEAD); Lv_1 and Lv_2 are~~is~~ also independently an anhydride, formed by acid themselves or formed with other C_1~C_8 acid anhydrides; Lv_1 and Lv_2 are~~is~~ preferably independently selected from:


disulfide;

haloacetyl;

acyl halide (acid halide);

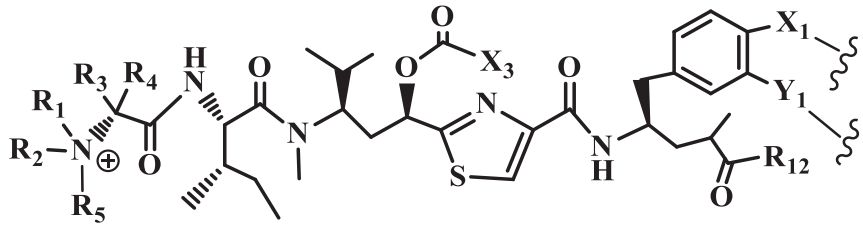

N-hydroxysuccinimide ester;

maleimide;

monosubstituted maleimide;

disubstituted maleimide;

monosubstituted succinimide;

disubstituted succinimide;

substituted maleic acid; -CHO aldehyde;

ethenesulfonyl;

acryl (acryloyl);

2-(tosyloxy)acetyl;

2-(mesyloxy)acetyl;

2-(nitrophenoxy)acetyl;

2-(dinitrophenoxy)acetyl;

2-(fluorophenoxy)-acetyl;

2-(difluorophenoxy)-acetyl;

2-(((trifluoromethyl)-sulfonyl)oxy)acetyl;

phenyl ketone or aldehyde,

2-(pentafluorophenoxy)acetyl;

, methylsulfonephenyloxadiazole (ODA);

,

acid anhydride,

alkyloxyamino;

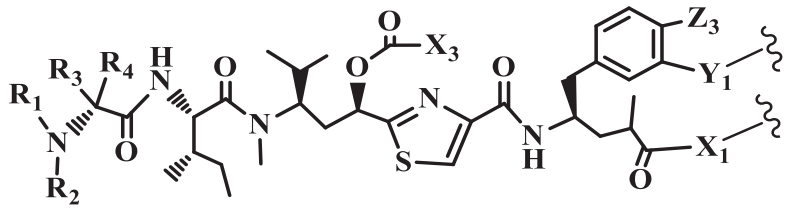
 azido,  alkynyl, or  hydrazide; wherein X_1' is F, Cl, Br, I or Lv_3; X_2' is O, NH, N(R_1), or CH_2; R_3 is independently H, aromatic, heteroaromatic, or aromatic group wherein one or several H atoms are replaced independently by -R_1, -halogen, -OR_1, -SR_1, -NR_1R_2, - NO_2, -S(O)R_1,-S(O)$_2R_1$, or -$COOR_1$, wherein R_1 and R_2 are independently H, alkyl, alkenyl, alkynyl, heteroalkyl, aryl, arylalkyl, carbonyl, or pharmaceutical salts; Lv_3 is a leaving group selected from F, Cl, Br, I, nitrophenol; N-hydroxysuccinimide (NHS); phenol; dinitrophenol; pentafluorophenol; tetrafluorophenol; difluorophenol; monofluorophenol; pentachlorophenol; triflate; imidazole; dichlorophenol; tetrachlorophenol; 1-hydroxybenzotriazole; tosylate; mesylate; 2-ethyl-5-phenylisoxazolium-3′-sulfonate, anhydrides formed its self, or formed with the other anhydride: acetyl anhydride, formyl anhydride; or an intermediate molecule generated with a condensation reagent for peptide coupling reactions or for Mitsunobu reactions;

D is a cytotoxic agent that is independently selected from calicheamicins, maytansinoids, camptothecins, taxanes, anthracyclines (daunorubicin/doxorubicin), vinca alkaloids, auristatins, eribulins, (pyrrolo)benzodiazepines (PBDs), CC-106/duocarmycins, tubulysins, oxins (such as amanitins), protein kinase inhibitors, MEK inhibitors, KSP inhibitors, nicotinamide phosphoribosyltransferase (NAMPT) inhibitors, or immunotoxins of these compounds above thereof;

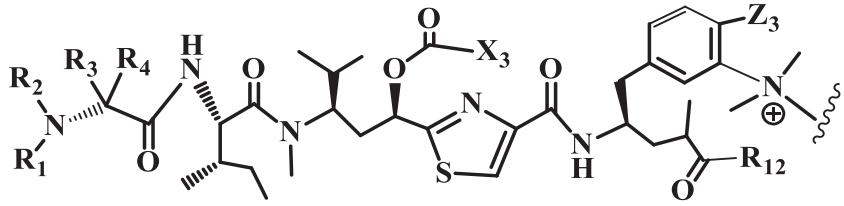
wherein the tubulysin and its analogs are selected from



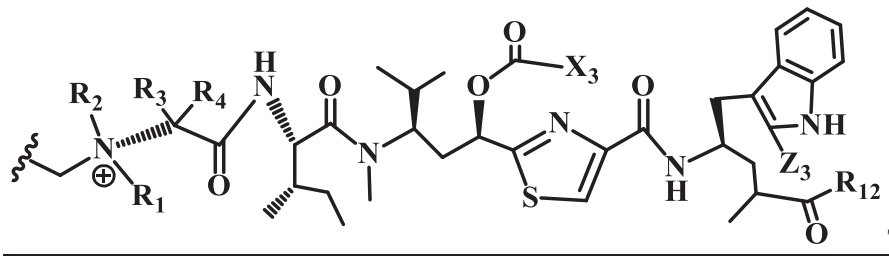
Tb02,



Tb03,



Tb08,

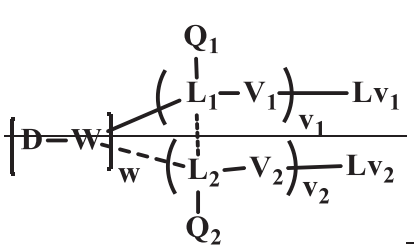


Tb10,

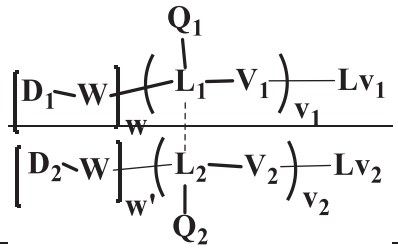
or an isotope of one or more chemical elements, or pharmaceutically acceptable salts, hydrates, or hydrated salts; or the polymorphic crystalline structures of these compounds; or the optical isomers, racemates, diastereomers or enantiomers; wherein X_1, and Y_1 are independently O, NH, NHNH, NR_5, S, C(O)O, C(O)NH, OC(O)NH, OC(O)O, NHC(O)NH, NHC(O)S, $OC(O)N(R_1)$, $N(R_1)C(O)N(R_1)$, $CH_2C(O)NHNHC(O)$ and $C(O)NR_1$; mAb is antibody, preferably monoclonal antibody; R_{12} is OH, NH_2, NHR_1, $NHNH_2$, NHNHCOOH, O-R_1-COOH, NH-R_1-COOH, NH-$(Aa)_n$COOH, $O(CH_2CH_2O)_pCH_2CH_2OH$, $O(CH_2CH_2O)_pCH_2CH_2NH_2$, $NH(CH_2CH_2O)_pCH_2CH_2NH_2$, NR_1R_1', NHOH, $NHOR_1$, $O(CH_2CH_2O)_pCH_2CH_2COOH$, $NH(CH_2CH_2O)_pCH_2CH_2COOH$, NH-Ar-COOH, NH-Ar-$NH_2$, $O(CH_2CH_2O)_pCH_2CH_2NHSO_3H$, $NH(CH_2CH_2O)_pCH_2CH_2NHSO_3H$, R_1-$NHSO_3H$, NH-R_1-$NHSO_3H$, $O(CH_2CH_2O)_pCH_2CH_2NHPO_3H_2$, $NH(CH_2CH_2O)_pCH_2CH_2NHPO_3H_2$, OR_1, R_1-$NHPO_3H_2$, R_1-OPO_3H_2, $O(CH_2CH_2O)_pCH_2CH_2OPO_3H_2$, OR_1-$NHPO_3H_2$, NH-R_1-$NHPO_3H_2$, $NH(CH_2CH_2NH)_pCH_2CH_2NH_2$, $NH(CH_2CH_2S)_pCH_2CH_2NH_2$, $NH(CH_2CH_2NH)_pCH_2CH_2OH$, $NH(CH_2CH_2S)_pCH_2CH_2OH$, NH-$R_1$-$NH_2$, or $NH(CH_2CH_2O)_pCH_2CH_2NHPO_3H_2$, wherein Aa is 1-8 aminoacids; n and m_1 are independently 1-20; p is 1 -5000; R_1, R_1', R_2, R_3, and R_4 are independently H, C_1-C_8 lineal or branched alkyl, amide, or amines; C_2-C_8 aryl, alkenyl, alkynyl, heteroaryl, heteroalkyl, alkylcycloalkyl, ester, ether, heterocycloalkyl, or acyloxylamines; or peptides containing 1-8 aminoacids, or polyethyleneoxy unit having formula $(OCH_2CH_2)_p$ or $(OCH_2CH(CH_3))_p$, wherein p is an integer from 1 to about 5000; The two Rs: R_1R_2, R_2R_3, R_1R_3 or R_3R_4 can form 3~8 member cyclic ring of alkyl, aryl, heteroaryl, heteroalkyl, or alkylcycloalkyl group; X_3 is H, CH_3, CH_2CH_3, C_3H_7, or X_1'R_1', wherein X_1' is NH, $N(CH_3)$, NHNH, O, or S; R_1' is H or C_1-C_8 lineal or branched alkyl, aryl, heteroaryl, heteroalkyl, alkylcycloalkyl, or acyloxylamines; R_3' is H or C_1-C_6 lineal or branched alkyl; Z_3 is H, $COOR_1$, NH_2, NHR_1, OR_1, $CONHR_1$,$NHCOR_1$, $OCOR_1$, $OP(O)(OM_1)(OM_2)$, $OCH_2OP(O)(OM_1)(OM_2)$, OSO_3M_1, R_1, O-

glycoside (glucoside, galactoside, mannoside, glucuronoside/glucuronide, alloside, fructoside, etc.), NH-glycoside, S-glycoside or CH_2-glycoside; M_1 and M_2 are independently H, Na, K, Ca, Mg, NH_4, $NR_1R_2R_3$.

~~**4.** A side chain-linkage compound of Formula (V) and (VI), which can readily react to a cell-binding molecule T to form a conjugate of Formula (II) and (III) respectively as defined in claim 2:~~



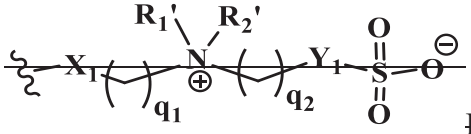
~~(V),~~



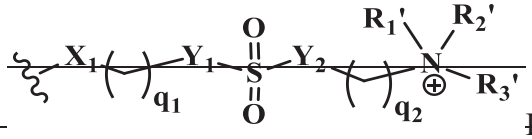
~~(VI),~~

~~wherein D, D_1, D_2, W, w, L_1, L_2, Q_1, Q_2, V_1, V_2, v_1, v_2, and n, are defined the same as in Claim 1 and 2; wherein Lv_1 and Lv_2 have independently the same definition of Lv_1 in of Claim 3.~~

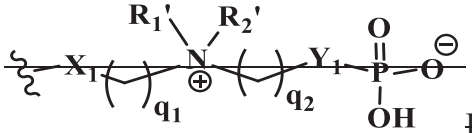
~~**5.** The side chain Q_1 and Q_2 according to Claim **1, 2, 3** or **4** are independently selected from Iq-01 to Iq-36 below:~~



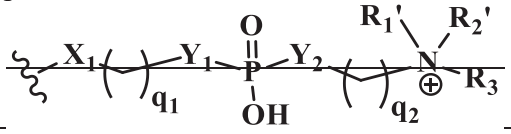
~~Iq-01,~~



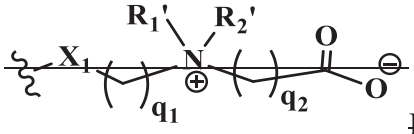
~~Iq-02,~~



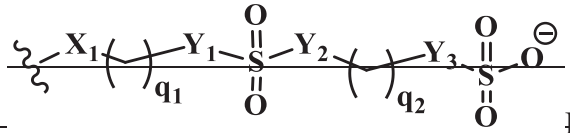
~~Iq-03,~~



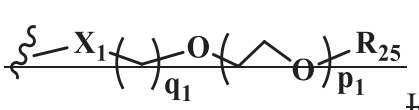
~~Iq-04,~~



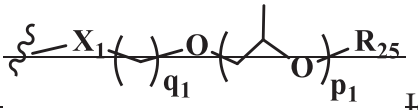
~~Iq-05,~~



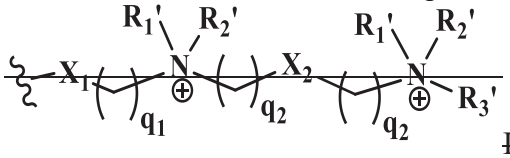
~~Iq-06,~~



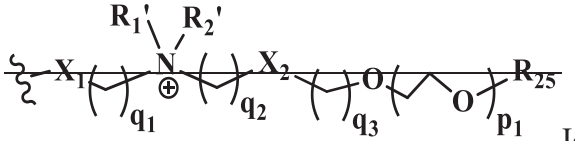
~~Iq-07,~~



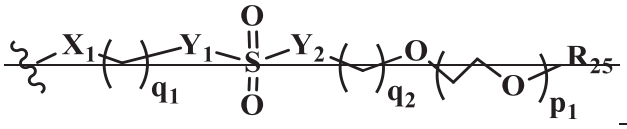
~~Iq-08,~~



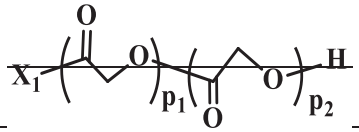
~~Iq-09,~~



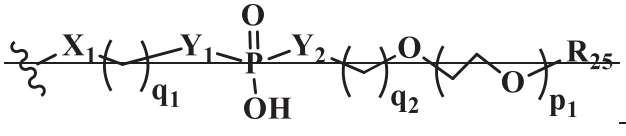
~~Iq-10,~~



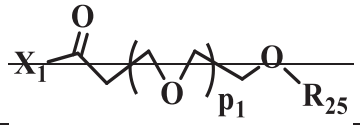
~~Iq-11,~~



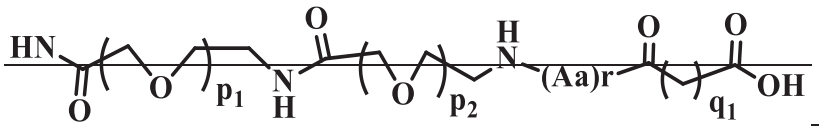
~~Iq-12,~~



~~Iq-13,~~



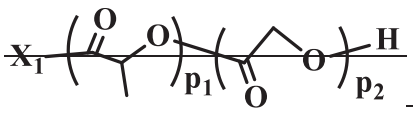
~~Iq-14,~~



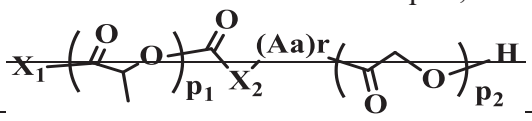
~~Iq-15,~~



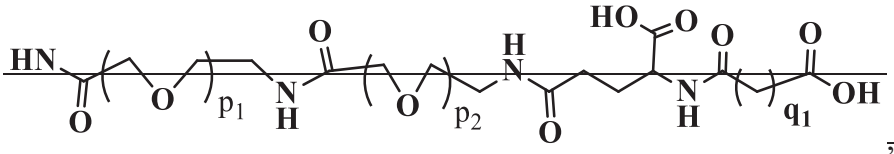
~~Iq-16,~~



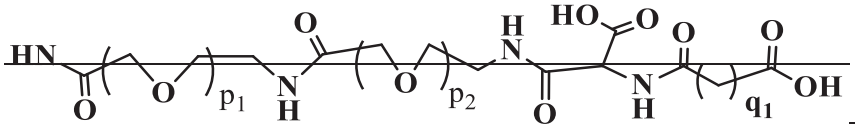
~~Iq-17,~~



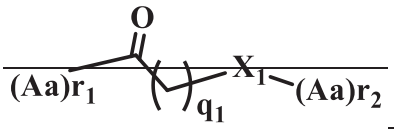
~~Iq-18,~~



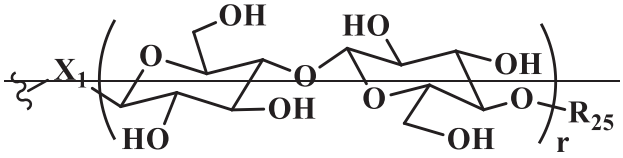
~~, Iq-19,~~



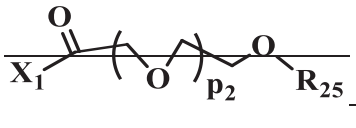
~~Iq-20,~~



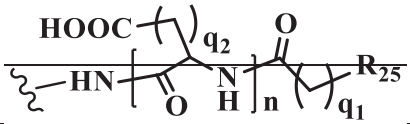
~~Iq-21,~~



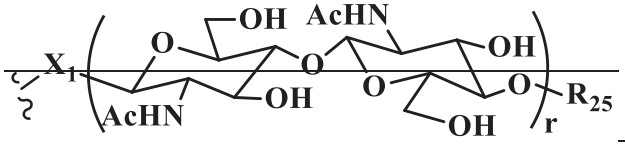
~~Iq-22,~~



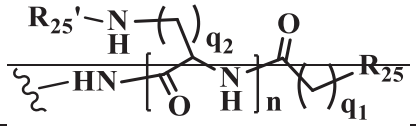
~~Iq-23,~~



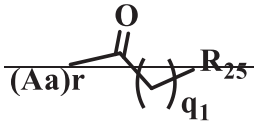
~~Iq-24,~~



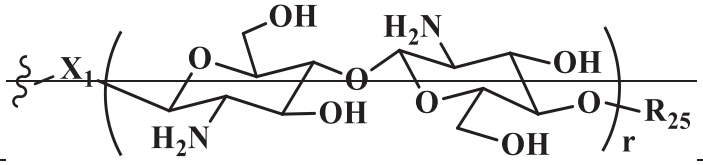
~~Iq-25,~~



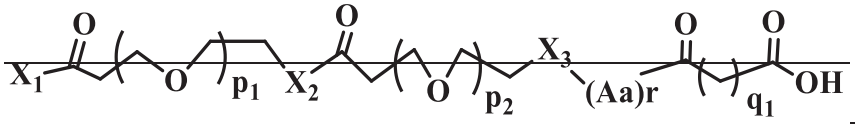
~~Iq-26,~~



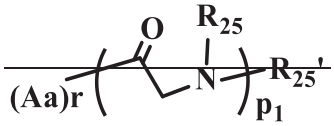
~~Iq-27,~~



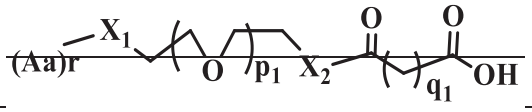
~~Iq-28,~~



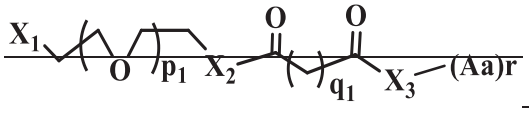
~~Iq-29,~~



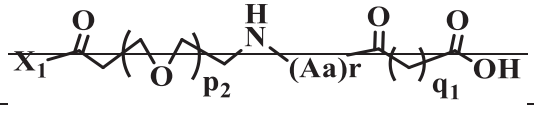
~~Iq-30,~~



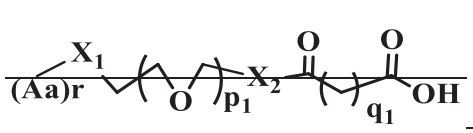
~~Iq-31,~~



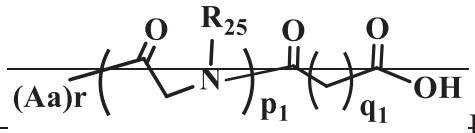
~~Iq-32,~~



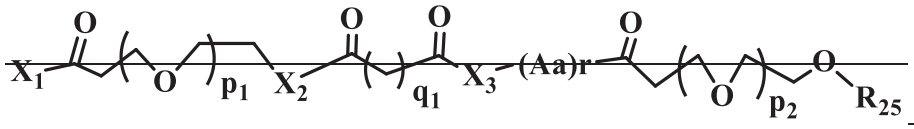
~~Iq-33,~~



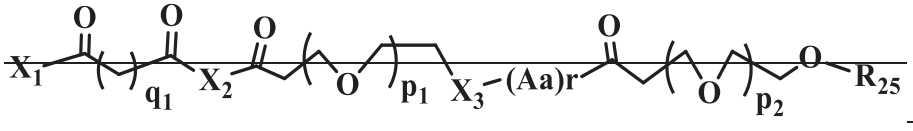
~~Iq-33~~34,



~~Iq-34~~35,



~~Iq-35~~36,

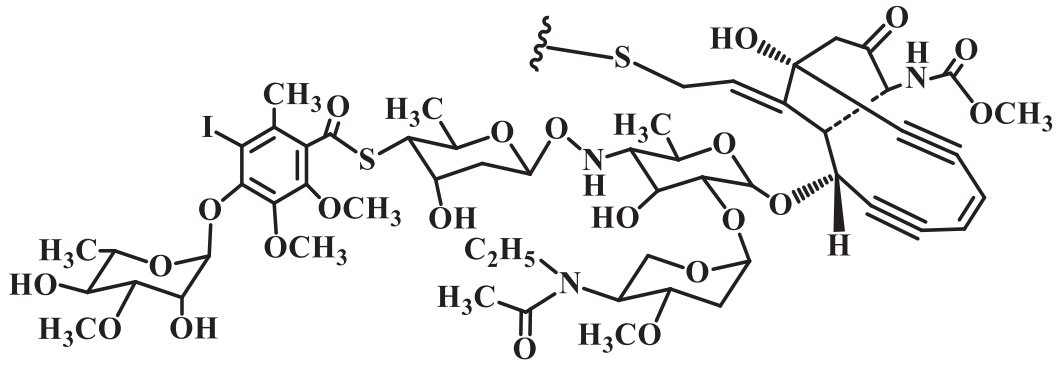


~~Iq-36~~37,

~~wherein R_{25} and R_{25}' are independently selected from H; HC(O), $CH_3C(O)$, $CH_3C(NH)$, $NHCH_3$, COOH, $CONH_2$, $CONHCH_3$, C_1-C_{18} alkyl, C_1-C_{18} alkyl, alkyl-Y_1-SO_3H, C_1-C_{18} alkyl-Y_1-PO_3H_2, C_1-C_{18} alkyl-Y_1-CO_2H, C_1-C_{18} alkyl-Y_1-$N^+R_{12}R_{13}R_{13}'R_{14}$, C_1-C_{18} alkyl-Y_1-$CONH_2$, C_2-C_{18} alkylene, C_2-C_{18} ester, C_2-C_{18} ether, C_2-C_{18} amine, C_2-C_{18} alkyl carboxylamide, C_3-C_{18} Aryl, C_3-C_{18} cyclic alkyl, C_3-C_{18} hyterocyclic, 1~24 amino acids; C_2-C_{18} lipid, a C_2-C_{18} fatty acid or a C_2-C_{18} fatty ammonium lipid; X_1 and X_2 are independently selected from NH, N(R_{12}'), O, CH_2, S, C(O), S(O), S(O_2), P(O)(OH), NHNH, CH=CH, Ar or (Aa)q_1, q_1 = 0 - 24 (0-24 amino acids, q_1=0 means absent); X_1, X_2, X_3, X_4, Y_1, Y_2 and Y_3 are independently selected from NH, N(R_{12}'), O, C(O), CH_2, S, S(O), NHNH, C(O), OC(O), OC(O)O, OC(O)NH, NHC(O)NH, Ar or (Aa)q_1, X_1, X_2, X_3, X_4, Y_1, Y_2 and Y_3 can be independently absent; p_1, p_2 and p_3 are independently 0 -100 but are not 0 at the same time; q_1, q_2 and q_3 are independently 0 -24; R_{12}, R_{13}, R_{13}' and R_{14}' are independently selected from H and C_1-C_6 alkyl; Aa is natural or unnatural amino acid; Ar or (Aa)q_1, is the same or different sequence of peptides; q_1=0 means (Aa)q_1 absent.~~

~~3~~36. The compound according to Claim **1~~,~~ or 2~~, 3 or 4~~,** wherein D, D_1 and D_2 are independently selected from the following formula:

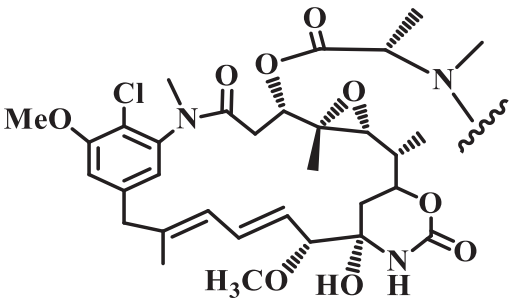
(A)———. a Calicheamicin analog:



(Ia);

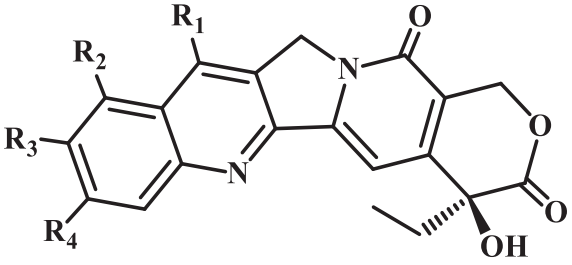
wherein ~~~ is the contecting site;

(B). a Maytansinoid:

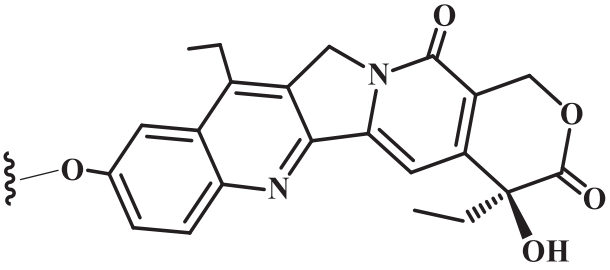


(Ib), wherein ~~~ is the contecting site;

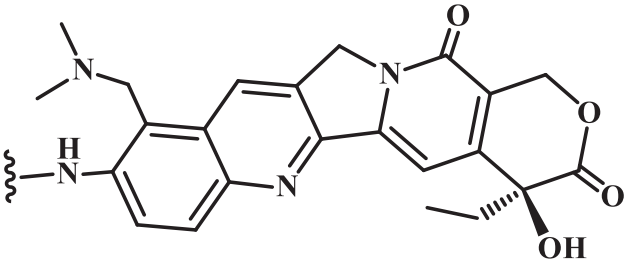
(C). a Camptothecin (CPTs) and its derivatives:



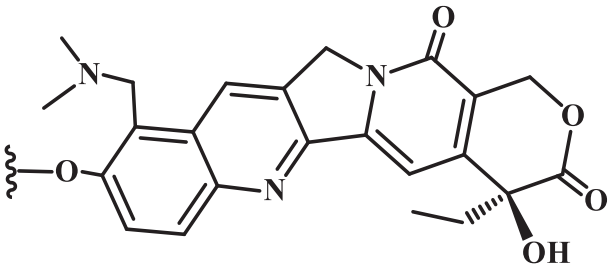
(Ic),



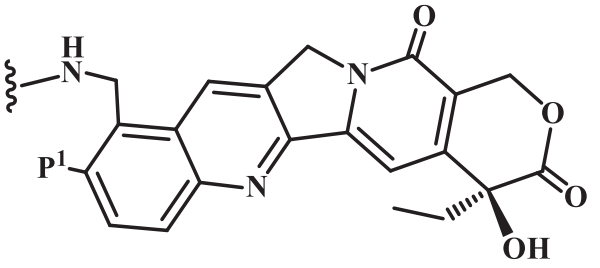
(Ic-01), SN-38,



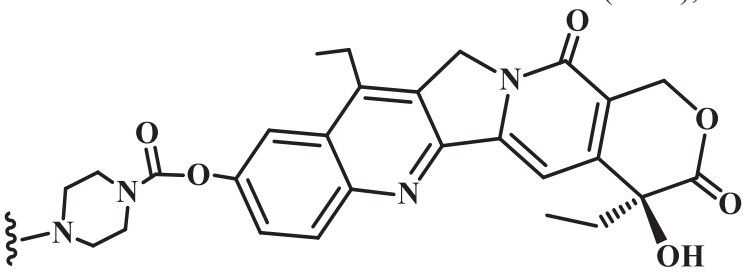
(Ic-02)



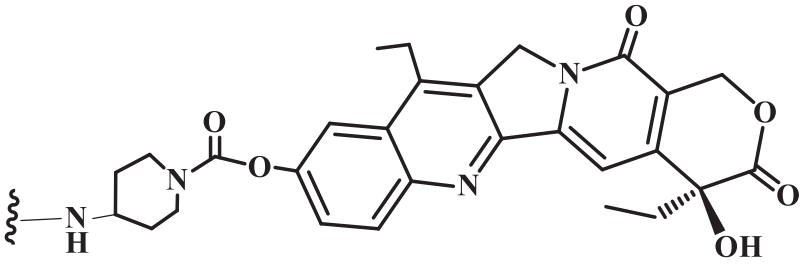
(Ic-03), Topotecan analog,



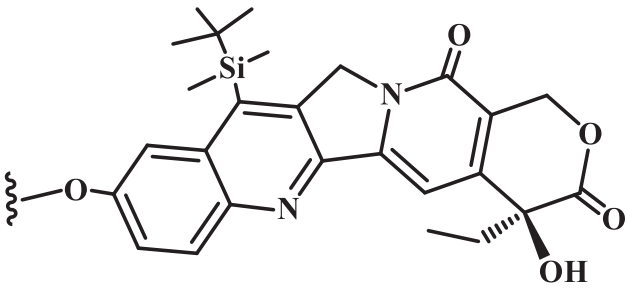
(Ic-04),



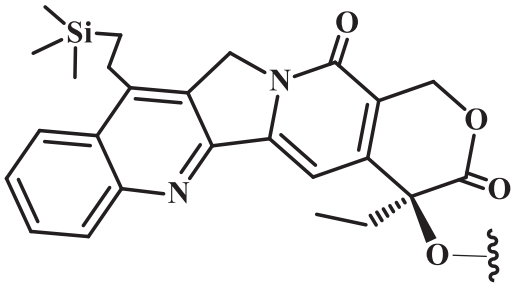
(Ic-05), Irinotecan analog,



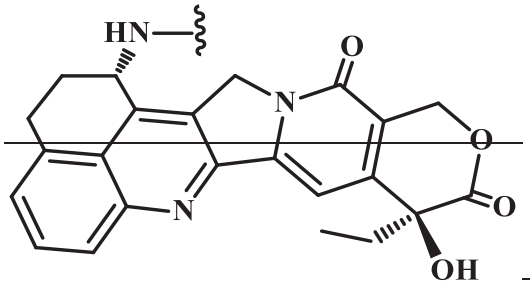
(Ic-06), Irinotecan analog,



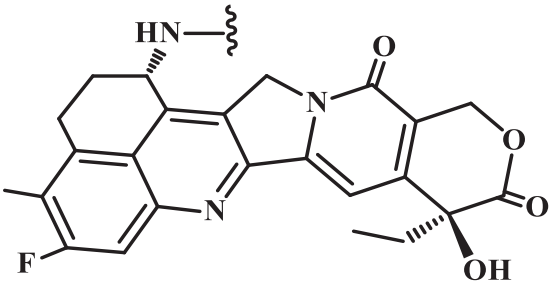
(Ic-07), Silatecan,



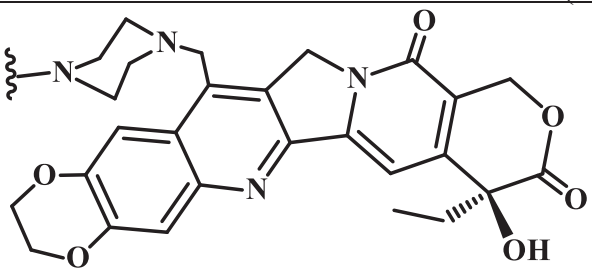
(Ic-08), Positecan,



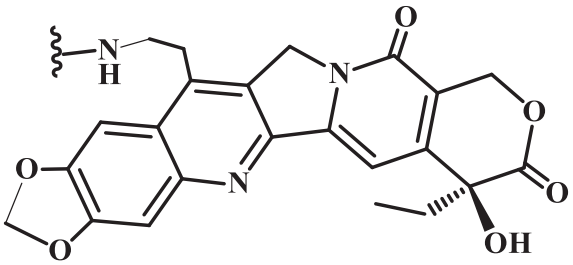
~~(Ic-09), Exatecan,~~



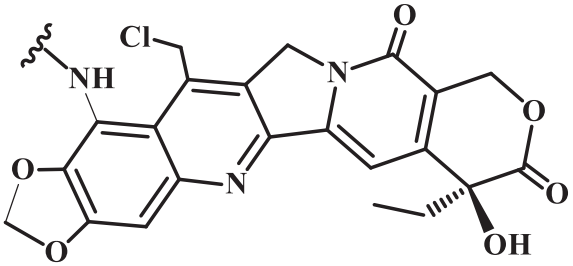
(Ic-09), Exatecan,



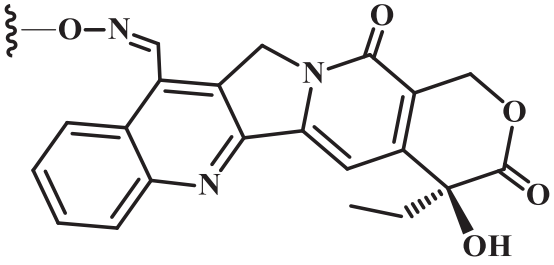
(Ic-10), Lurtotecan,



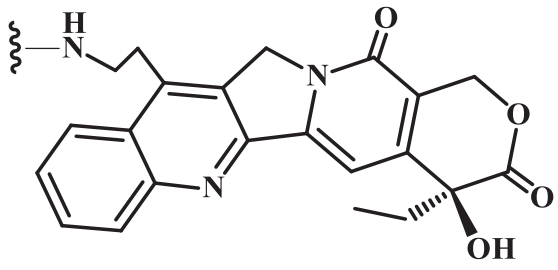
(Ic-11),



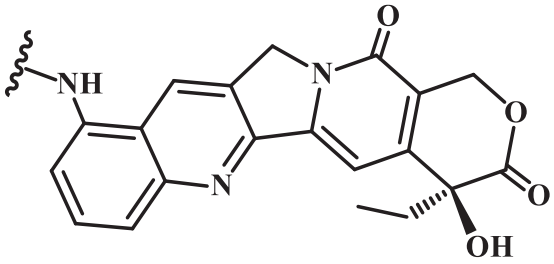
(Ic-12), GI-149893 analog,



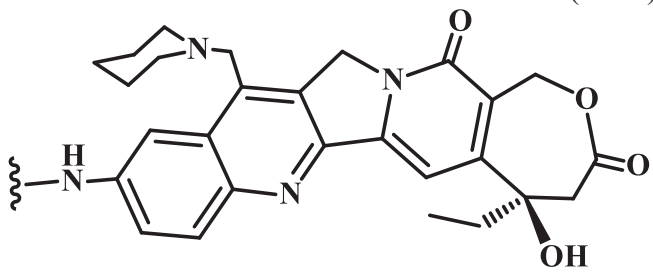
(Ic-13), Gimatecan,



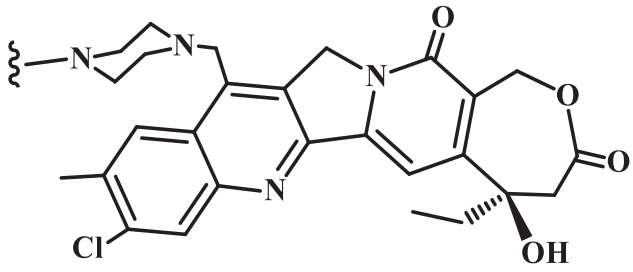
(Ic-14), Belotecan,



(Ic-15), Rubitecan or IDEC-132 analog,,



(Ic-16), BN-80927 analog,



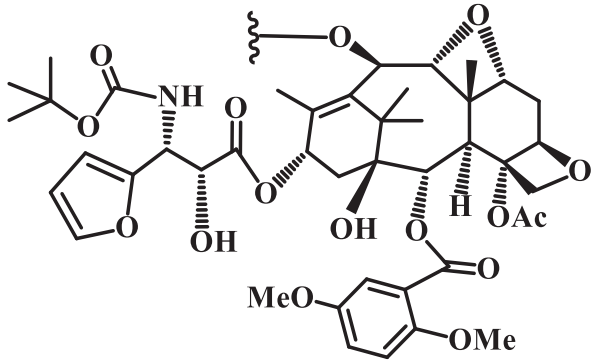
(Ic-17), BN-80927 analog,

or an isotope of one or more chemical elements, or pharmaceutically acceptable salts, hydrates, or hydrated salts; or the polymorphic crystalline structures of these compounds; or the optical isomers, racemates, diastereomers or enantiomers; wherein ∿∿∿ is the contecting site;

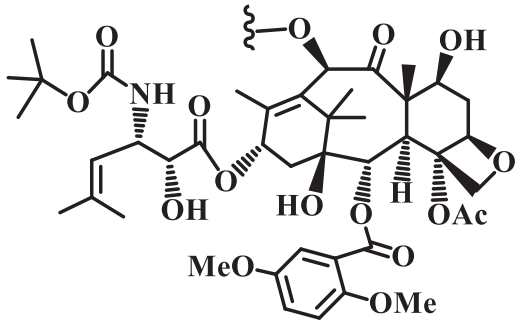
Wherein R_1, R_2 and R_4 are independently selected from H, F, Cl, Br, CN, NO_2, C_1~C_8 alkyl; O-C_1~C_8 alkyl; NH-C_1~C_8 alkyl; C_2-C_8 of heteroalkyl, alkylcycloalkyl, heterocycloalkyl; C_3-C_8 of aryl, Ar-alkyl, heterocyclic, carbocyclic, cycloalkyl, heteroalkylcycloalkyl, alkylcarbonyl, heteroaryl; or 2-8 carbon atoms of esters, ether, amide, carbonate, urea, or carbamate; R_3 is H, OH, NH_2, C_1~C_8 alkyl; O-C_1~C_8 alkyl; NH-C_1~C_8 alkyl; C_2-C_8 of heteroalkyl, alkylcycloalkyl, heterocycloalkyl; or 2-8 carbon atoms of esters, ether, amide, carbonate, urea, or carbamate; or R_1R_2, R_2R_3 and R_3R_4 independently form a 5~7 membered carbocyclic, heterocyclic, heterocycloalkyl, aromatic or heteroaromatic ring system; P^1 is H, OH, NH_2, COOH, $C(O)NH_2$, $OCH_2OP(O)(OR^{18})_2$, $OC(O)OP(O)(OR^{18})_2$, $OPO(OR^{18})_2$, $NHPO(OR^{18})_2$, $OC(O)R^{18}$,

$OP(O)(OR^{18})OP(O)(OR^{18})_2$, $OC(O)NHR^{18}$, $OC(O)N(C_2H_4)_2NCH_3$, $OSO_2(OR^{18})$, O-(C_4-C_{12}-glycoside), $OC(O)N(C_2H_4)_2CH_2N(C_2H_4)_2CH_3$, C_1-C_8 of linear or branched alkyl or heteroalkyl; C_2-C_8 of linear or branched alkenyl, alkynyl, alkylcycloalkyl, heterocycloalkyl; C_3-C_8 linear or branched of aryl, Ar-alkyl, heterocyclic, carbocyclic, cycloalkyl, heteroalkylcycloalkyl, alkylcarbonyl, heteroaryl; carbonate (-$C(O)OR^{17}$), carbamate (-$C(O)NR^{17}R^{18}$); $R^{17}$and R^{18} are independently H, linear or branched alkyl or heteroalkyl; C_2-C_8 of linear or branched alkenyl, alkynyl, alkylcycloalkyl, heterocycloalkyl; C_3-C_8 linear or branched of aryl, Ar-alkyl, heterocyclic, carbocyclic, cycloalkyl, heteroalkylcycloalkyl, alkylcarbonyl, heteroaryl; carbonate (-$C(O)OR^{17}$), carbamate (-$C(O)NR^{17}R^{18}$);

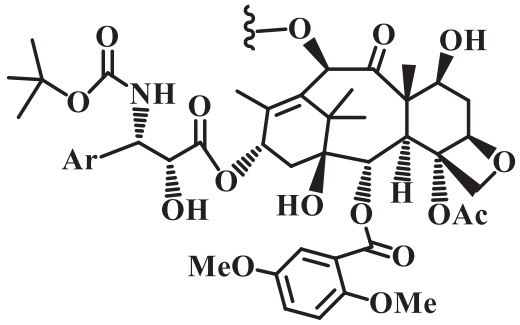
(D). A Taxane and its analogs:



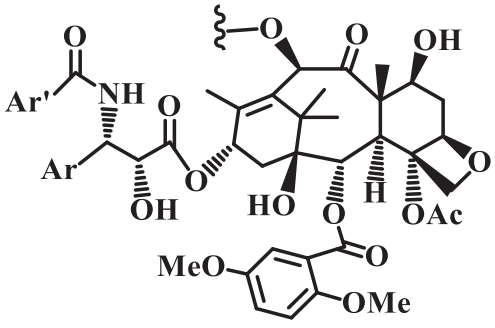
(Id-01),



(Id-02),



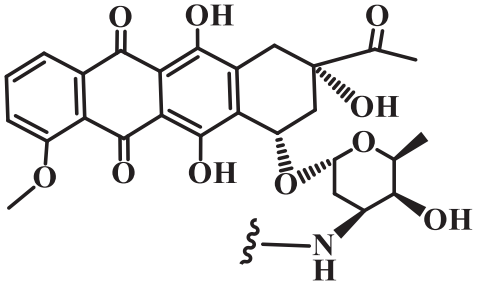
(Id-03),



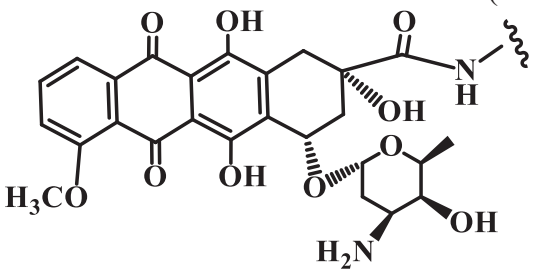
(Id-04),

wherein ~~~ is the contecting site; Ar and Ar' are independently aryl or heteroaryl;

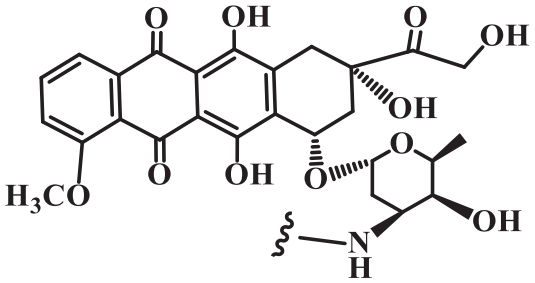
(E). An Anthracycline and its analog:



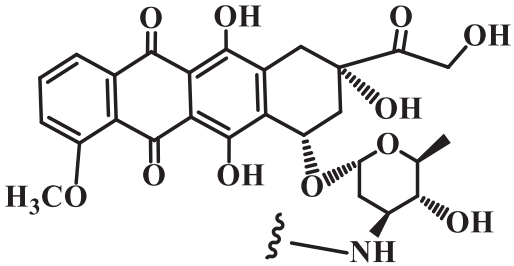
(Ie-01), Daunorubicin analog,



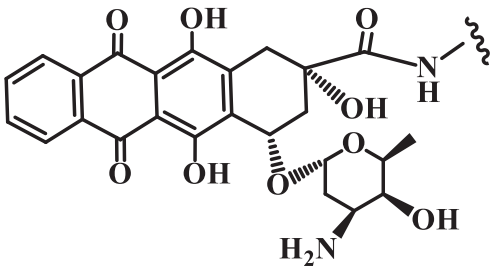
(Ie-02), Daunorubicin analog,



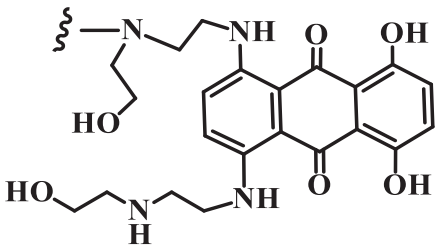
(Ie-03), Doxorubicin analog,



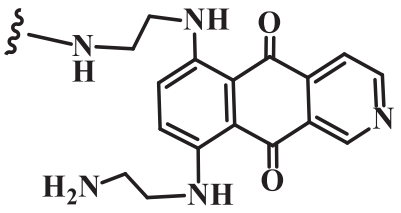
(Ie-04), Epirubicin analog,

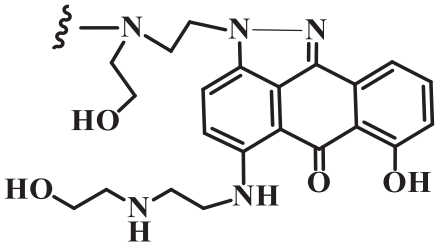


(Ie-05), Idarubicin analog,

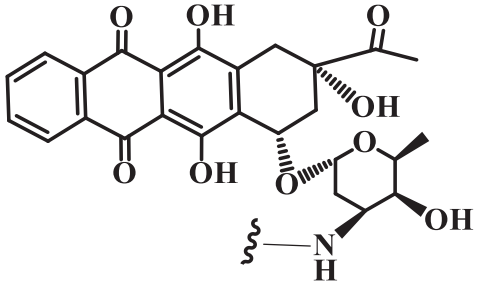


(Ie-06), Mitoxantrone analog,

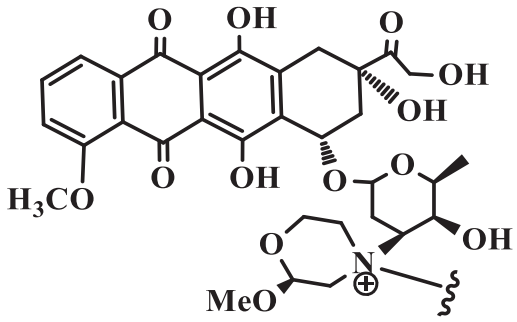




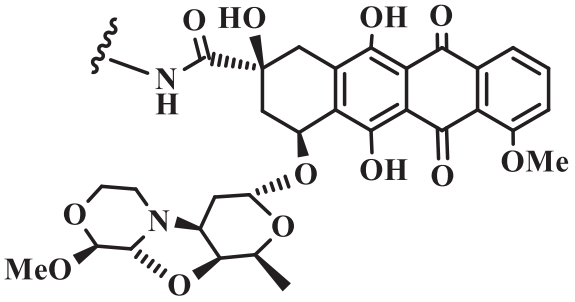
(Ie-07), Pixantrone analog,



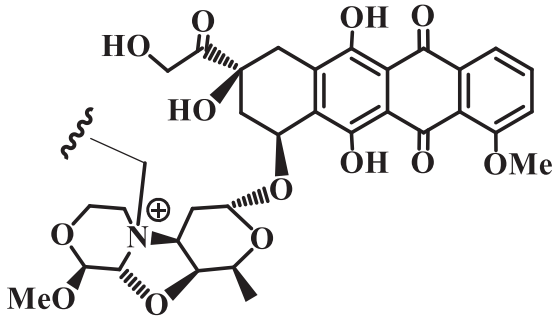
(Ie-08), Losoxantrone analog，



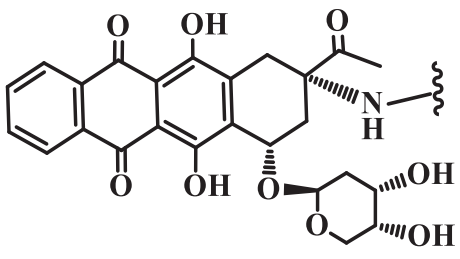
(Ie-09), analog，



(Ie-10),

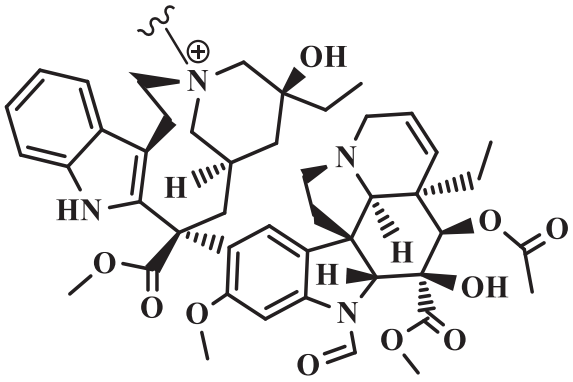


(Ie-11),

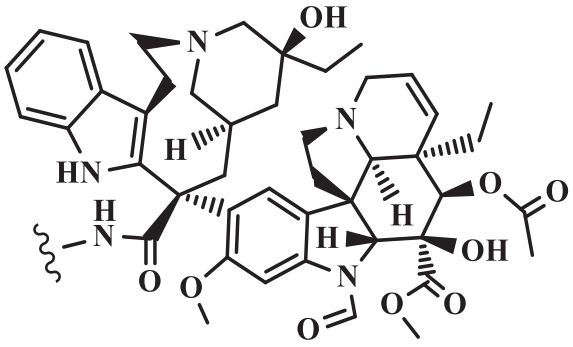


(Ie-12), (Ie-13), Amrubicin analog, wherein ∿∿ is the contecting site;

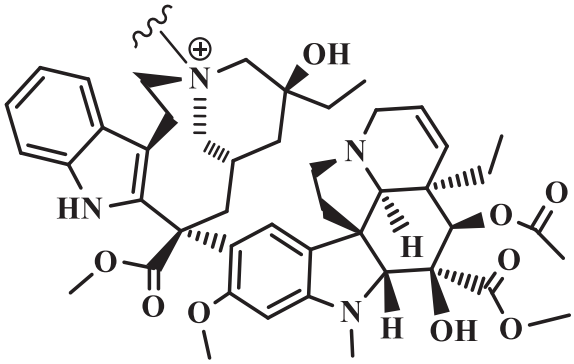
(F). A Vinca alkaloid:



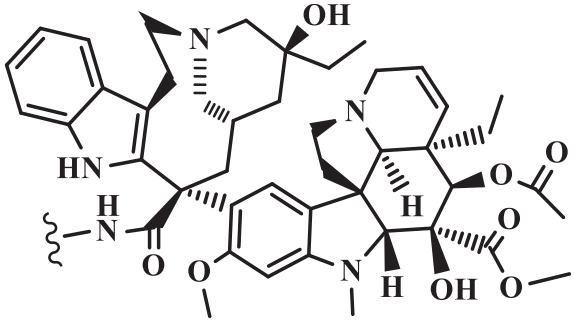
(If-01), vincristine (leurocristine),



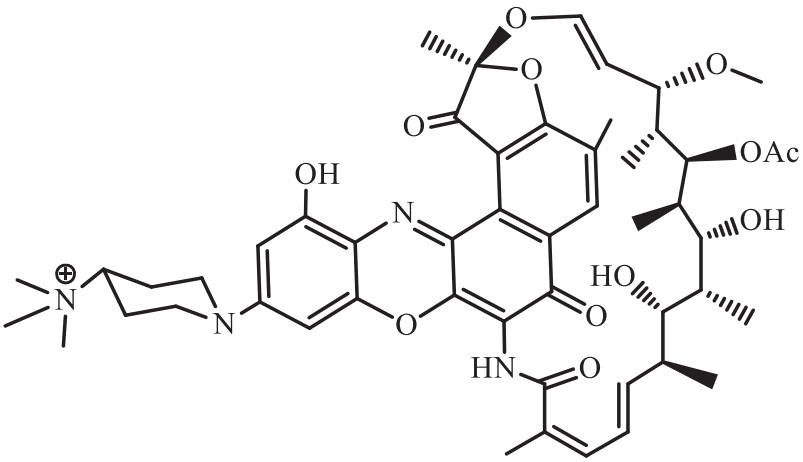
(If-02), vincristine (leurocristine),



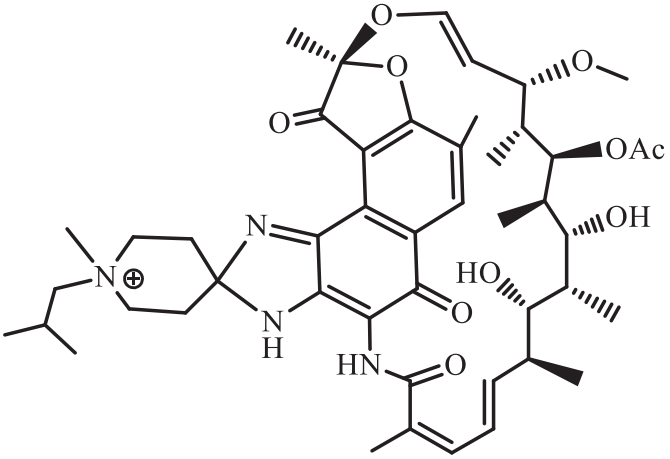
(If-03), vinblastine,



(If-04), vinblastine;

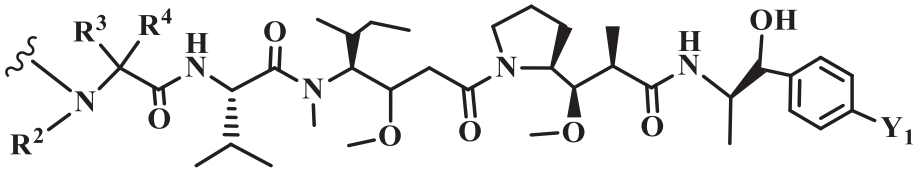


(If-05), Rifabutin analog,

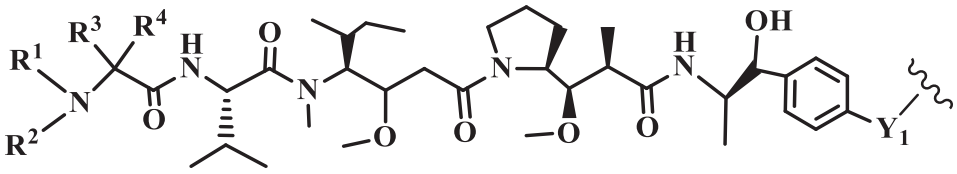


(If-06), rifabutin analog,

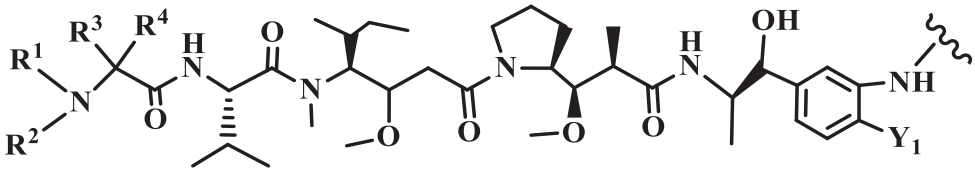
(G). an Auristatin or dolastatin analog:



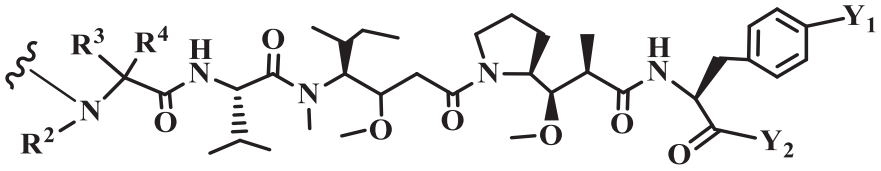
(Ih-01),



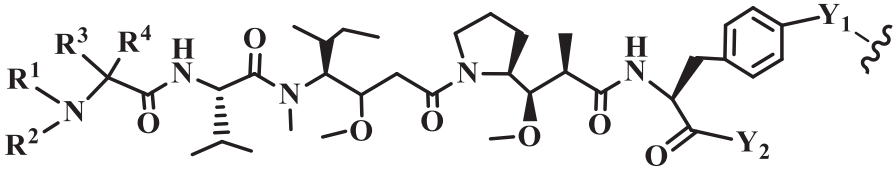
(Ih-02),



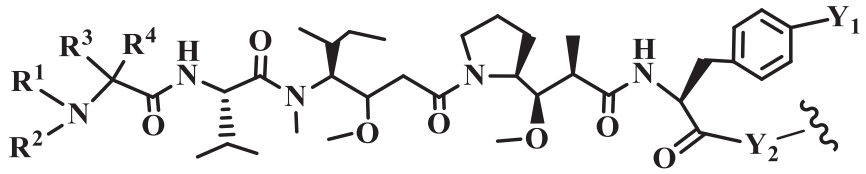
(Ih-03),



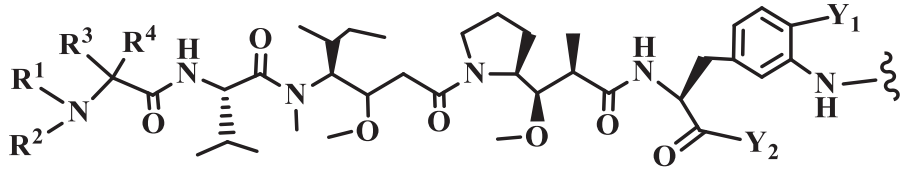
(Ih-04),



(Ih-05),



(Ih-06),

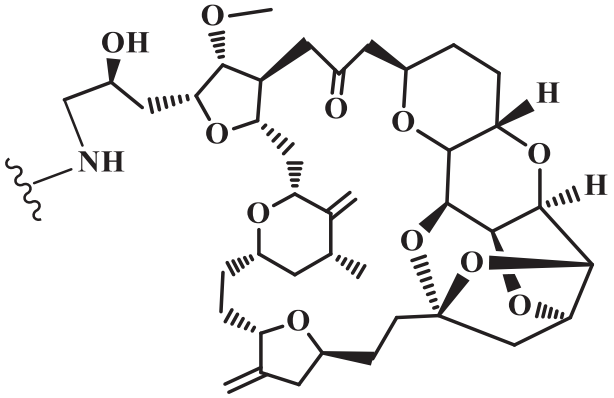


(Ih-07),

or an isotope of one or more chemical elements, or pharmaceutically acceptable salts, hydrates, or hydrated salts; or the polymorphic crystalline structures of these compounds; or the optical isomers, racemates, diastereomers or enantiomers; wherein R^1, R^2, R^3, R^4 and R^5 are independently H; C_1-C_8 lineal or branched alkyl, aryl, heteroaryl, heteroalkyl, alkylcycloalkyl, ester, ether, amide, amines, heterocycloalkyl, or acyloxylamines; or peptides containing 1-8 aminoacids, or polyethyleneoxy unit having formula $(OCH_2CH_2)_p$ or $(OCH_2CH(CH_3))_p$, wherein p is an integer from 1 to about 5000;. The two Rs: R^1R^2, R^2R^3, R^1R^3 or R^3R^4 can form 3~8 member cyclic ring of alkyl, aryl, heteroaryl, heteroalkyl, or alkylcycloalkyl group; X_3 is H, CH_3 or X_1'R_1', wherein X_1' is NH, $N(CH_3)$, NHNH, O, or S, and R_1' is H or C_1-C_8 lineal or branched alkyl, aryl, heteroaryl, heteroalkyl, alkylcycloalkyl, acyloxylamines; R_3' is H or C_1-C_6 lineal or branched alkyl; Z_3' is H, $COOR_1$, NH_2, NHR_1, OR_1, $CONHR_1$,$NHCOR_1$, $OCOR_1$, $OP(O)(OM_1)(OM_2)$, $OCH_2OP(O)(OM_1)(OM_2)$, OSO_3M_1, R_1, or O-glycoside (glucoside, galactoside, mannoside, glucuronoside/glucuronide, alloside, fructoside, etc.), NH-glycoside, S-glycoside or CH_2-glycoside; M_1 and M_2 are independently H, Na, K, Ca, Mg, NH_4, $NR_1R_2R_3$; Y_1 and Y_2 are independently O, NH, NHNH, NR_5, S, C(O)O, C(O)NH, OC(O)NH, OC(O)O, NHC(O)NH, NHC(O)S, $OC(O)N(R_1)$, $N(R_1)C(O)N(R_2)$, C(O)NHNHC(O) and $C(O)NR_1$ when linked to the connecting site " ∿∿ "; or OH, NH_2, $NHNH_2$, NHR_5, SH, C(O)OH, $C(O)NH_2$, $OC(O)NH_2$, OC(O)OH, $NHC(O)NH_2$, NHC(O)SH, $OC(O)NH(R_1)$, $N(R_1)C(O)NH(R_2)$, C(O)NHNHC(O)OH and $C(O)NHR_1$ when not linked to the connecting site " ∿∿ "; R_{12} is OH, NH_2, NHR_1, $NHNH_2$, NHNHCOOH, O-R_1-COOH, NH-R_1-COOH, NH-$(Aa)_n$COOH, $O(CH_2CH_2O)_pCH_2CH_2OH$, $O(CH_2CH_2O)_pCH_2CH_2NH_2$, $NH(CH_2CH_2O)_pCH_2CH_2NH_2$, NR_1R_1', NHOH, $NHOR_1$, $O(CH_2CH_2O)_pCH_2CH_2COOH$, $NH(CH_2CH_2O)_pCH_2CH_2COOH$, NH-Ar-COOH, NH-Ar-$NH_2$, $O(CH_2CH_2O)_pCH_2CH_2NH$-SO_3H, $NH(CH_2CH_2O)_pCH_2CH_2NHSO_3H$, R_1-$NHSO_3H$, NH-R_1-

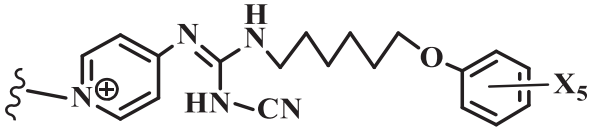
$NHSO_3H$, $O(CH_2CH_2O)_pCH_2$-$CH_2NHPO_3H_2$, $NH(CH_2CH_2O)_pCH_2CH_2NHPO_3H_2$, OR_1, R_1-$NHPO_3H_2$, R_1-OPO_3H_2, $O(CH_2CH_2O)_pCH_2CH_2OPO_3H_2$, OR_1-$NHPO_3H_2$, NH-R_1-$NHPO_3H_2$, $NH(CH_2CH_2NH)_pCH_2$-CH_2NH_2, $NH(CH_2CH_2S)_pCH_2CH_2NH_2$, $NH(CH_2CH_2NH)_pCH_2CH_2OH$, $NH(CH_2CH_2S)_pCH_2$-CH_2OH, NH-R_1-NH_2, or $NH(CH_2CH_2O)_pCH_2CH_2NHPO_3H_2$, wherein Aa is 1-8 the same or different aminoacids; p is 1 -5000; R_1, R_2, R_3, R_4, R_5, R_5', Z_1, Z_2, and n are defined the same above;

(H). An Eribulin:



Eb01, Eribulin;

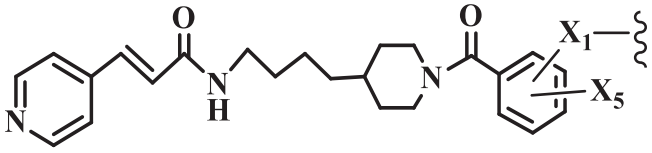
(I). An Inhibitor of nicotinamide phosphoribosyltransferases (NAMPT):



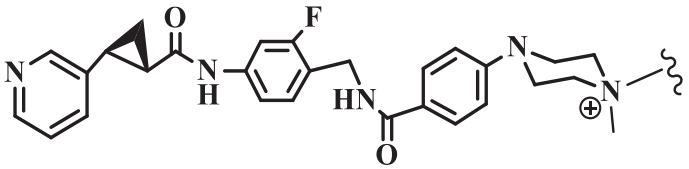
NP01,



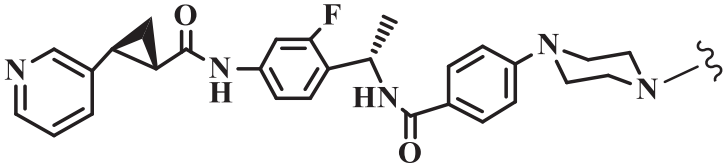
NP02,



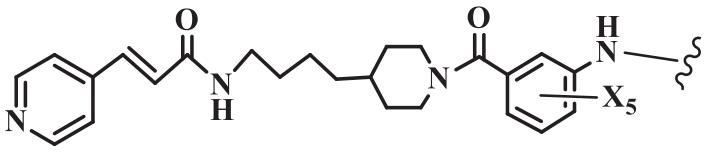
NP03,



NP04,



NP05,



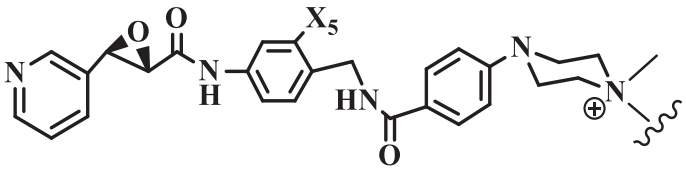
NP06,



NP07,



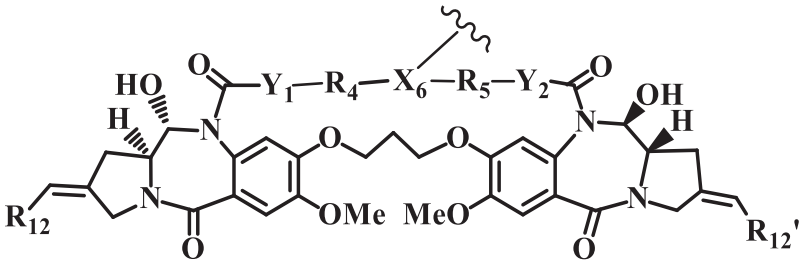
NP08,



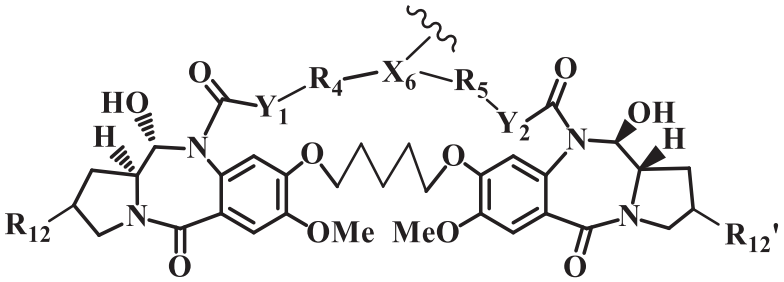
NP09,

or an isotope of one or more chemical elements, or pharmaceutically acceptable salts, hydrates, or hydrated salts; or the polymorphic crystalline structures of these compounds; or the optical isomers, racemates, diastereomers or enantiomers; wherein "〰" and X_1 are the same definition in Claim 5; X_5 is F, Cl, Br, I, OH, OR_1, R_1, OPO_3H_2, OSO_3H, NHR_1, $OCOR_1$, $NHCOR_1$;

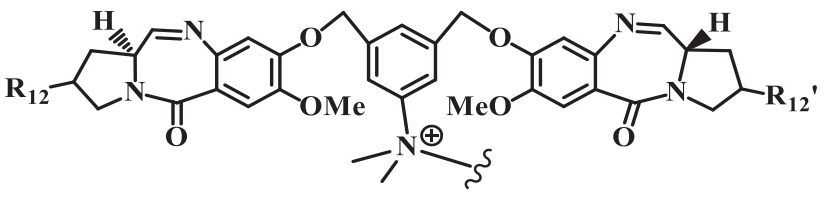
(J). A benzodiazepine dimer and its analog:



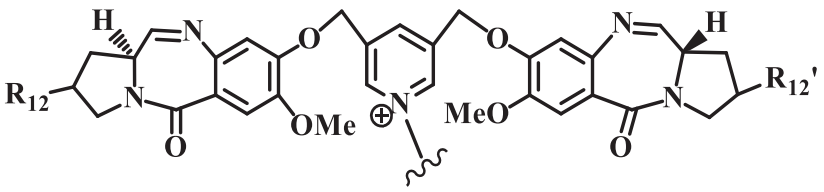
PB01,



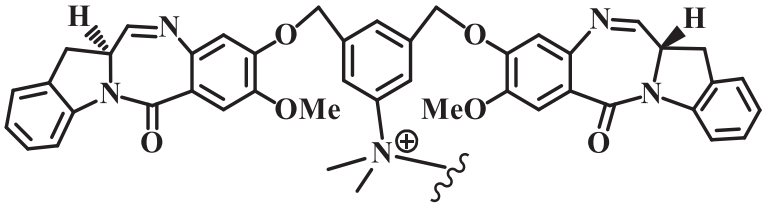
PB02,



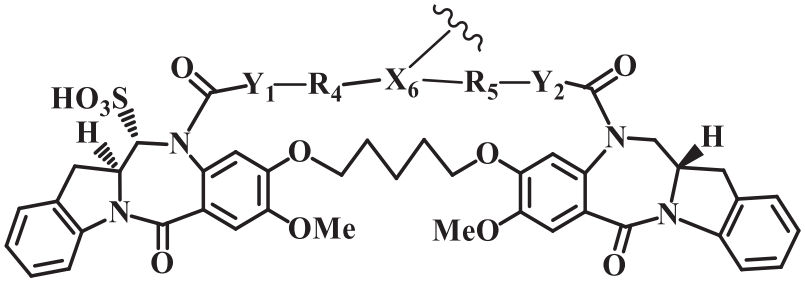
PB03,



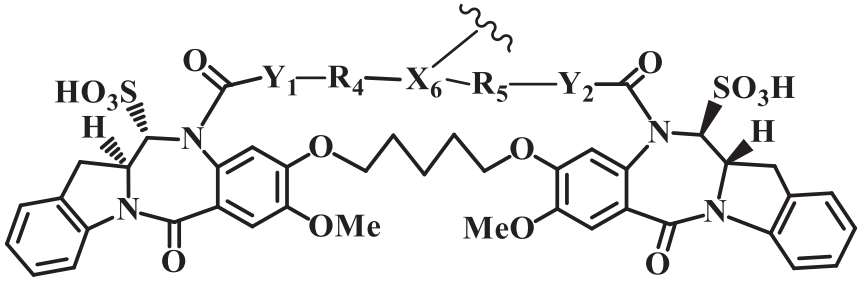
PB04,



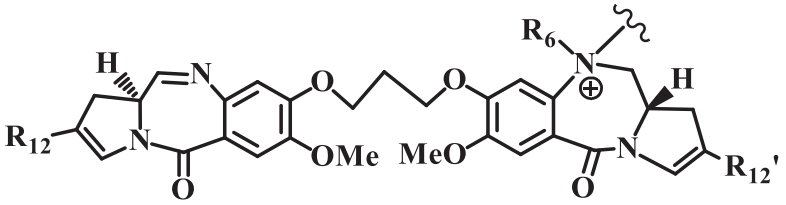
PB05,



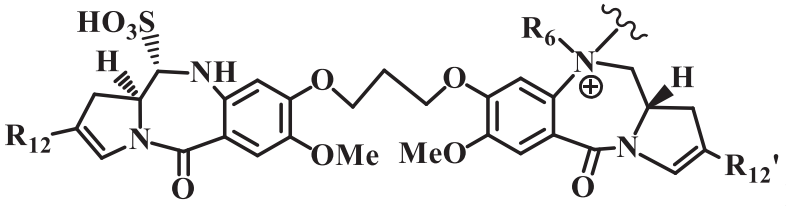
PB06,



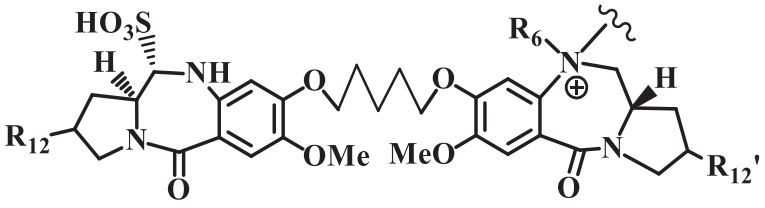
PB07,



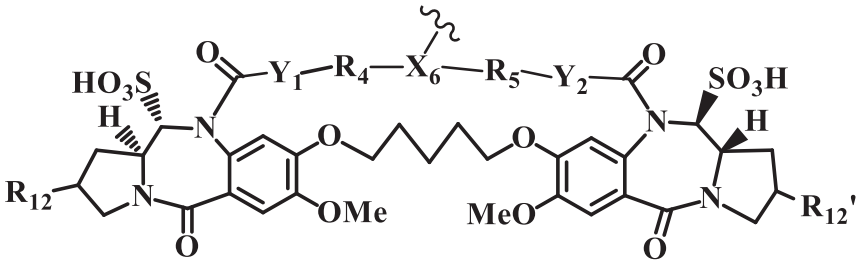
PB08,



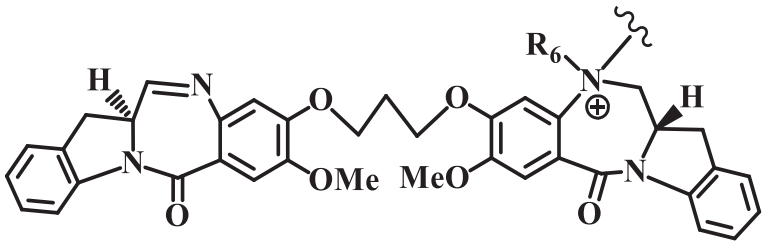
PB09,



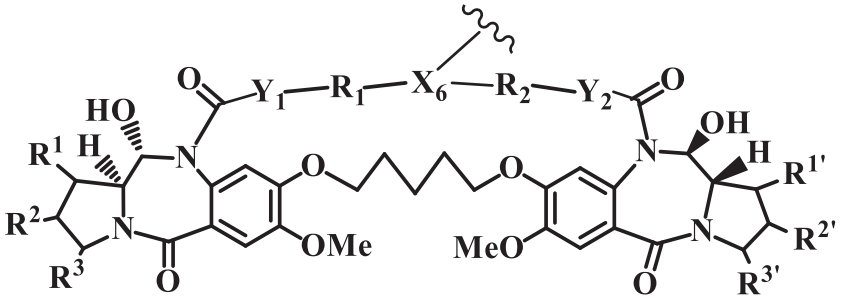
PB10,



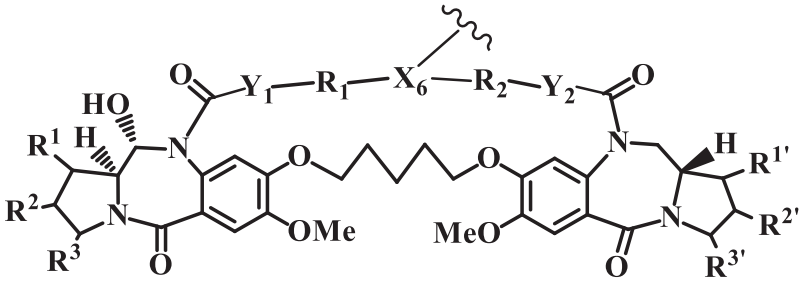
PB11,



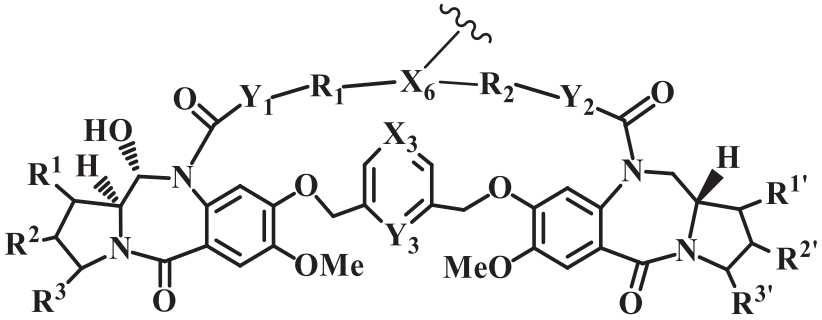
PB12,



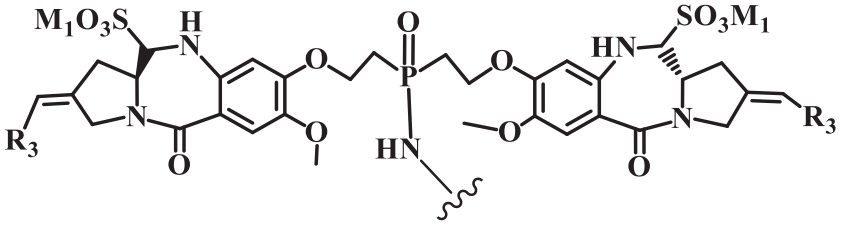
PB13,



PB14,



PB15,

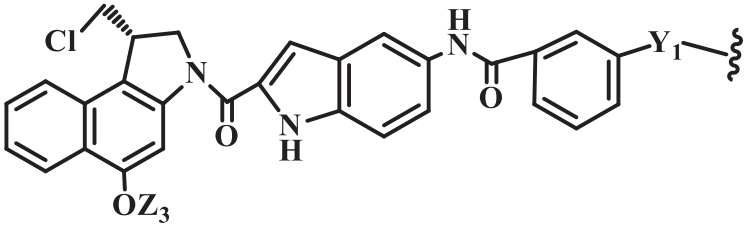


PB16,

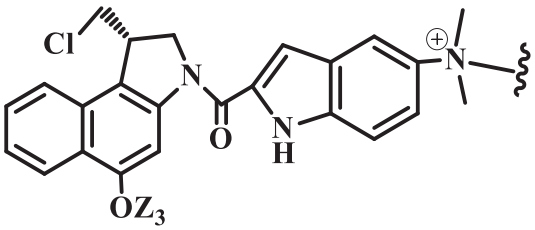
or an isotope of one or more chemical elements, or pharmaceutically acceptable salts, hydrates, or hydrated salts; or the polymorphic crystalline structures of these compounds; or the optical isomers, racemates, diastereomers or enantiomers; wherein X_1, X_2, Y_1 and Y_2 are independently

O, N, NH, NHNH, NR_5, S, C(O)O, C(O)NH, OC(O)NH, OC(O)O, NHC(O)NH, NHC(O)S, $OC(O)N(R_1)$, $N(R_1)C(O)N(R_1)$, CH, C(O)NHNHC(O) and $C(O)NR_1$; R^1, R^2, R^3, $R^{1'}$, $R^{2'}$, and $R^{3'}$ are independently H; F; Cl; =O; =S; OH; SH; C_1-C_8 lineal or branched alkyl, aryl, alkenyl, heteroaryl, heteroalkyl, alkylcycloalkyl, ester ($COOR_5$ or $–OC(O)R_5$), ether (OR_5), amide ($CONR_5$), carbamate ($OCONR_5$), amines (NHR_5, NR_5R_5'), heterocycloalkyl, or acyloxylamines (-C(O)NHOH, -$ONHC(O)R_5$); or peptides containing 1-20 natural or unnatural aminoacids, or polyethyleneoxy unit of formula $(OCH_2CH_2)_p$ or $(OCH_2CH(CH_3))_p$, wherein p is an integer from 1 to about 5000;. The two Rs: R^1R^2, R^2R^3, R^1R^3, $R^{1'}R^{2'}$, $R^{2'}R^{3'}$, or $R^{1'}R^{3'}$ can independently form 3~8 member cyclic ring of alkyl, aryl, heteroaryl, heteroalkyl, or alkylcycloalkyl group; X_3 and Y_3 are independently N, NH, CH_2 or CR_5, wherein R_4, R_5, R_6, R_{12} and R_{12}' are independently H, OH, NH_2, $NH(CH_3)$, $NHNH_2$, COOH, SH, OZ_3, SZ_3, F, Cl, or C_1-C_8 lineal or branched alkyl, aryl, heteroaryl, heteroalkyl, alkylcycloalkyl, acyloxylamines; Z_3 is H, $OP(O)(OM_1)(OM_2)$, $OCH_2OP(O)(OM_1)(OM_2)$, OSO_3M_1, or O-glycoside (glucoside, galactoside, mannoside, glucuronoside/glucuronide, alloside, fructoside, etc.), NH-glycoside, S-glycoside or CH_2-glycoside; M_1 and M_2 are independently H, Na, K, Ca, Mg, NH_4, $NR_1R_2R_3$;

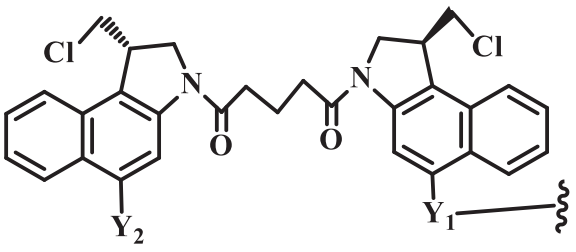
(K). An CC-1065 analog and doucarmycin analogs:



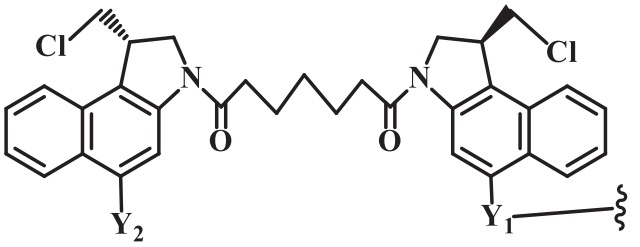
CC01,



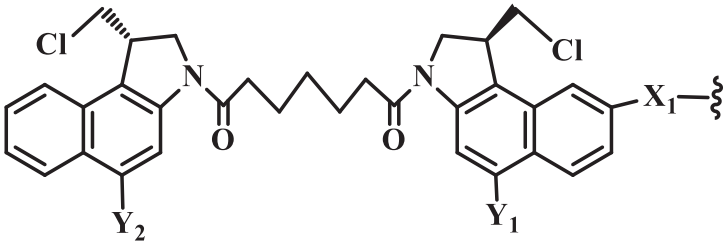
CC02,



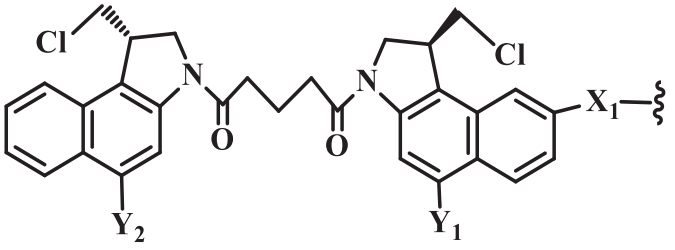
CC03,



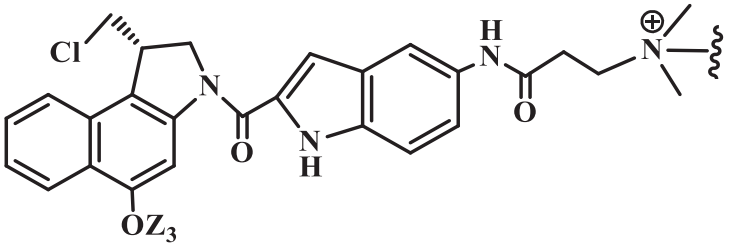
CC04,



CC05,



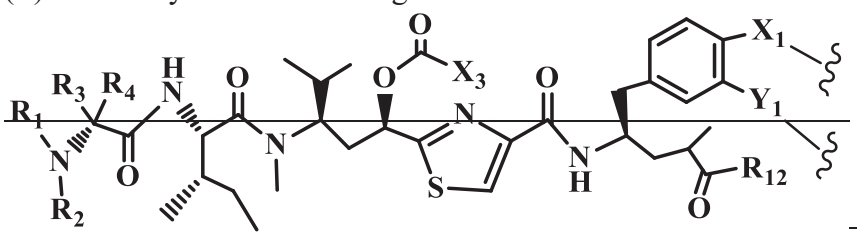
CC06,



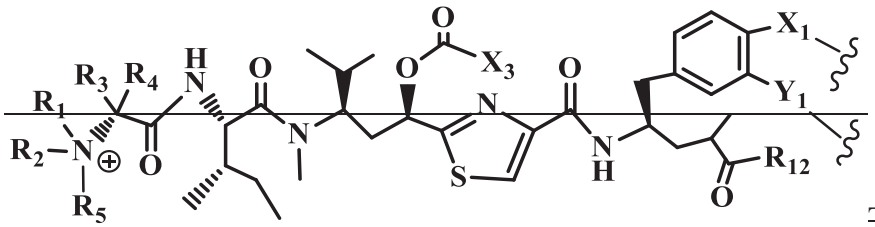
CC07,

wherein X_1, X_2, Y_1 and Y_2 are independently O, NH, NHNH, NR_5, S, C(O)O, C(O)NH, OC(O)NH, OC(O)O, NHC(O)NH, NHC(O)S, OC(O)N(R_1), N(R_1)C(O)N(R_2), C(O)NHNHC(O) and C(O)NR_1 when linked to the connecting site " ∿∿ "; or OH, NH_2, $NHNH_2$, NHR_1, SH, C(O)OH, C(O)NH_2, OC(O)NH_2, OC(O)OH, NHC(O)NH_2, NHC(O)SH, OC(O)NH(R_1), N(R_1)C(O)NH(R_2), C(O)NHNHC(O)OH and C(O)NHR_1 when not linked to the connecting site " ∿∿ "; Z_3 is H, $PO(OM_1)(OM_2)$, SO_3M_1, $CH_2PO(OM_1)(OM_2)$, $CH_3N(CH_2CH_2)_2NC(O)$-, $O(CH_2CH_2)_2NC(O)$-, R_1, or glycoside; wherein R_1, R_2, R_3, M_1, M_2, and n are defined the same above;

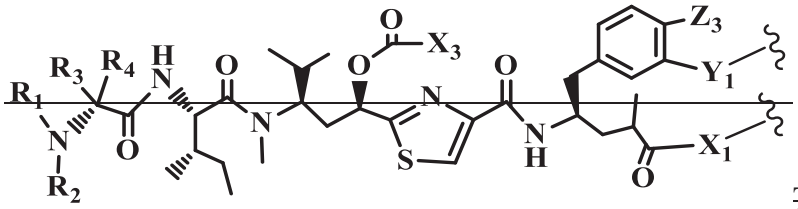
~~(L). A Tubulysin and its analogs:~~



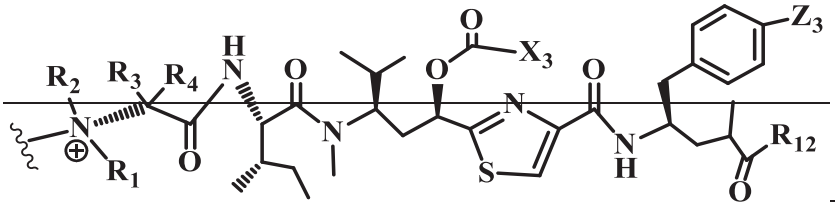
~~Tb01,~~



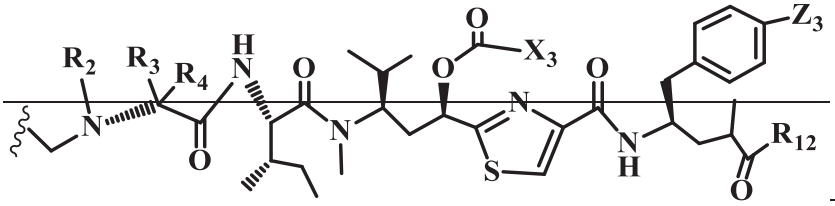
~~Tb02,~~



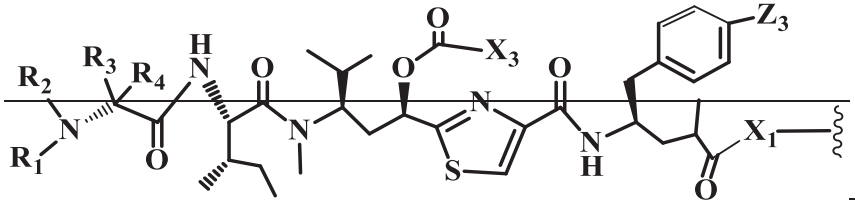
~~Tb03,~~



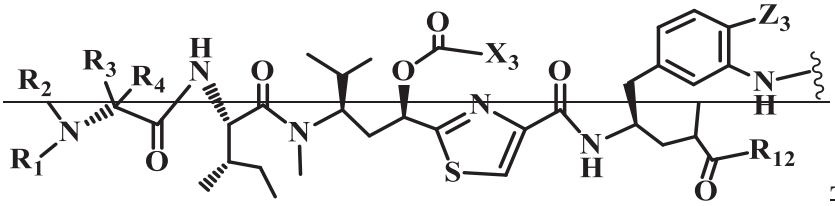
~~Tb04,~~



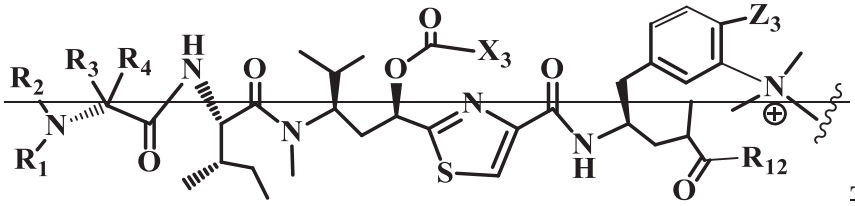
~~Tb05,~~



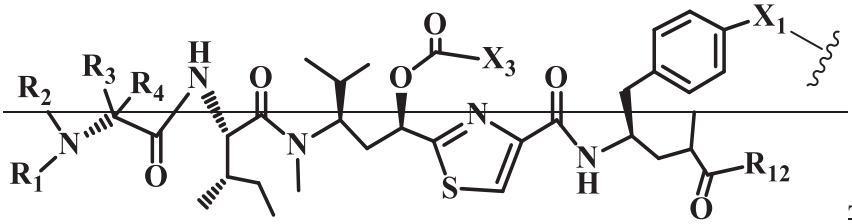
~~Tb06,~~



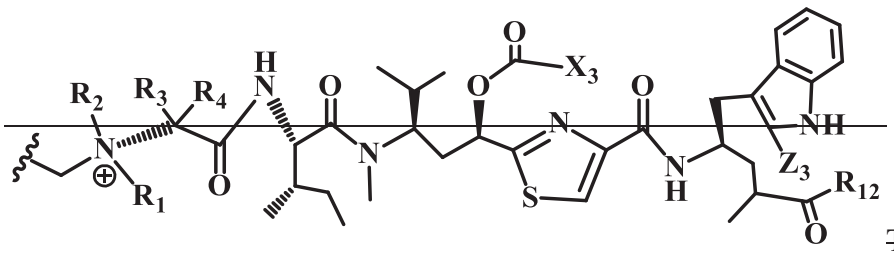
~~Tb07,~~



~~Tb08,~~



~~Tb09,~~

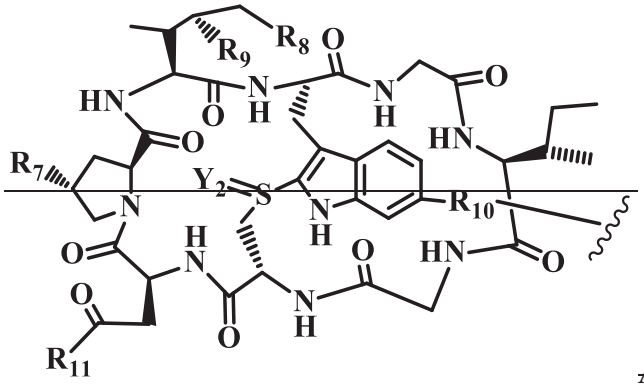


Tb10,

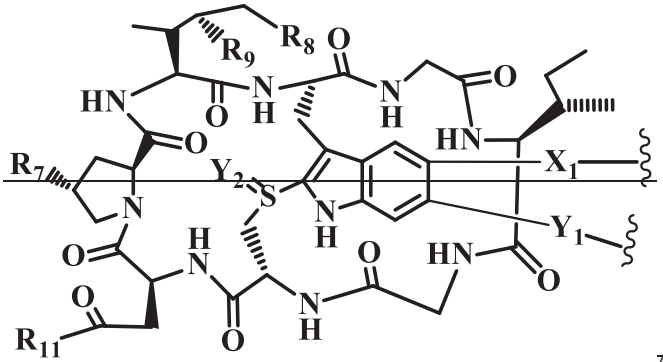
or an isotope of one or more chemical elements, or pharmaceutically acceptable salts, hydrates, or hydrated salts; or the polymorphic crystalline structures of these compounds; or the optical isomers, racemates, diastereomers or enantiomers; wherein X_1,and Y_1 are independently O, NH, NHNH, NR_5, S, C(O)O, C(O)NH, OC(O)NH, OC(O)O, NHC(O)NH, NHC(O)S, $OC(O)N(R_1)$, $N(R_1)C(O)N(R_1)$, $CH_2C(O)NHNHC(O)$ and $C(O)NR_1$; mAb is antibody, preferably monoclonal antibody; R_{12} is OH, NH_2, NHR_1, $NHNH_2$, NHNHCOOH, O-R_1-COOH, NH-R_1-COOH, NH-$(Aa)_n$COOH, $O(CH_2CH_2O)_pCH_2CH_2OH$, $O(CH_2CH_2O)_pCH_2CH_2NH_2$, $NH(CH_2CH_2O)_pCH_2CH_2NH_2$, NR_1R_1', NHOH, $NHOR_1$, $O(CH_2CH_2O)_pCH_2CH_2COOH$, $NH(CH_2CH_2O)_pCH_2CH_2COOH$, NH-Ar-COOH, NH-Ar-$NH_2$, $O(CH_2CH_2O)_pCH_2CH_2NHSO_3H$, $NH(CH_2CH_2O)_pCH_2CH_2NHSO_3H$, R_1-$NHSO_3H$, NH-R_1-$NHSO_3H$, $O(CH_2CH_2O)_pCH_2CH_2NHPO_3H_2$, $NH(CH_2CH_2O)_pCH_2CH_2NHPO_3H_2$, OR_1, R_1-$NHPO_3H_2$, R_1-OPO_3H_2, $O(CH_2CH_2O)_pCH_2CH_2OPO_3H_2$, OR_1-$NHPO_3H_2$, NH-R_1-$NHPO_3H_2$, $NH(CH_2CH_2NH)_pCH_2CH_2NH_2$, $NH(CH_2CH_2S)_pCH_2CH_2NH_2$, $NH(CH_2CH_2NH)_pCH_2CH_2OH$, $NH(CH_2CH_2S)_pCH_2CH_2OH$, NH-$R_1$-$NH_2$, or $NH(CH_2CH_2O)_pCH_2CH_2NHPO_3H_2$, wherein Aa is 1-8 aminoacids; n and m_1 are independently 1-20; p is 1 -5000; R_1, R_1', R_2, R_3, and R_4 are independently H, C_1-C_8 lineal or branched alkyl, amide, or amines; C_2-C_8 aryl, alkenyl, alkynyl, heteroaryl, heteroalkyl, alkylcycloalkyl, ester, ether, heterocycloalkyl, or acyloxylamines; or peptides containing 1-8 aminoacids, or polyethyleneoxy unit having formula $(OCH_2CH_2)_p$ or $(OCH_2CH(CH_3))_p$, wherein p is an integer from 1 to about 5000; The two Rs: R_1R_2, R_2R_3, R_1R_3 or R_3R_4 can form 3- 8 member cyclic ring of alkyl, aryl, heteroaryl, heteroalkyl, or alkylcycloalkyl group; X_3 is H, CH_3, CH_2CH_3, C_3H_7, or X_1'R_1', wherein X_1' is NH, $N(CH_3)$, NHNH, O, or S; R_1' is H or C_1-C_8 lineal or branched alkyl, aryl, heteroaryl, heteroalkyl, alkylcycloalkyl, or acyloxylamines; R_3' is H or C_1-C_6 lineal or branched alkyl; Z_3 is H, $COOR_1$, NH_2, NHR_1, OR_1, $CONHR_1$, $NHCOR_1$, $OCOR_1$, $OP(O)(OM_1)(OM_2)$, $OCH_2OP(O)(OM_1)(OM_2)$, OSO_3M_1, R_1, O-

~~glycoside (glucoside, galactoside, mannoside, glucuronoside/glucuronide, alloside, fructoside, etc.), NH-glycoside, S-glycoside or CH_2-glycoside; M_1 and M_2 are independently H, Na, K, Ca, Mg, NH_4, $NR_1R_2R_3$;~~

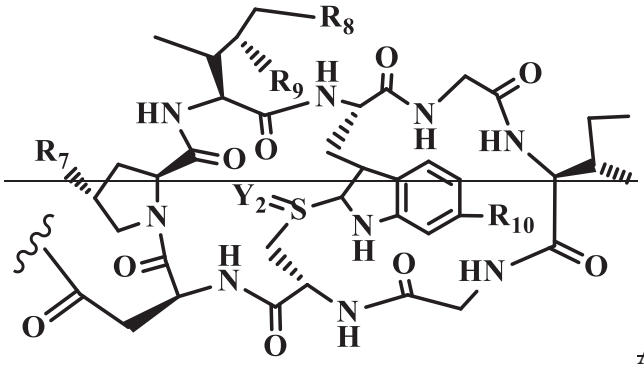
~~(M). An Amatoxin and its analogs:~~



~~Am01,~~



~~Am02,~~

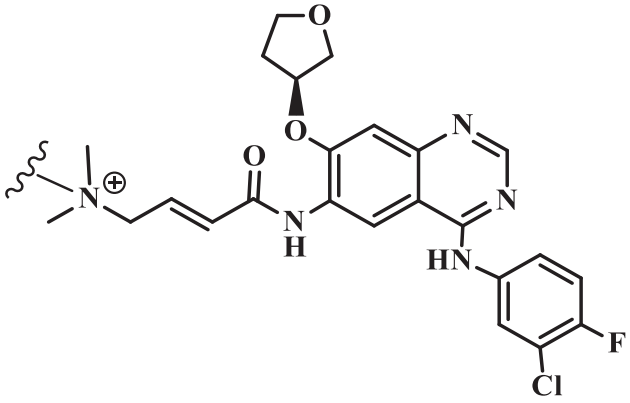


~~Am03,~~

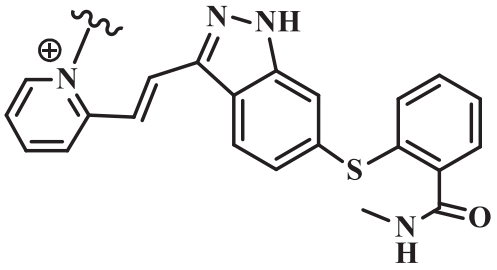
~~or an isotope of one or more chemical elements, or pharmaceutically acceptable salts, hydrates, or hydrated salts; or the polymorphic crystalline structures of these compounds; or the optical isomers, racemates, diastereomers or enantiomers; wherein X_1,and Y_1 are independently O, NH, NHNH, NR_5, S, C(O)O, C(O)NH, OC(O)NH, OC(O)O, NHC(O)NH, NHC(O)S, $OC(O)N(R_1)$, $N(R_1)C(O)N(R_1)$, $CH_2C(O)NHNHC(O)$ and $C(O)NR_1$; R_7, R_8, and R_9 are independently H, OH, OR_1, NH_2, NHR_1, C_1-C_6 alkyl, or absent; Y_2 is O, O_2, NR_1, NH, or absent; R_{10} is CH_2, O, NH, NR_1, NHC(O), NHC(O)NH, NHC(O)O, OC(O)O, C(O), OC(O), $OC(O)(NR_1)$,~~

~~$(NR_1)C(O)(NR_1)$, $C(O)R_1$ or absent; R_{11} is OH, NH_2, NHR_1, $NHNH_2$, NHNHCOOH, O-R_1-COOH, NH-R_1-COOH, NH-$(Aa)_r$COOH, $O(CH_2CH_2O)_pCH_2CH_2OH$, $O(CH_2CH_2O)_pCH_2CH_2NH_2$, $NH(CH_2CH_2O)_pCH_2CH_2NH_2$, NR_1R_1', $O(CH_2CH_2O)_pCH_2CH_2COOH$, $NH(CH_2CH_2O)_pCH_2CH_2COOH$, NH-Ar-COOH, NH-Ar-$NH_2$, $O(CH_2CH_2O)_pCH_2CH_2NHSO_3H$, $NH(CH_2CH_2O)_pCH_2CH_2NHSO_3H$, R_1-$NHSO_3H$, NH-R_1-$NHSO_3H$, $O(CH_2CH_2O)_pCH_2CH_2NH$-PO_3H_2, $NH(CH_2CH_2O)_pCH_2CH_2NHPO_3H_2$, OR_1, R_1-$NHPO_3H_2$, R_1-OPO_3H_2, $O(CH_2CH_2O)_pCH_2$-$CH_2OPO_3H_2$, OR_1-$NHPO_3H_2$, NH-R_1-$NHPO_3H_2$, or $NH(CH_2CH_2O)_pCH_2CH_2NHPO_3H_2$, wherein $(Aa)_r$ is 1-8 aminoacids; n and m_1 are independently 1-20; p is 1 -5000; R_1 and Ar, are the same defined in Claim 1.~~

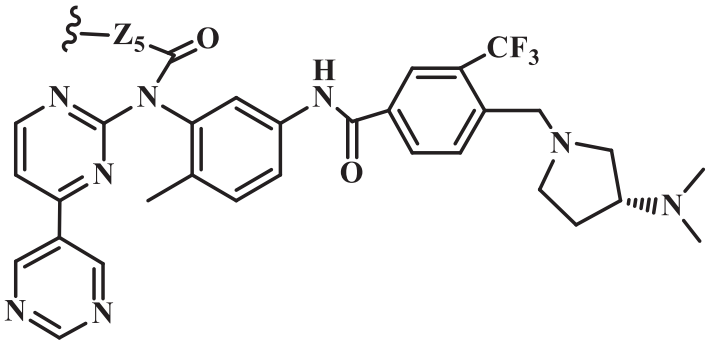
(LN). A Protein kinase inhibitor:



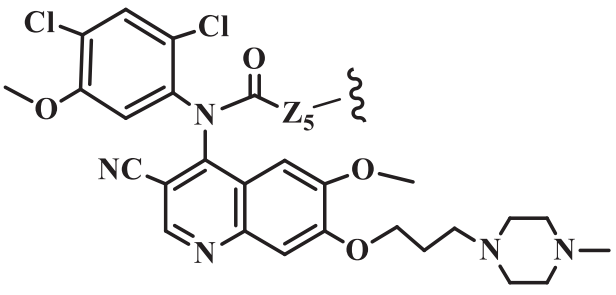
PK01, **Afatinib**,



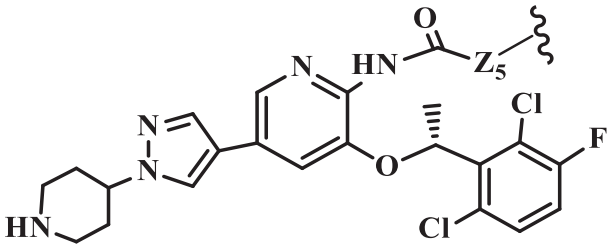
PK02, **Axitinib,**



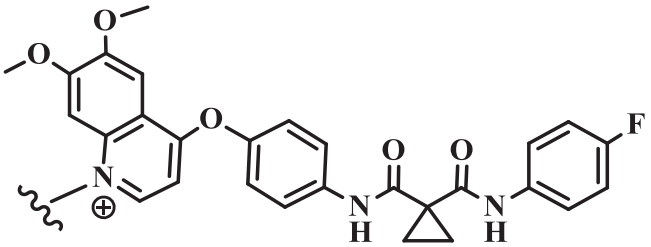
PK03, Bafetinib



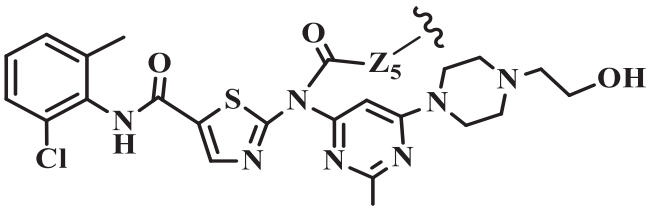
PK04, **Bosutinib,**



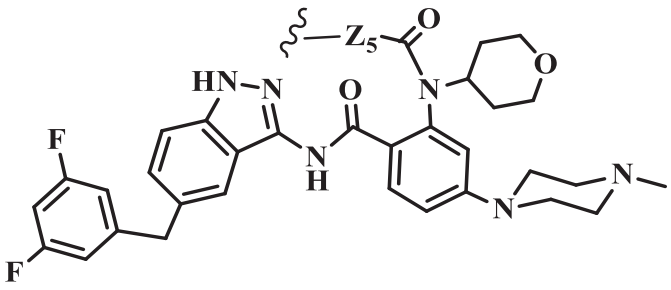
PK05, **Crizotinib,**



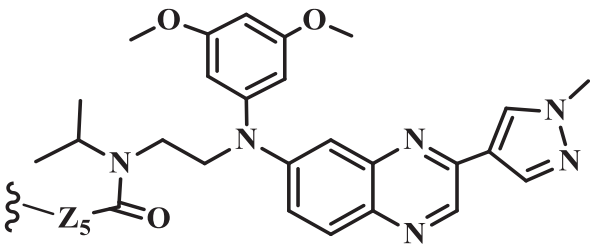
PK06, **Cabozantinib**,



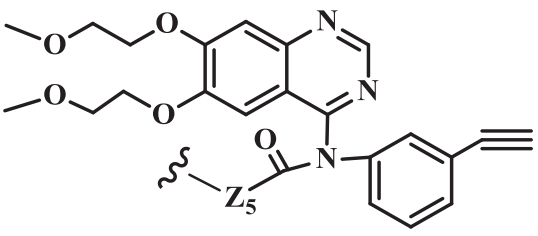
PK07, **Dasatinib,**



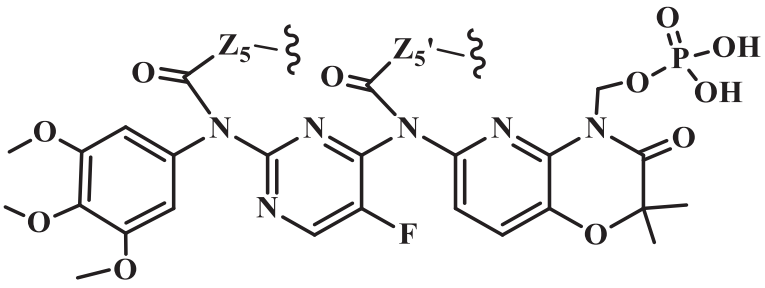
PK08, **Entrectinib,**



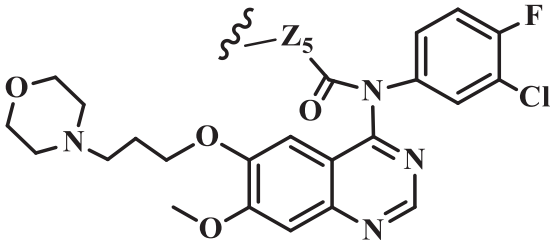
PK09, **Erdafitinib,**



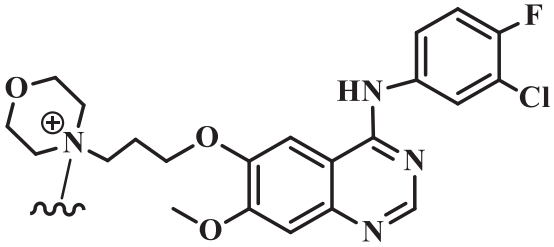
PK10, **Erlotinib,**



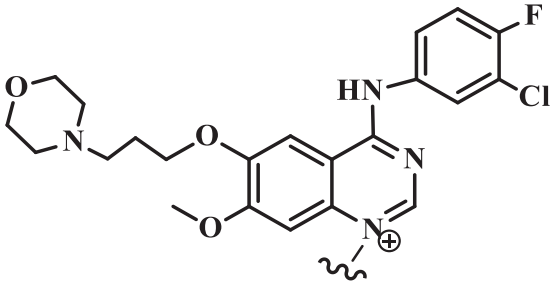
PK11, **Fostamatinib,**



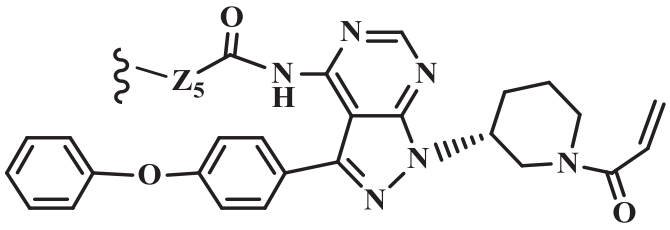
PK12, **Gefitinib,**



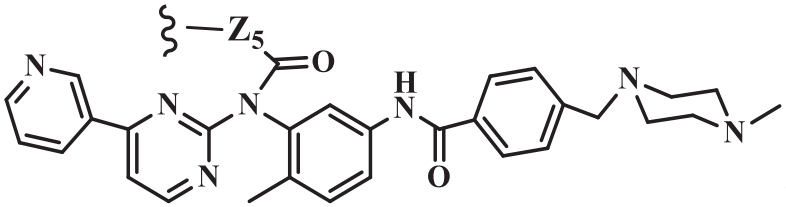
PK13, **Gefitinib,**



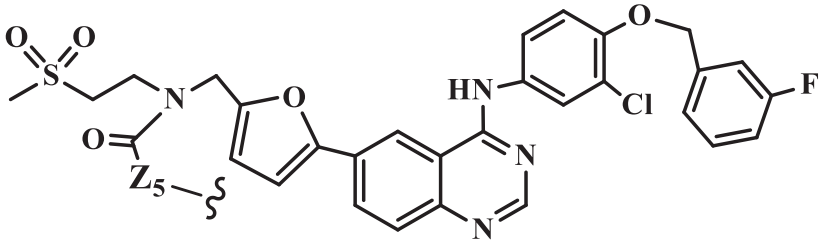
PK14, **Gefitinib,**



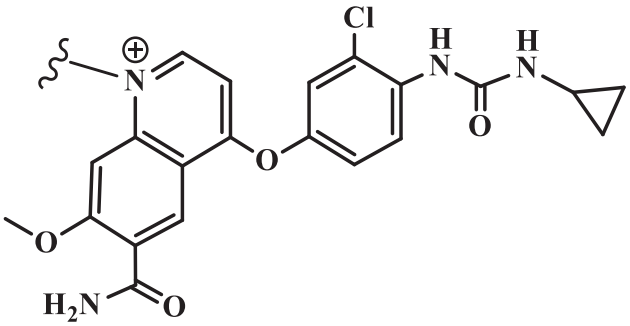
PK15, Ibrutinib,



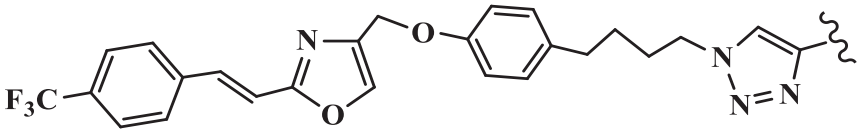
PK16, Imatinib,



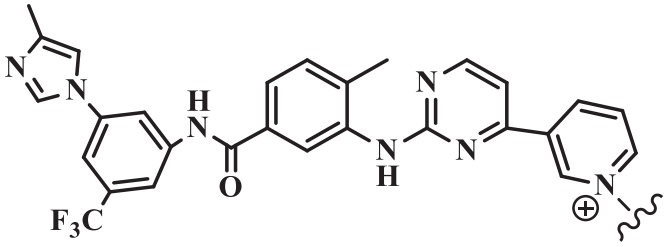
PK17, Lapatinib,



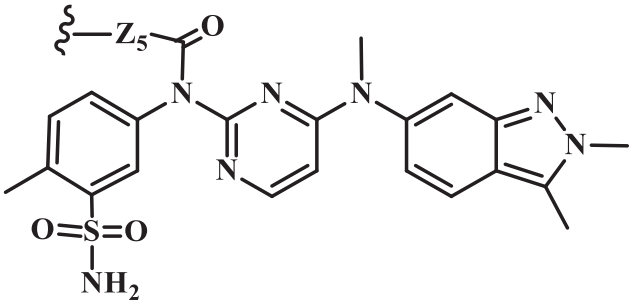
PK18, Lenvatinib,



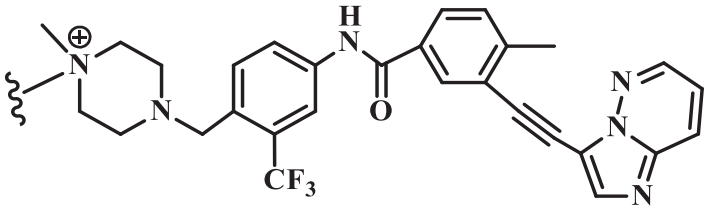
PK19, Mubritinib,



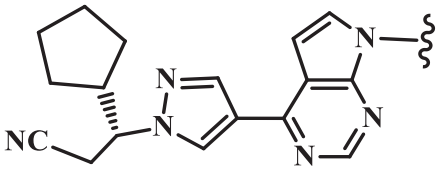
PK20, Nilotinib,



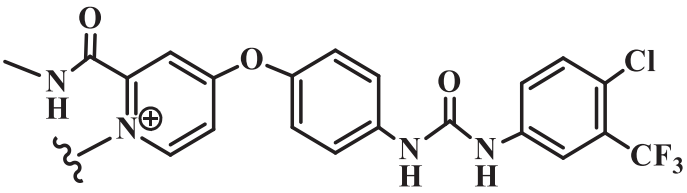
PK21, Pazopanib,



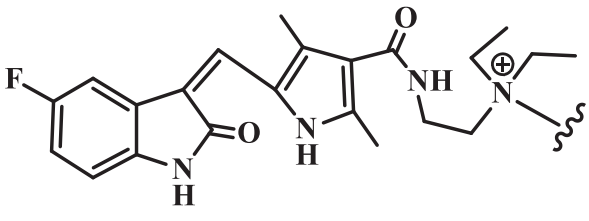
PK22, Ponatinib,



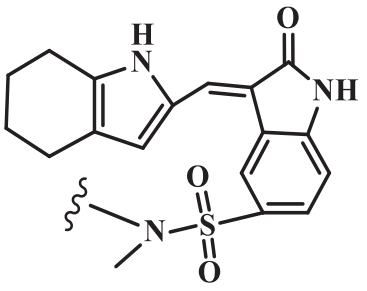
PK23, Ruxolitinib,



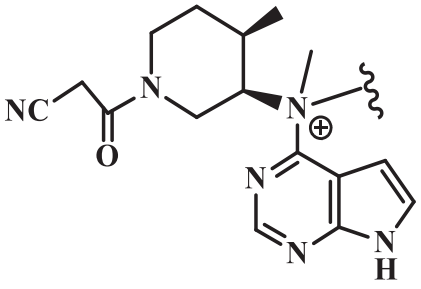
PK24, Sorafenib,



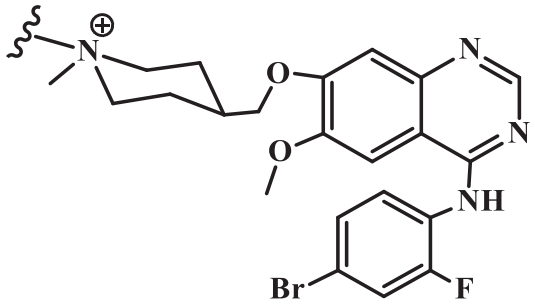
PK25, Sunitinib,



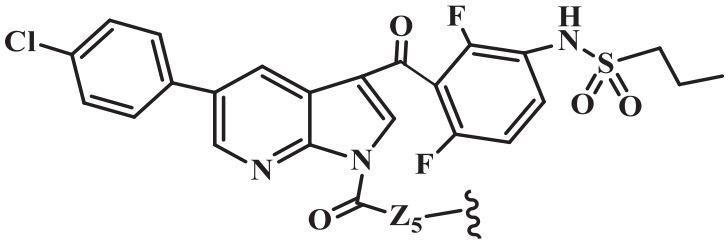
PK26, SU6656,



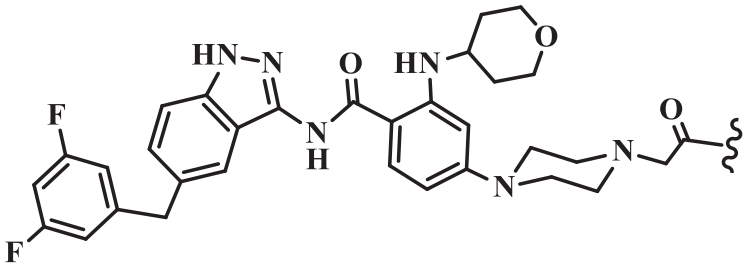
PK27, Tofacitinib,



PK28, Vandetanib,

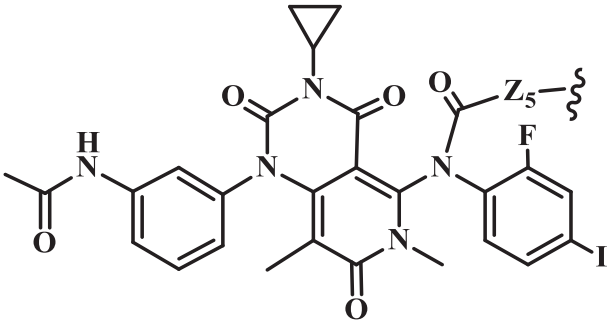


PK29, Vemurafenib;

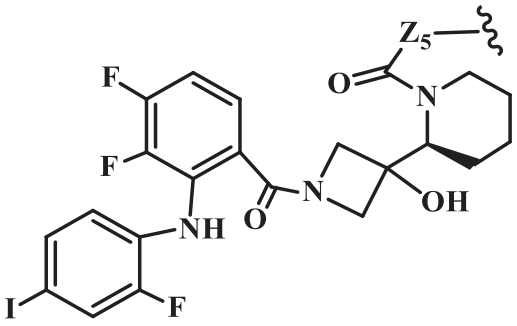


PK 30, Entrectinib;

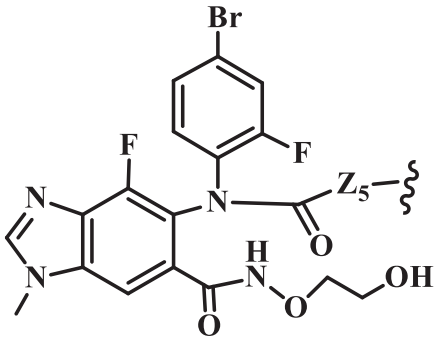
(M~~O~~). A MEK inhibitor:



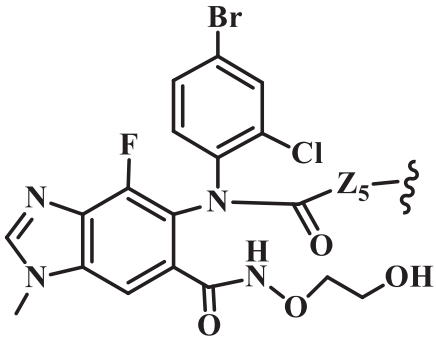
MEK01, Trametinib,



MEK02, Cobimetinib,



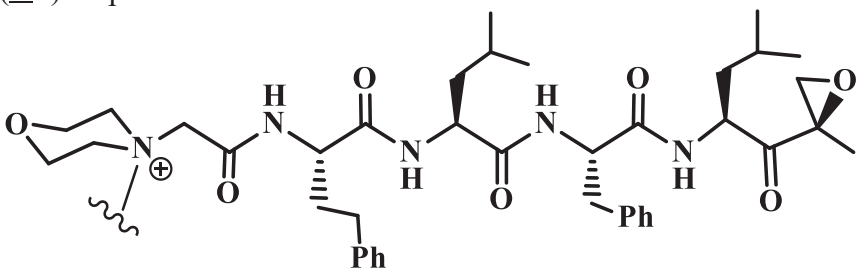
MEK03, Binimetinib,



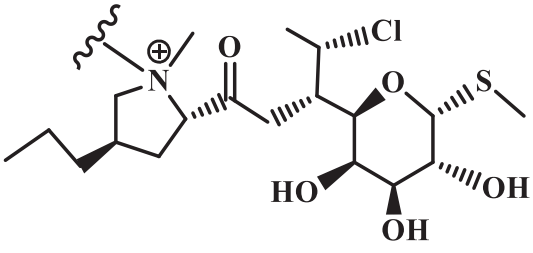
MEK04, selumetinib,

wherein Z_5 is selected from O, NH, NHNH, NR_5, S, C(O)O, C(O)NH, OC(O)NH, OC(O)O, NHC(O)O, NHC(O)NH, NHC(O)S, OC(O)N(R_1), N(R_1)C(O)N(R_2), C(O)NHNHC(O) and C(O)NR_1;

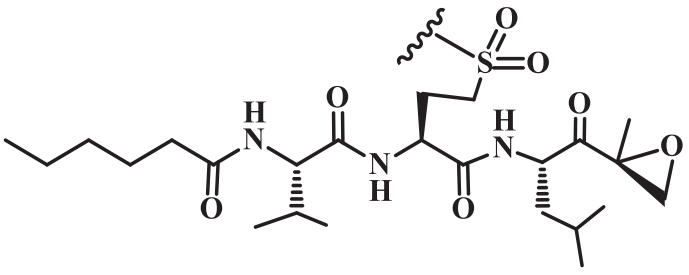
(NP). A proteinase inhibitor:



PI01, Carfilzomib,



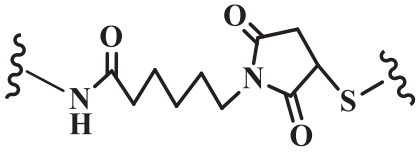
PI02, Clindamycin,



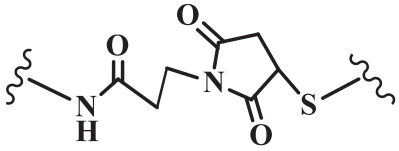
PI03, Carmaphycin analog,

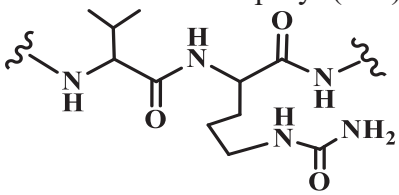
(OQ). An immunotoxin herein that is a macromolecular drug which is usually a cytotoxic protein derived from a bacterial or plant protein, is selected from Diphtheria toxin (DT), Cholera toxin (CT), Trichosanthin (TCS), Dianthin, Pseudomonas exotoxin A (ETA′), Erythrogenic toxins, Diphtheria toxin, AB toxins, Type III exotoxins, proaerolysin, topsalysin and it conjugates via the side-chain linker through its amino acid having an amine, thiol or carboxylic acid group.

47. The compound according to Claim **1** or, **2, 3, or 4**, wherein W, L_1, L_2, V_1, and V_2 independently contain one or more linker components of the following structures:

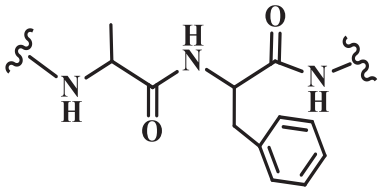


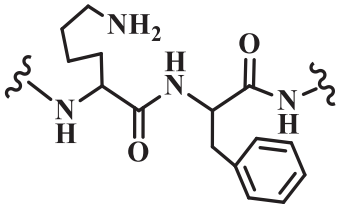
6-maleimidocaproyl (MC),



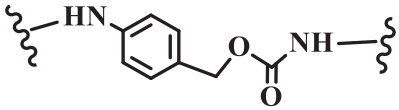


maleimido propanoyl (MP), valine-citrulline (val-cit),

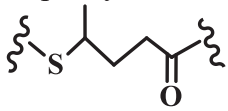




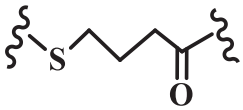
alanine-phenylalanine (ala-phe),



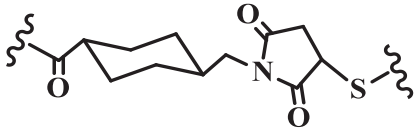
lysine-phenylalanine (lys-phe), p-aminobenzyloxycarbonyl



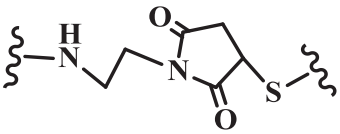
(PAB), 4-thio-pentanoate (SPP),



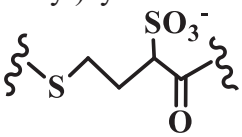
4-thio-butyrate (SPDB),



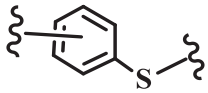
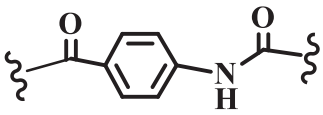
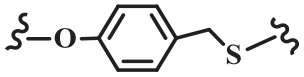
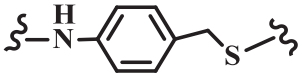
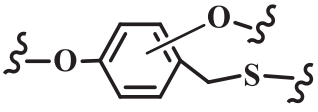
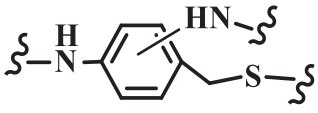
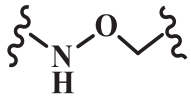
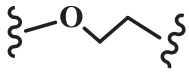
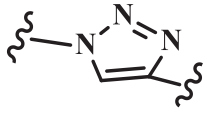
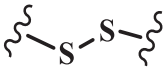
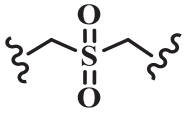
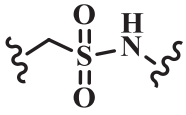
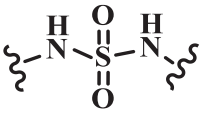
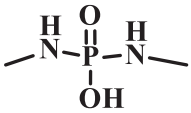
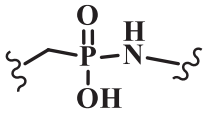
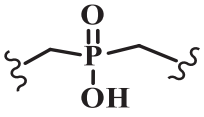
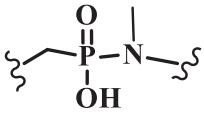
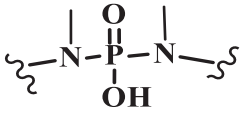
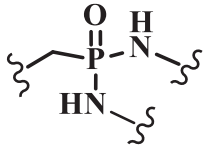
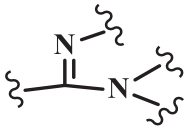
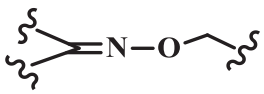
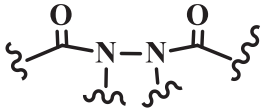
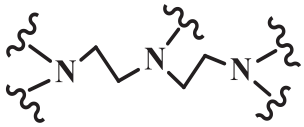
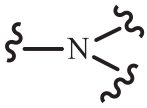
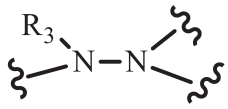
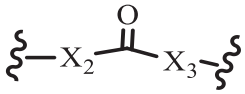
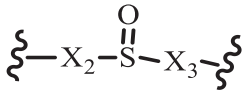
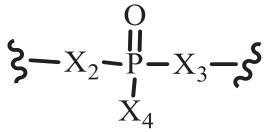
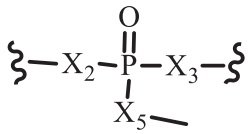
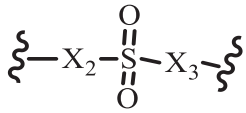
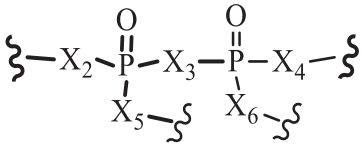
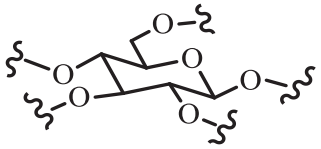
4-(N-maleimidomethyl)cyclo-hexane-1-carboxylate (MCC),

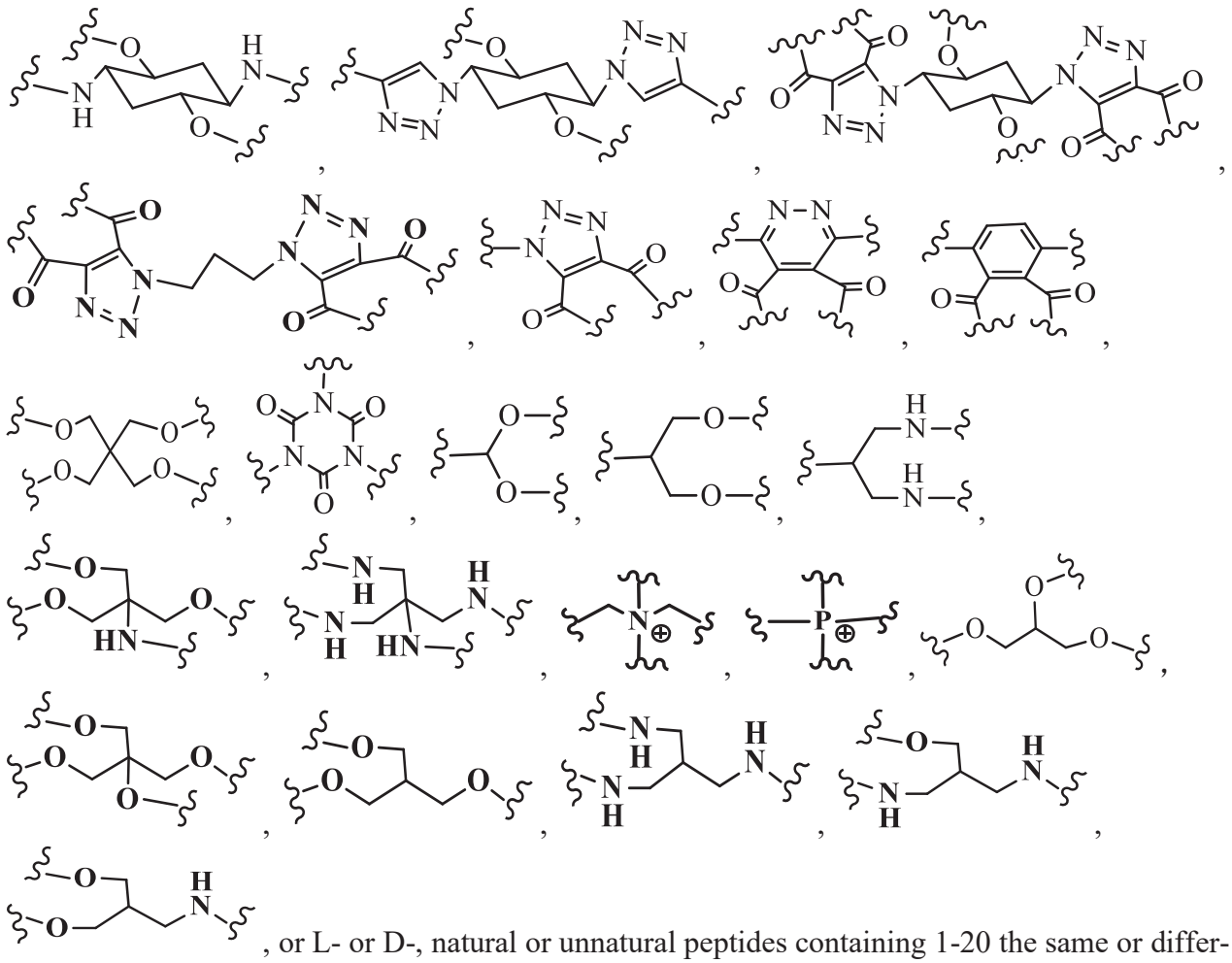


maleimidoethyl (ME),



4-thio-2-hydroxysulfonyl-

butyrate (2-Sulfo-SPDB),  aryl-thiol (PySS),  (4-acetyl)aminobenzoate (SIAB),  , oxylbenzylthio,  aminobenzylthio,  dioxylbenzylthio,  diaminobenzylthio,  amino-oxylbenzylthio,  alkoxy amino (AOA),  ethyleneoxy (EO),  4-methyl-4-dithio-pentanoic (MPDP),  triazole,  dithio,  alkylsulfonyl,  alkylsulfonamide,  sulfon-bisamide,  Phosphondiamide,  alkylphosphonamide,  phosphinic acid,  N-methylphosphonamidic acid,  N,N'-dimethylphosphon-amidic acid,  N,N'-dimethylphosphondiamide,  hydrazine,  acetimidamide;  oxime,  acetylacetohydrazide,  aminoethyl-amine,  aminoethyl-aminoethyl-amine,  ,  ,  ,  ,  ,  ,  ,  ,  ,

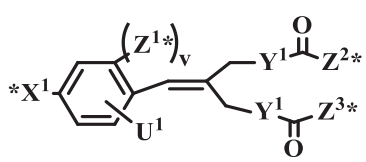
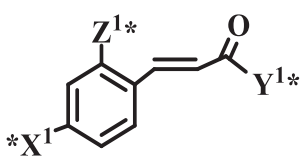
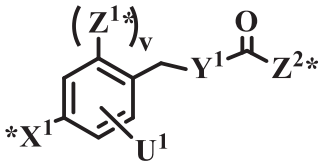


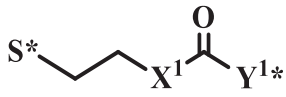
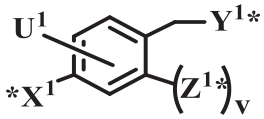
, or L- or D-, natural or unnatural peptides containing 1-20 the same or different amino acids; wherein $\{$ is the site of linkage; X_2, X_3, X_4, X_5, or X_6, are independently selected from NH; NHNH; $N(R_{12})$; $N(R_{12})N(R_{12'})$; O; S; C_1-C_6 of alkyl; C_2-C_6 of heteroalkyl, alkylcycloalkyl, heterocycloalkyl; C_3-C_8 of aryl, Ar-alkyl, heterocyclic, carbocyclic, cycloalkyl, heteroalkylcycloalkyl, alkylcarbonyl, heteroaryl; CH_2OR_{12}, CH_2SR_{12}, CH_2NHR_{12}, or 1~8 amino acids; wherein R_{12} and $R_{12'}$ are independently H;C_1-C_8 of alkyl; C_2-C_8 of hetero-alkyl, alkylcycloalkyl, heterocycloalkyl; C_3-C_8 of aryl, Ar-alkyl, heterocyclic, carbocyclic, cycloalkyl, heteroalkylcycloalkyl, alkylcarbonyl, heteroaryl; or 1-8 carbon atoms of esters, ether, or amide; or polyethyleneoxy unit of formula $(OCH_2CH_2)_p$ or $(OCH_2CH(CH_3))_p$, wherein p is an integer from 0 to about 1000, or combination above thereof.

58. The compound according to Claim **1** or, ~~**2, 3, or 4**~~, wherein W, L_1, L_2, V_1, and V_2 independently contain:

(A): a self-immolative component, peptidic units, a hydrazone bond, a disulfide, an ester, an oxime, an amide, or a thioether bond;~~.~~ The self-immolative unit includes aromatic compounds that

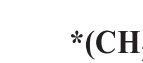
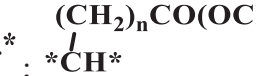
are electronically similar to the para-aminobenzyl-carbamoyl (PAB) groups, 2-aminoimidazol-5-methanol derivatives, heterocyclic PAB analogs, beta-glucuronide, and ortho or para-aminobenzylacetals; or one of the following structures:


; 
; 
;

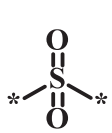
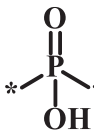
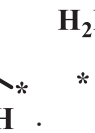
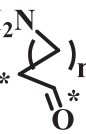
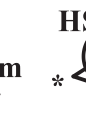
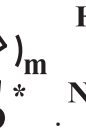

; or 
wherein the (*) atom is the point of attachment

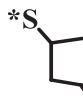
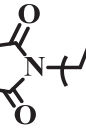
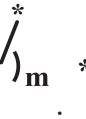
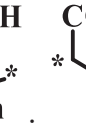
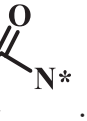
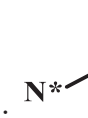
of another component; X^1, Y^1, Z^2 and Z^3 are independently NH, O, or S; Z^1 is independently H, NHR_1, OR_1, SR_1, COX_1R_1, wherein X_1 and R_1 are defined above; v is 0 or 1; U^1 is independently H, OH, C_1~C_6 alkyl, $(OCH_2CH_2)_n$, F, Cl, Br, I, OR_5, SR_5, NR_5R_5', N=NR_5, N=R_5, NR_5R_5', NO_2, SOR_5R_5', SO_2R_5, SO_3R_5, OSO_3R_5, PR_5R_5', POR_5R_5', $PO_2R_5R_5$', $OPO(OR_5)(OR_5')$, or $OCH_2PO(OR_5(OR_5')$, wherein R_5 and R_5' are independently selected from H, C_1~C_8 alkyl; C_2~C_8 alkenyl, alkynyl, heteroalkyl, or amino acid; C_3~C_8 aryl, heterocyclic, carbocyclic, cycloalkyl, heterocycloalkyl, heteroaralkyl, alkylcarbonyl, or glycoside; or pharmaceutical cation salts;

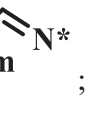
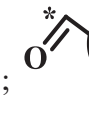
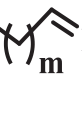
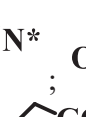
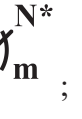
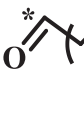
(B): a non-self-immolative linker component containing one of the following structures:

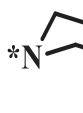
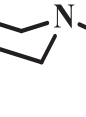
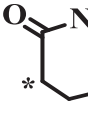
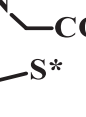

;
; 
;


;
; 
;

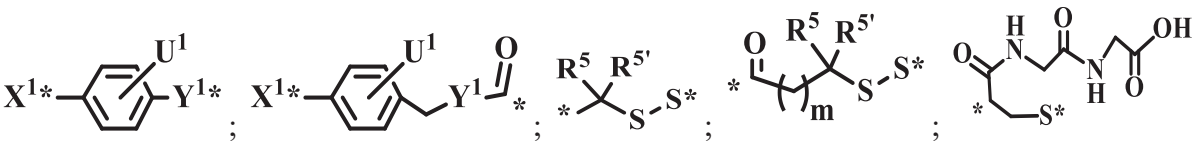

; 
; 
; 
; 
; 
; 
; 
;


; 
; 
; 
; 
; 
; 
; 
;

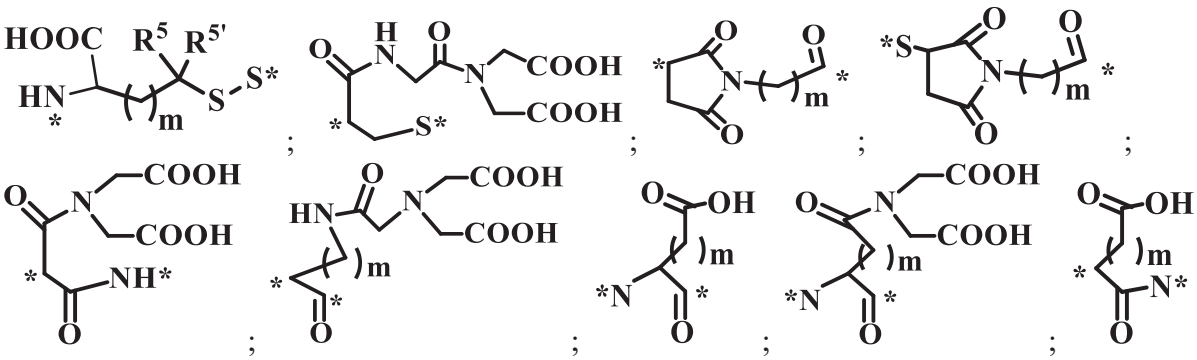

; 
; 
; 
; 
; 
; 
; 
;


; 
; 
; 
; 
;
;
;
;

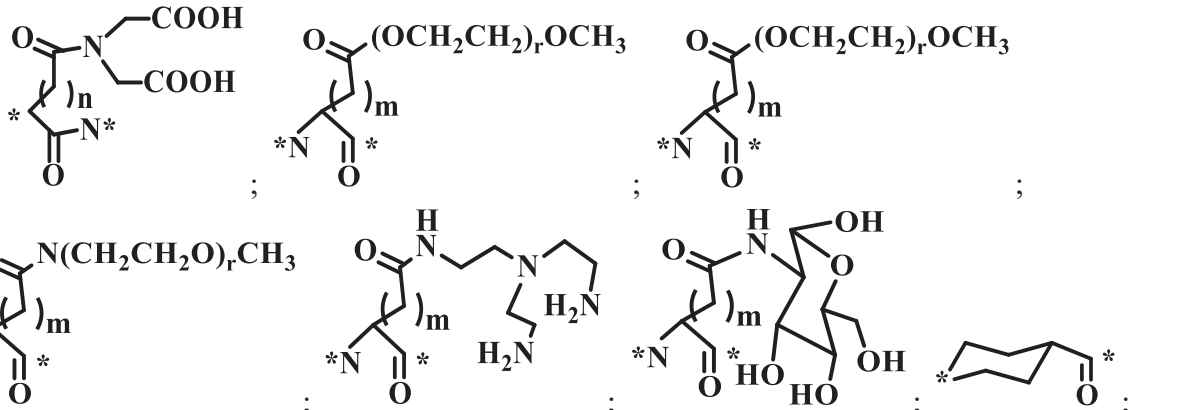
;
;
;
;
;
;
;
;



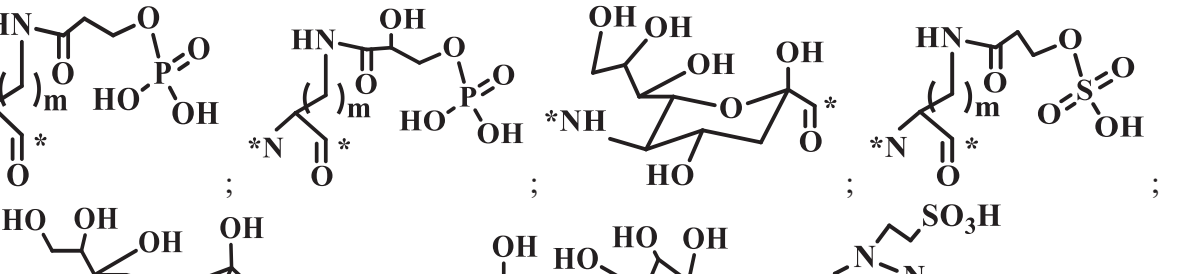
;



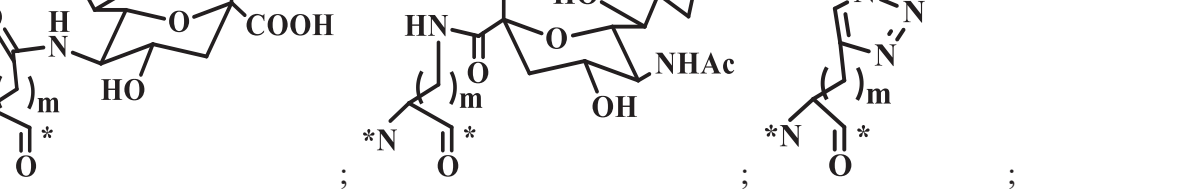
;



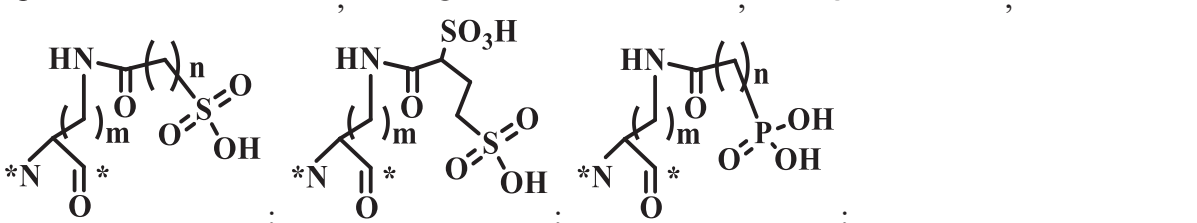
;



;



;



;

;

wherein the (*) atom is the point of attachment of additional spacer or releasable linkers, the cytotoxic agents, and/or the binding molecules; X^1, Y^1, U^1, R^5, $R^{5'}$ are defined as above; r is 0~100; m and n are 0~20 independently~~.~~;

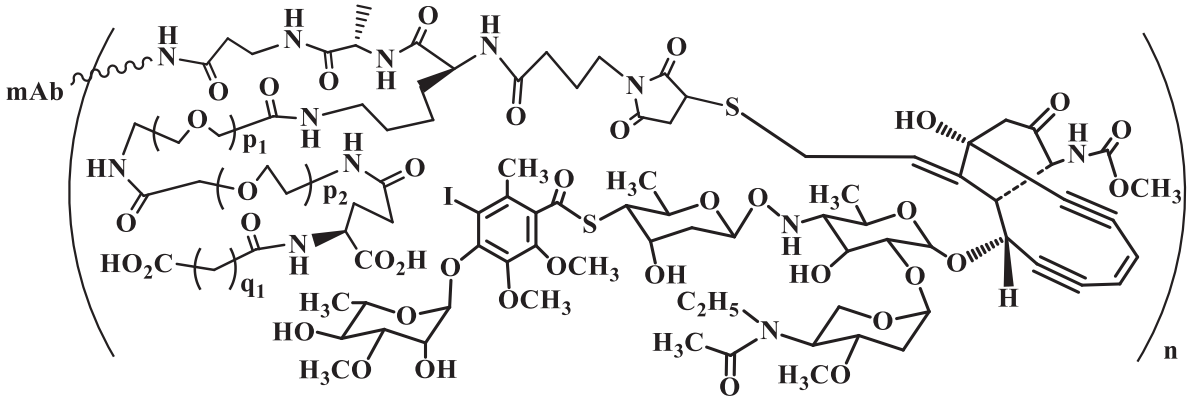
(C): a releasable component that at least one bond that can be broken under physiological conditions: a pH-labile, acid-labile, base-labile, oxidatively labile, metabolically labile, biochemically labile or enzyme-labile bond, which having one of the following structures:

$-(CR_{15}R_{16})_m(Aa)r(CR_{17}R_{18})_n(OCH_2CH_2)_t-$, $-(CR_{15}R_{16})_m(CR_{17}R_{18})_n(Aa)_r(OCH_2CH_2)_t-$, $-(Aa)_r-(CR_{15}R_{16})_m(CR_{17}R_{18})_n(OCH_2CH_2)_t-$, $-(CR_{15}R_{16})_m(CR_{17}R_{18})_n(OCH_2CH_2)_r(Aa)_t-$, $-(CR_{15}R_{16})_m(CR_{17}=CR_{18})(CR_{19}R_{20})_n(Aa)_t(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m(NR_{11}CO)(Aa)_t(CR_{19}R_{20})_n-(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m(Aa)_t(NR_{21}CO)(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m(OCO)(Aa)_t-(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m(OCNR_{17})(Aa)_t(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m-(CO)(Aa)_t-(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m(NR_{21}CO)(Aa)_t(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m-(OCO)(Aa)_t(CR_{19}R_{20})_n-(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m(OCNR_{17})(Aa)_t(CR_{19}R_{20})_n-(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m(CO)(Aa)_t(CR_{19}R_{20})_n-(OCH_2CH_2)_r-$, $-(CR_{15}R_{16})_m$-phenyl-$CO(Aa)_t-(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_m$-furyl-$CO(Aa)_t(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16}R_{16})_m$-oxazolyl-$CO(Aa)_t(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_m$-thiazolyl-$CO(Aa)_t(CCR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_t$-thienyl-$CO(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_t$-imidazolyl-CO-$(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_t$-morpholino-$CO(Aa)_t-(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_t$-piperazino-$CO(Aa)_t(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_t$-N-methylpiperazin-$CO(Aa)_t(CR_{17}R_{18})_n-$, $-(CR_{15}R_{16})_m-(Aa)_t$phenyl-, $-(CR_{15}R_{16})_m-(Aa)_t$furyl-, $-(CR_{15}R_{16})_m$-oxazolyl$(Aa)_t-$, $-(CR_{15}R_{16})_m$-thiazolyl$(Aa)_t-$, $-(CR_{15}R_{16})_m-$thienyl-$(Aa)_t-$, $-(CR_{15}R_{16})_m$-imidazolyl$(Aa)_t-$, $-(CR_{15}R_{16})_m$-morpholino-$(Aa)_t-$, $-(CR_{15}R_{16})_m$-piperazino-$(Aa)_t-$, $-(CR_{15}R_{16})_m$-N-methylpiperazino-$(Aa)_t-$,

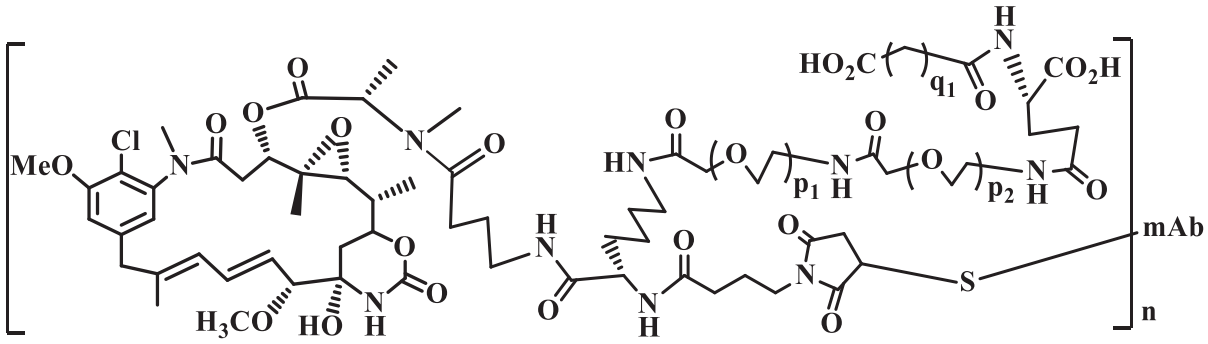
$-K(CR_{15}R_{16})_m(Aa)r(CR_{17}R_{18})_n(OCH_2CH_2)_t-$, $-K(CR_{15}R_{16})_m(CR_{17}R_{18})_n(Aa)_r(OCH_2CH_2)_t-$, $-K(Aa)_r-(CR_{15}R_{16})_m(CR_{17}R_{18})_n(OCH_2CH_2)_t-$, $-K(CR_{15}R_{16})_m(CR_{17}R_{18})_n(OCH_2CH_2)_r(Aa)_t-$, $-K(CR_{15}R_{16})_m-(CR_{17}=CR_{18})(CR_{19}R_{20})_n(Aa)_t(OCH_2CH_2)_r$, $-K(CR_{15}R_{16})_m(NR_{11}CO)(Aa)_t-(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-K(CR_5R_6CR_{15}R_{16})_m(Aa)_t(NR_{21}CO)(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-K(CR_{15}R_{16})_m(OCO)(Aa)_t(CR_{19}R_{20})_n-(OCH_2CH_2)_r-$, $-K(CR_{15}R_{16})_m(OCNR_{17})(Aa)_t(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-K(CR_{15}R_{16})_m(CO)(Aa)_t-(CR_{19}R_{20})_n(OCH_2CH_2)_r-$, $-K(CR_{15}R_{16})_m(NR_{21}CO)(Aa)_t(CR_{19}R_{20})_n-(OCH_2CH_2)_r-$, $-K(CR_{15}R_{16})_m-$

$(OCO)(Aa)_t(CR_{19}R_{20})_n(OCH_2CH_2)_r$-, -$K(CR_{15}R_{16})_m(OCNR_{17})(Aa)_t$-$(CR_{19}R_{20})_n(OCH_2CH_2)_r$-, -K-$(CR_{15}R_{16})_m(CO)(Aa)_t(CR_{19}R_{20})_n(OCH_2CH_2)_r$-, -$K(CR_{15}R_{16})_m$-phenyl-$CO(Aa)_t(CR_{17}R_{18})_n$-, -K-$(CR_{15}R_{16})_m$-furyl-$CO(Aa)_t(CR_{17}R_{18})_n$-, -$K(CR_{15}R_{16})_m$-oxazolyl-$CO(Aa)_t(CR_{17}R_{18})_n$-, -$K(CR_{15}R_{16})_m$-thiazolyl-$CO(Aa)_t$-$(CR_{17}R_{18})_n$-, -$K(CR_{15}R_{16})_t$-thienyl-$CO(CR_{17}R_{18})_n$-, -$K(CR_{15}R_{16})_t$imidazolyl-$CO(CR_{17}R_{18})_n$-, -$K(CR_5R_6)_t$morpholino-$CO(Aa)_t$-$(CR_{17}R_{18})_n$-, -$K(CR_{15}R_{16})_t$-piperazino-$CO(Aa)_t$-$(CR_{17}R_{18})_n$-, -$K(CR_{15}R_{16})_t$-N-methylpiperazin-$CO(Aa)_t(CR_{17}R_{18})_n$-, -$K(CR_{15}R_{16})_m$-$(Aa)_t$phenyl, -K-$(CR_{15}R_{16})_m$-$(Aa)_t$furyl-, -$K(CR_{15}R_{16})_m$-oxazolyl-$(Aa)_t$-, -$K(CR_{15}R_{16})_m$-thiazolyl$(Aa)_t$-, -$K(CR_{15}R_{16})_m$-thienyl-$(Aa)_t$-, -$K(CR_{15}R_{16})_m$-imidazolyl$(Aa)_t$-, -$K(CR_{15}R_{16})_m$-morpholino$(Aa)_t$-, -$K(CR_{15}R_{16})_m$-piperazino$(Aa)_t$G, -$K(CR_{15}R_{16})_m$-N-methyl-piperazino$(Aa)_t$-; wherein m, Aa, m, n, R_{13}, R_{14}, and R_{15} are described above; t and r here are 0 – 100 independently; R_{16}, R_{17}, R_{18}, R_{19}, and R_{20} are independently chosen from H; halide; C_1~C_8 of alkyl or heteroalkkyl, C_2~C_8 of aryl, alkenyl, alkynyl, ether, ester, amine or amide, C_3~C_8 of aryl, which optionally substituted by one or more halide, CN, $NR_{12}R_{12'}$, CF_3, OR_{12}, Aryl, heterocycle, $S(O)R_{12}$, SO_2R_{12}, $-CO_2H$, $-SO_3H$, $-OR_{12}$, $-CO_2R_{12}$, $-CONR_{12}$, $-PO_2R_{12}R_{13}$, $-PO_3H$ or $P(O)R_{12}R_{12'}R_{13}$; K is NR_{12}, -SS-, -C(=O)-, -C(=O)NH-, -C(=O)O-, -C=NH-O-, -C=N-NH-, -C(=O)NH-NH-, O, S, Se, B, Het (heterocyclic or heteroaromatic ring having C_3-C_{12}); or peptides containing the same or different 1- 20 amino acids.

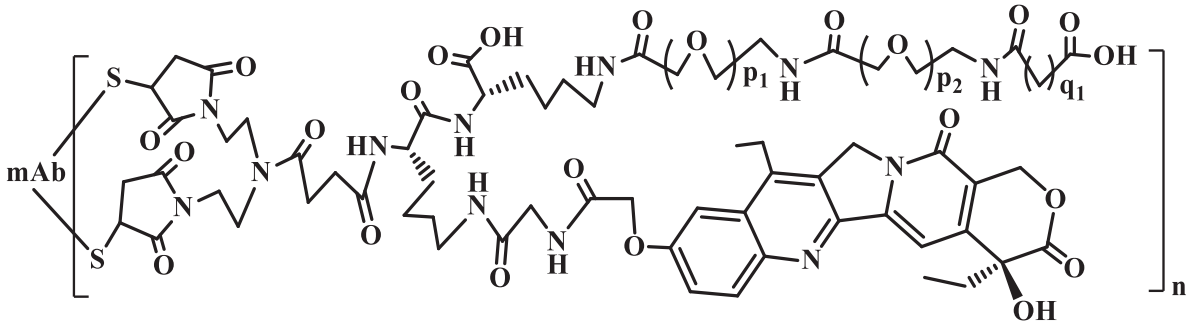
6~~9~~. The conjugate compound according to Claim 1~~ and 2~~ having the following structures of a001 to a198, 49 (C-30), 50 (C-40), 51 (C-48), 78, 125, 141, 149, 163, 171, 174 (C-173), 179, 187, C-238, C-247, C-255, C-271, C-279, C-312, C-313, 132 (C-131), 135 (C-134), C-321, and C-322 illustrated below:



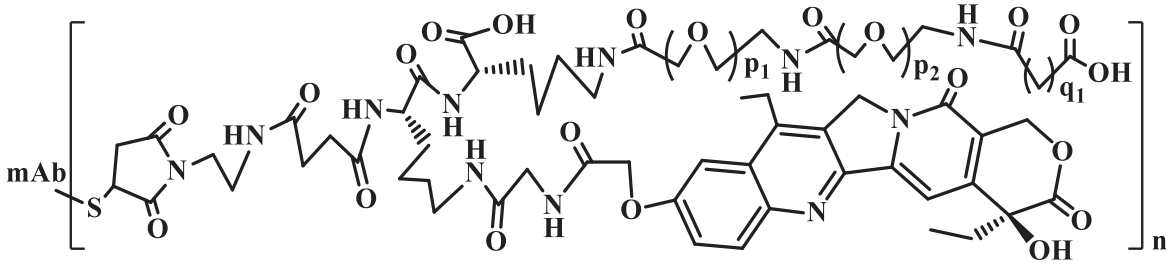
a001,



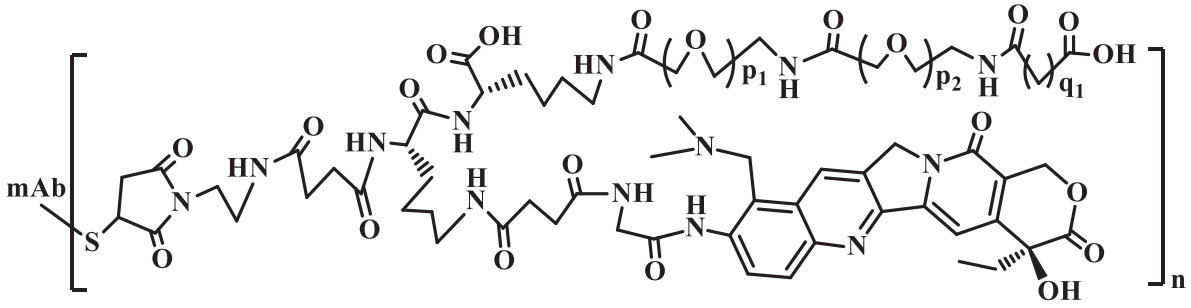
a002,



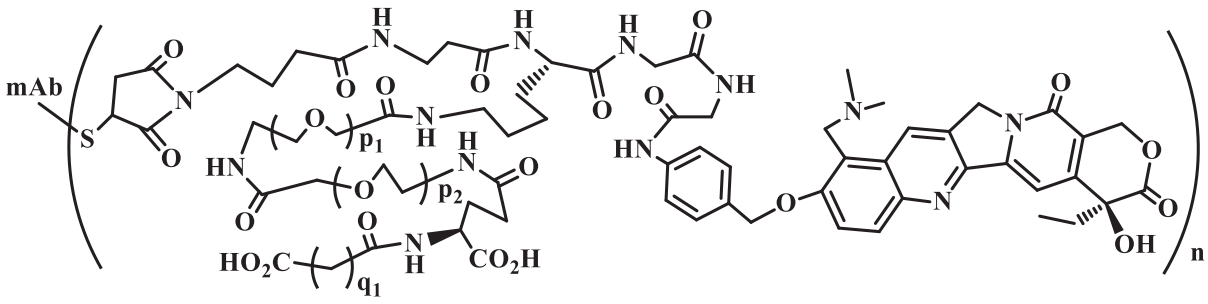
a003,



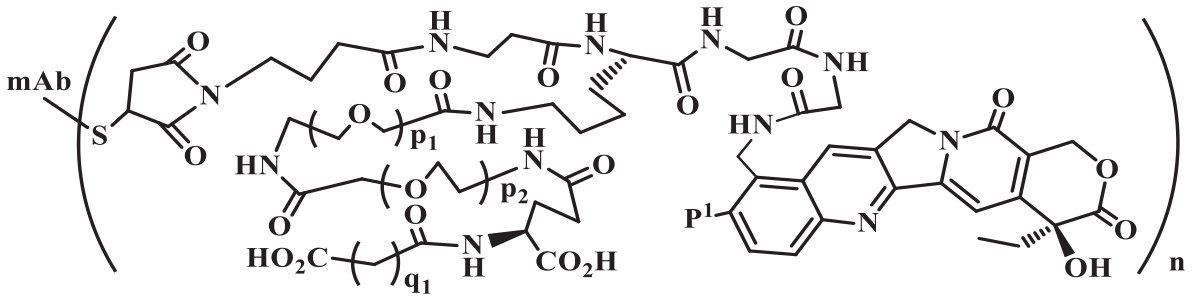
a004,



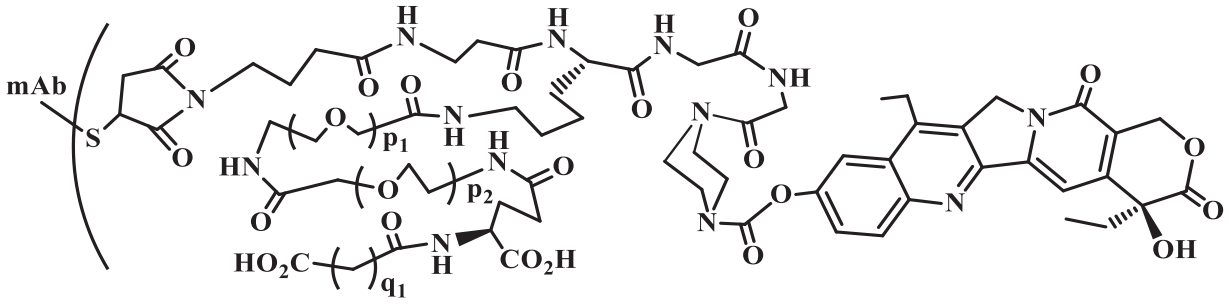
a005,



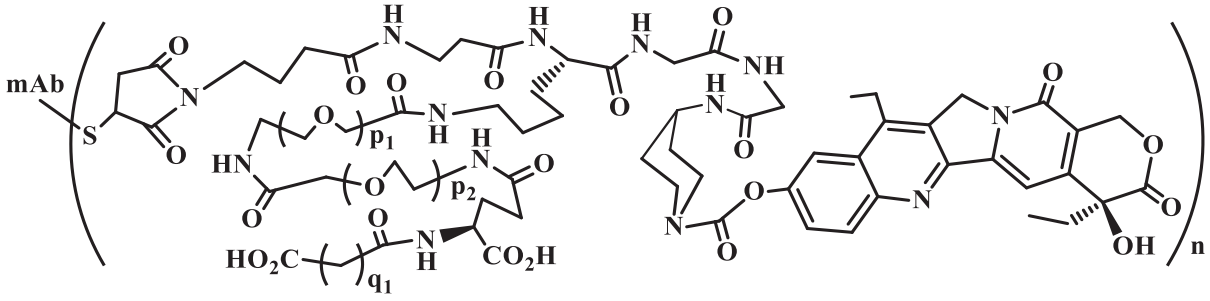
a006,



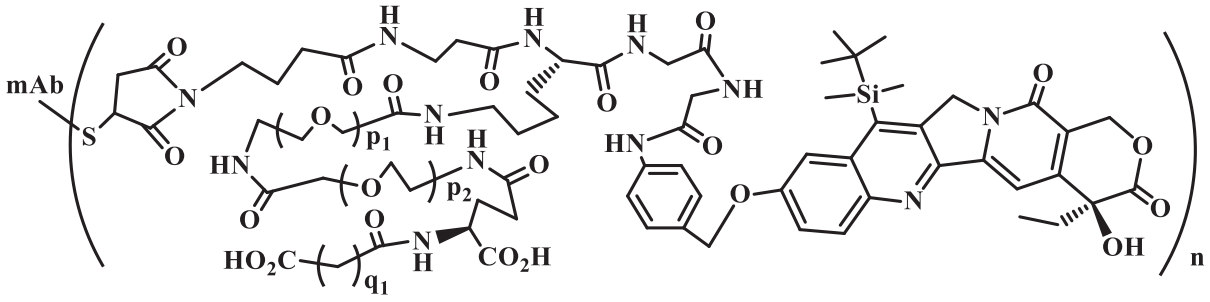
a007,



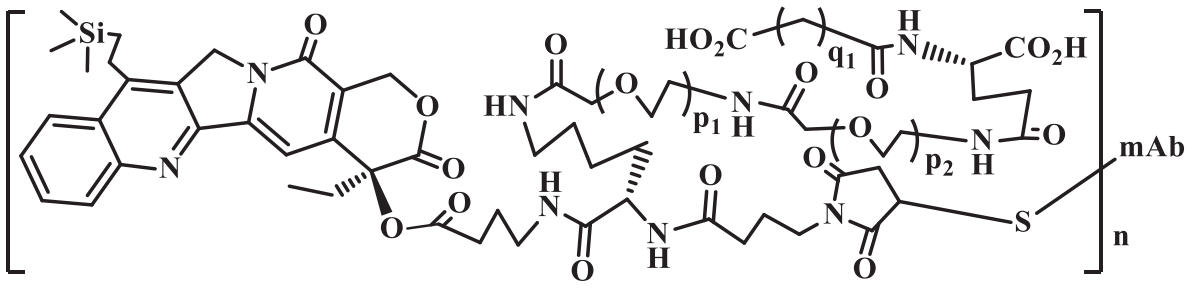
a008,



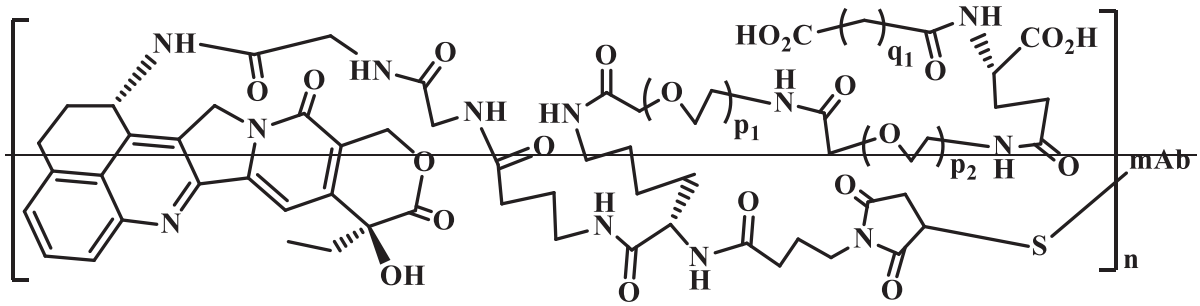
a009,



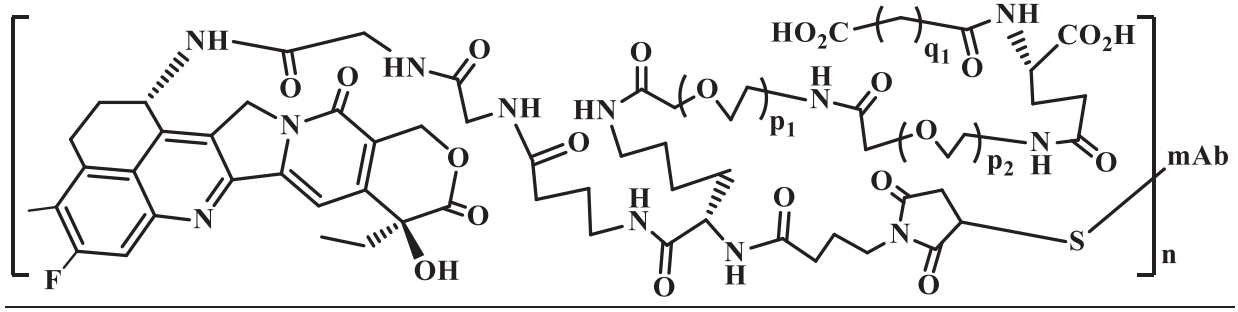
a010,



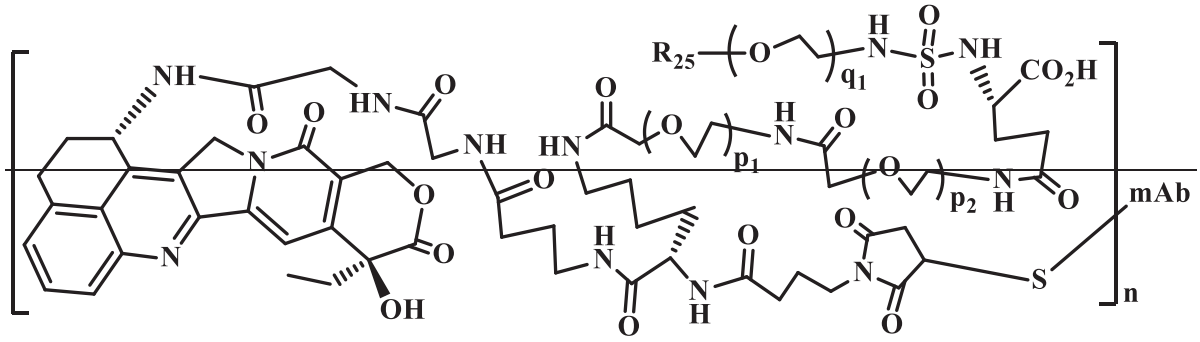
a011,



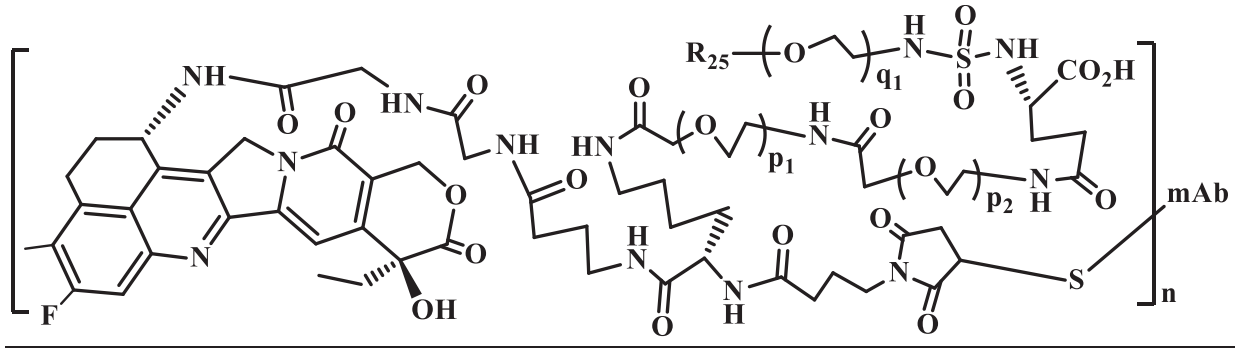
~~a012,~~



a012,

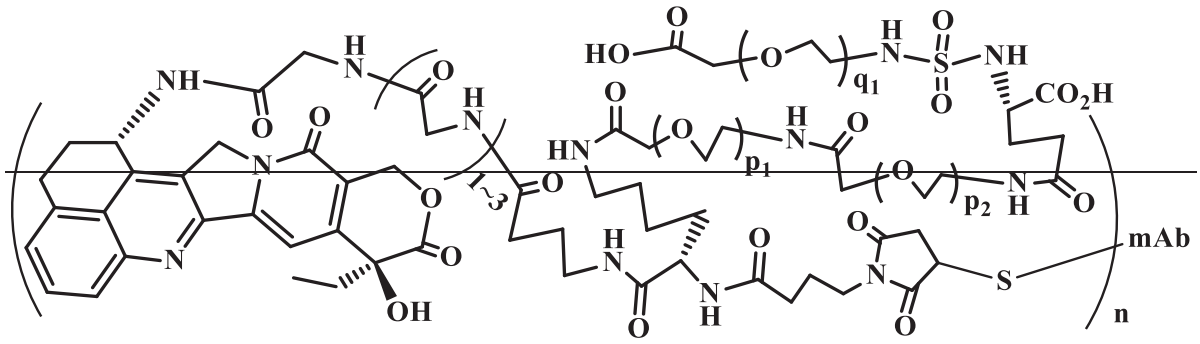


~~a013,~~

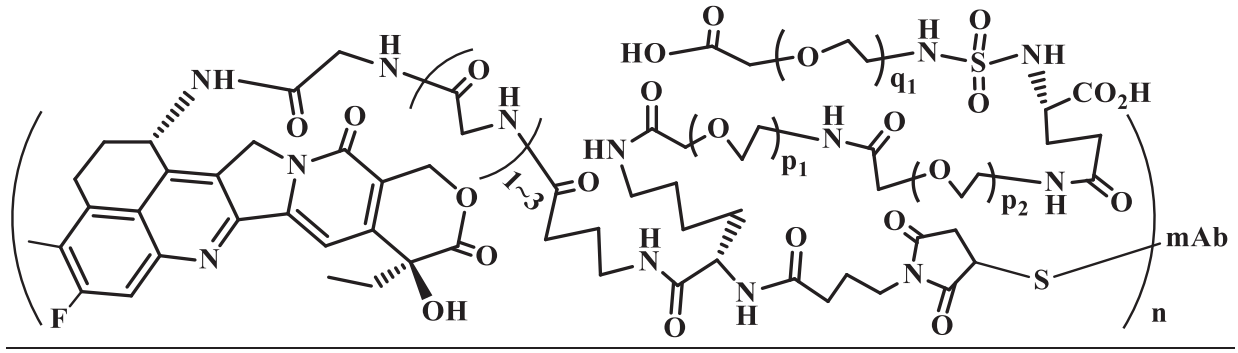


a013,

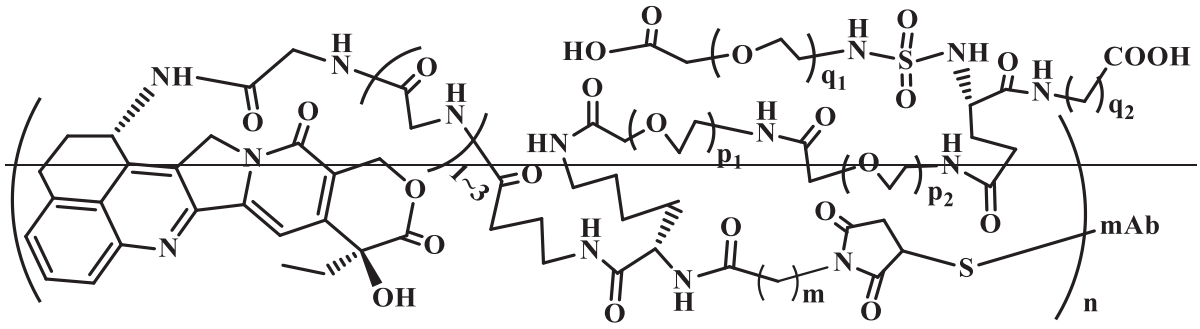
~~a014,~~



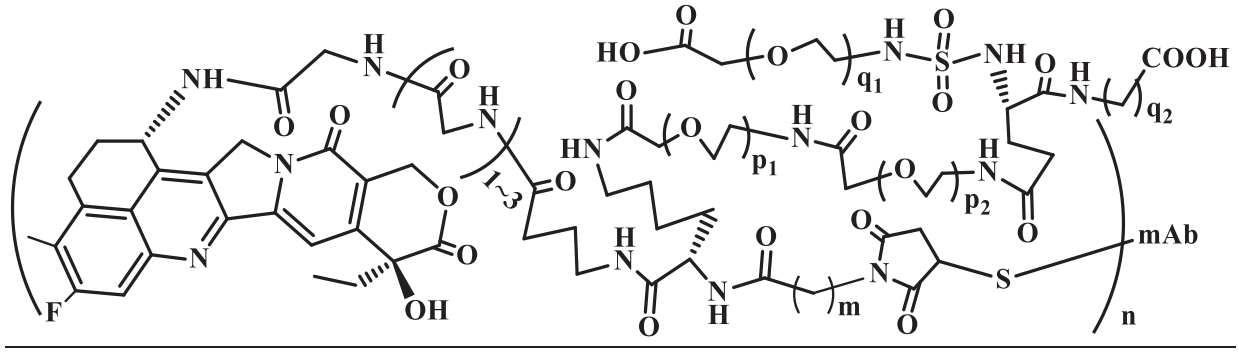
~~a014,~~



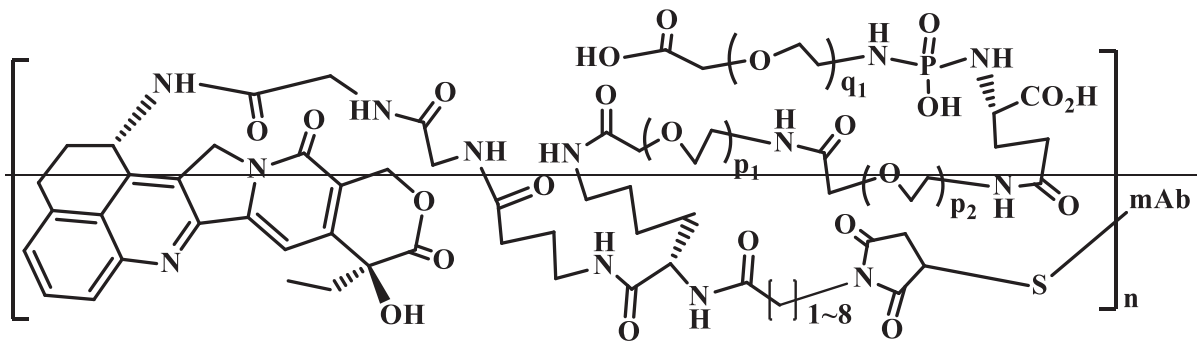
a014,



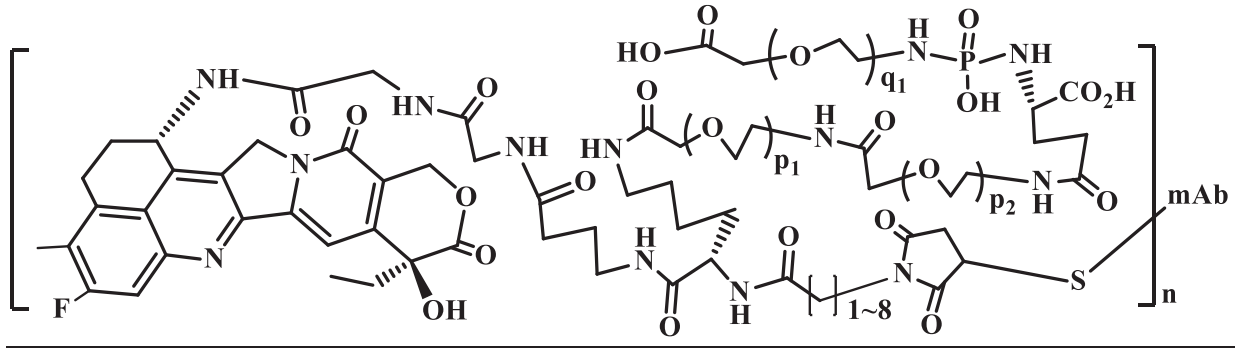
~~a015,~~



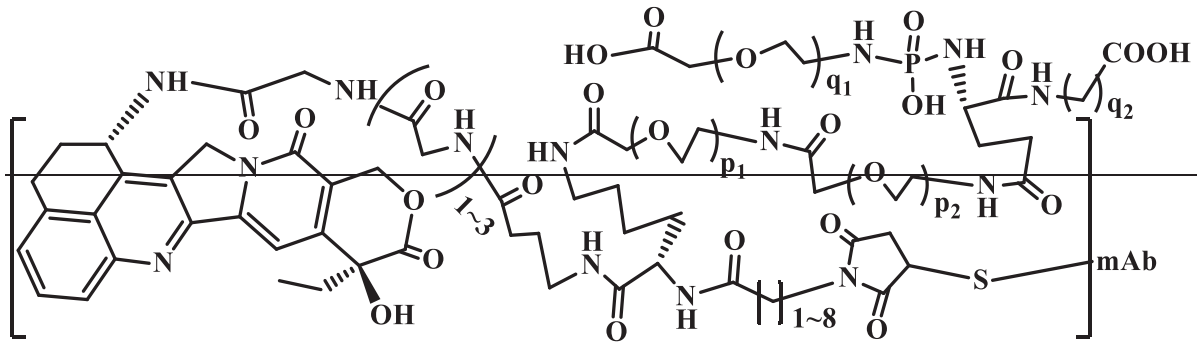
a015,



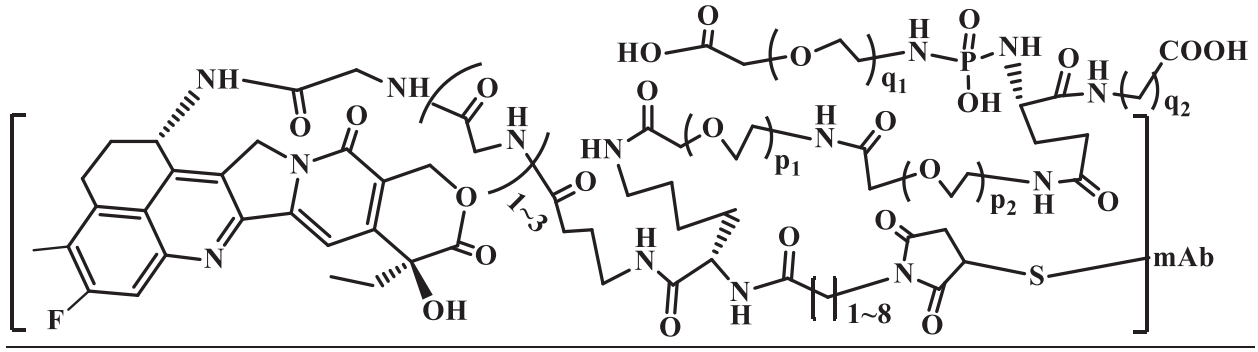
~~a016,~~



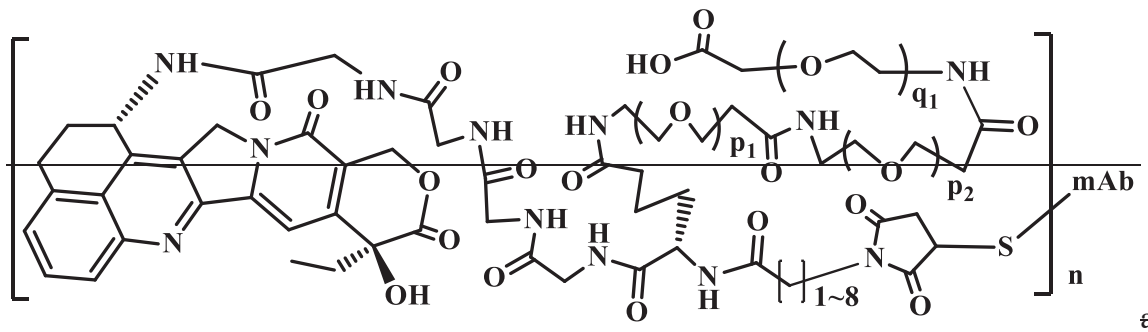
a016,



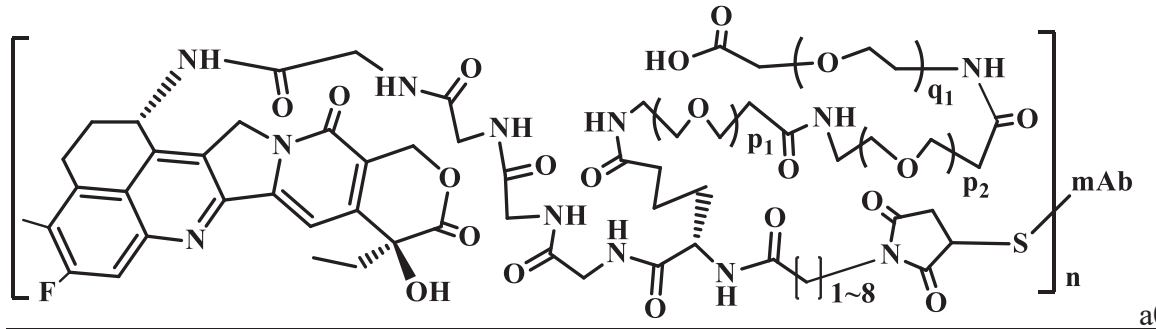
~~a017,~~



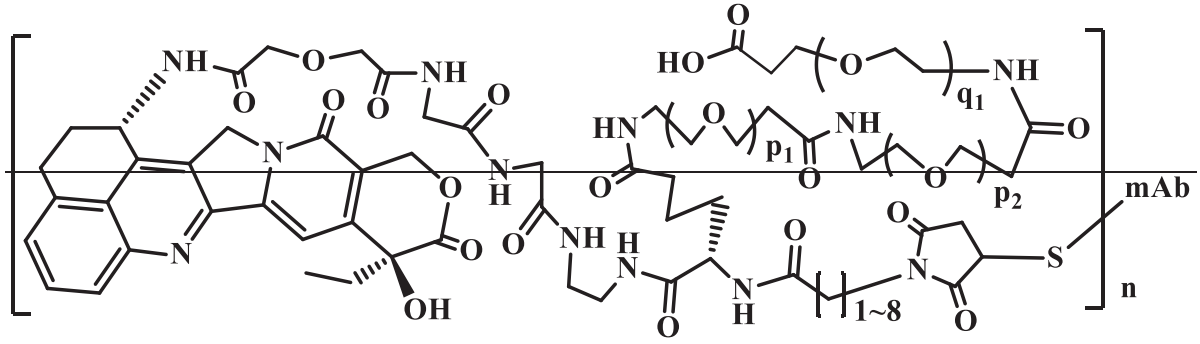
a017,



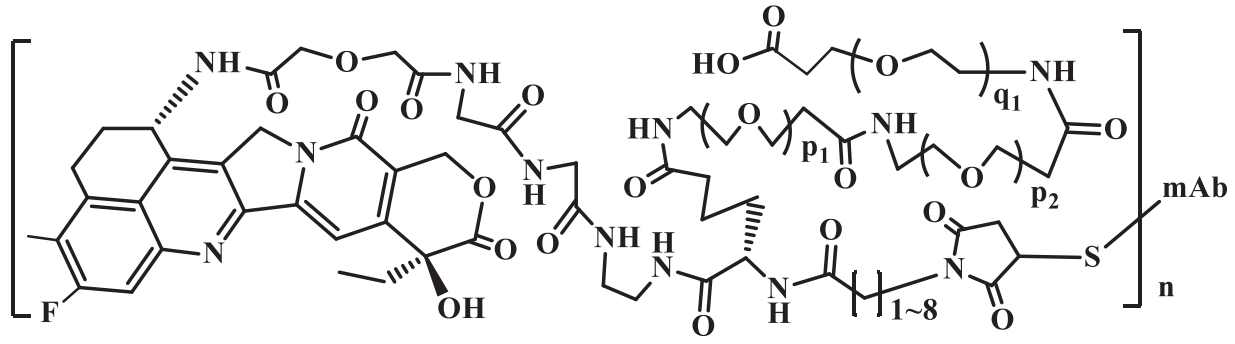
~~a018,~~



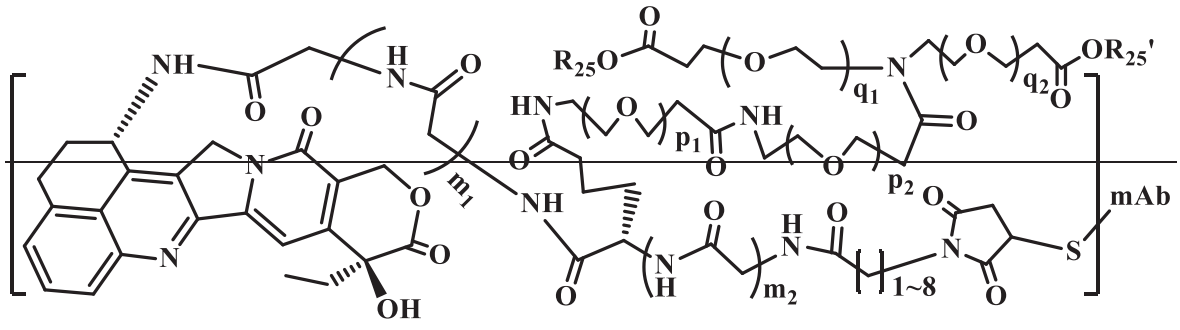
a018,



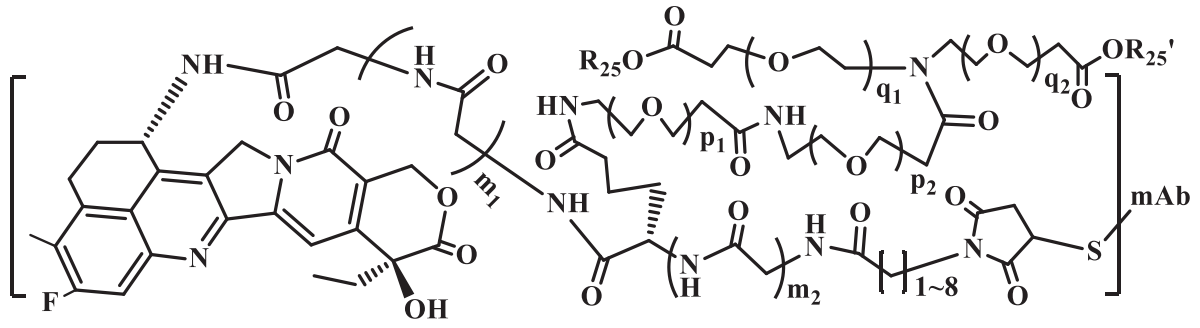
~~a019,~~



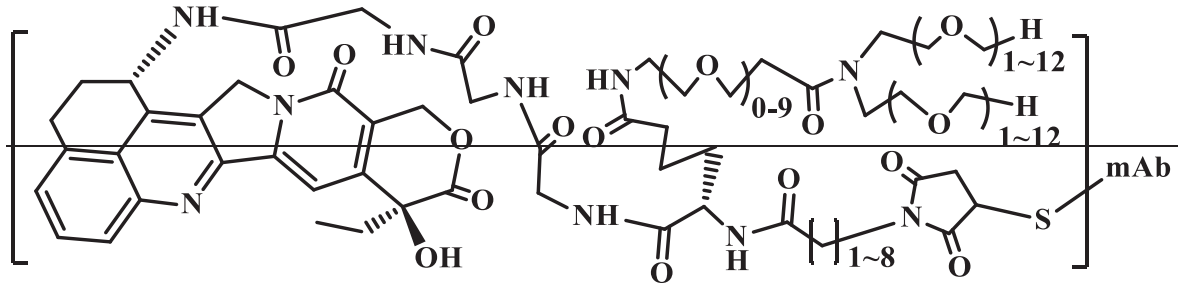
a019,



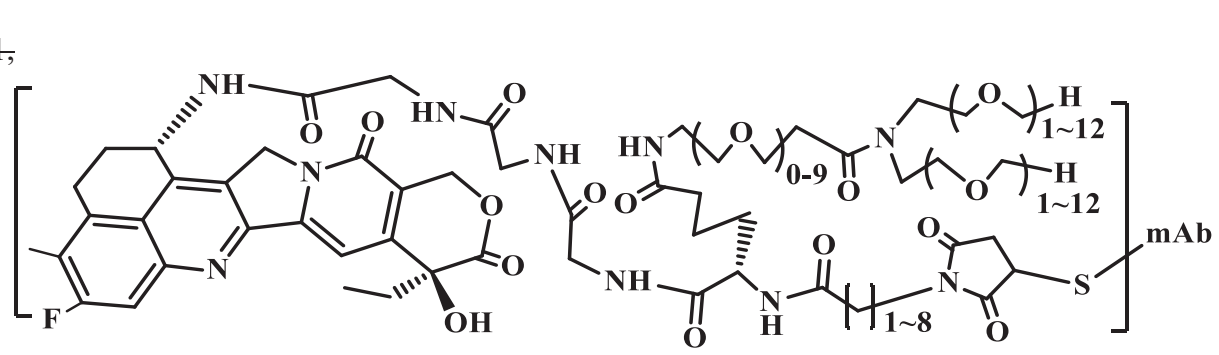
~~a020,~~



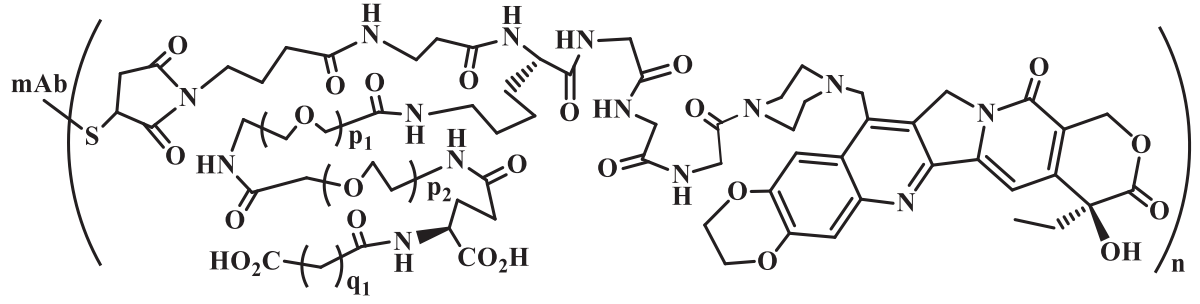
a020,



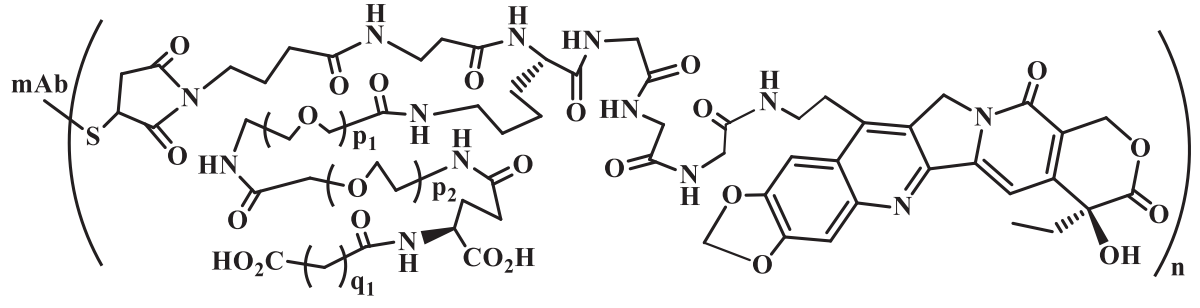
~~a021,~~



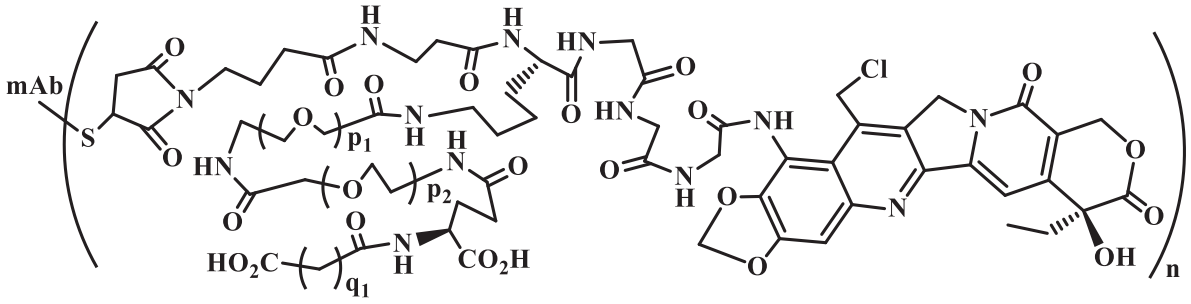
a021,



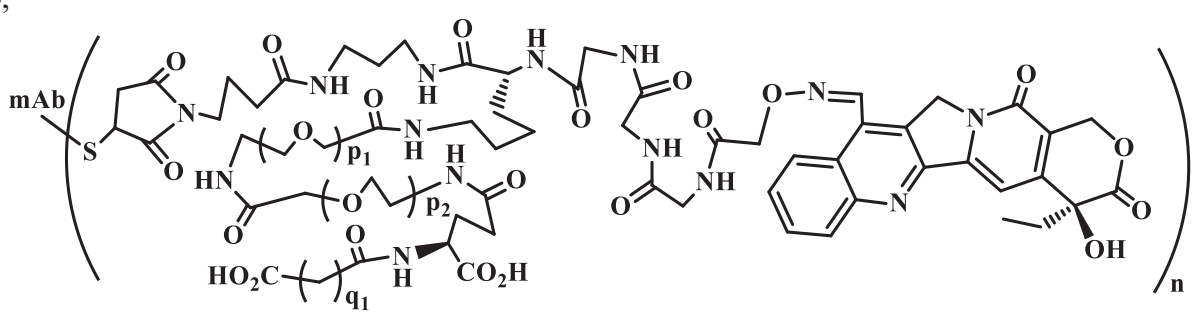
a022,



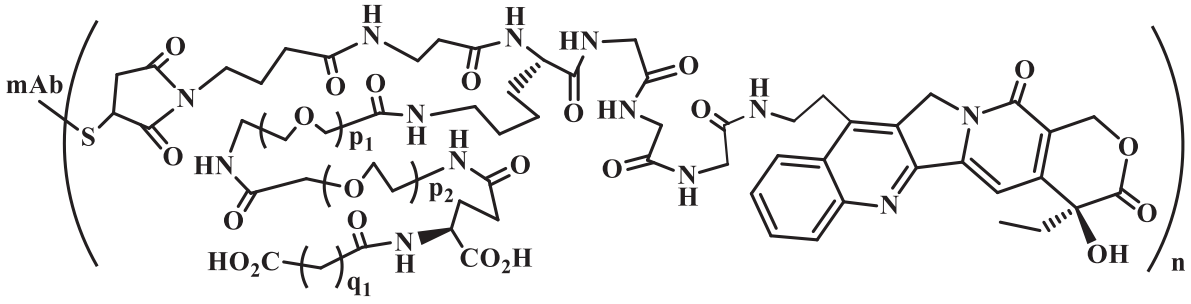
a023,



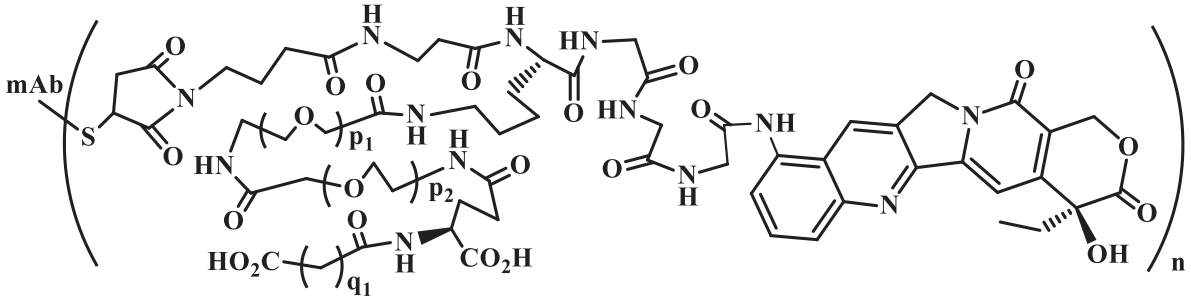
a024,



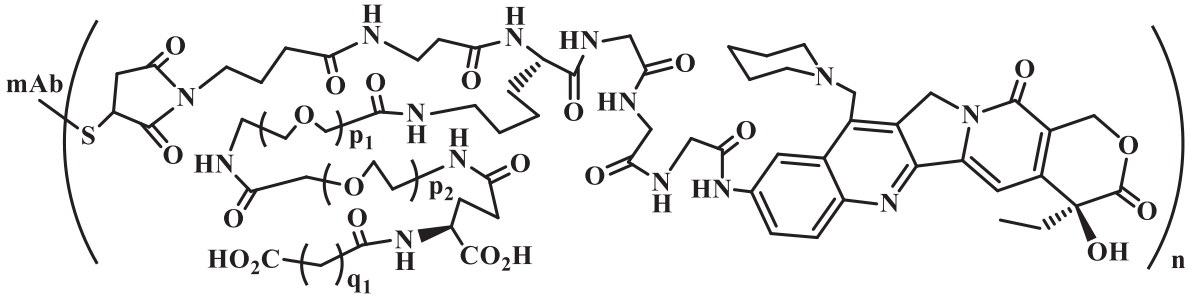
a025,



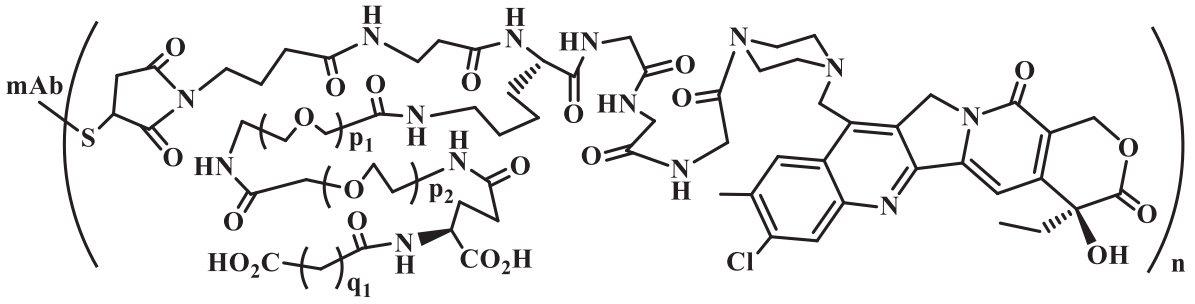
a026,



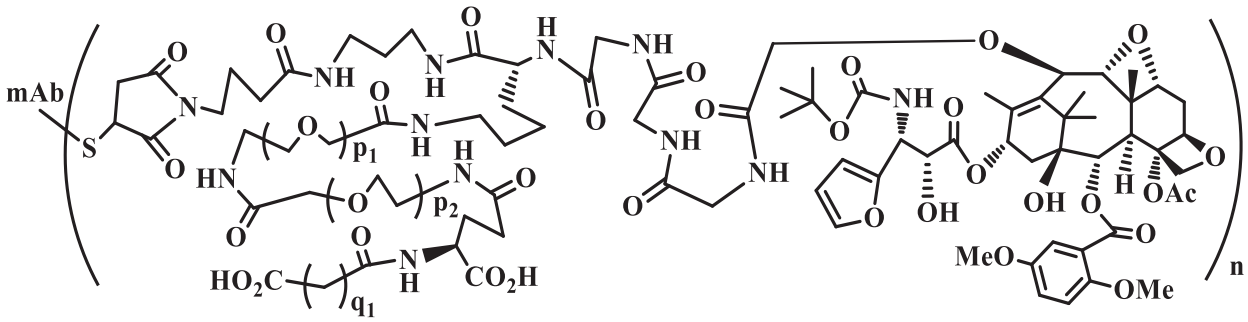
a027,



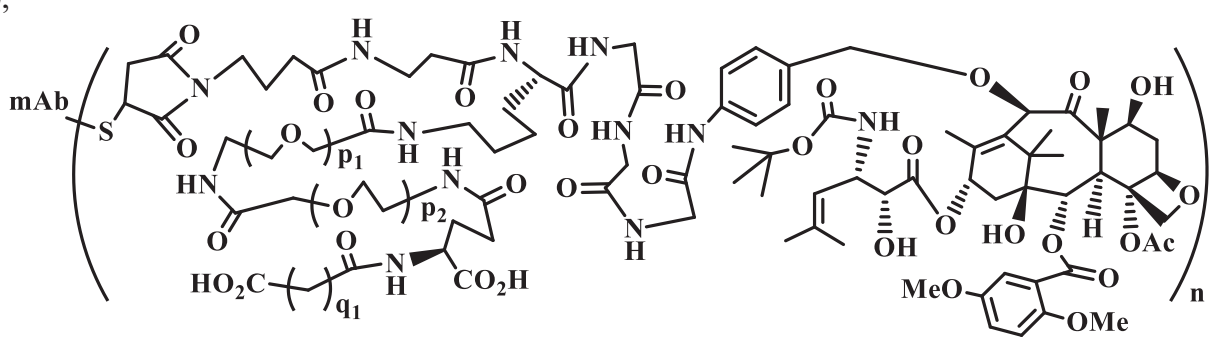
a028，



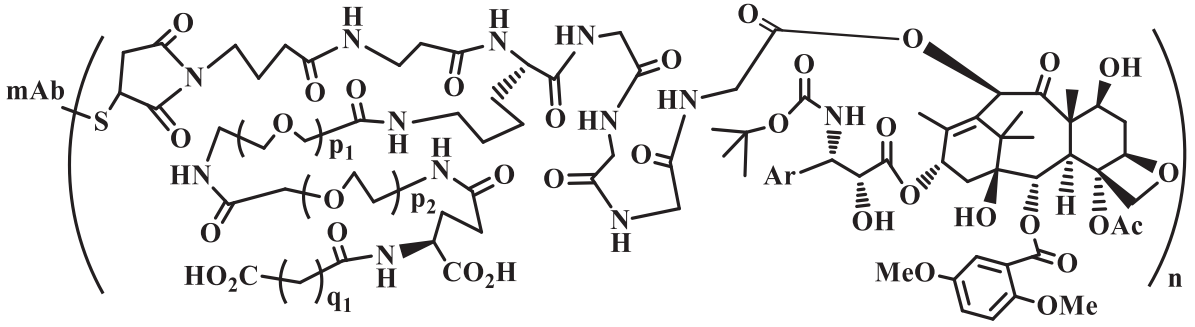
a029,



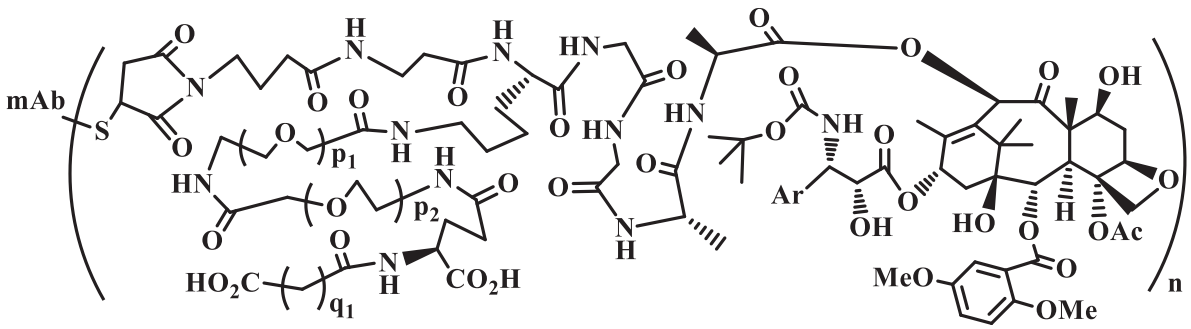
a030,



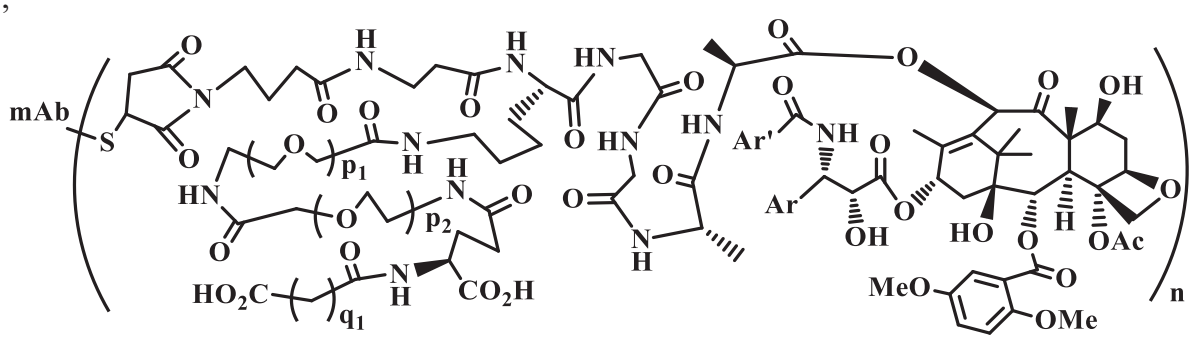
a031,



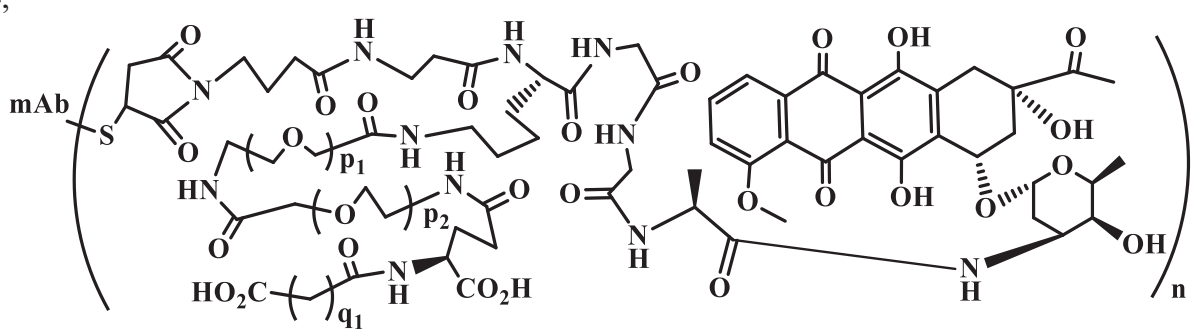
a032,



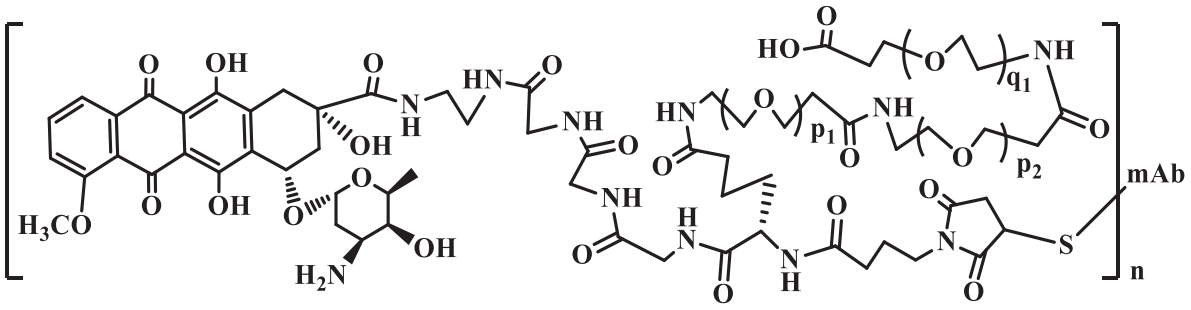
a033,



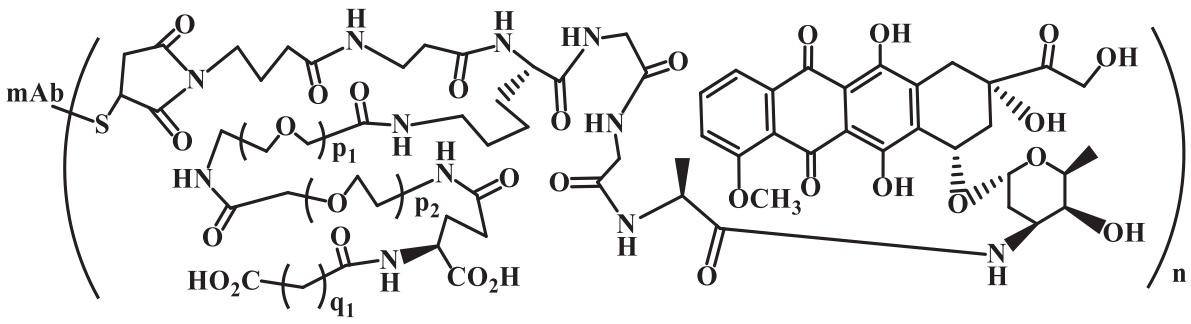
a034,



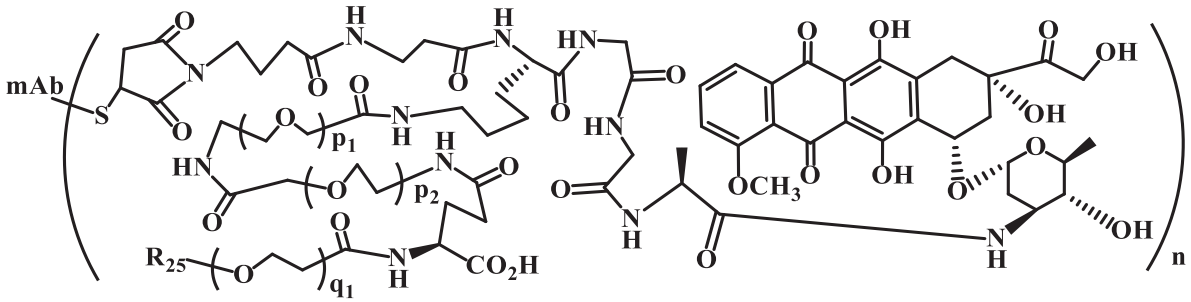
a035,



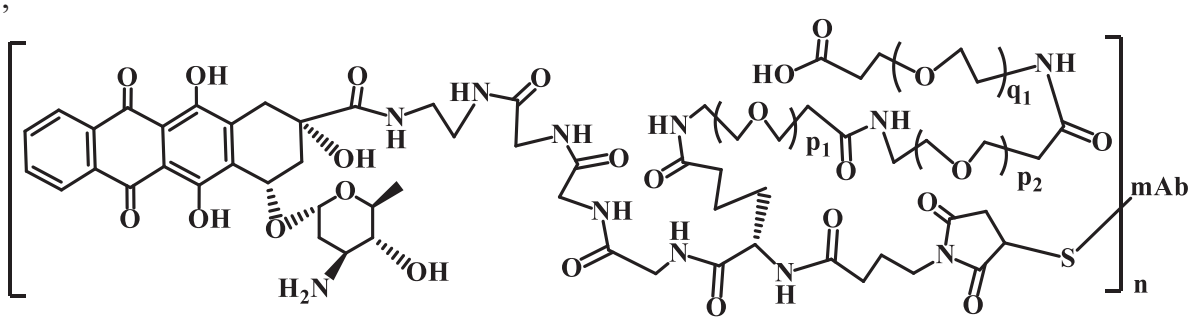
a036,



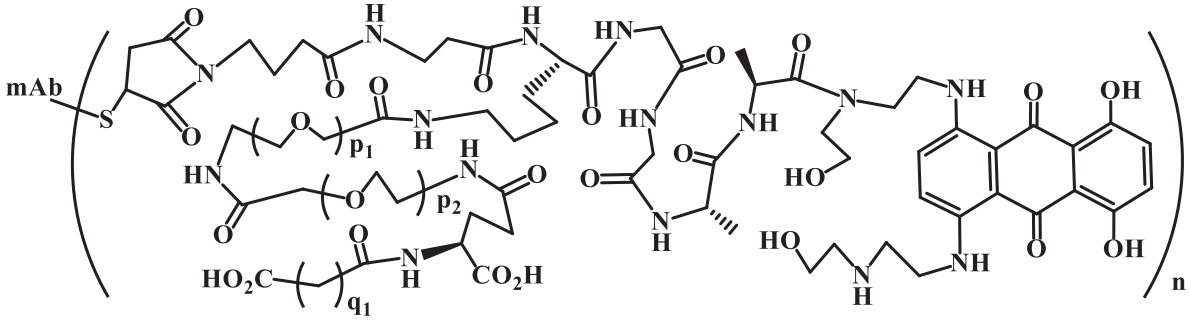
a037,



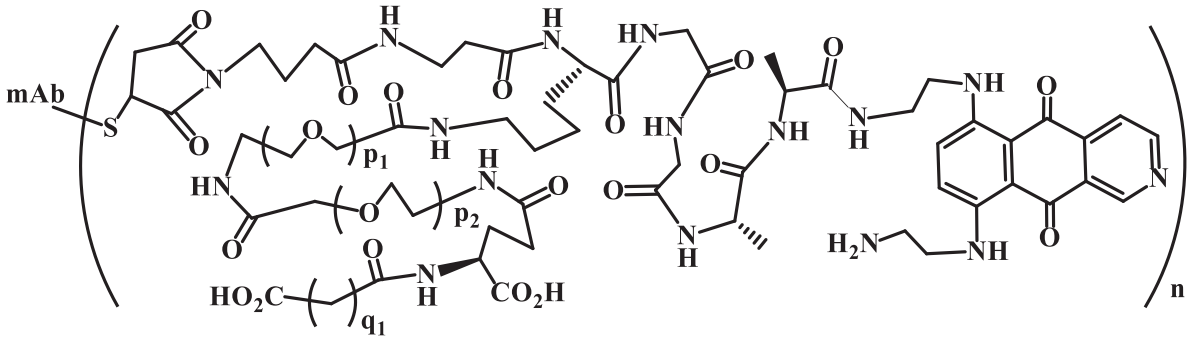
a038,



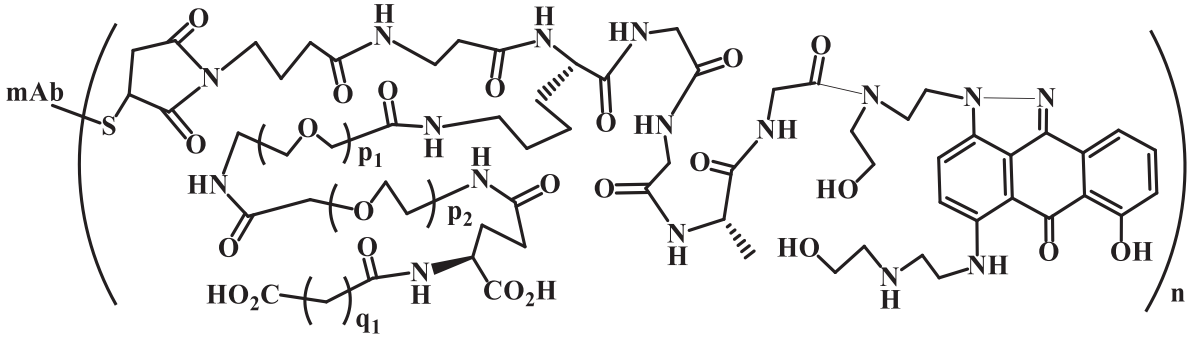
a039,



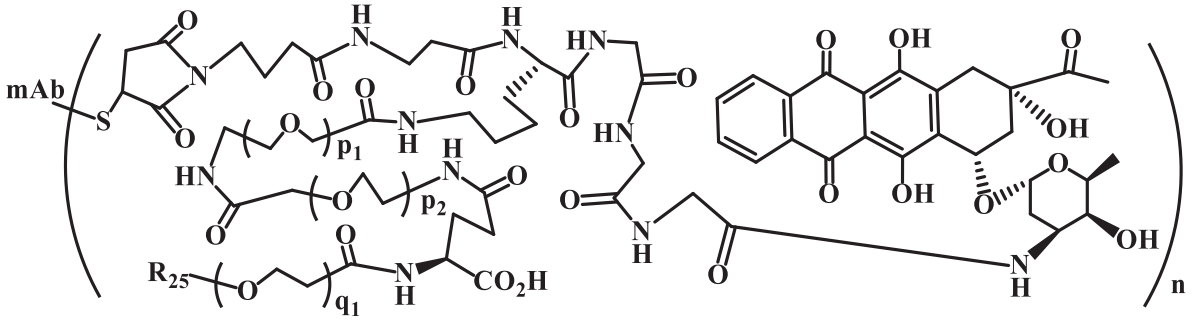
a040,



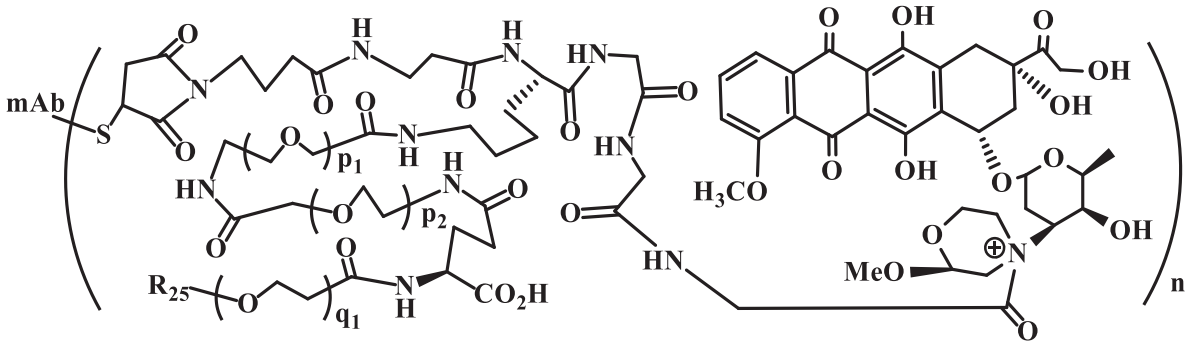
a041,



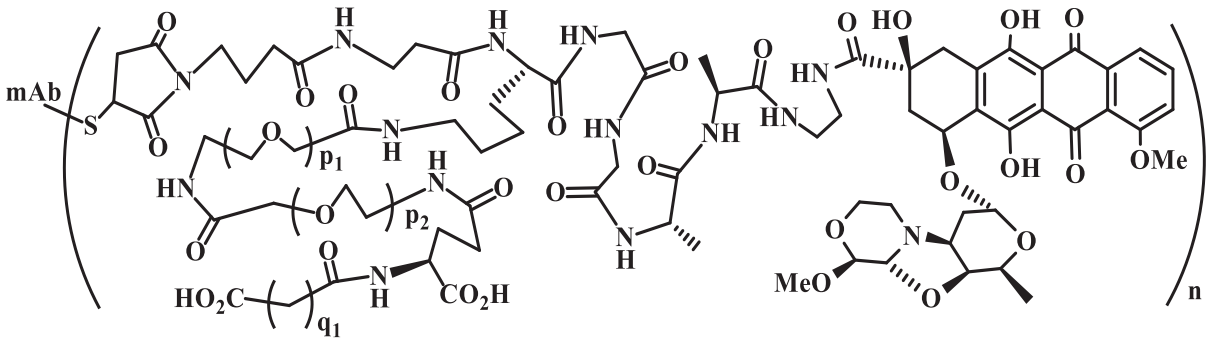
a042,



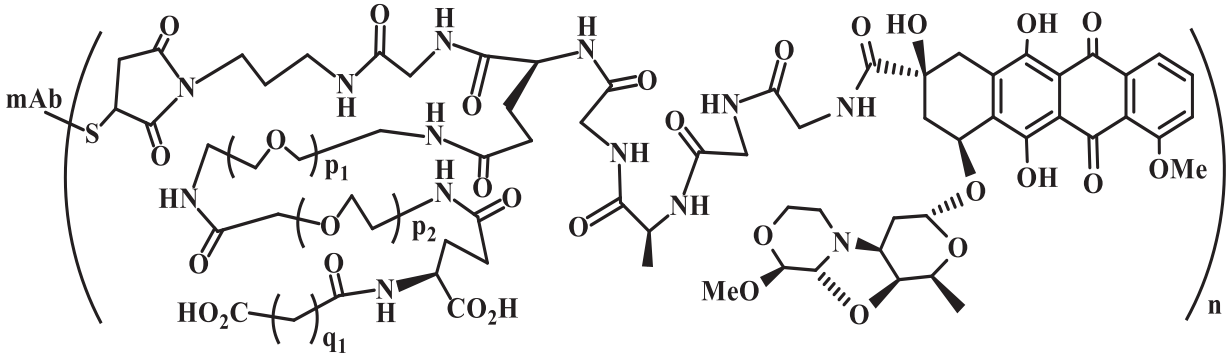
a043,



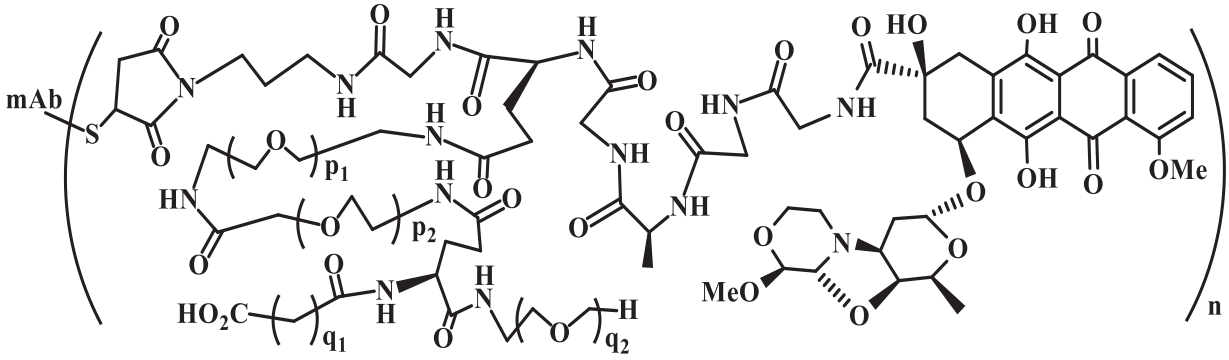
a044,



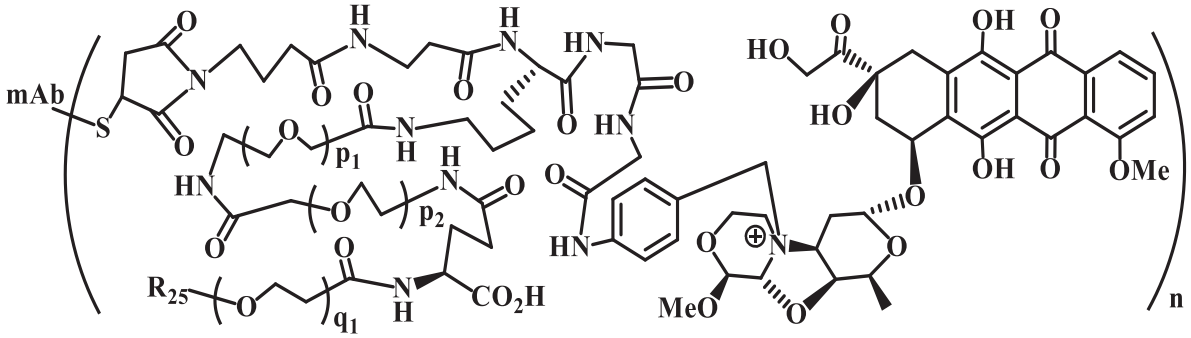
a045,



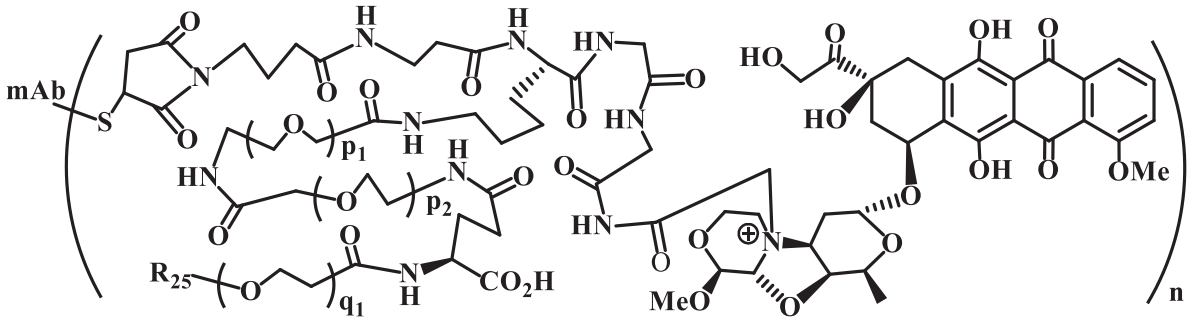
a046,



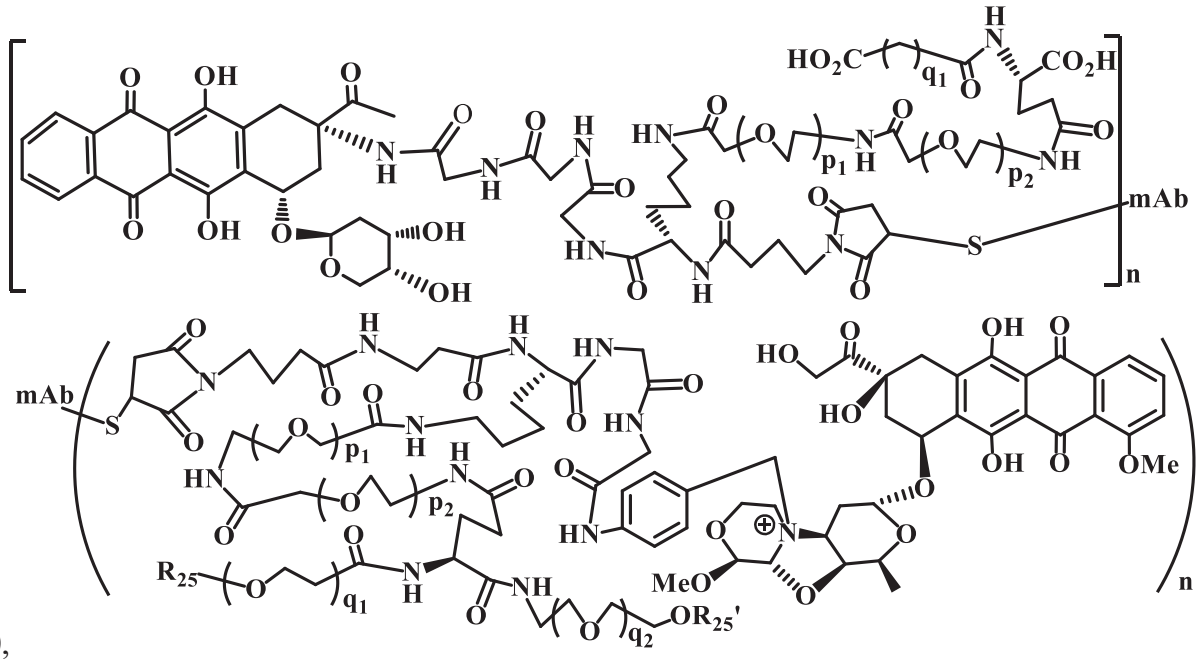
a047,



a048,

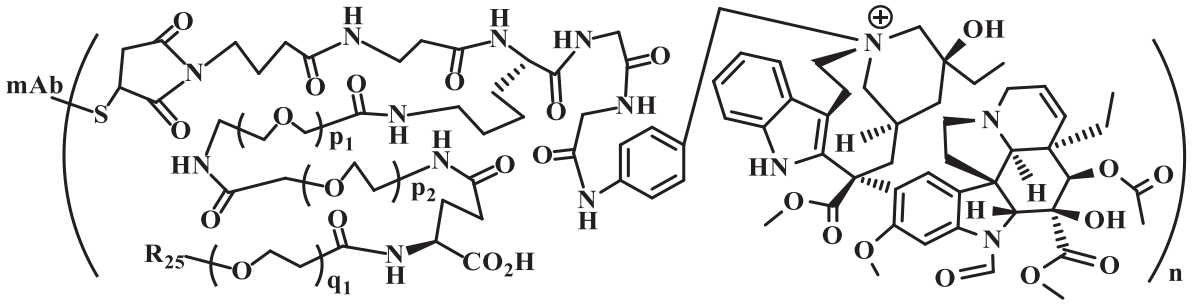


a049,

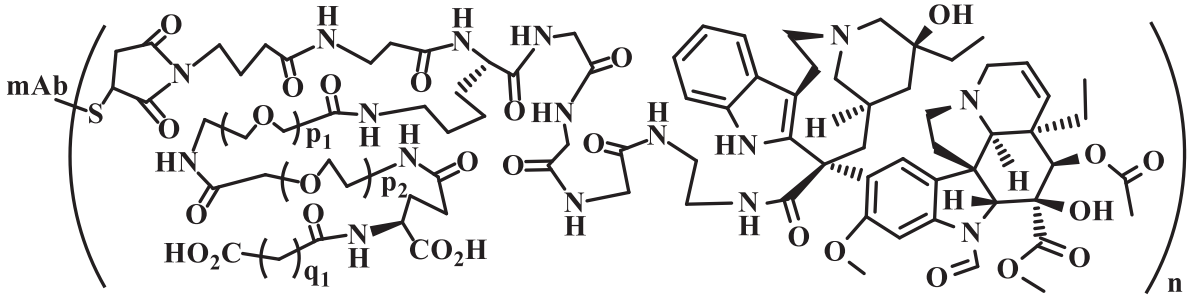


a050,

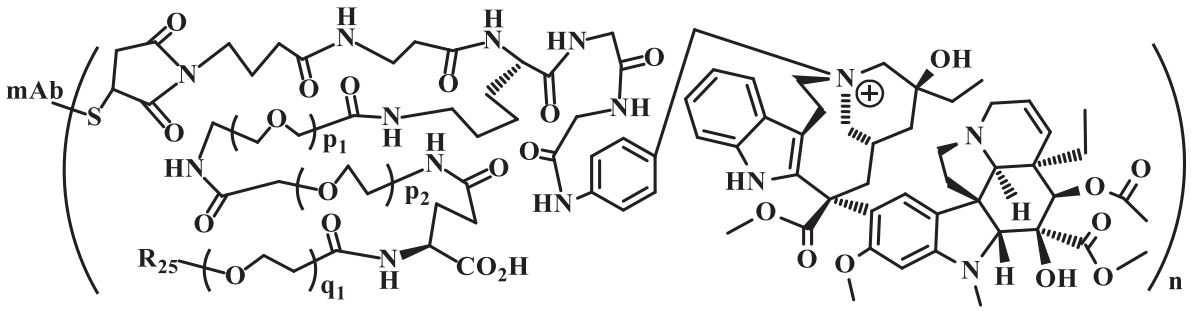
a051,



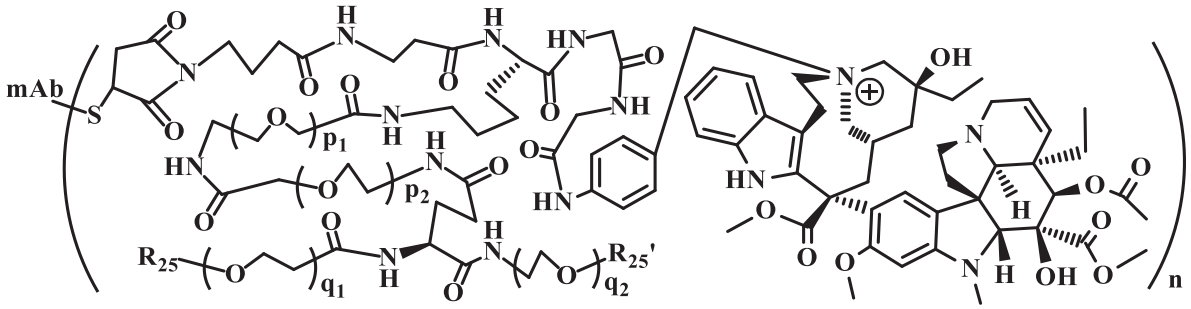
a052,



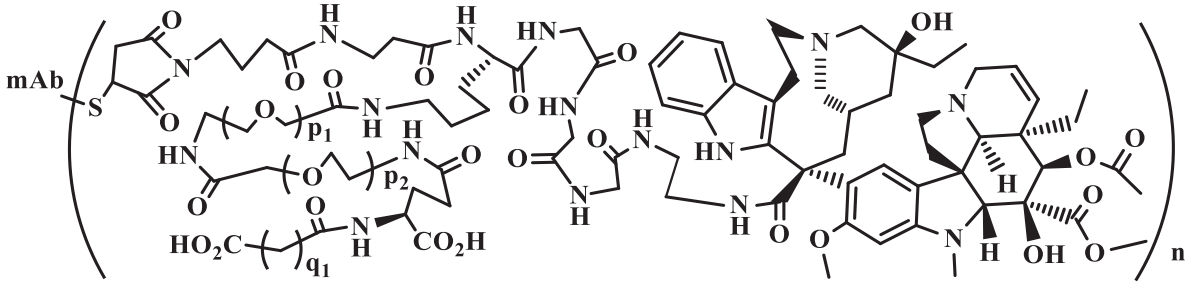
a053,



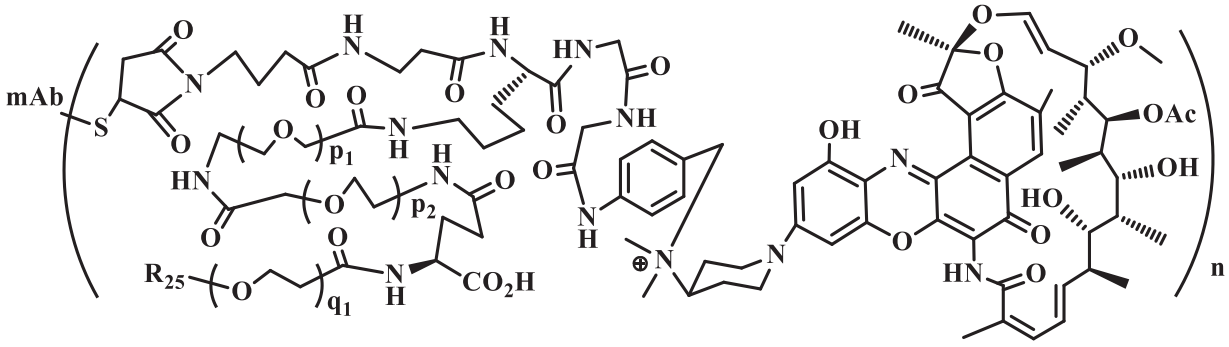
a054,



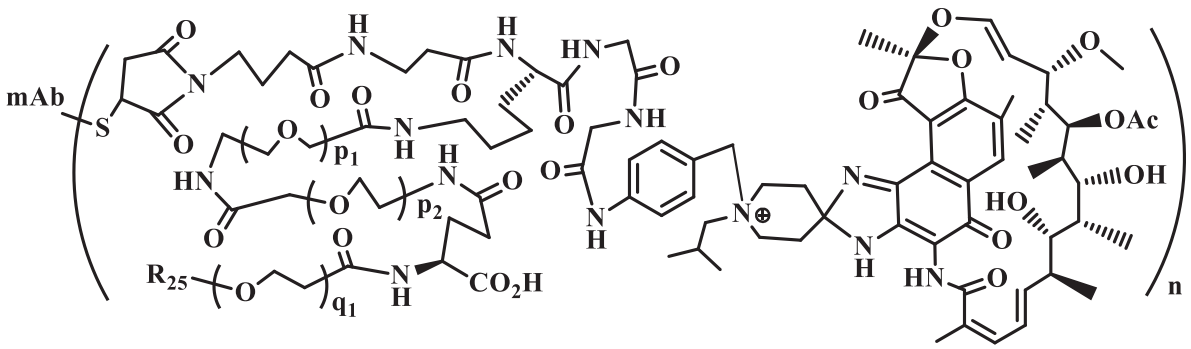
a055,



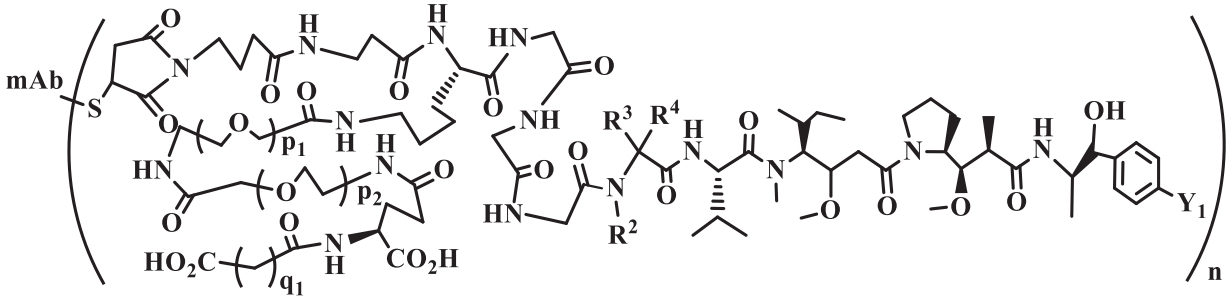
a056,



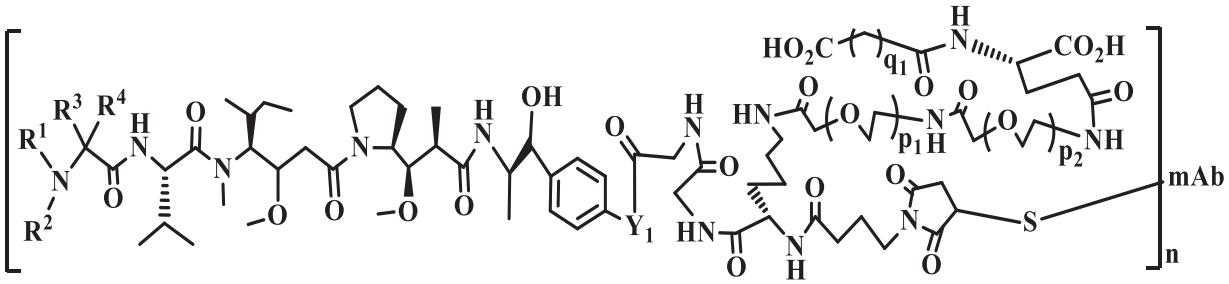
a057,



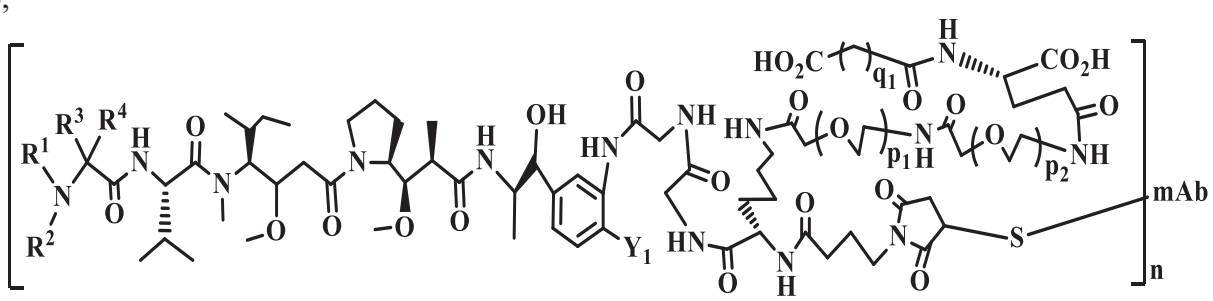
a058,



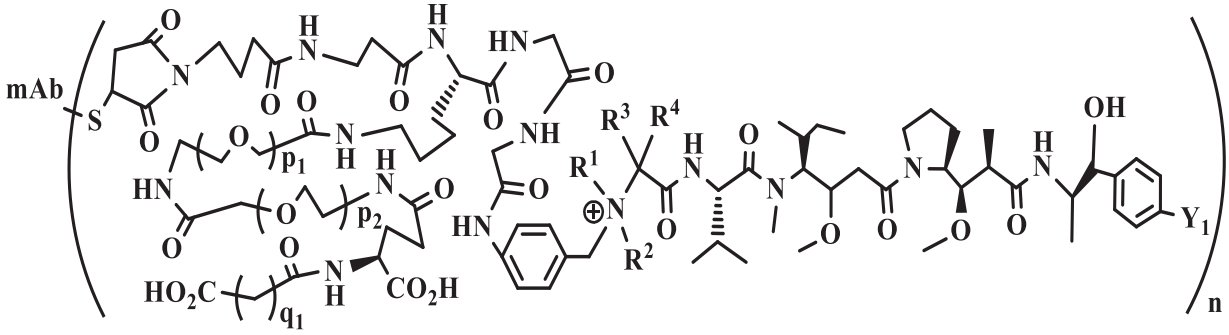
a059,



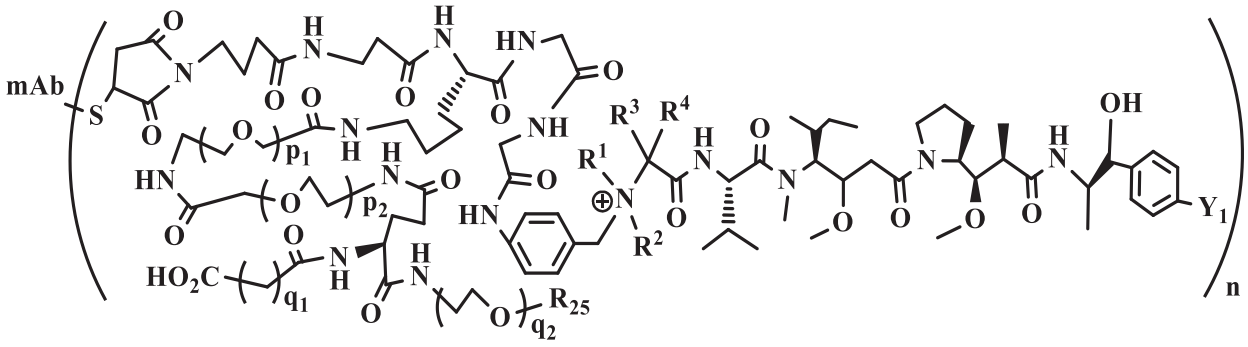
a060,



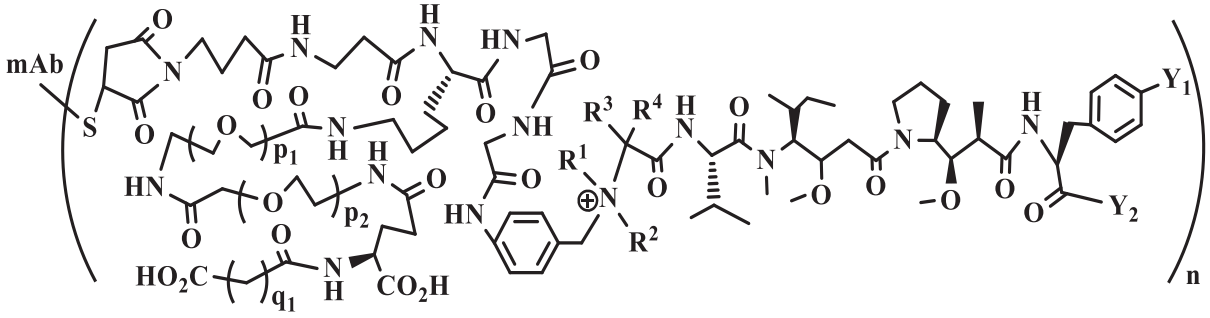
a061,



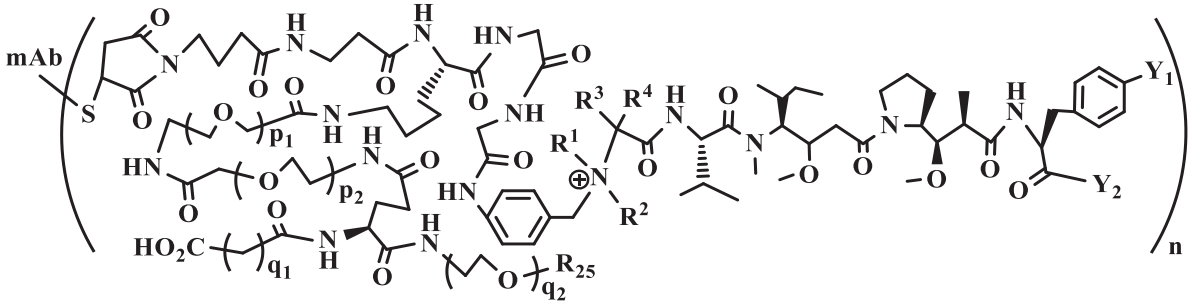
a062,



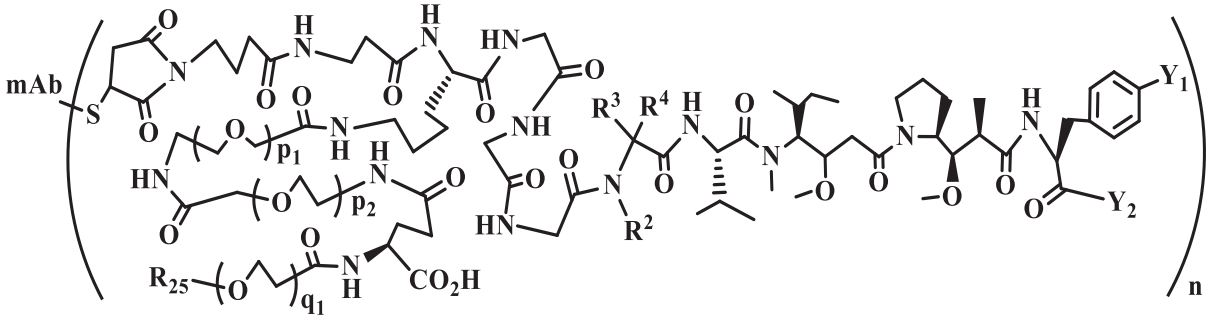
a063,



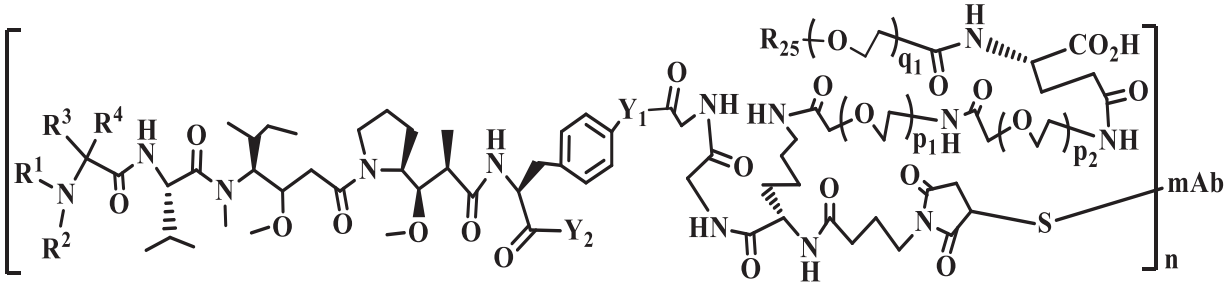
a064,



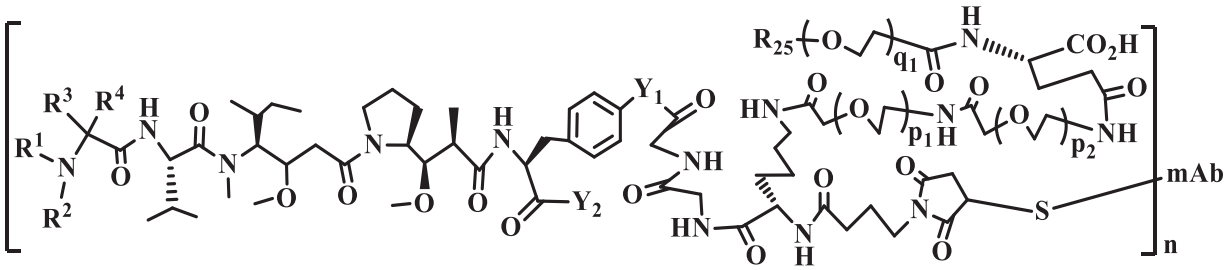
a065,



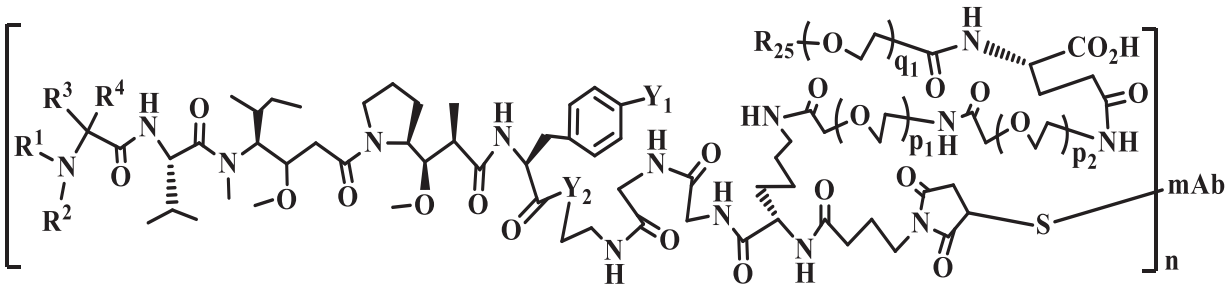
a066,



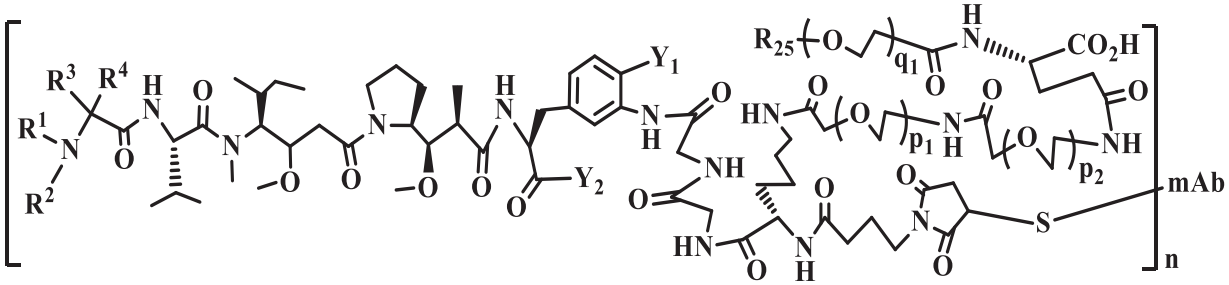
a067,



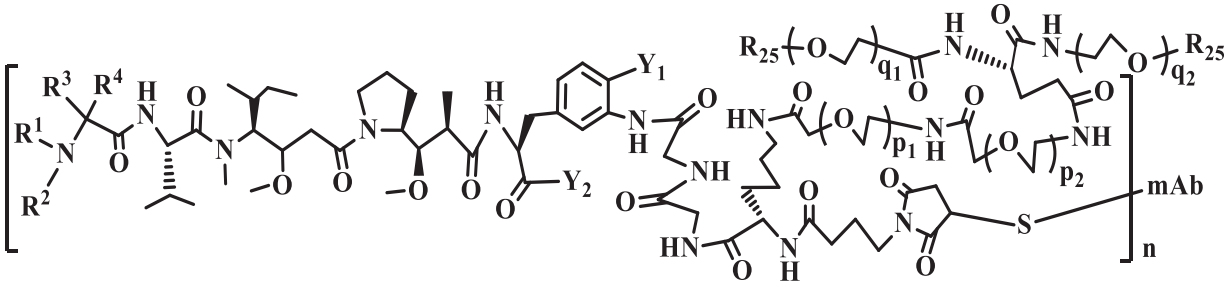
a068,



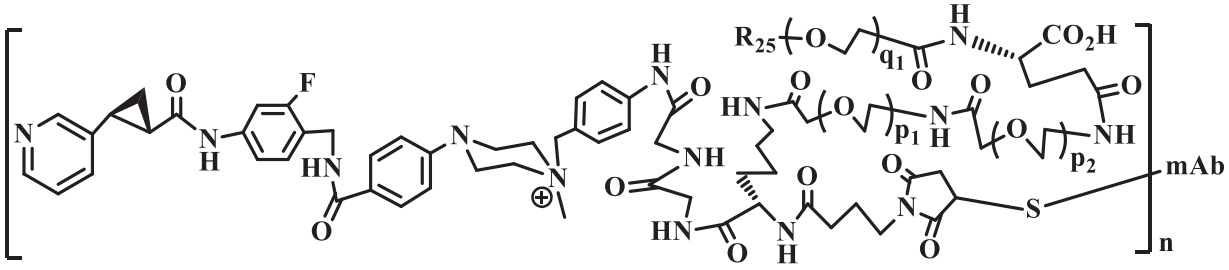
a069,



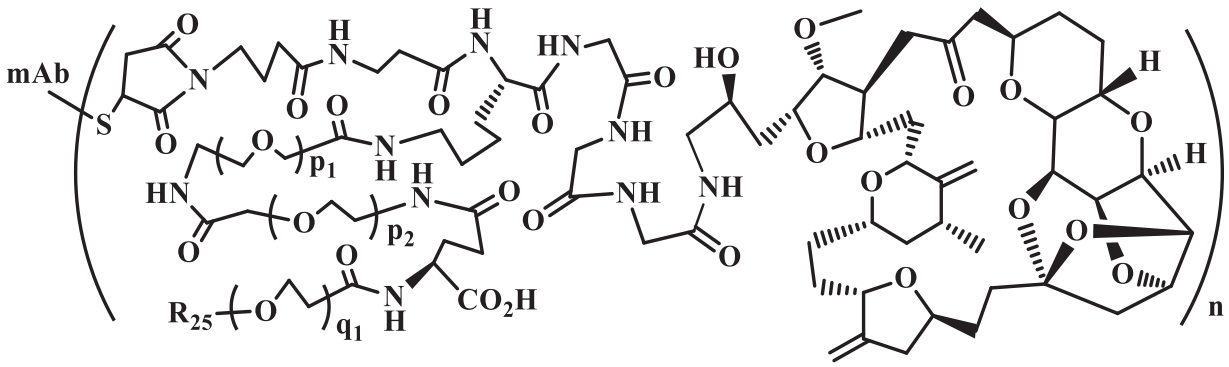
a070,



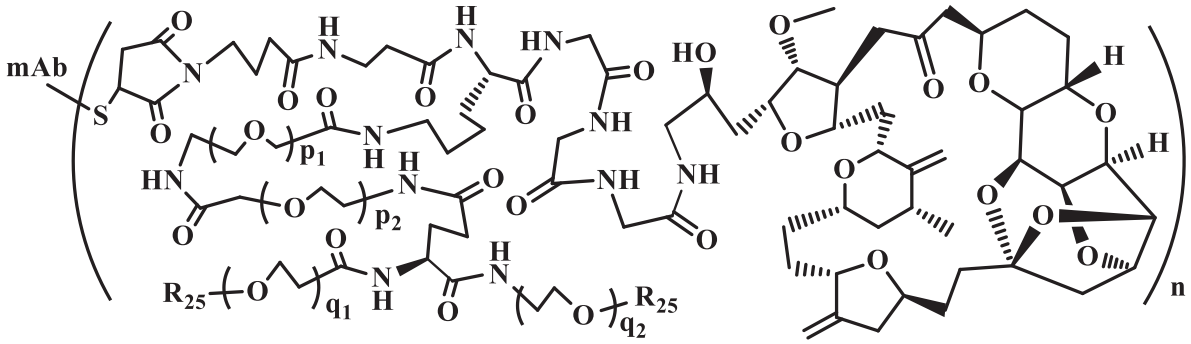
a071,



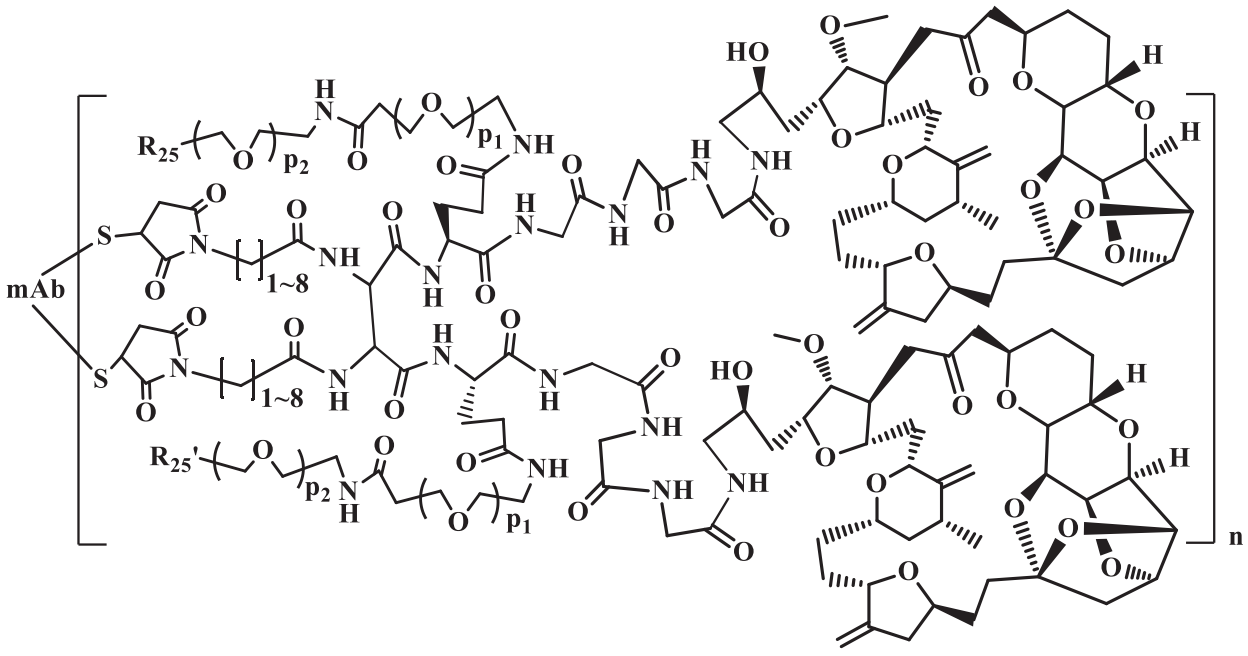
a072,



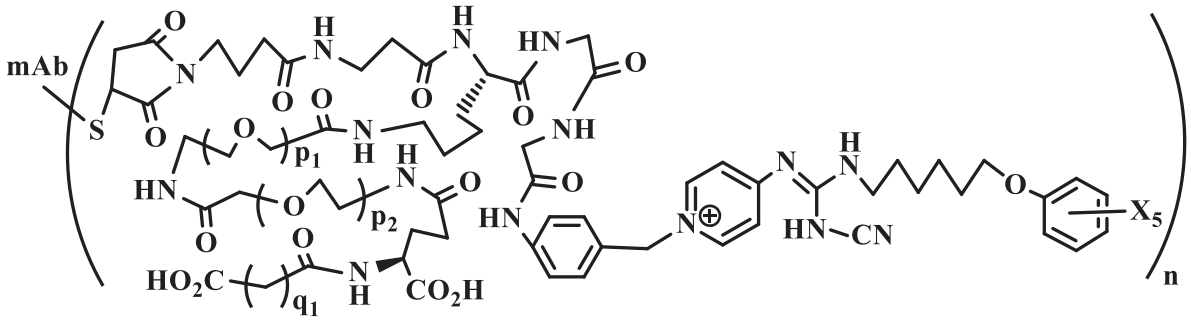
a073,



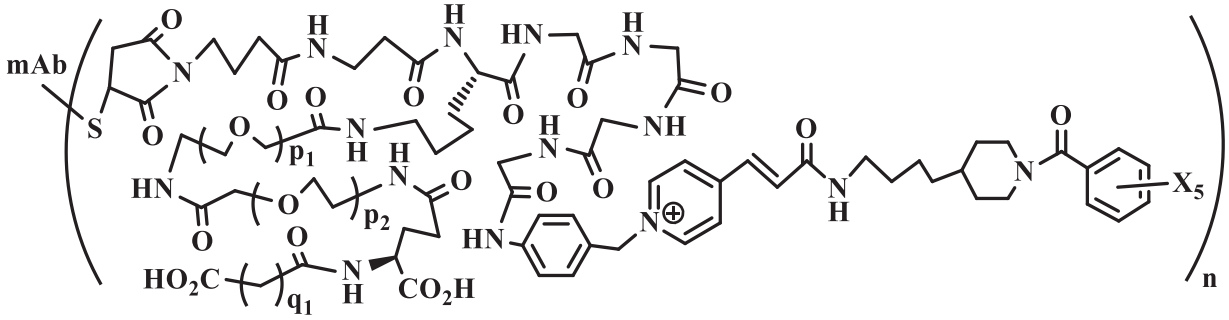
a074,



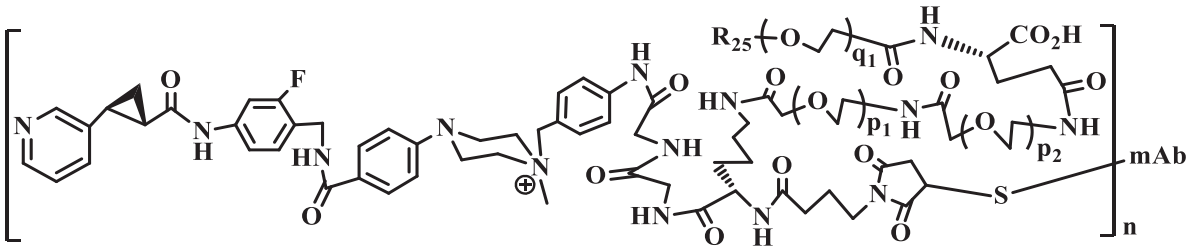
a075,



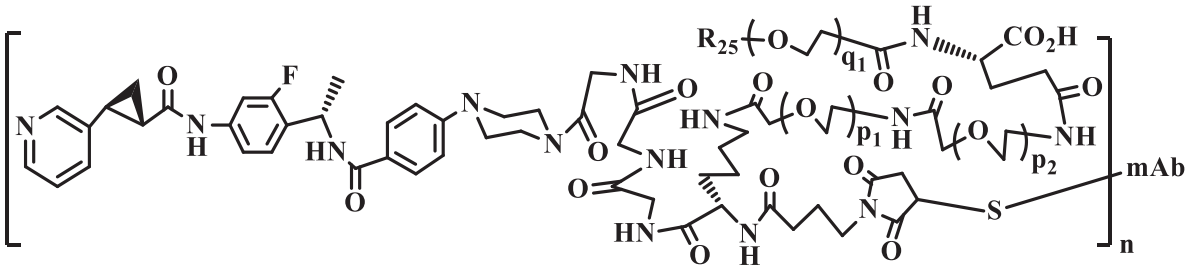
a076,



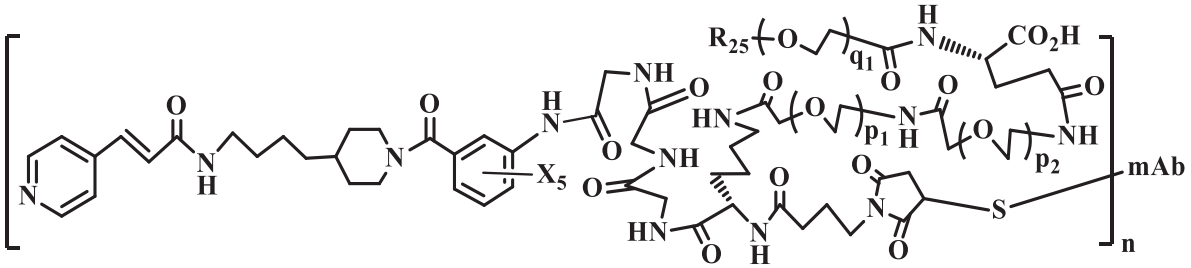
a077,



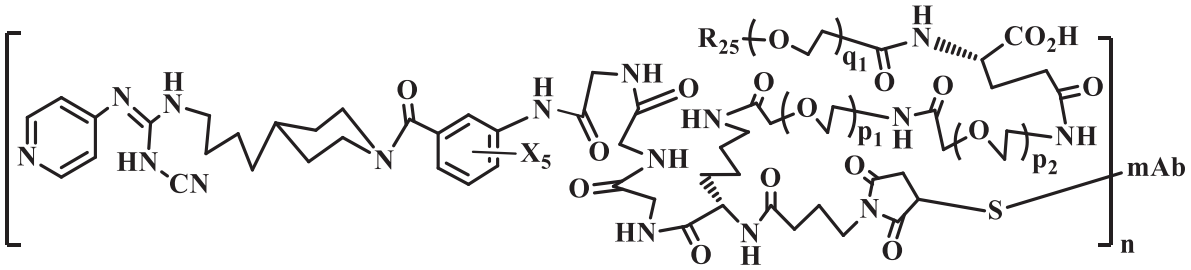
a078,



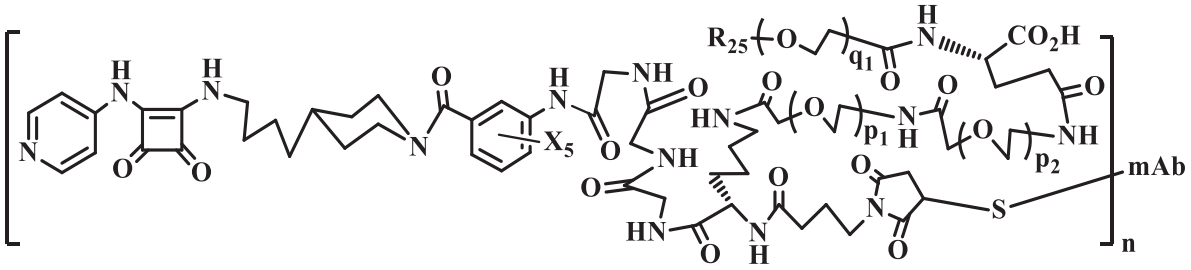
a079,



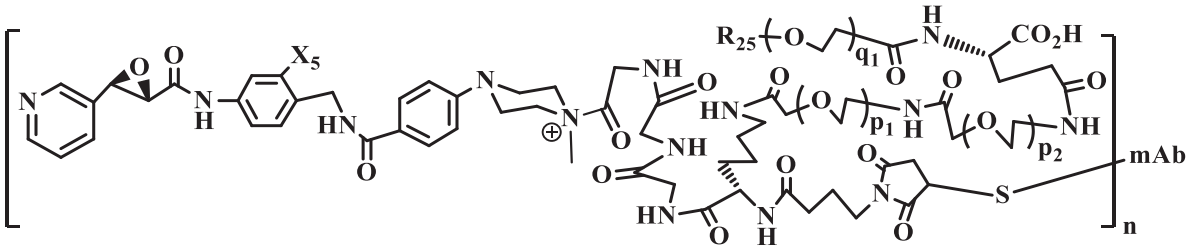
a080,



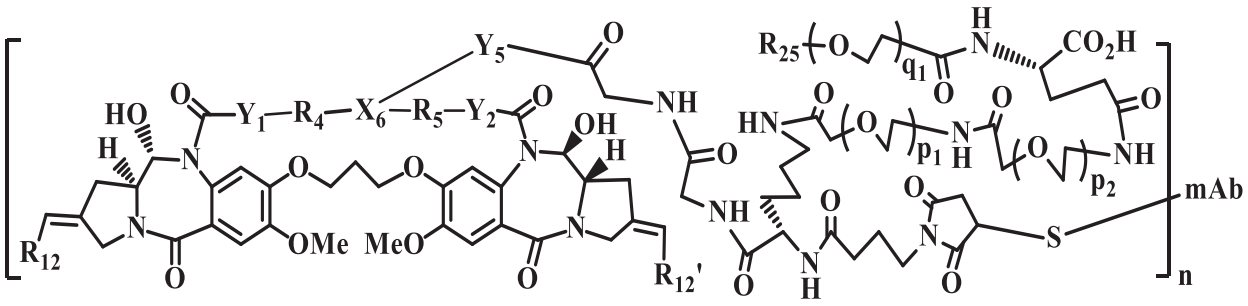
a081,



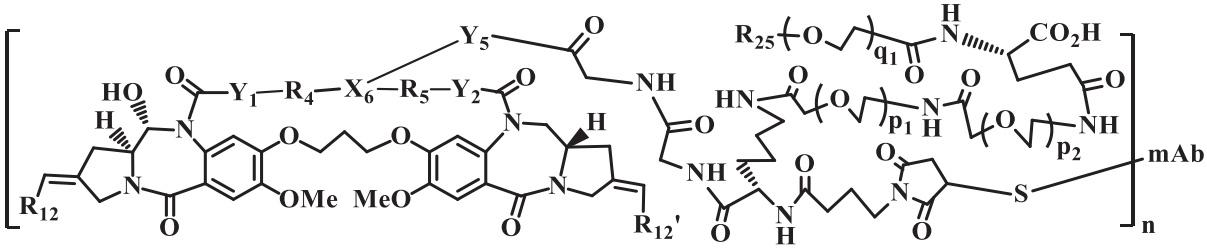
a082,



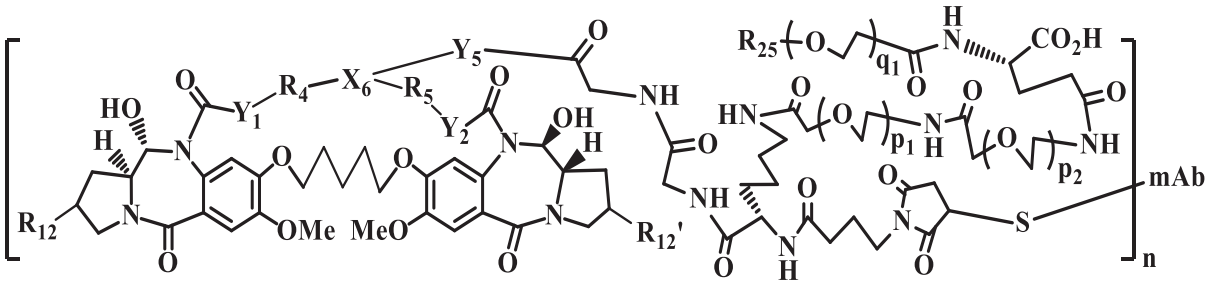
a083,



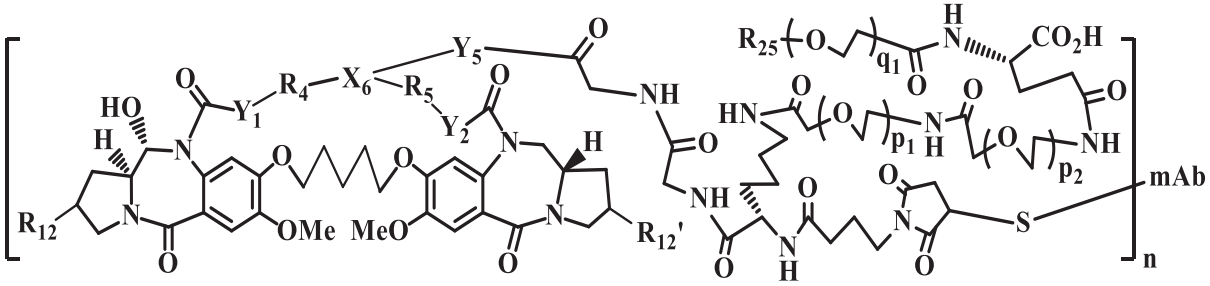
a084,



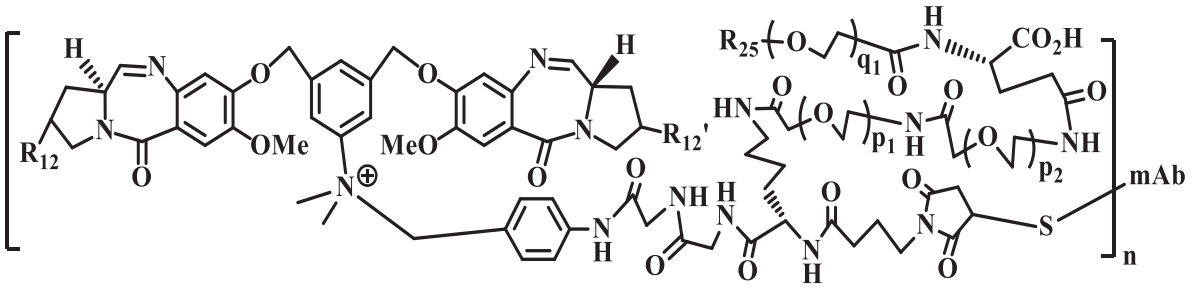
a085,



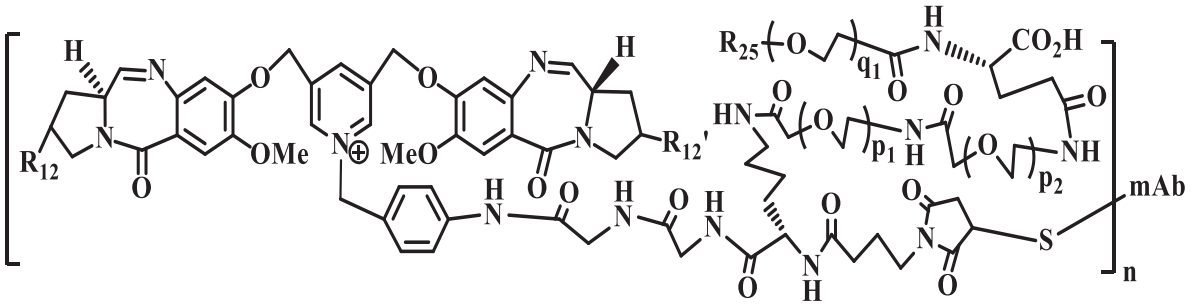
a086,



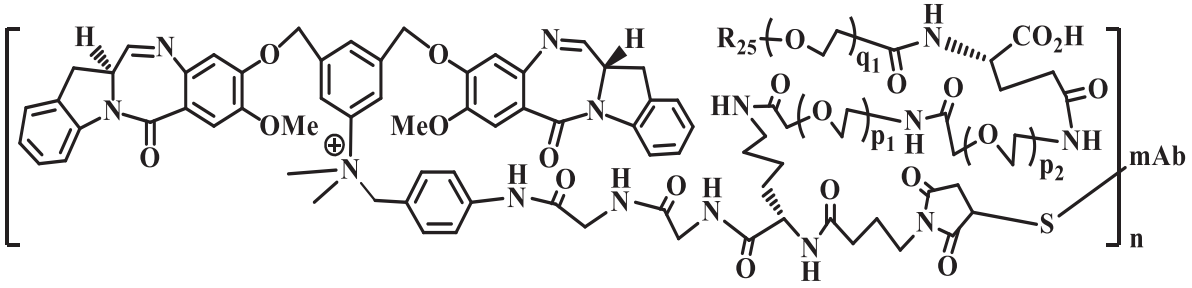
a087，



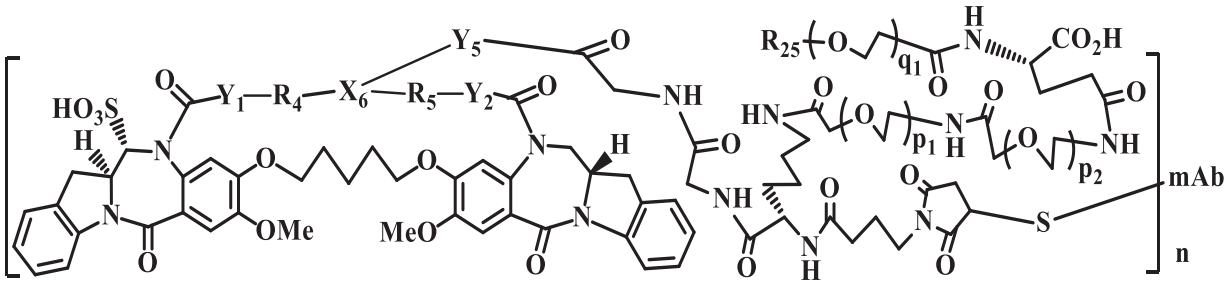
a088，



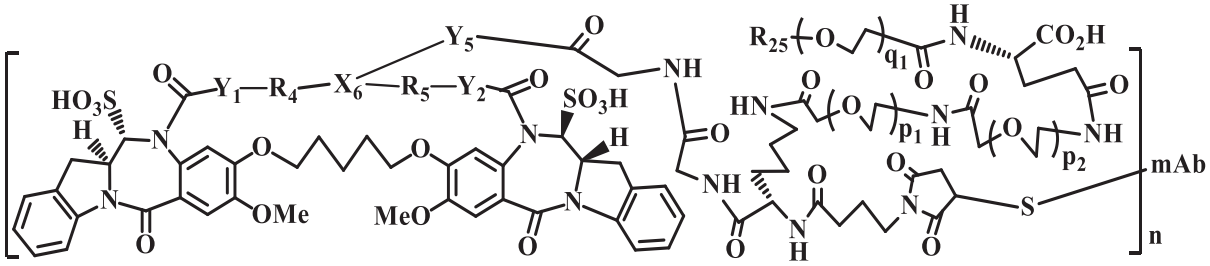
a089，



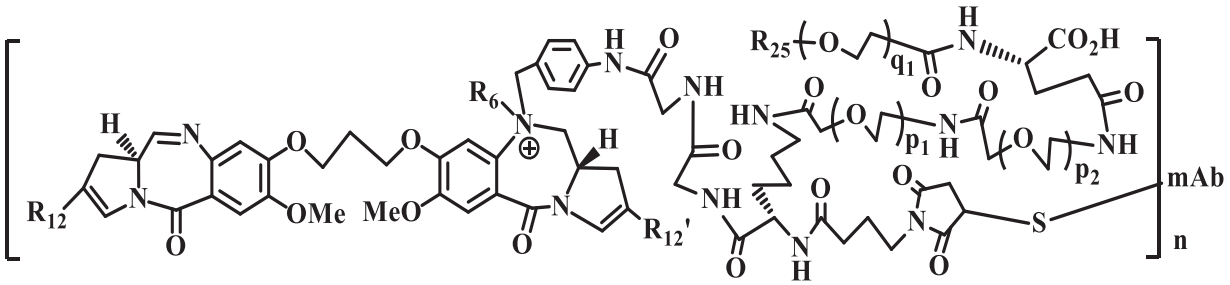
a090，



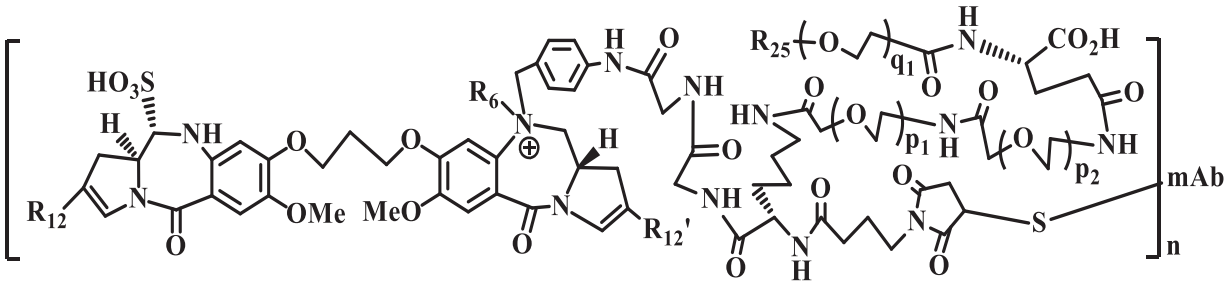
a091，



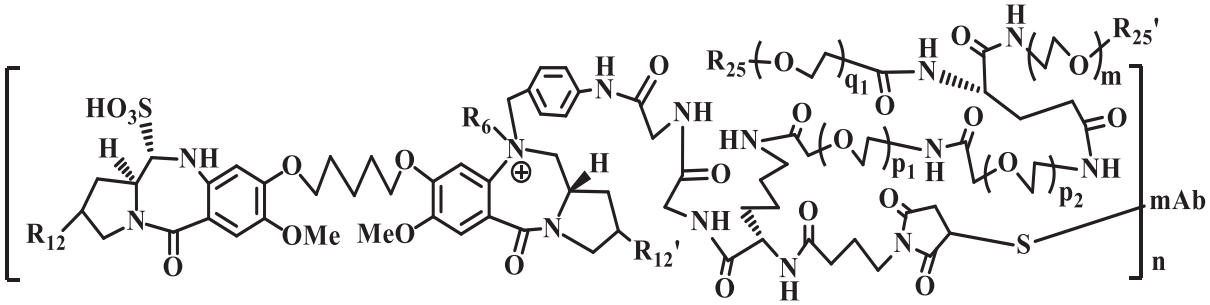
a092，



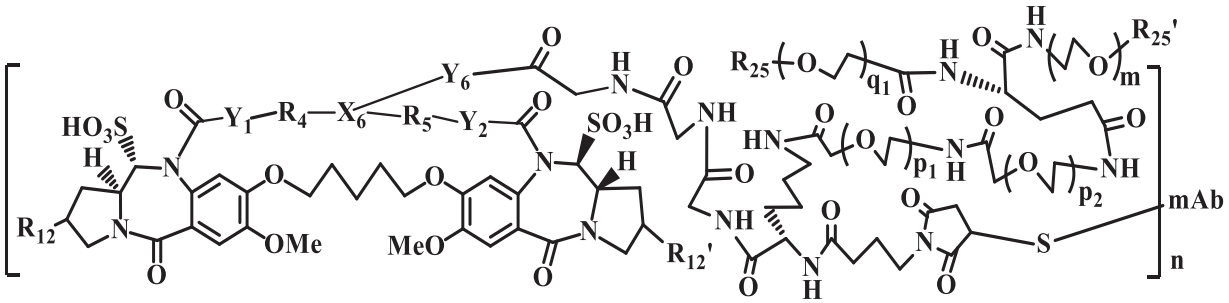
a093，



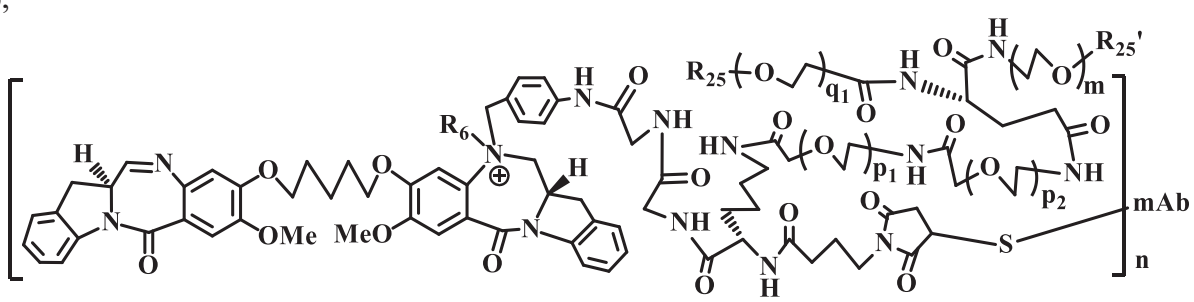
a094，



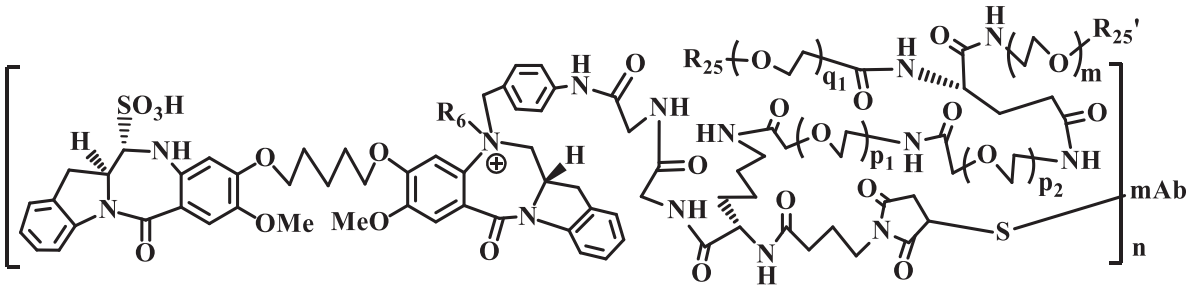
a095，



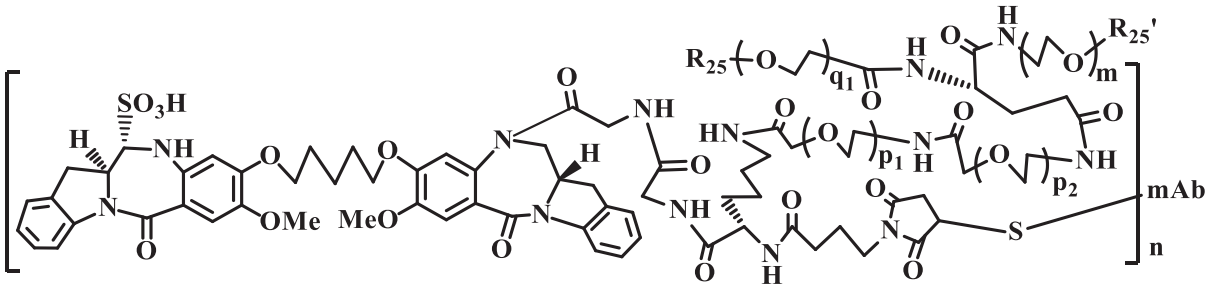
a096,



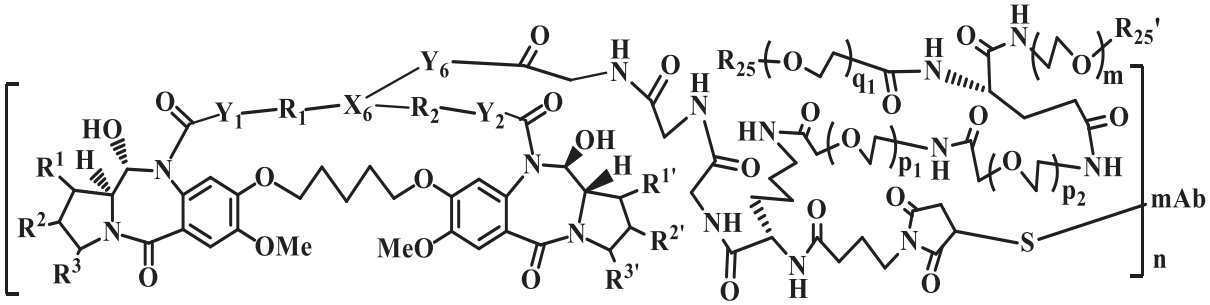
a097,



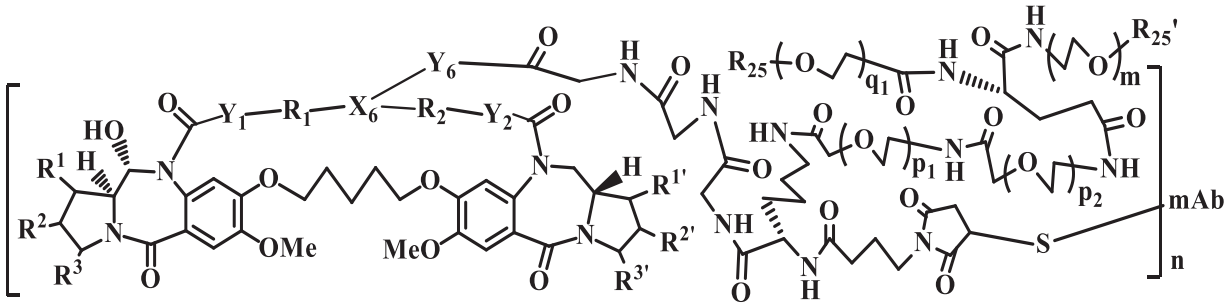
a098,



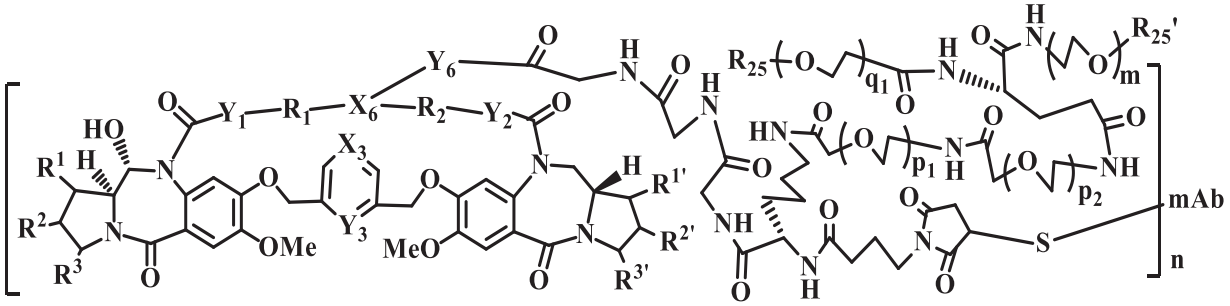
a099,



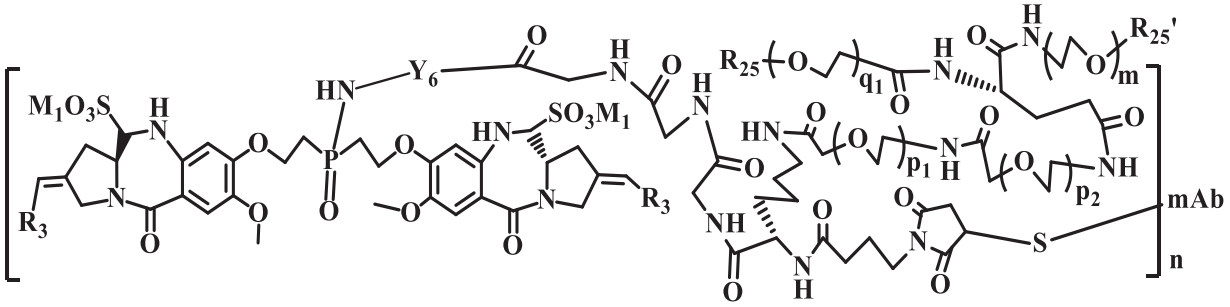
a100,



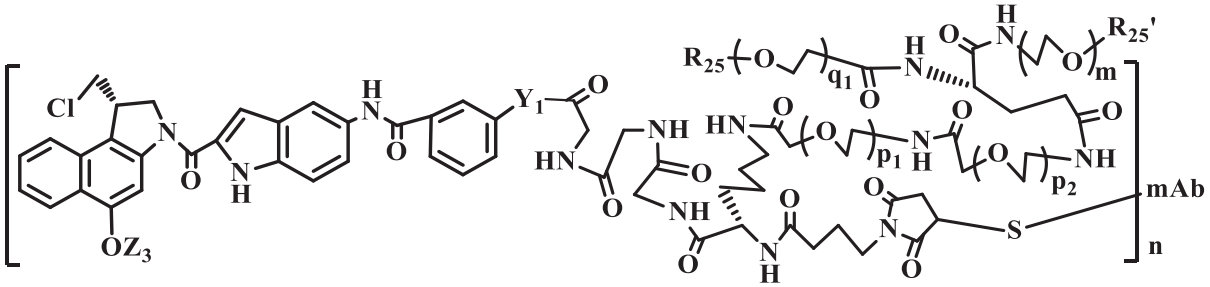
a101,



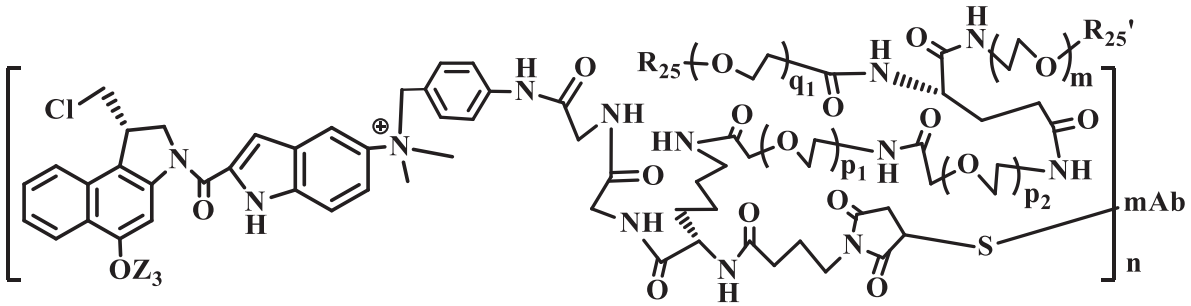
a102,



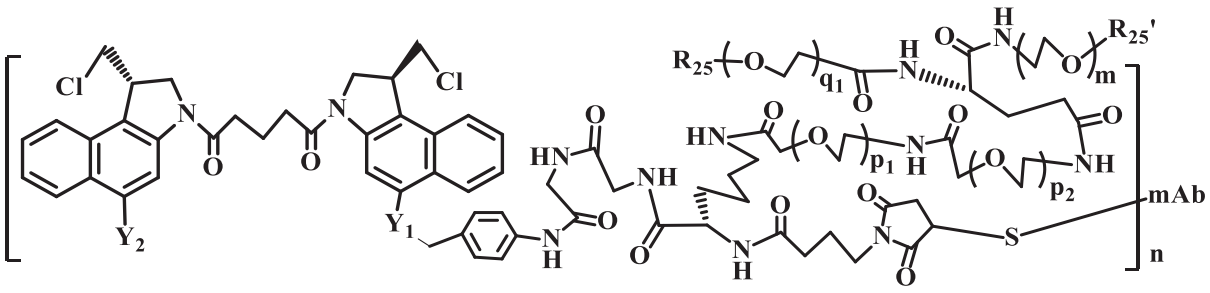
a103,



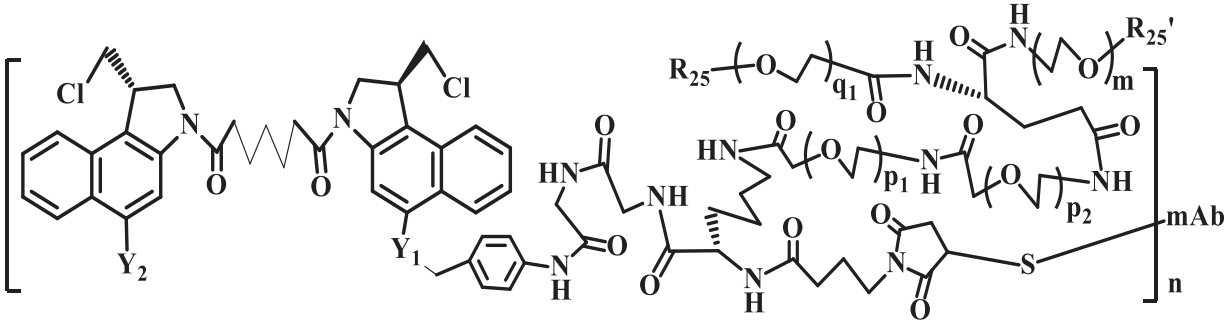
a104,



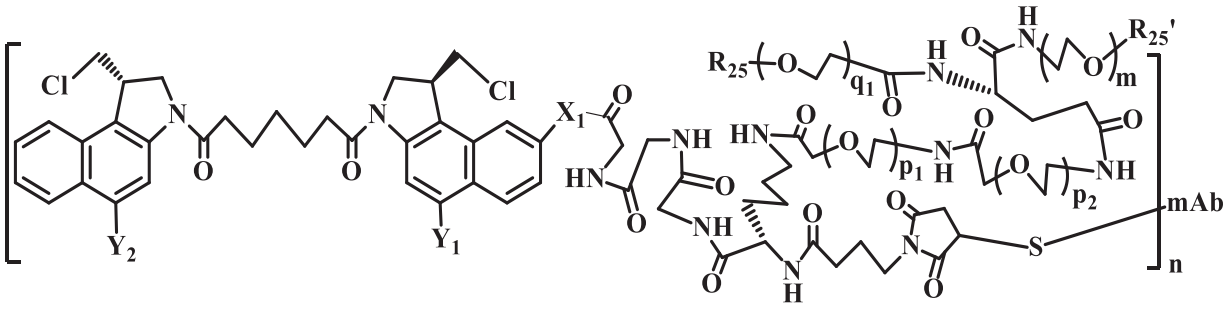
a105,



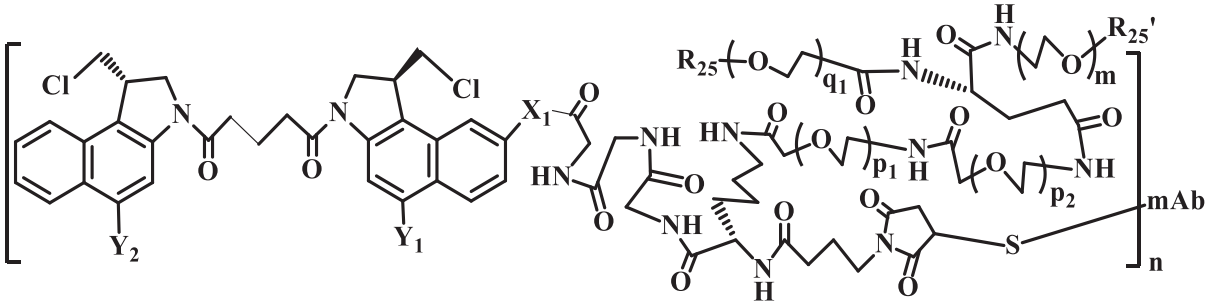
a106,



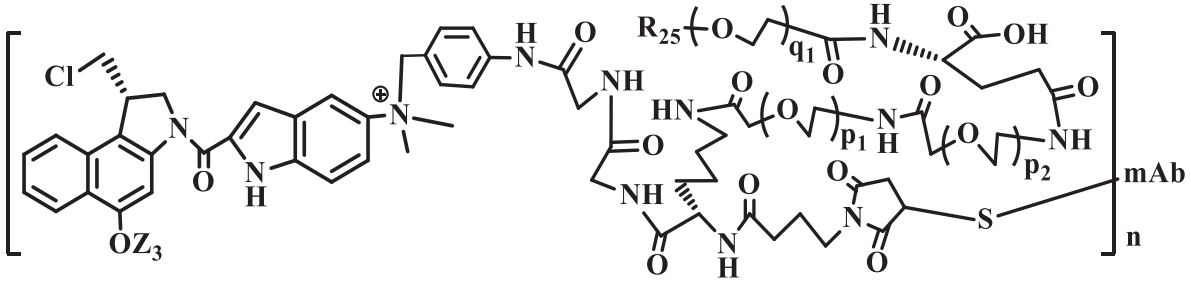
a107,



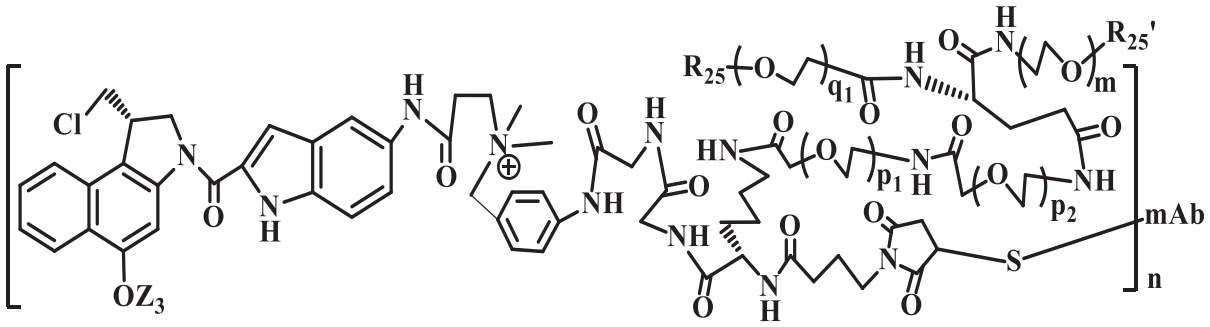
a108,



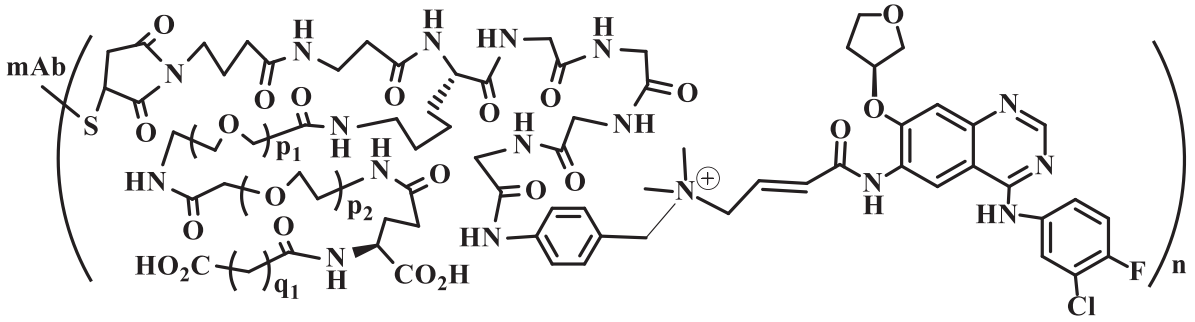
a109,



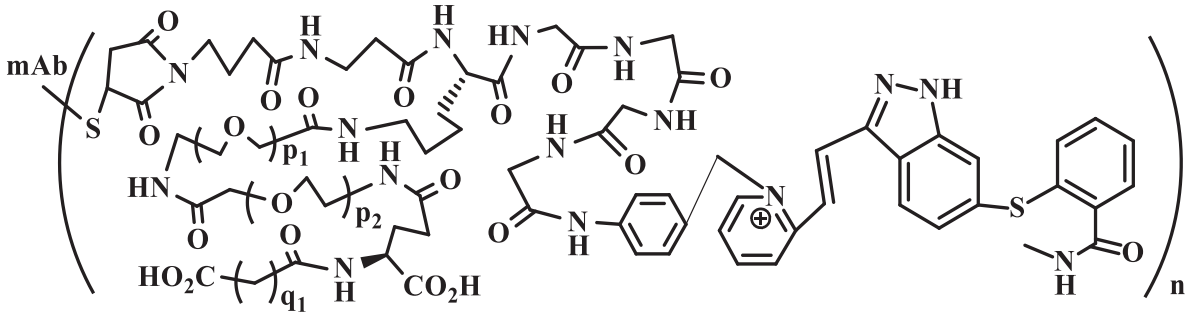
a110,



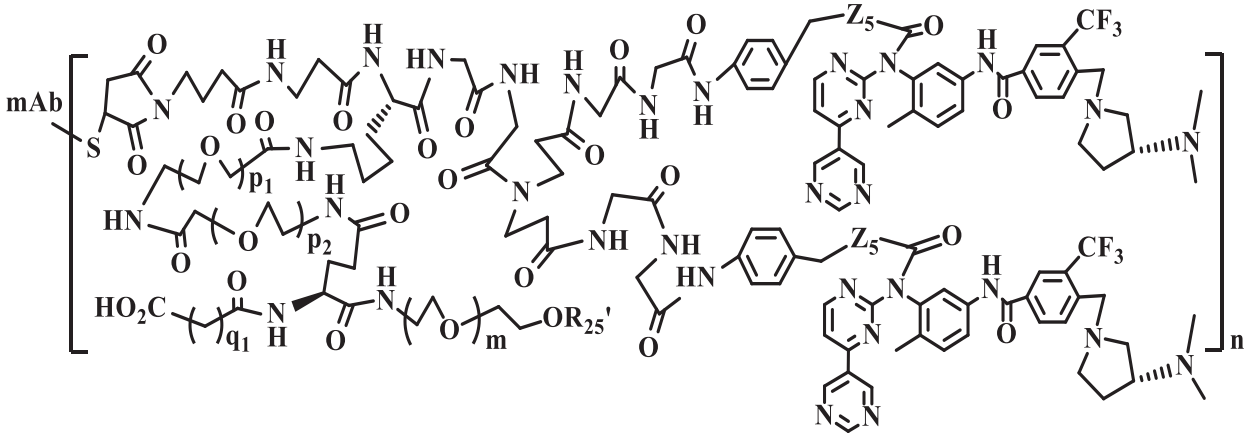
a111,



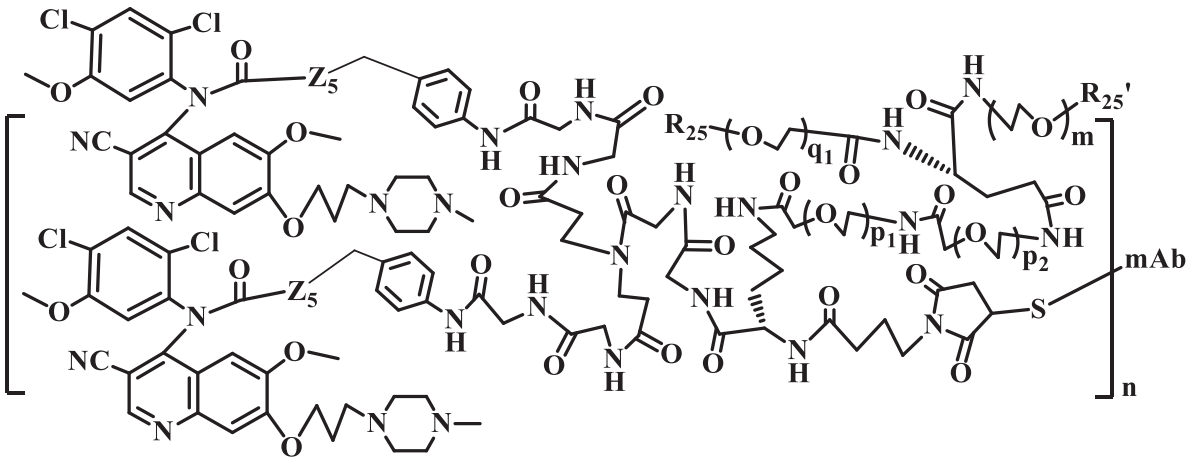
a112,



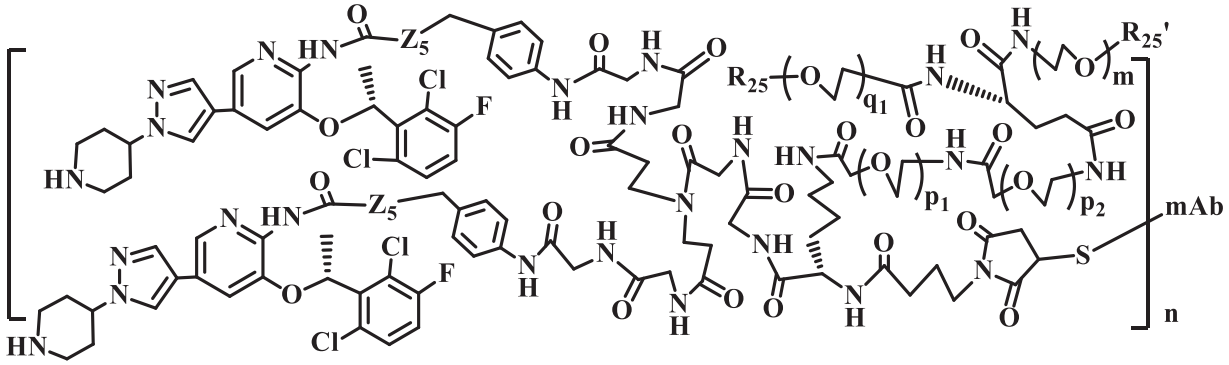
a113,



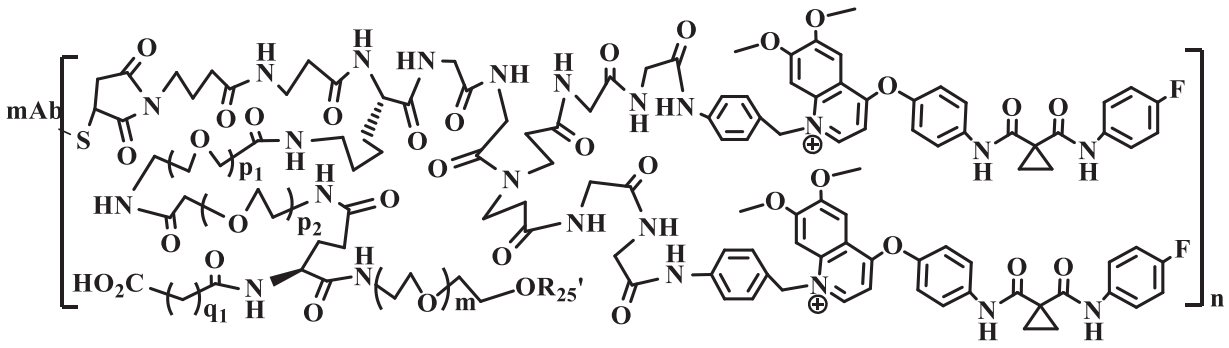
a114,



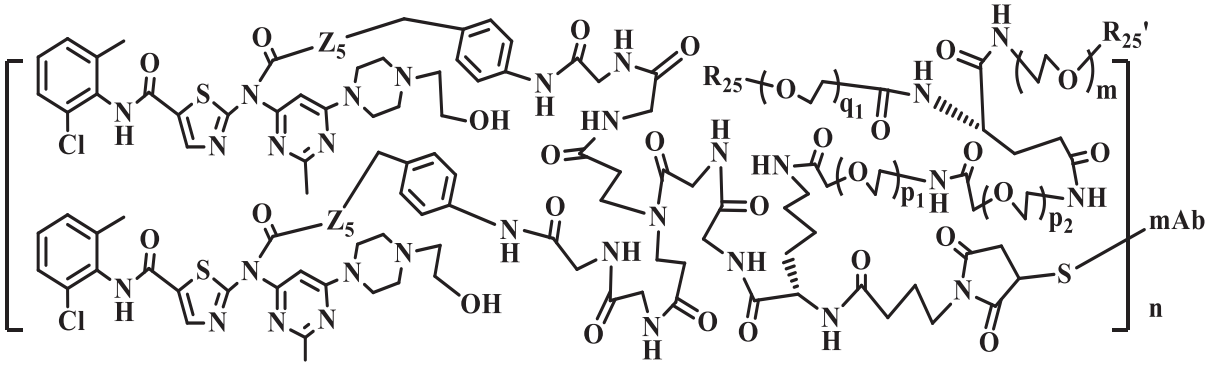
a114,



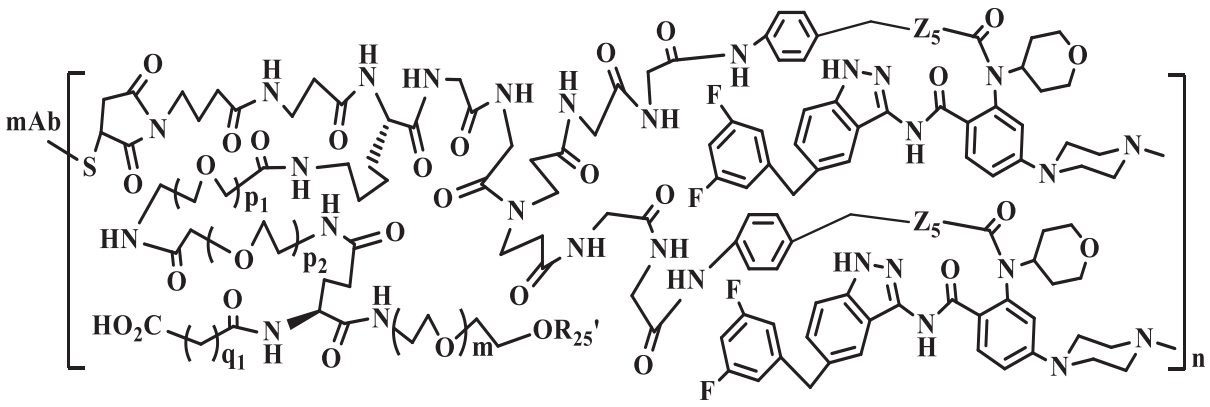
a115,



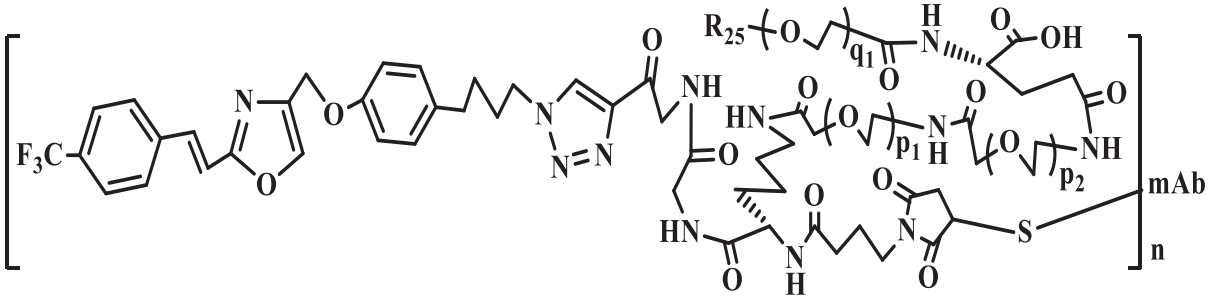
a116,



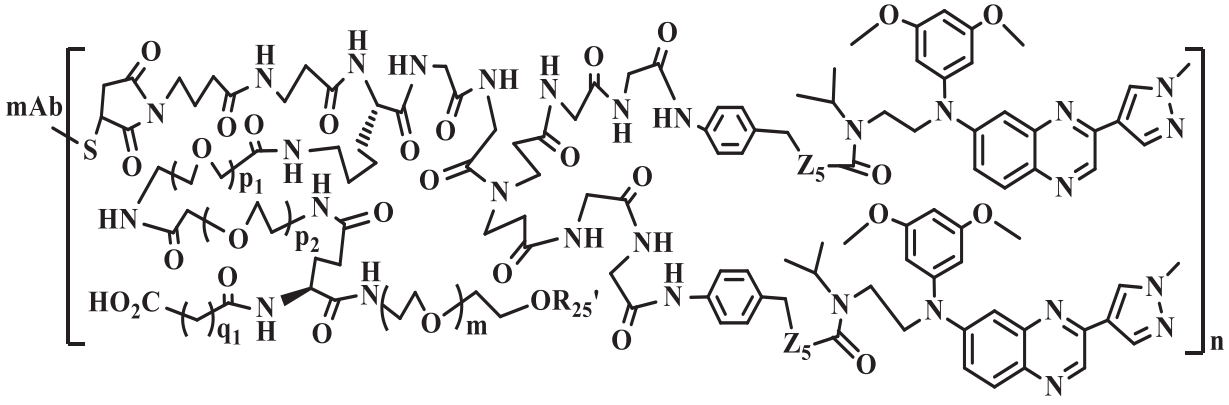
a117,



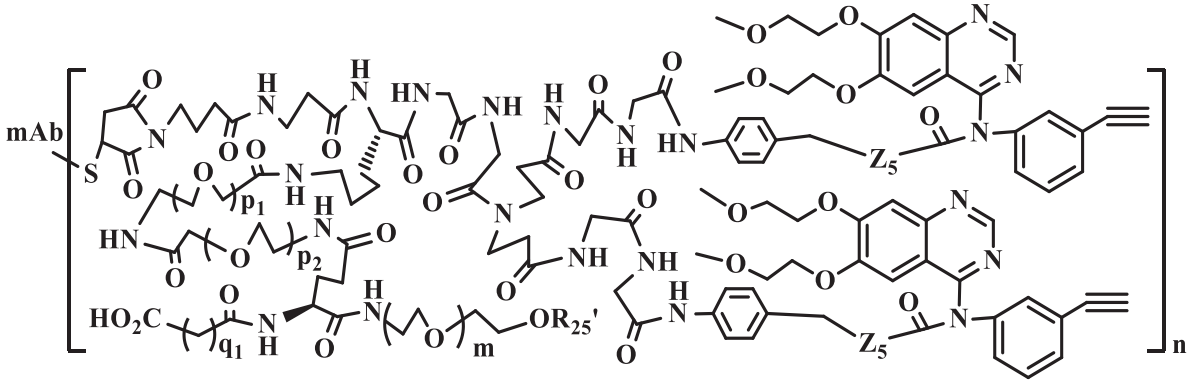
a118,



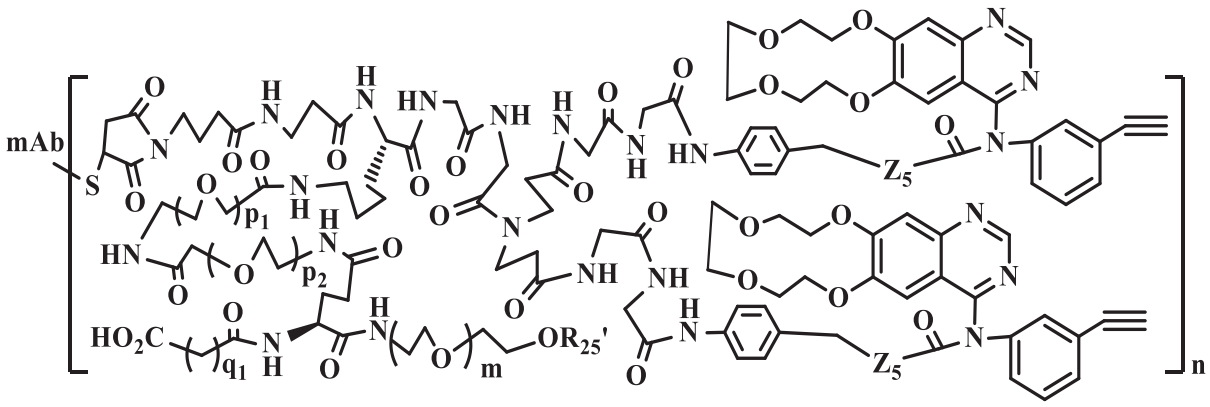
a119,



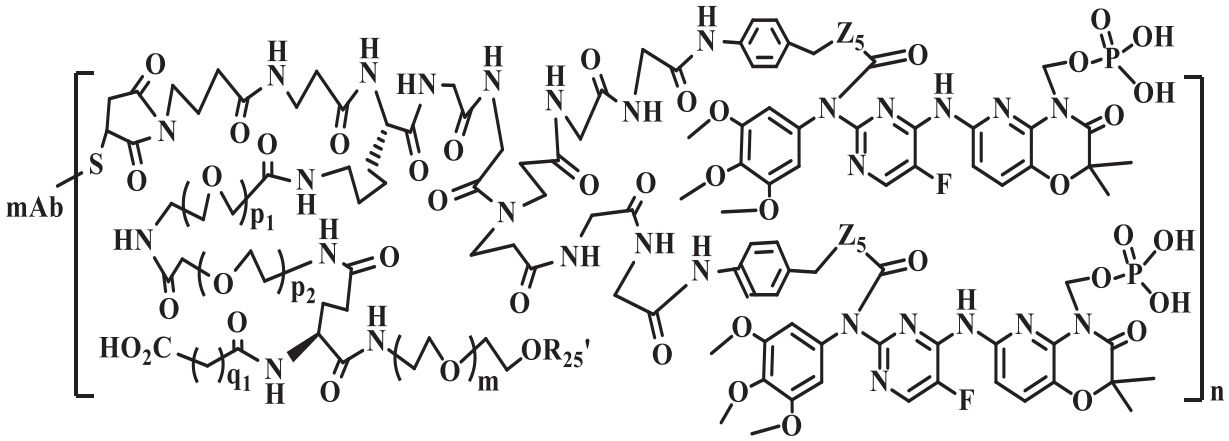
a120,



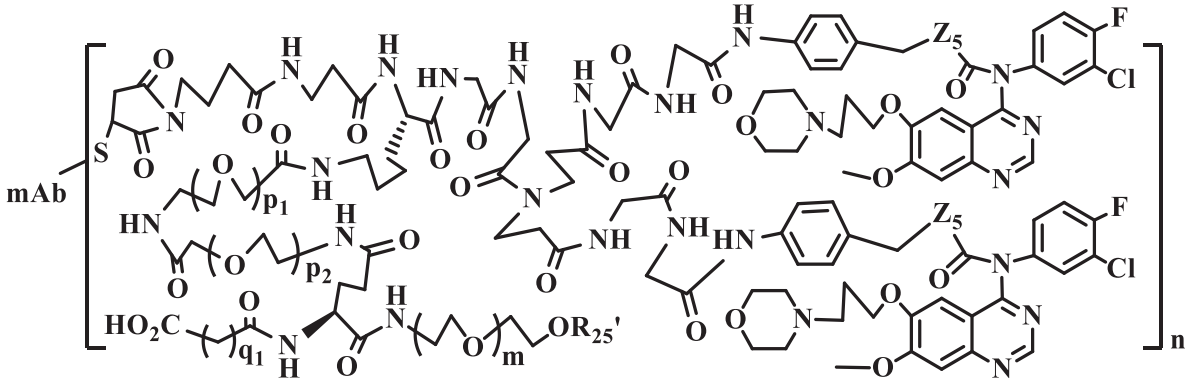
a121,



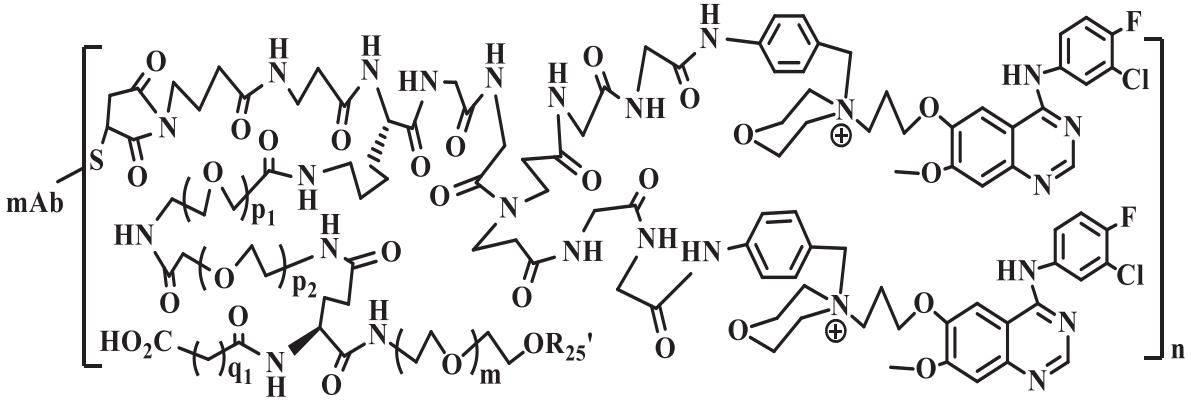
a122,



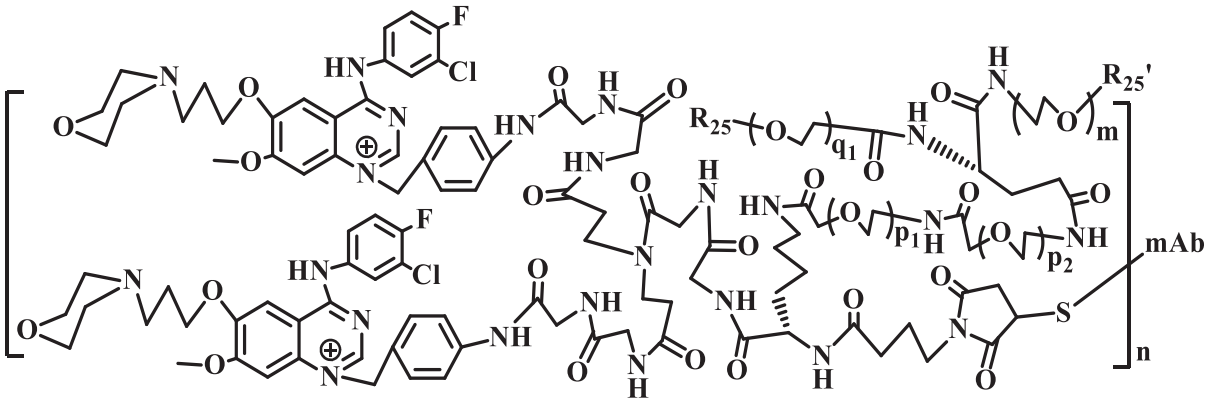
a123,



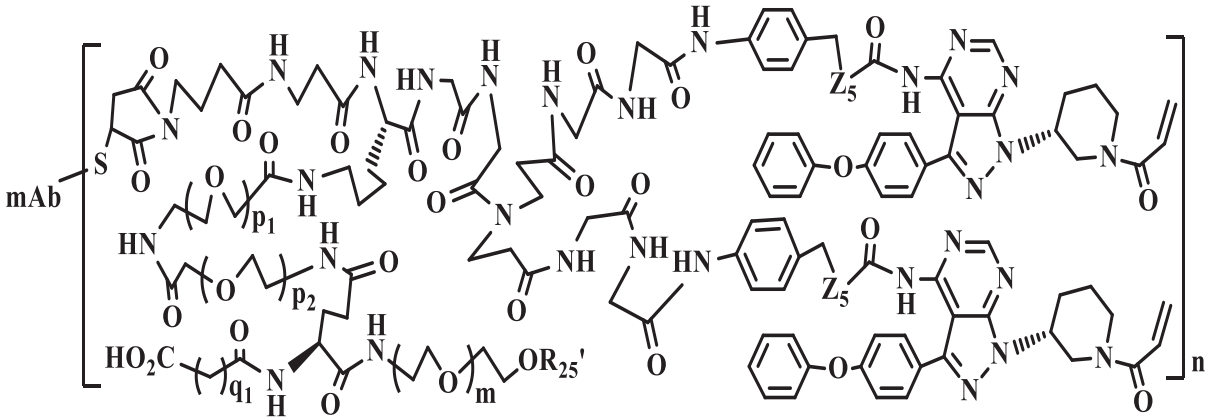
a124,



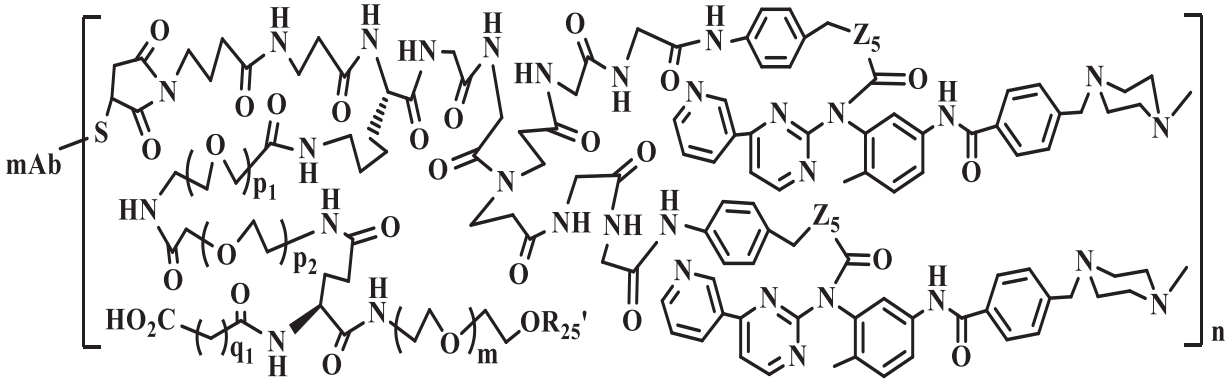
a125,



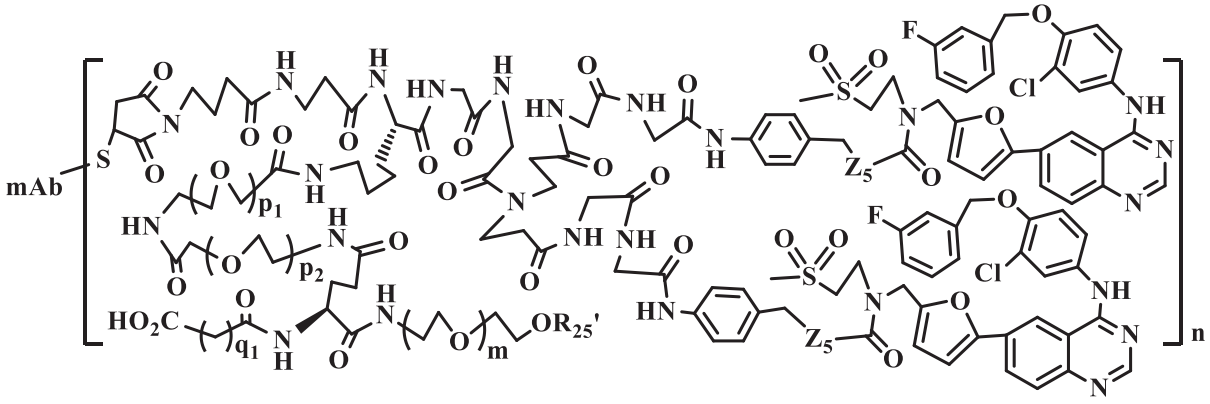
a126,



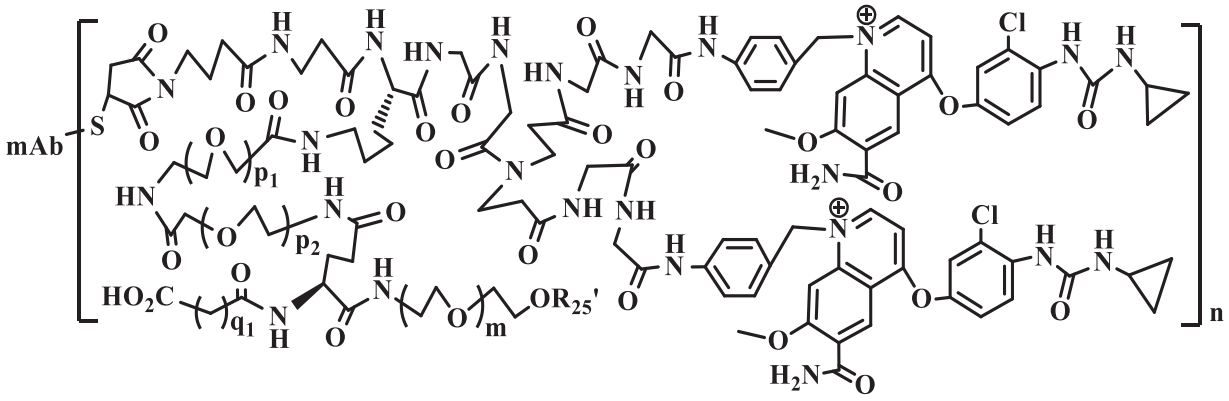
a127,



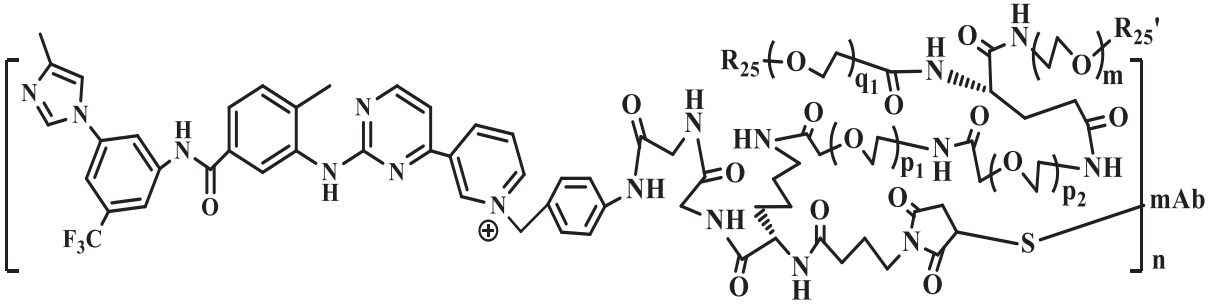
a128,



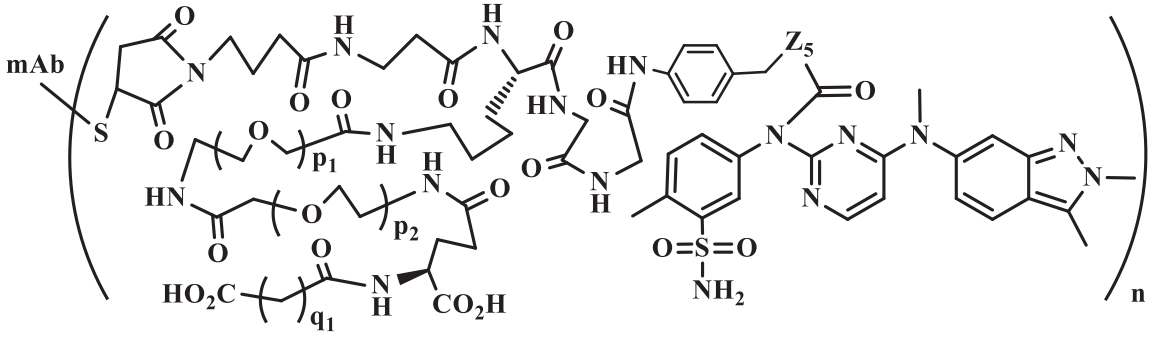
a129,



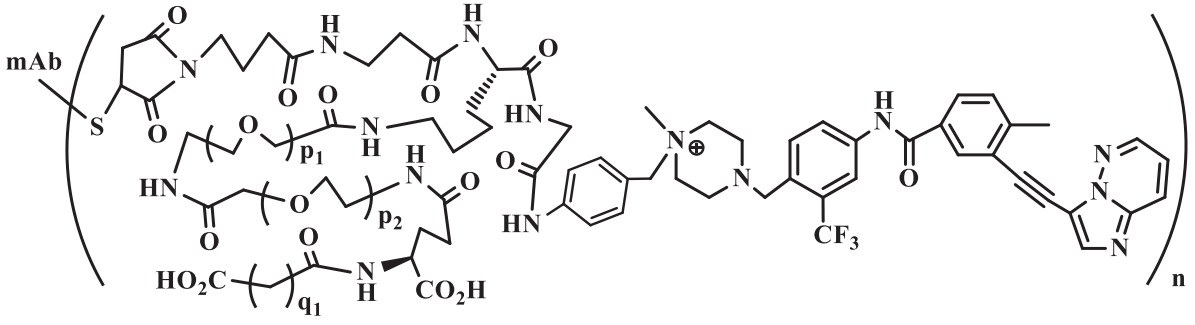
a130,



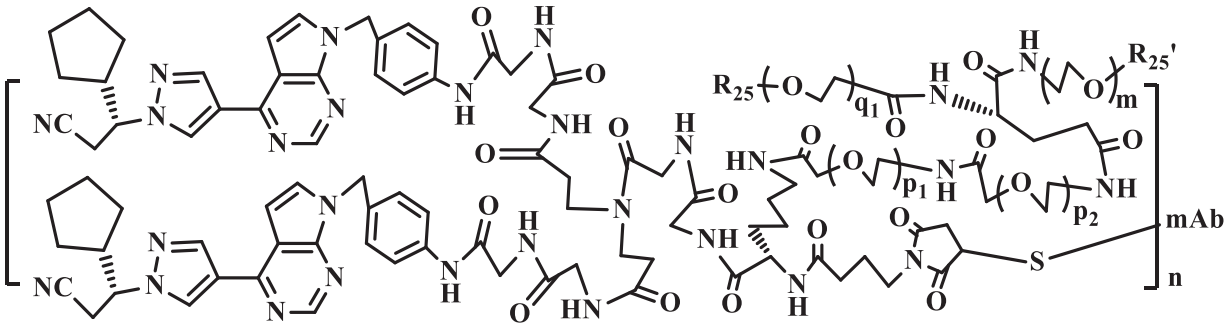
a131,



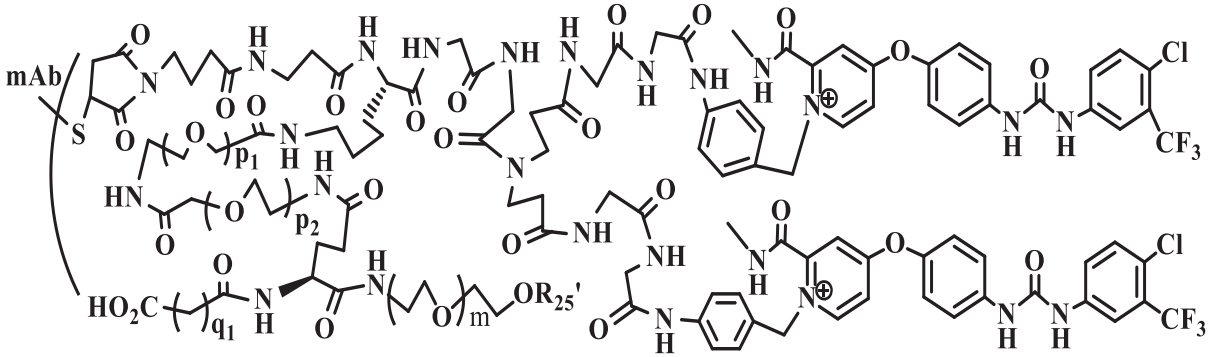
a132,



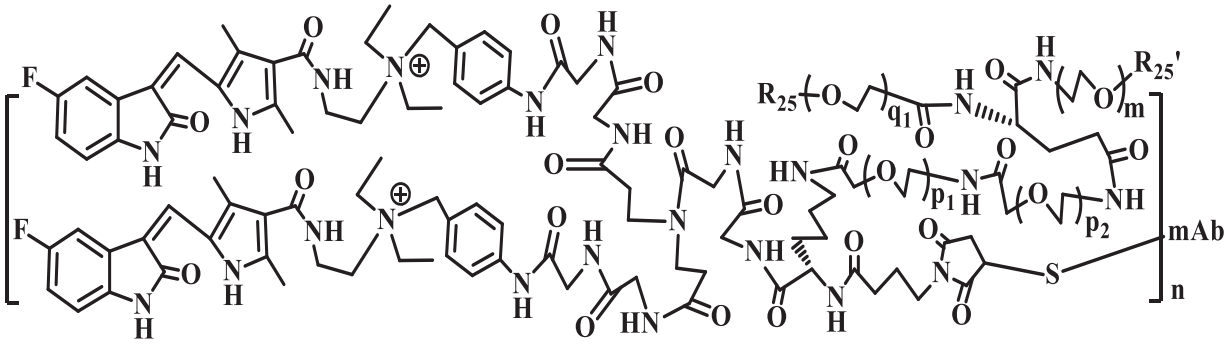
a133,



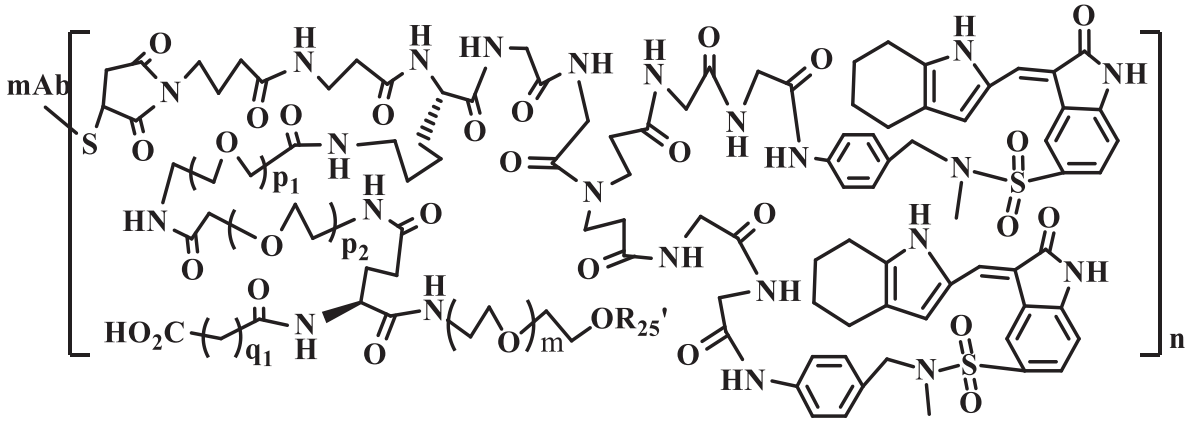
a134,



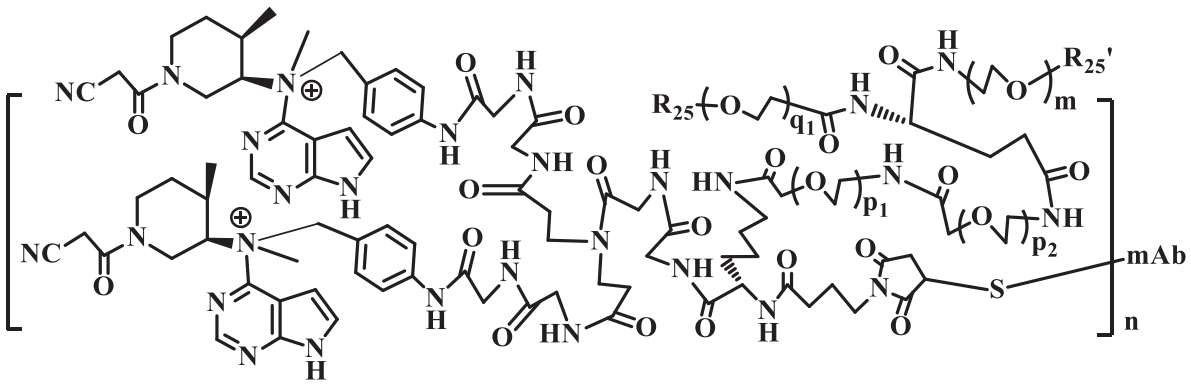
a135,



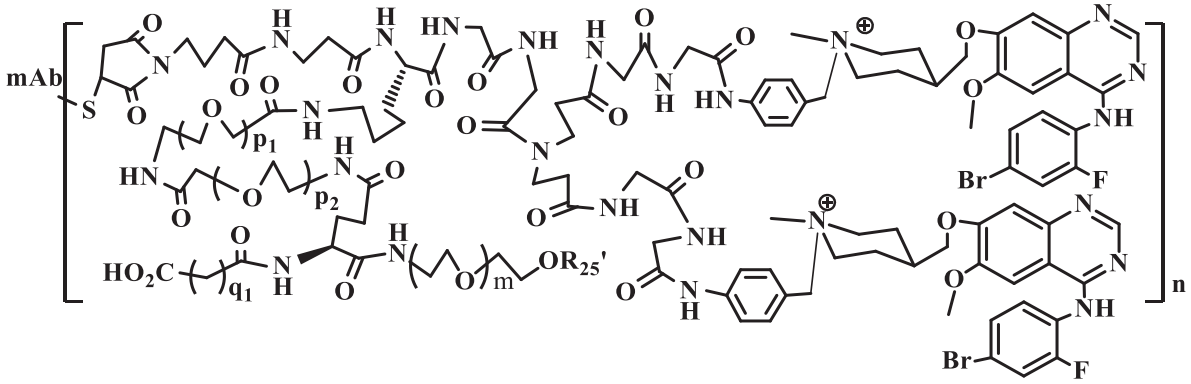
a136,



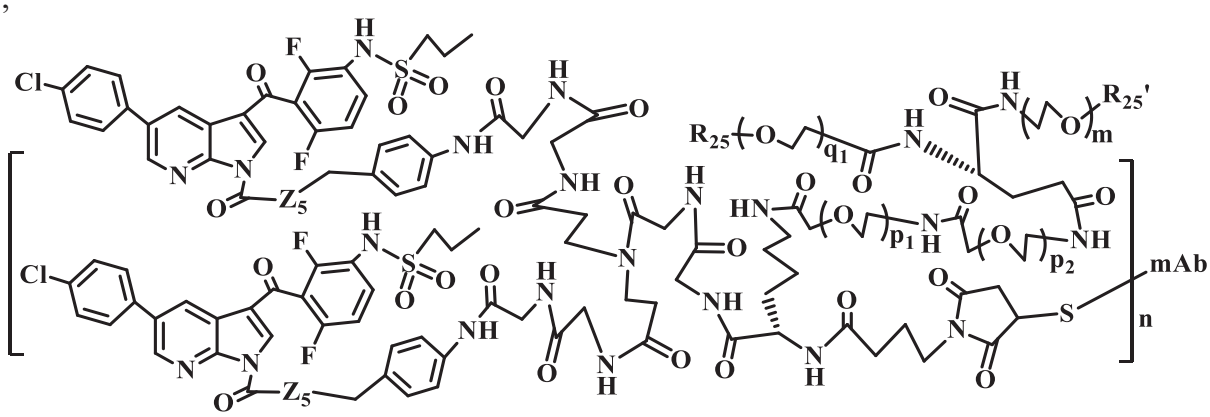
a137,



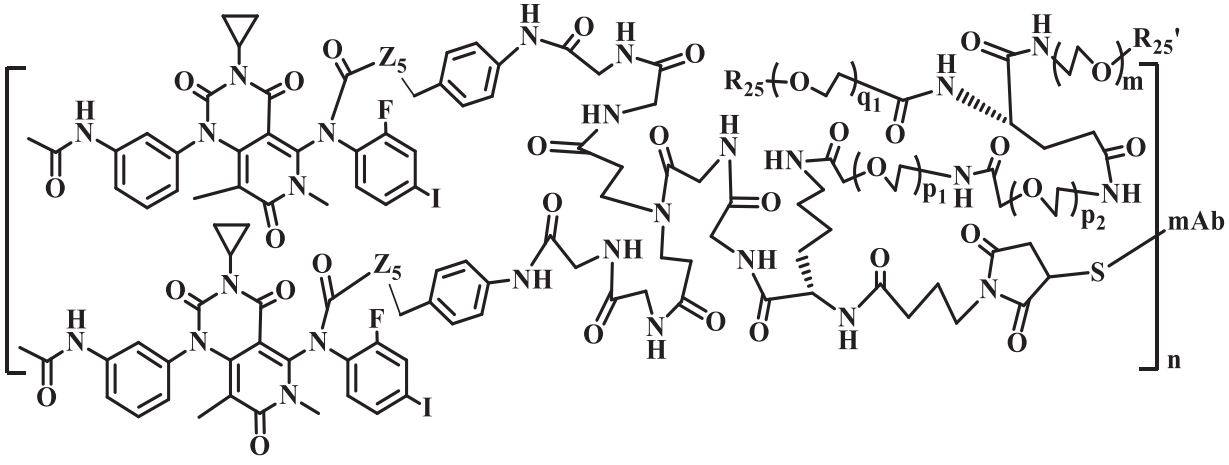
a138,



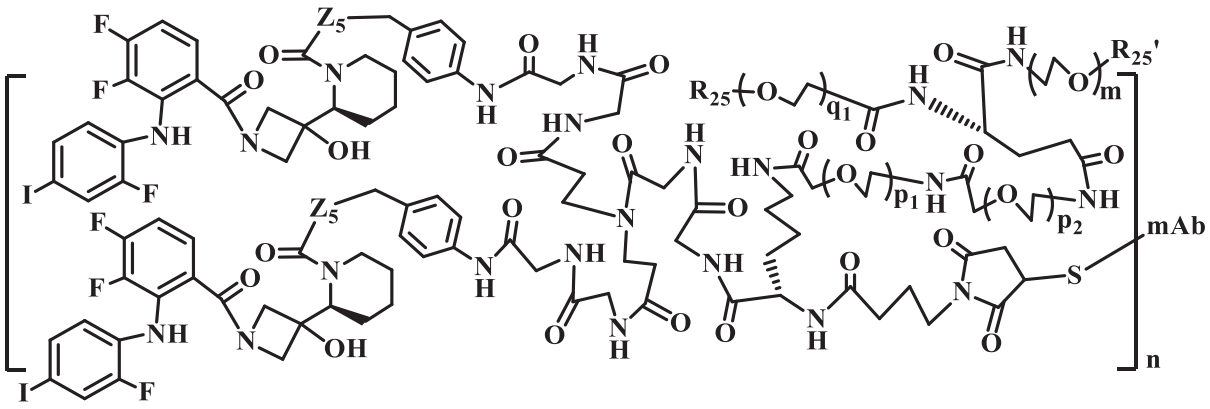
a139,



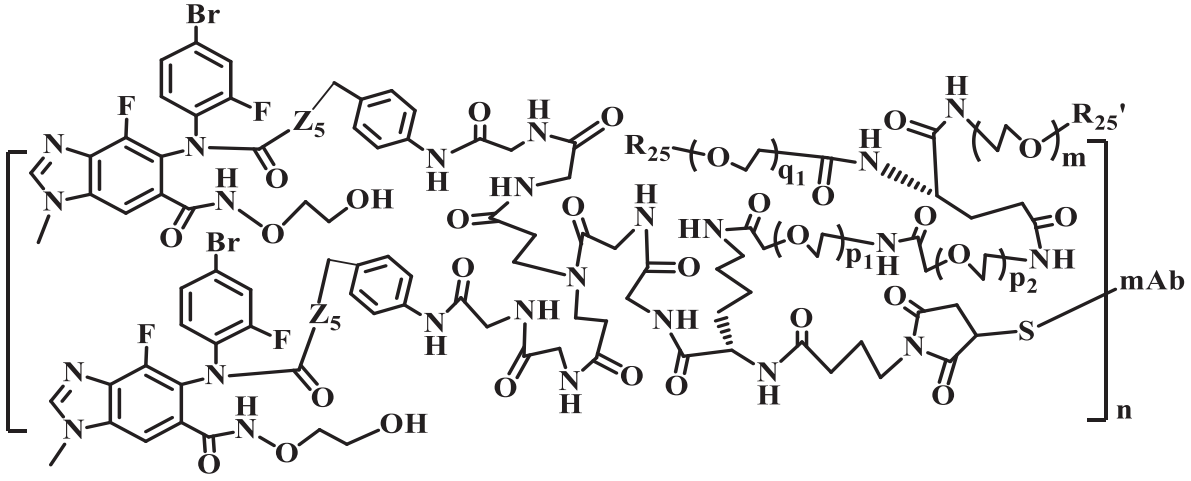
a140,



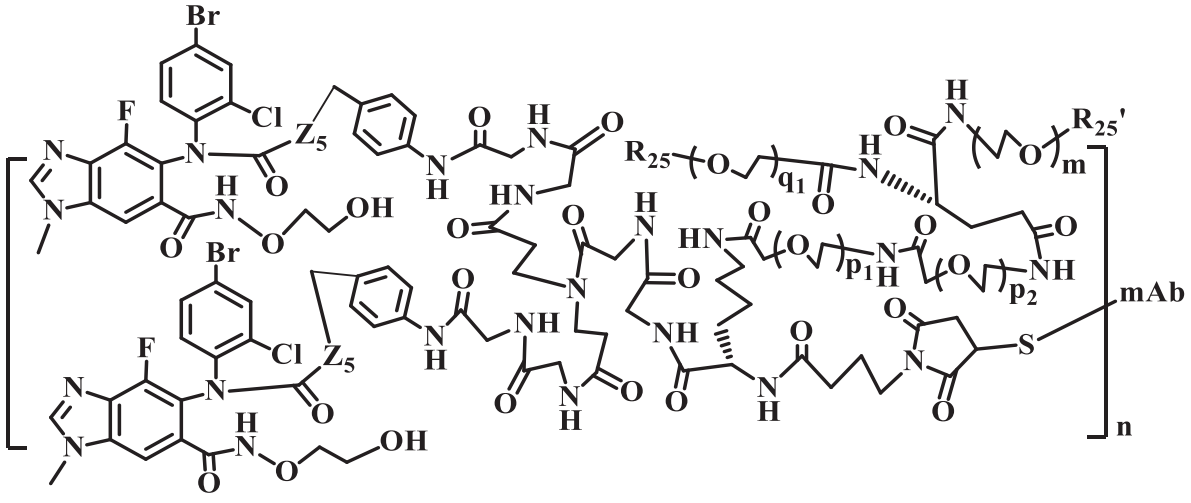
a141,



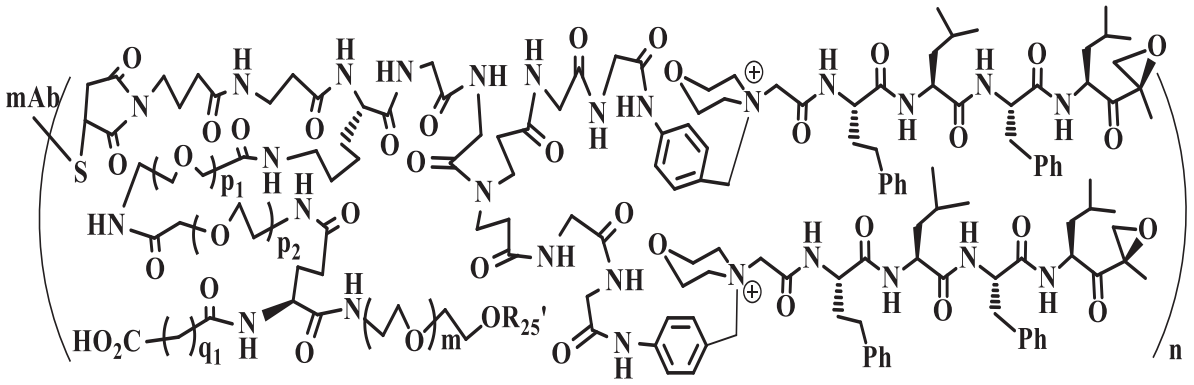
a142,



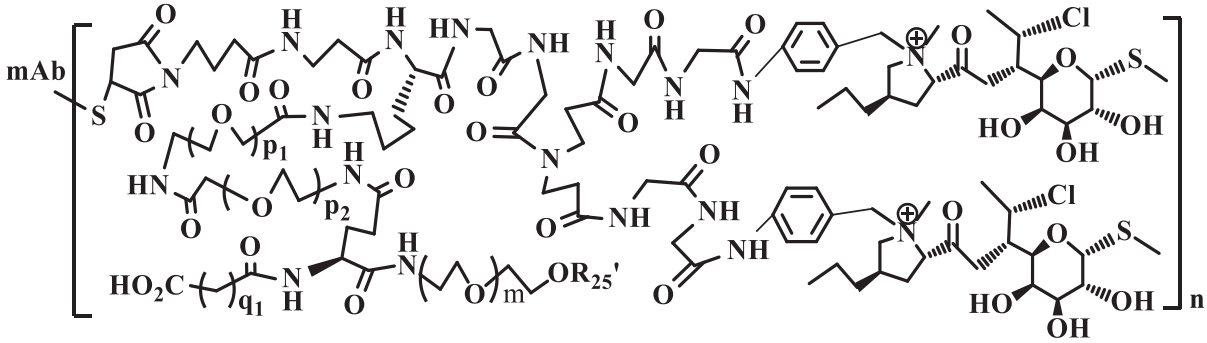
a143,



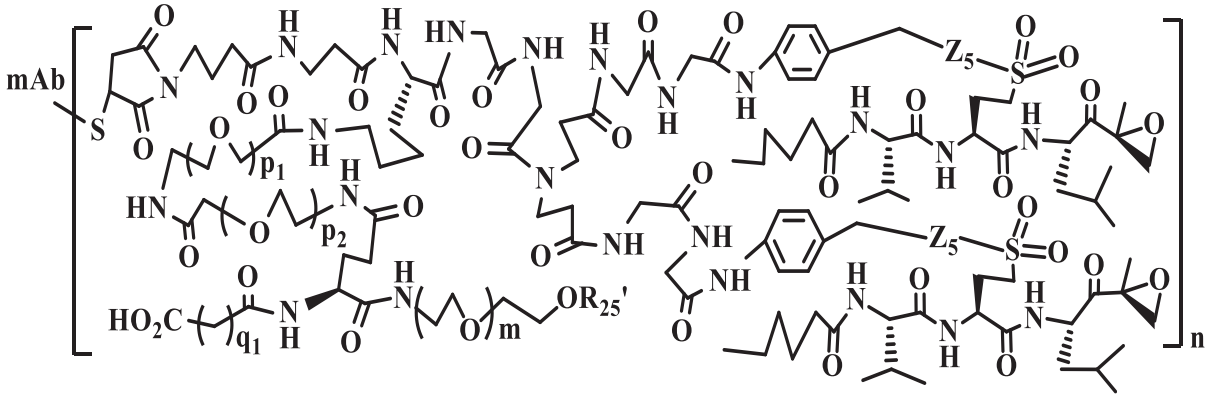
a144,



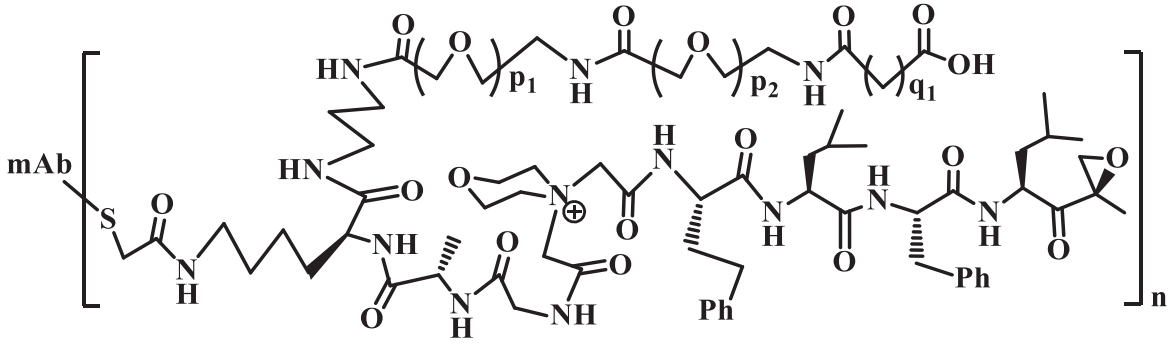
a145,



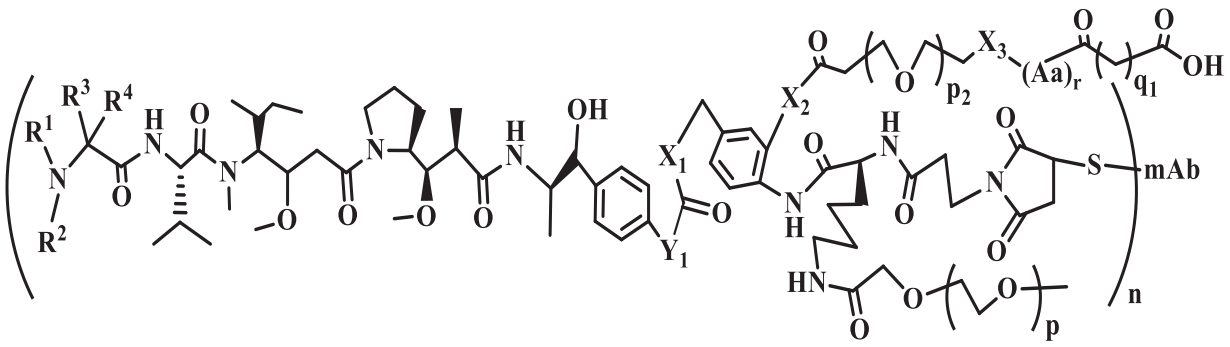
a146,



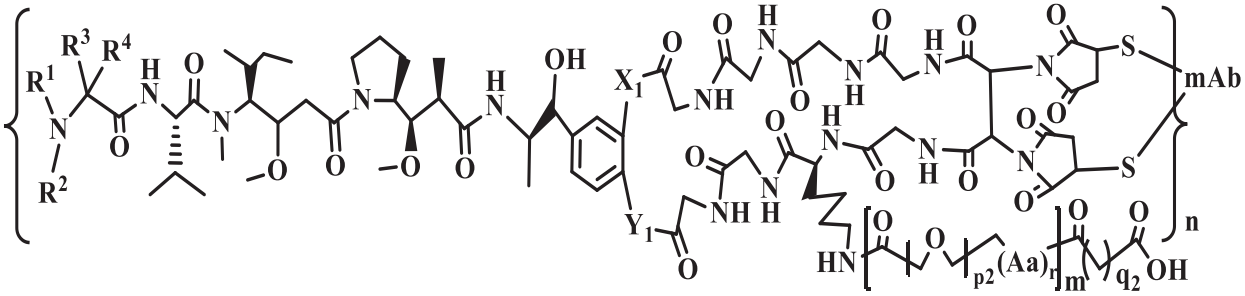
a147,



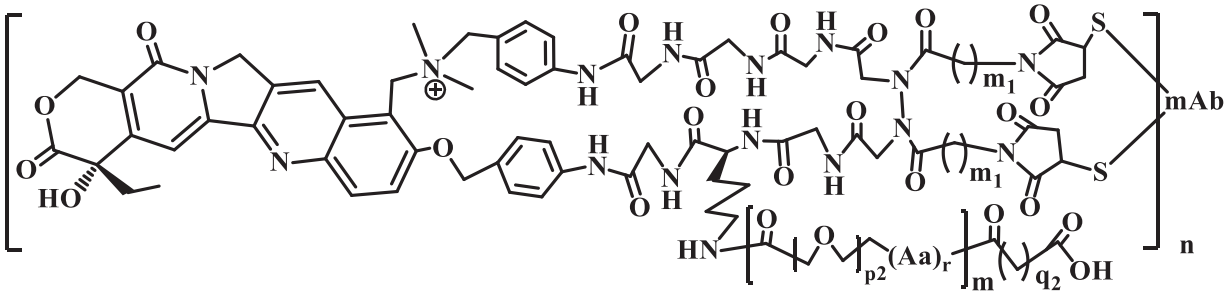
a148,



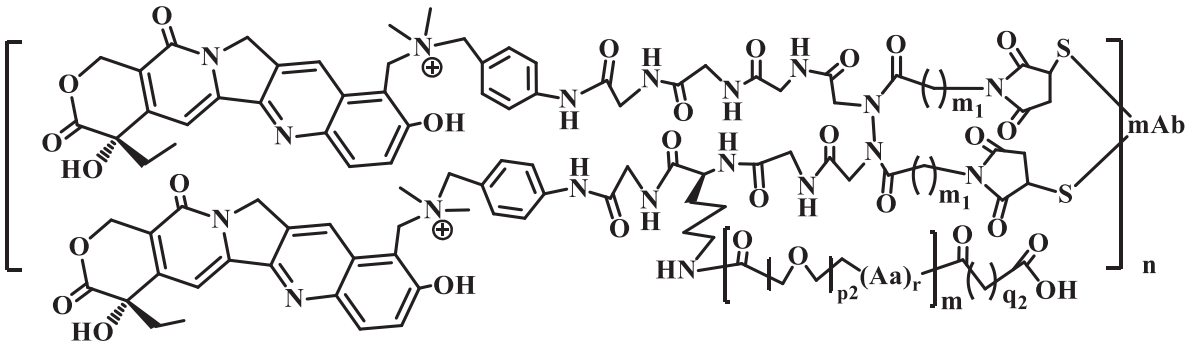
a149,



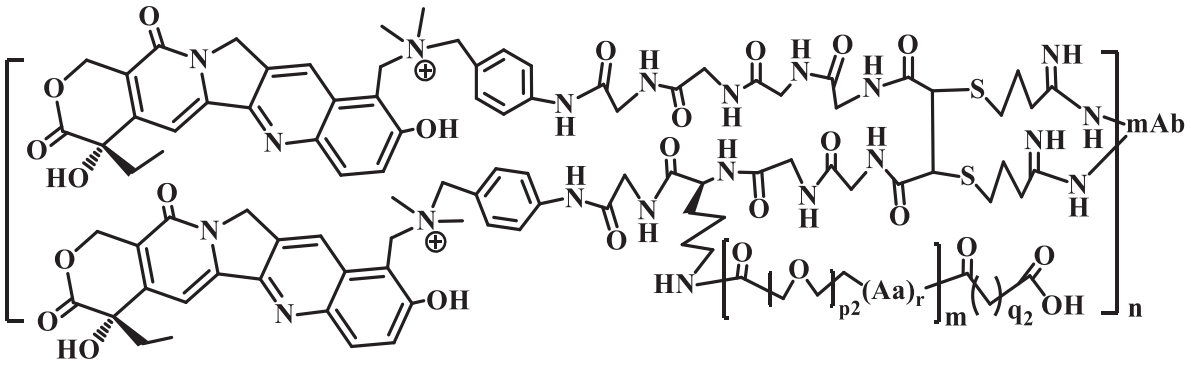
a150,



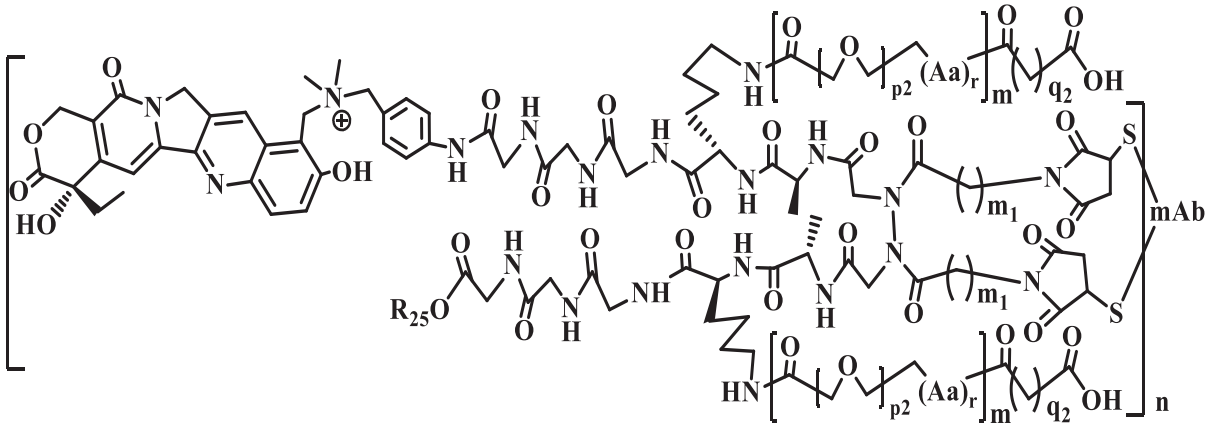
a151,



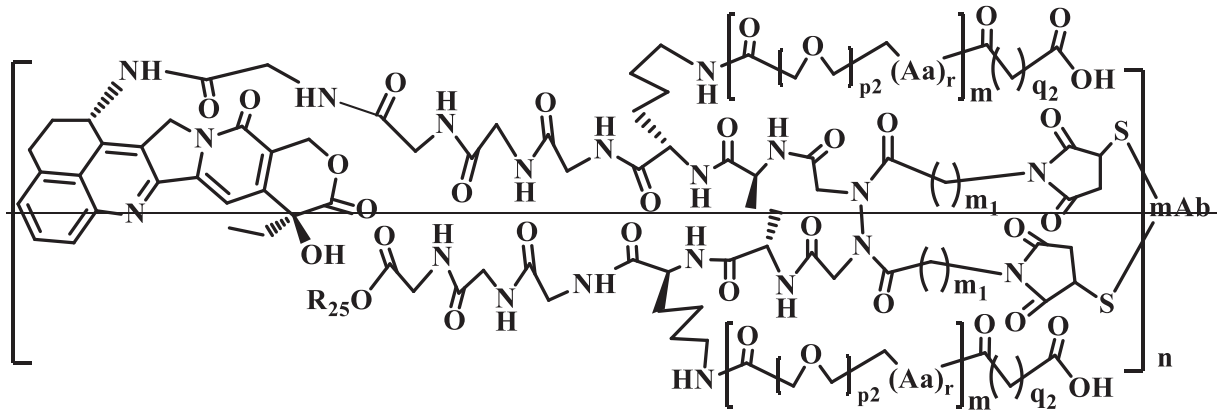
a152,



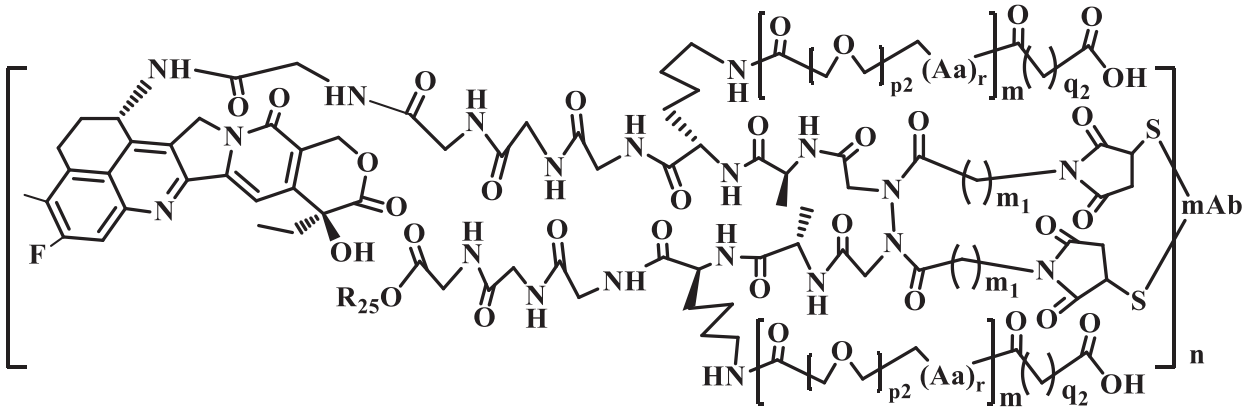
a153,



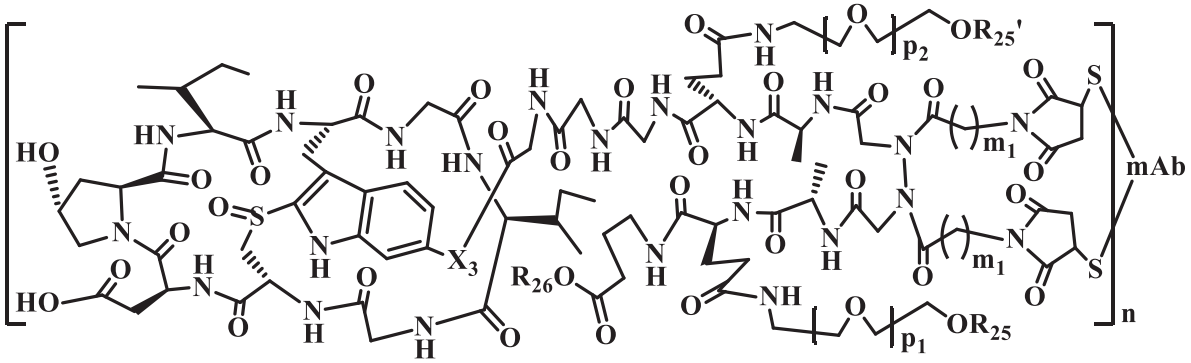
a154,



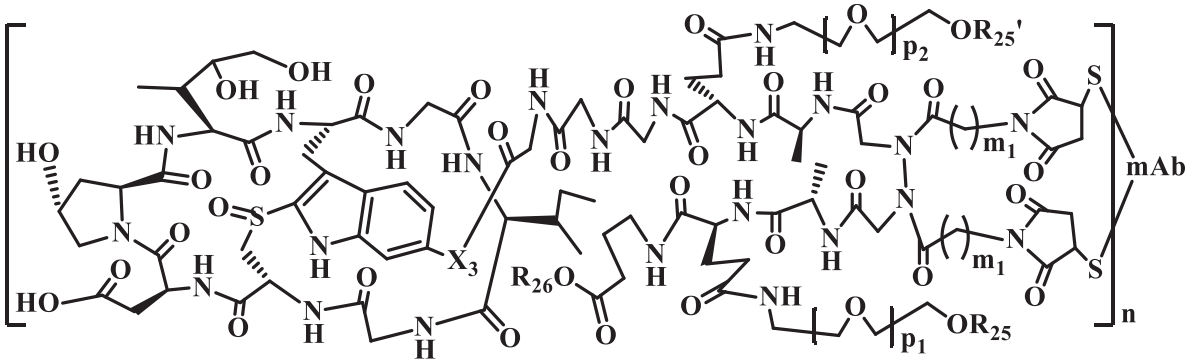
~~a155,~~



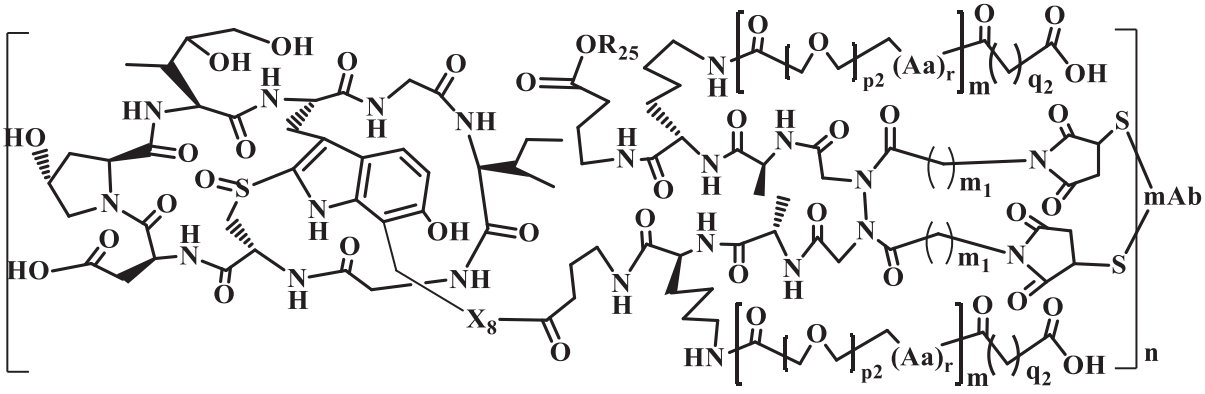
a155,



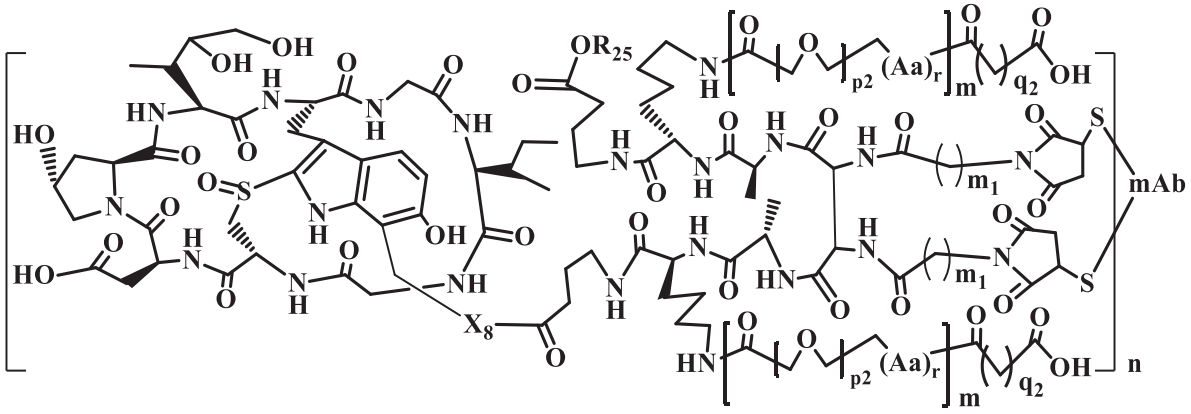
a156,



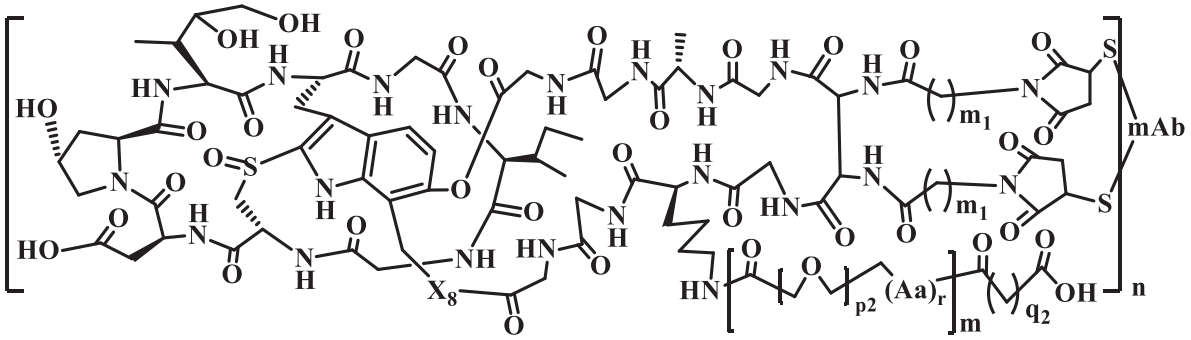
a157,



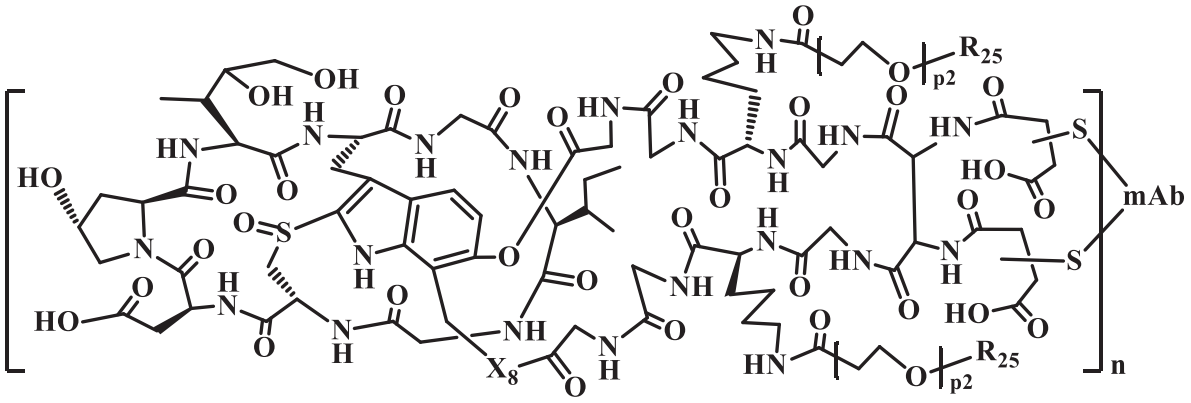
a158,



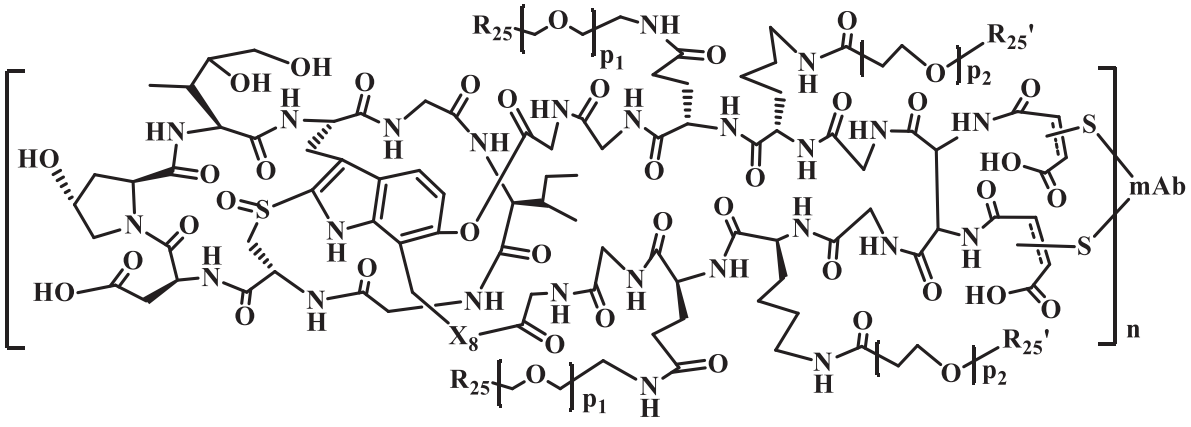
a159,



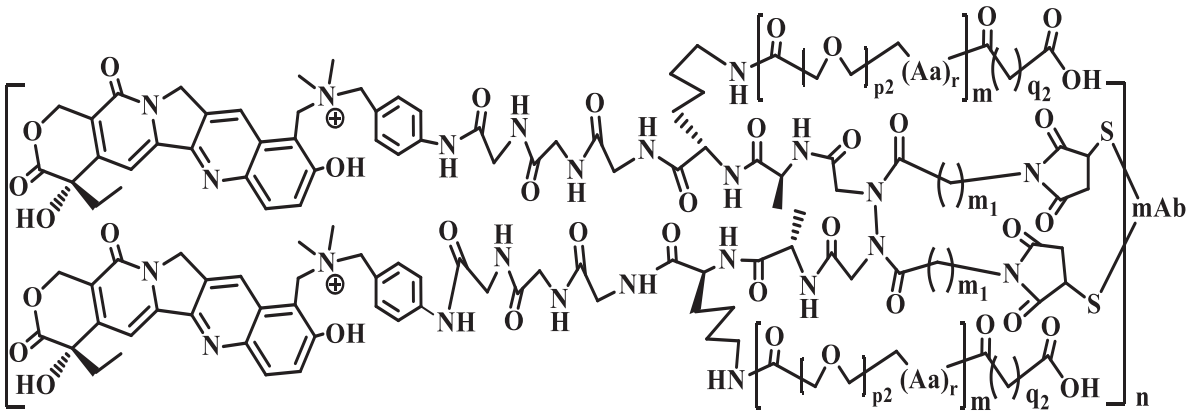
a160,



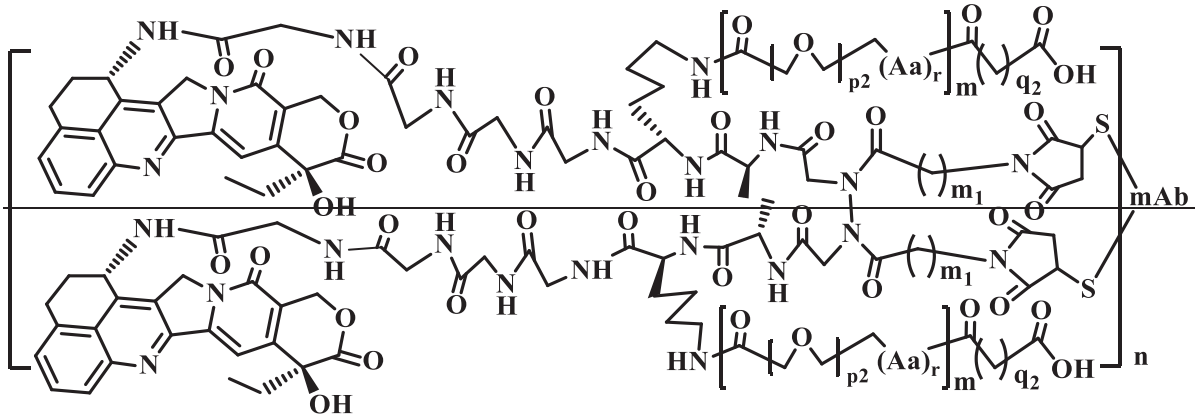
a161,



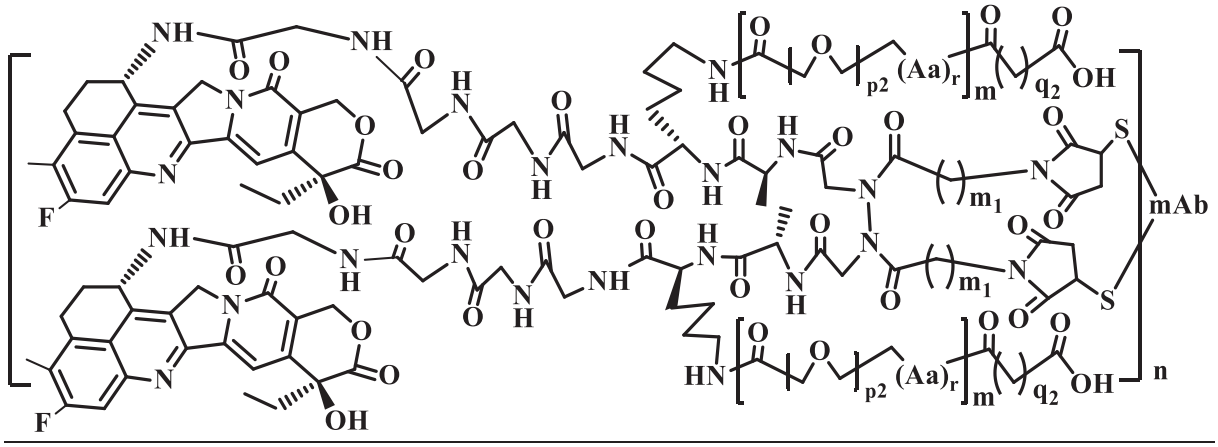
a162,



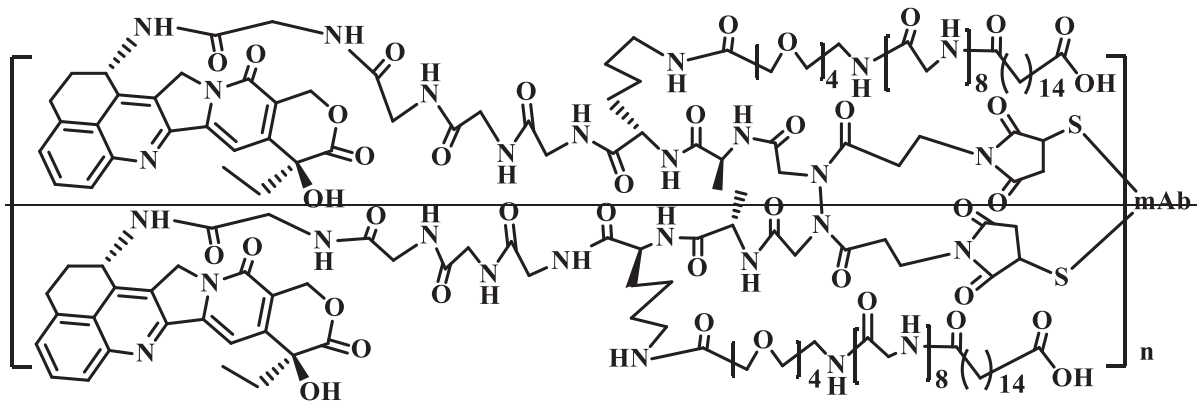
a163,



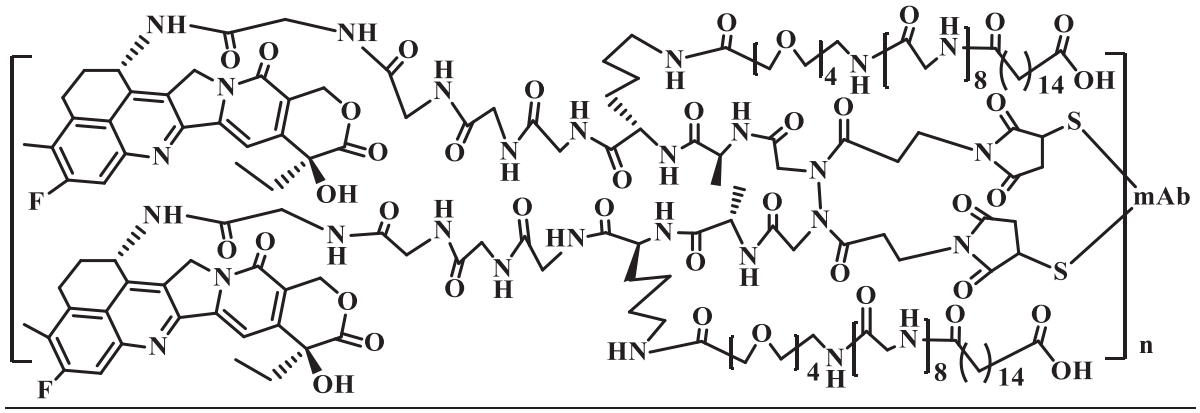
~~a164,~~



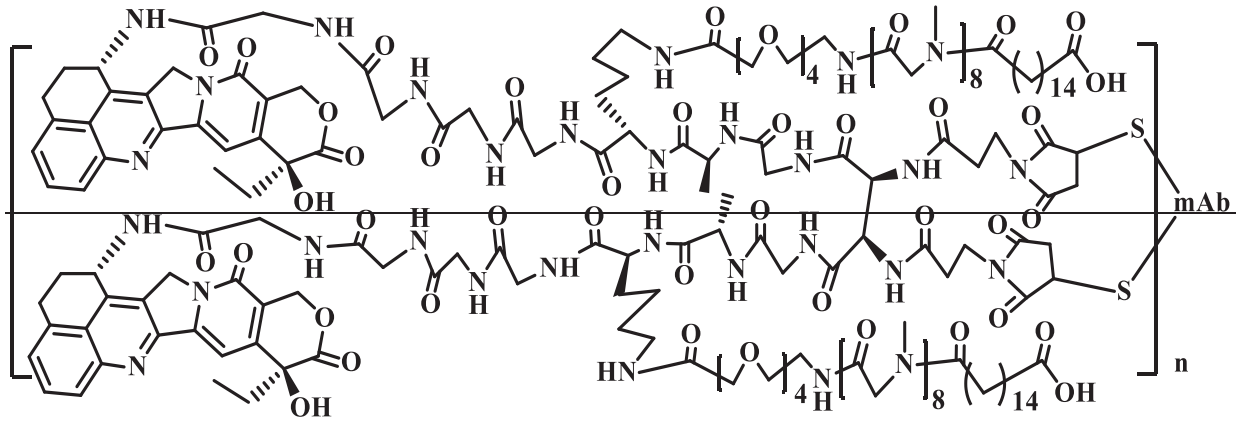
a164,



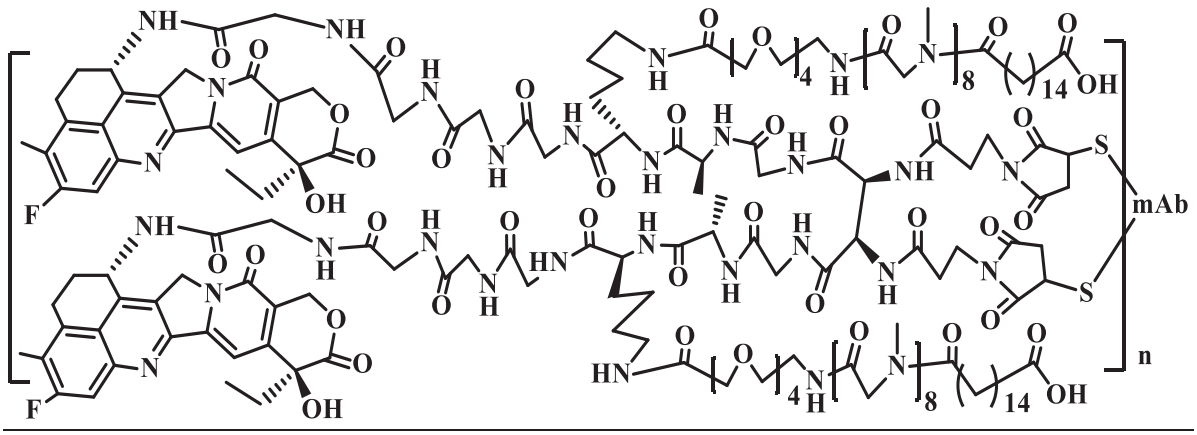
~~a165,~~



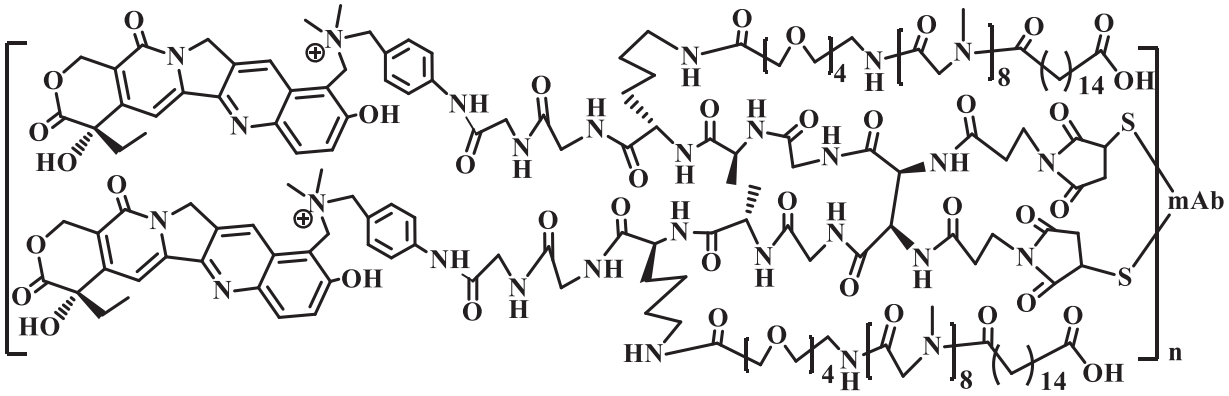
a165,



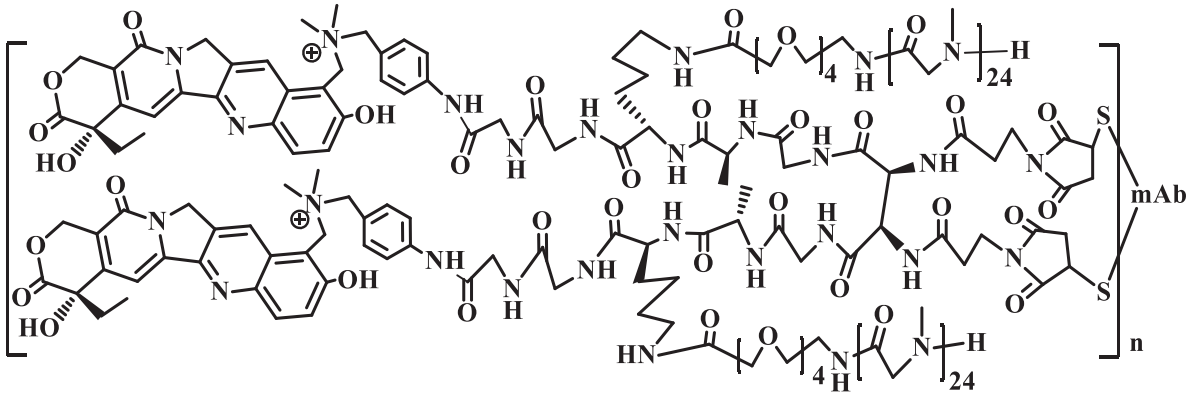
~~a166,~~



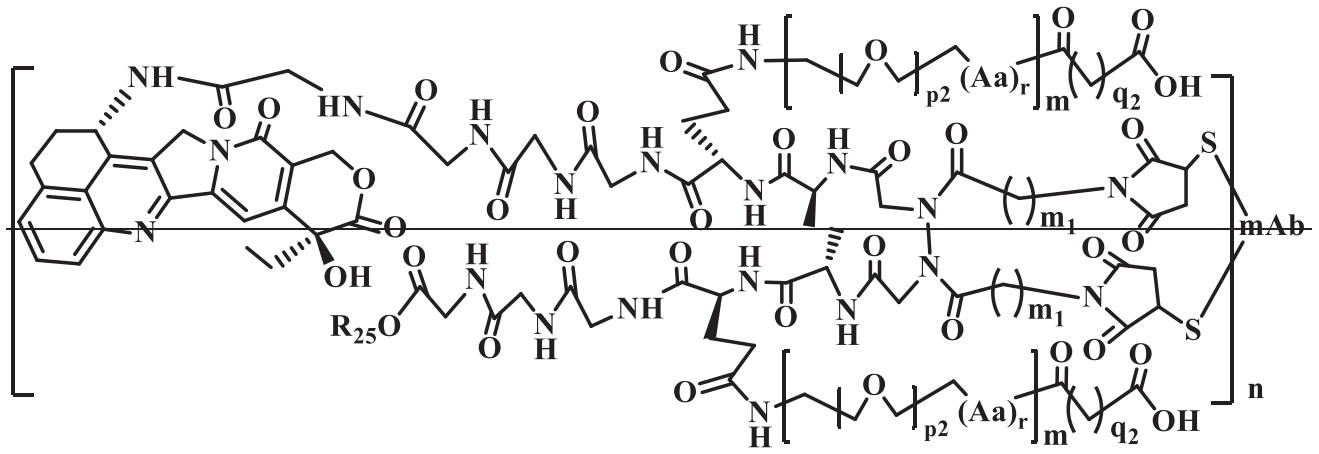
a166,



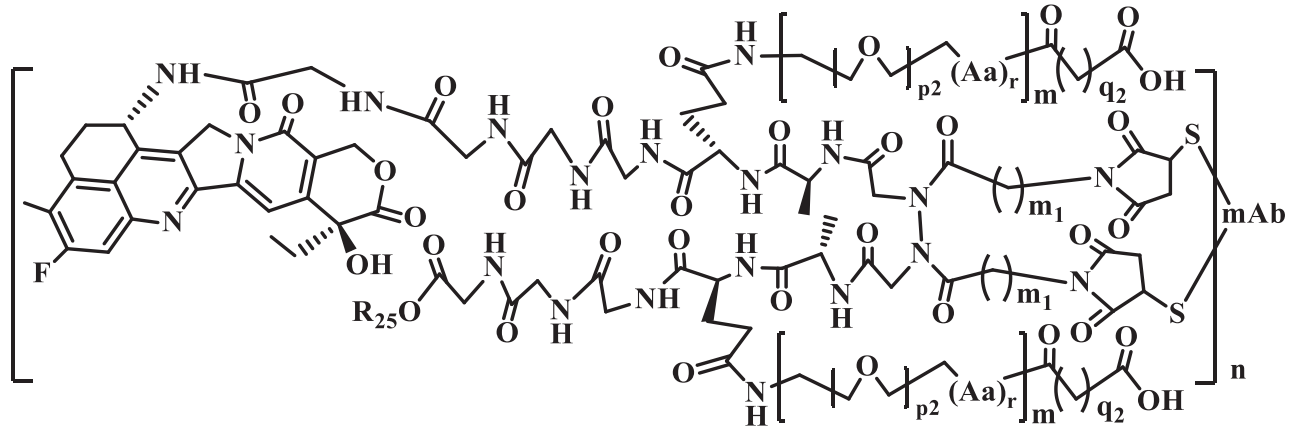
a167,



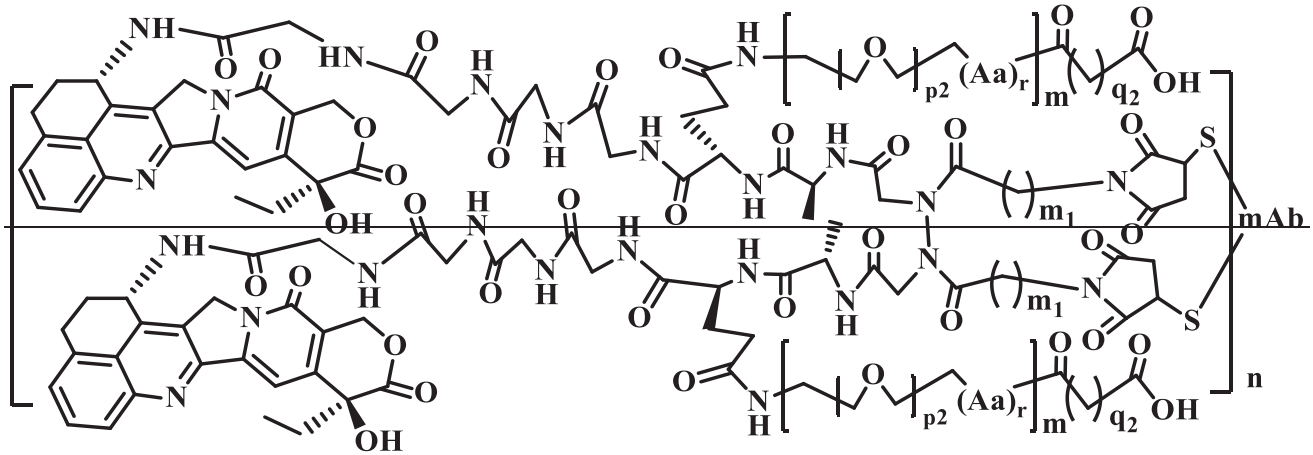
a168,



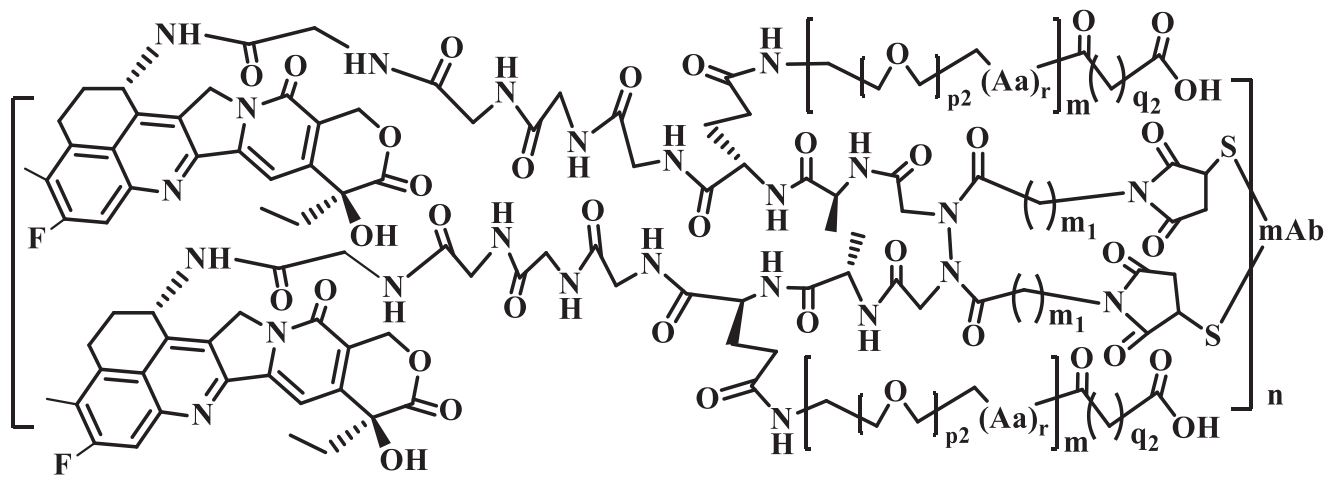
~~a169,~~



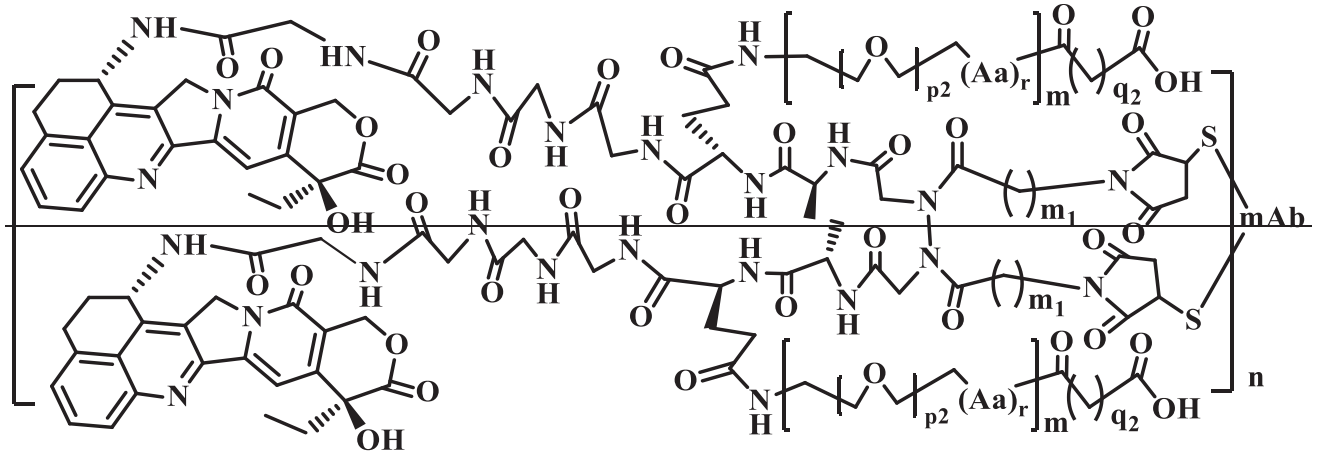
a169,



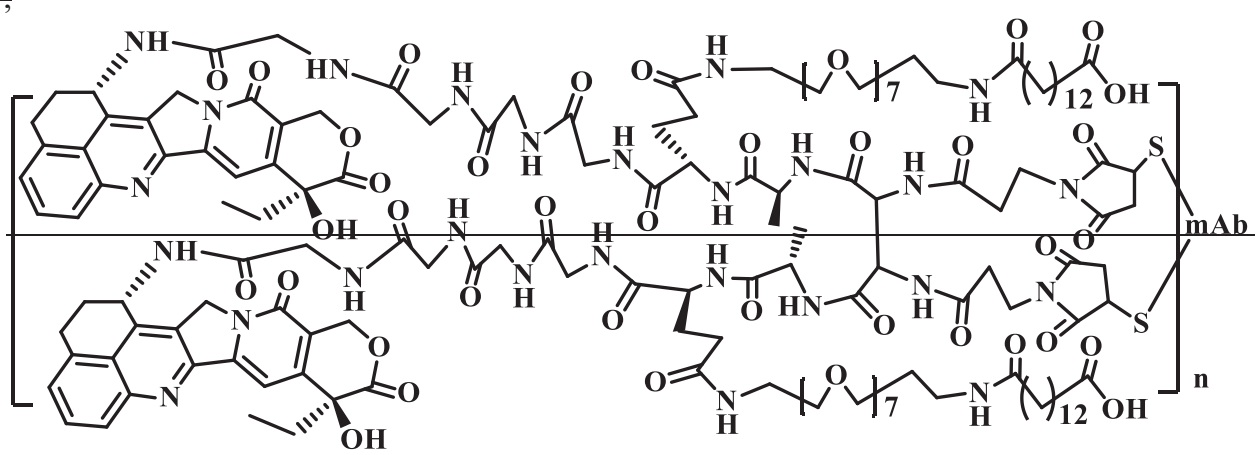
~~a170,~~



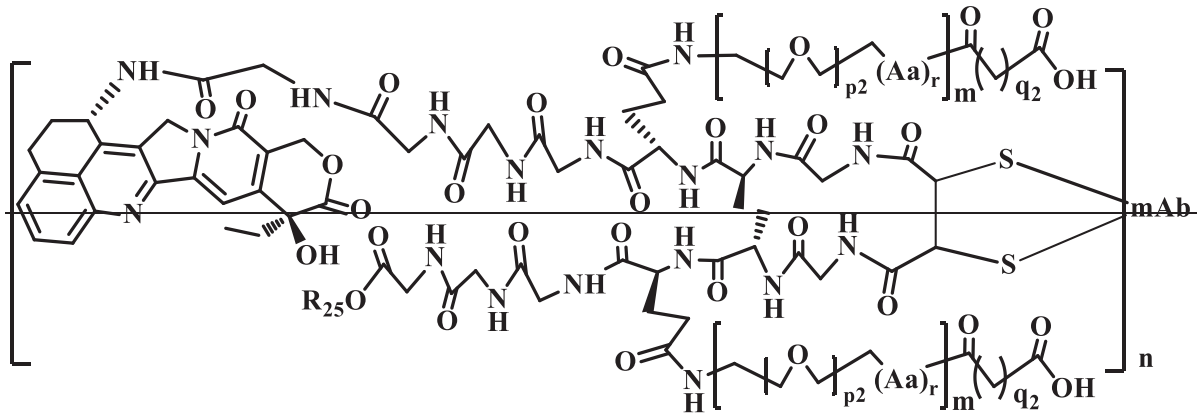
a170,



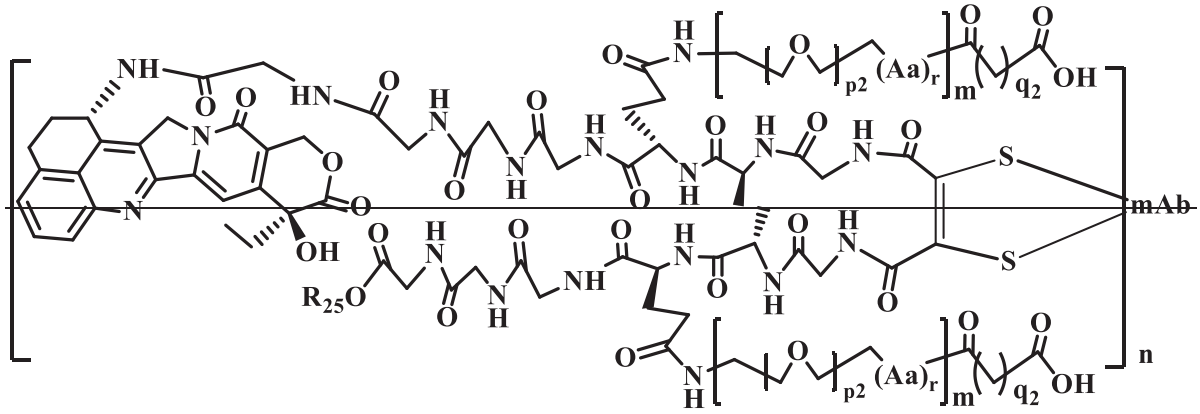
~~a171,~~



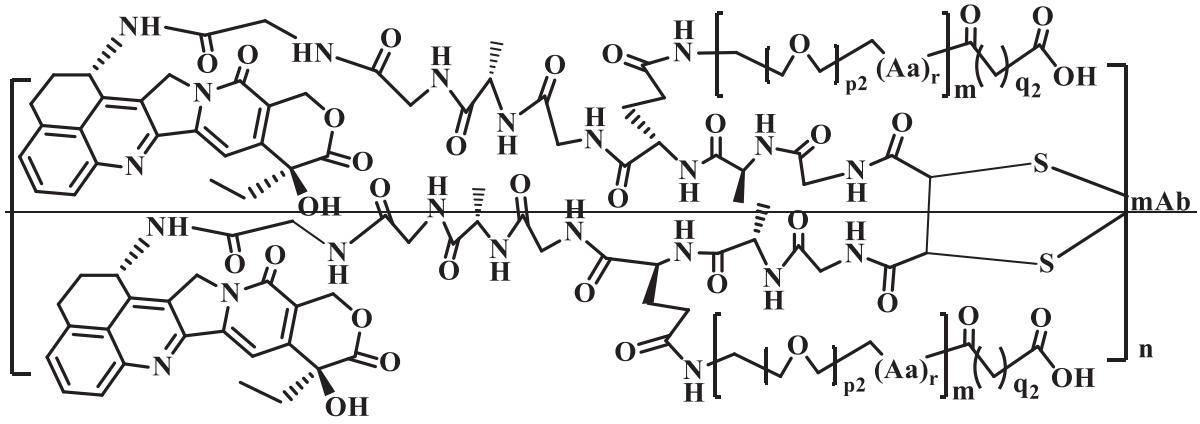
~~a172,~~



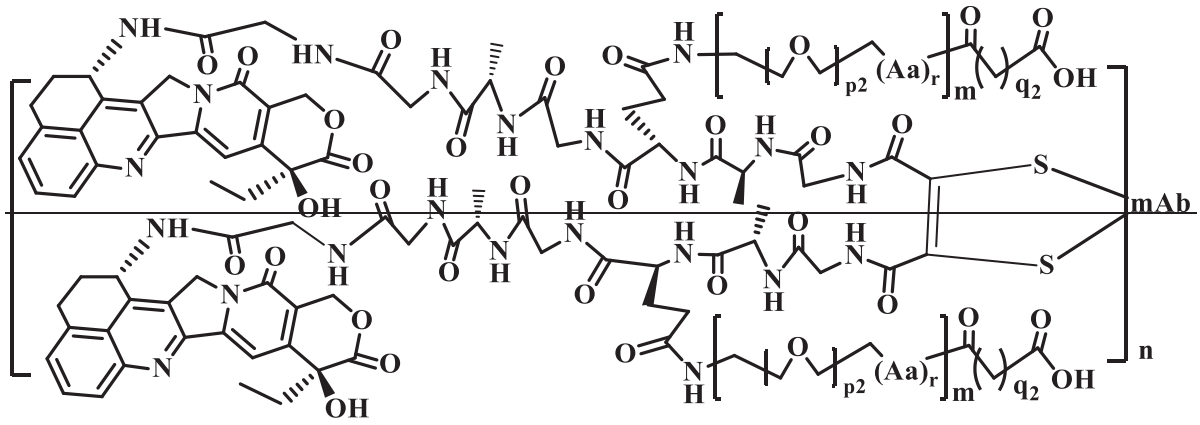
~~a173,~~



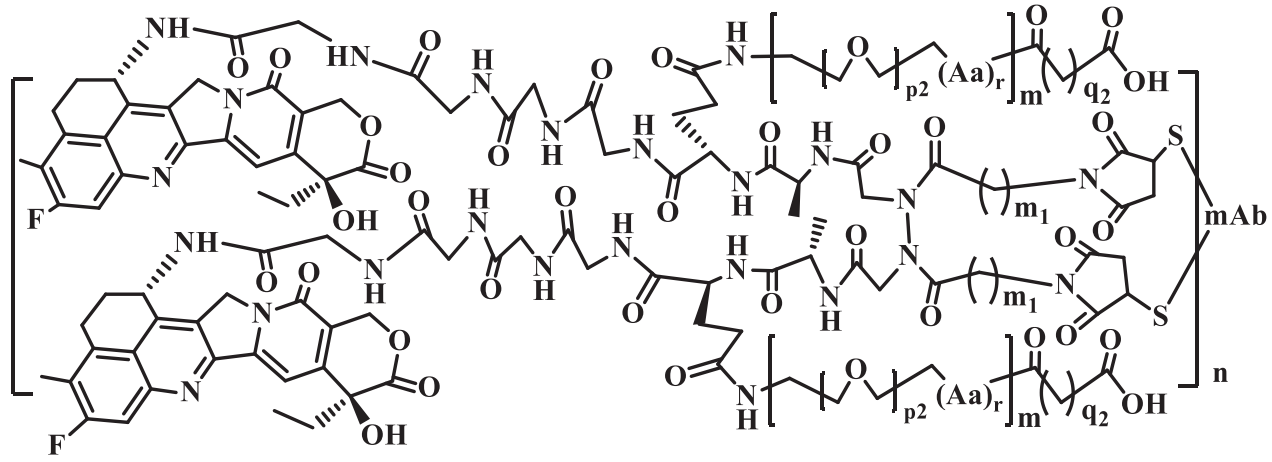
~~a174,~~



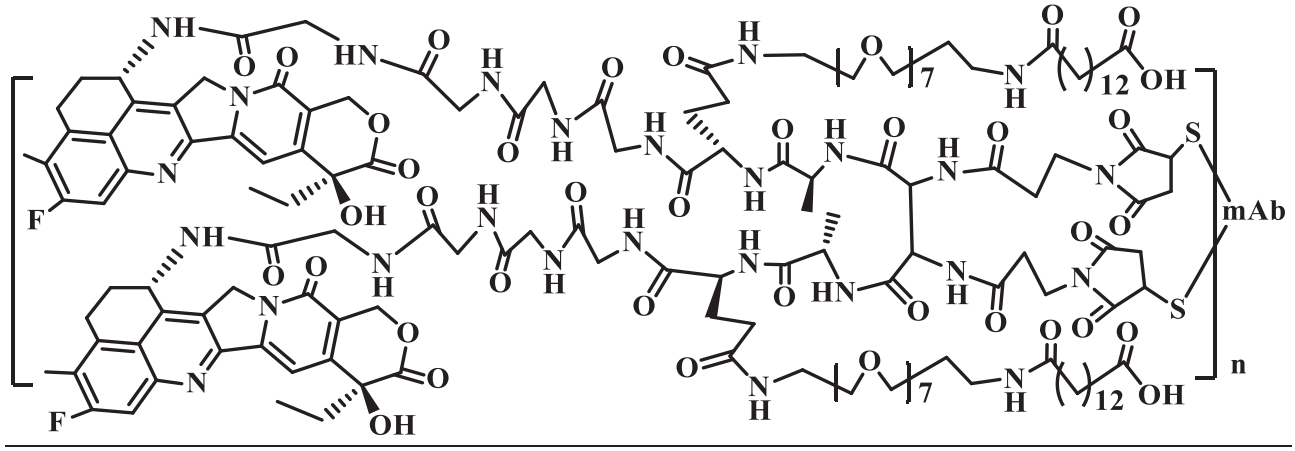
~~a175,~~



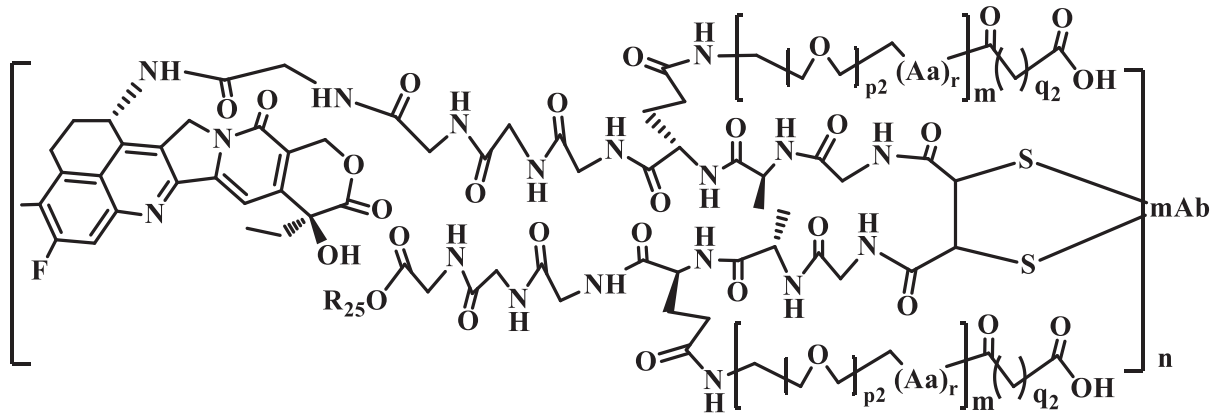
~~a176,~~



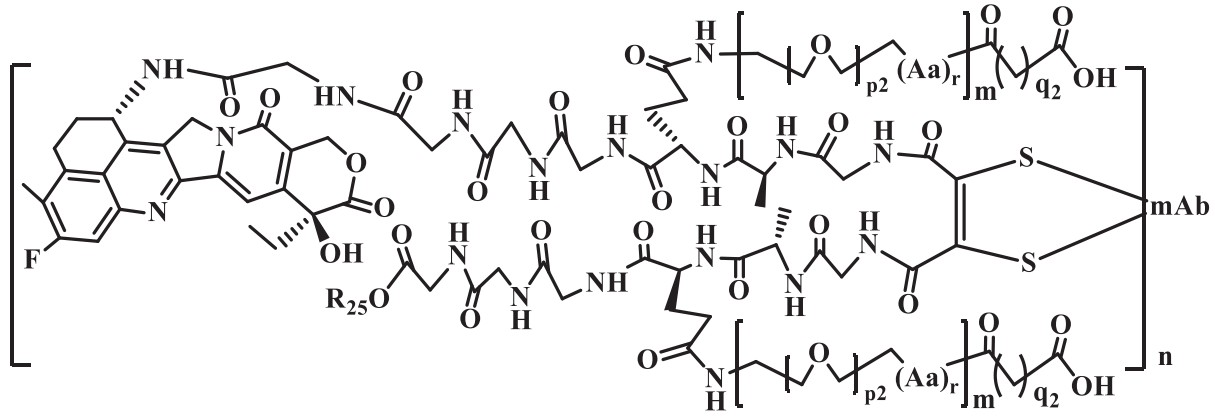
a171,



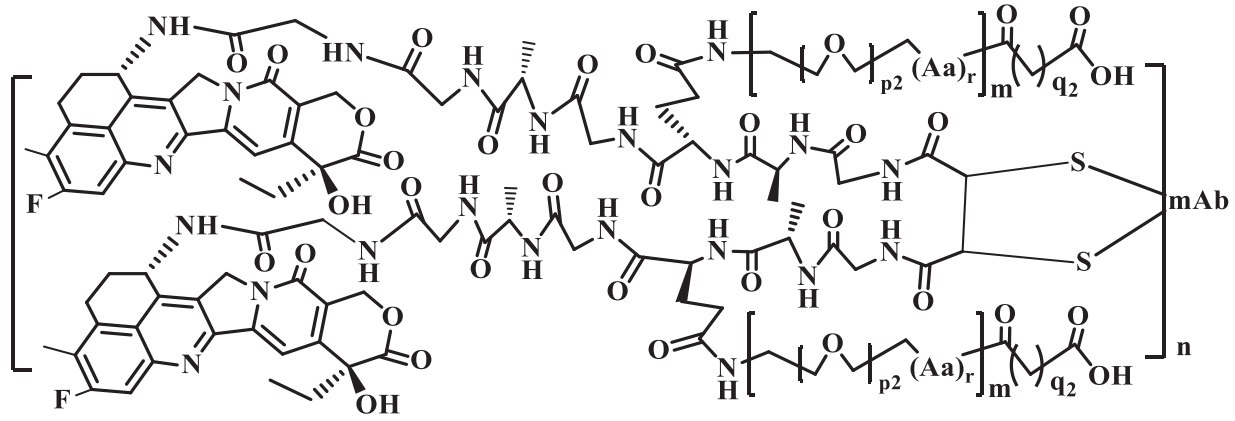
a172,



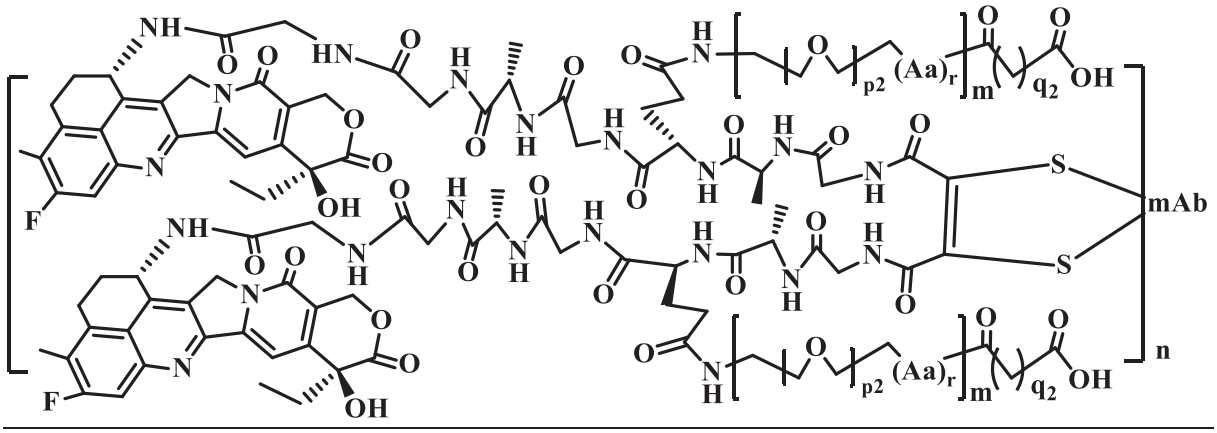
a173,



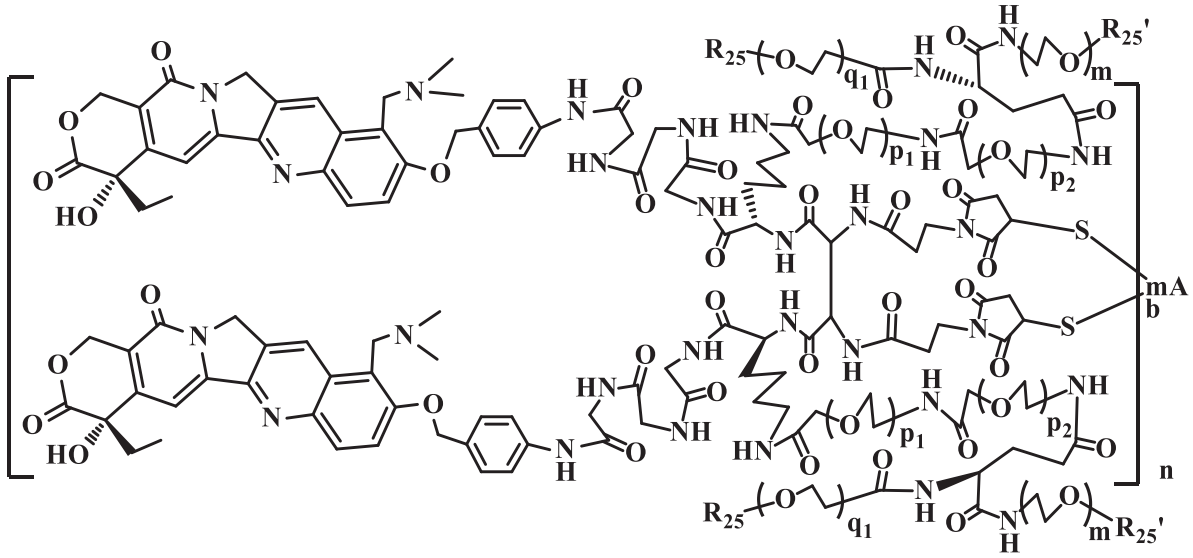
a174,



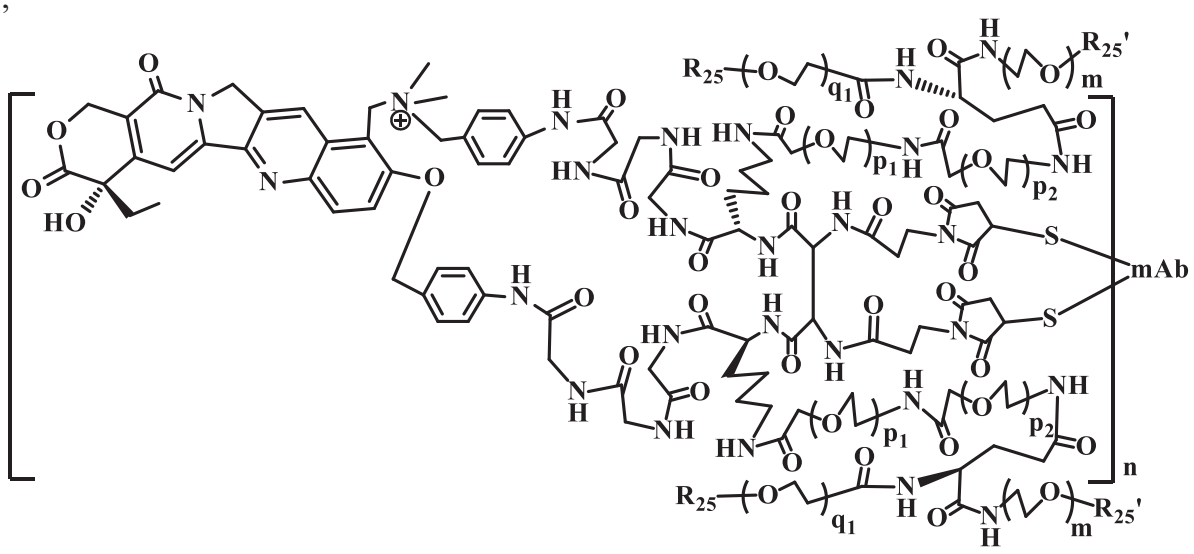
a175,



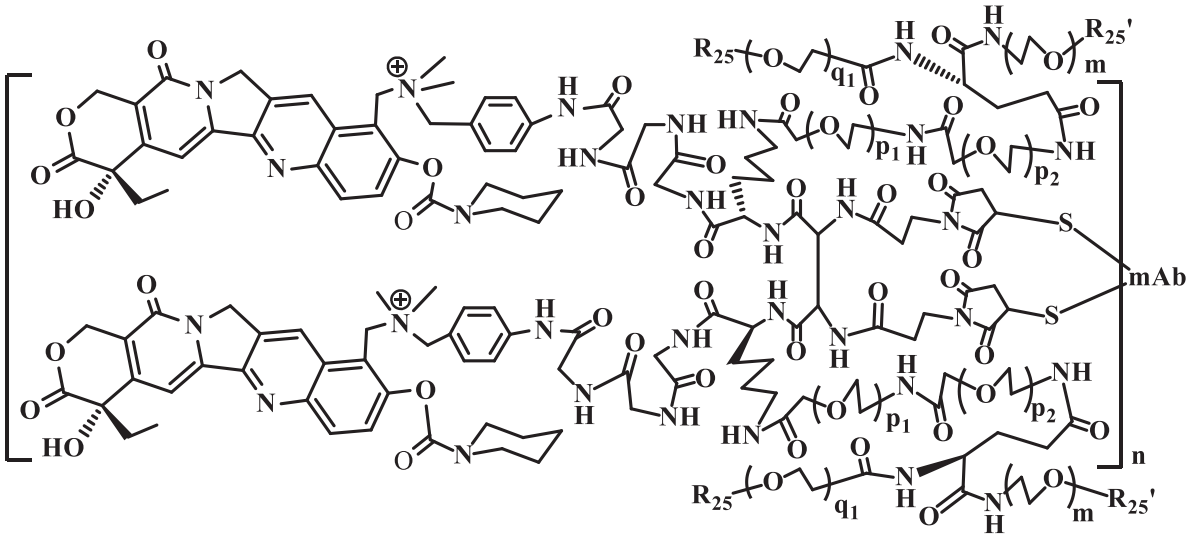
a176,



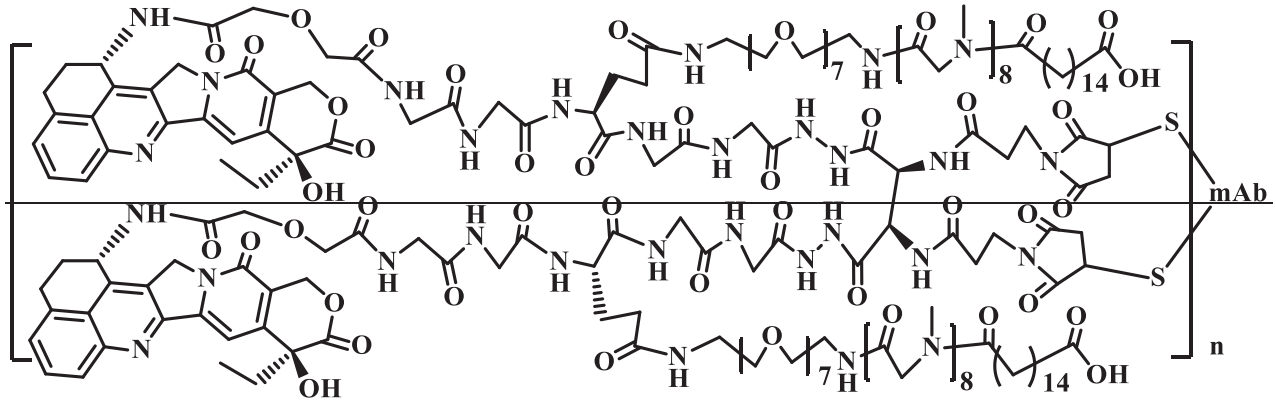
a177,



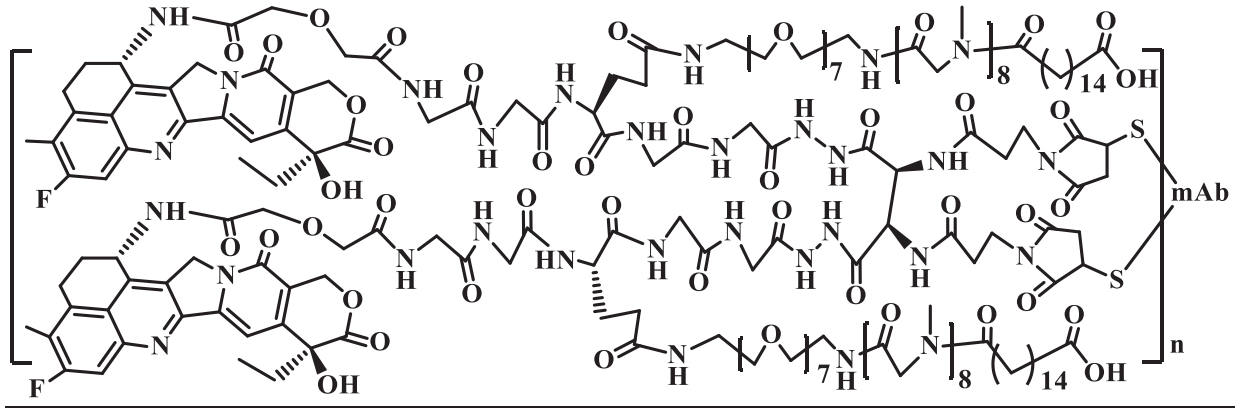
a178,



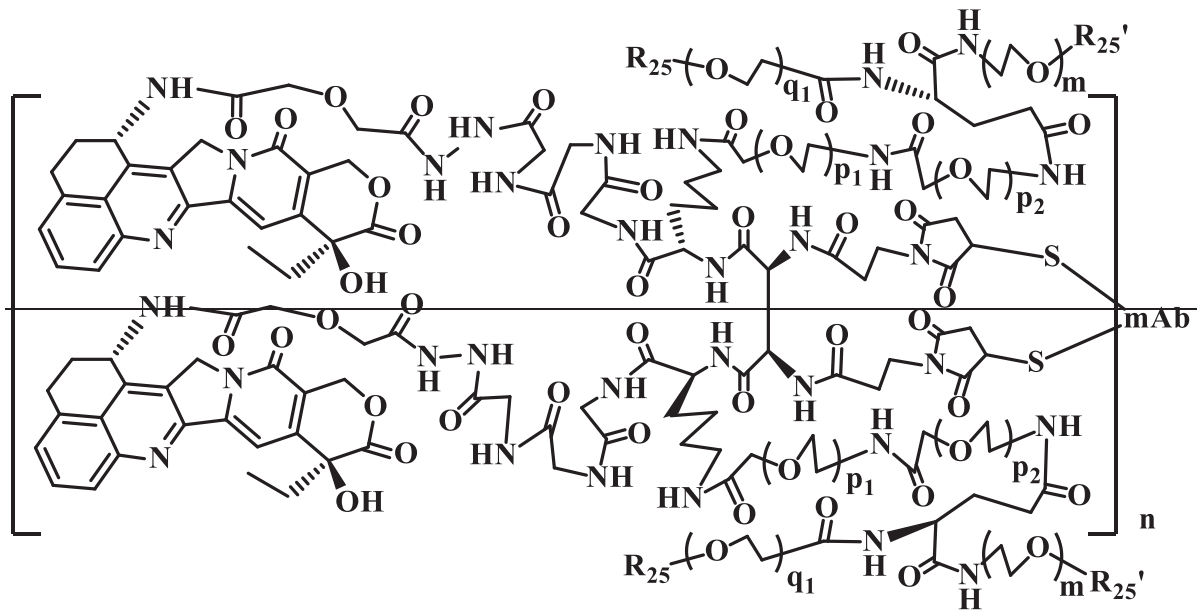
a179,



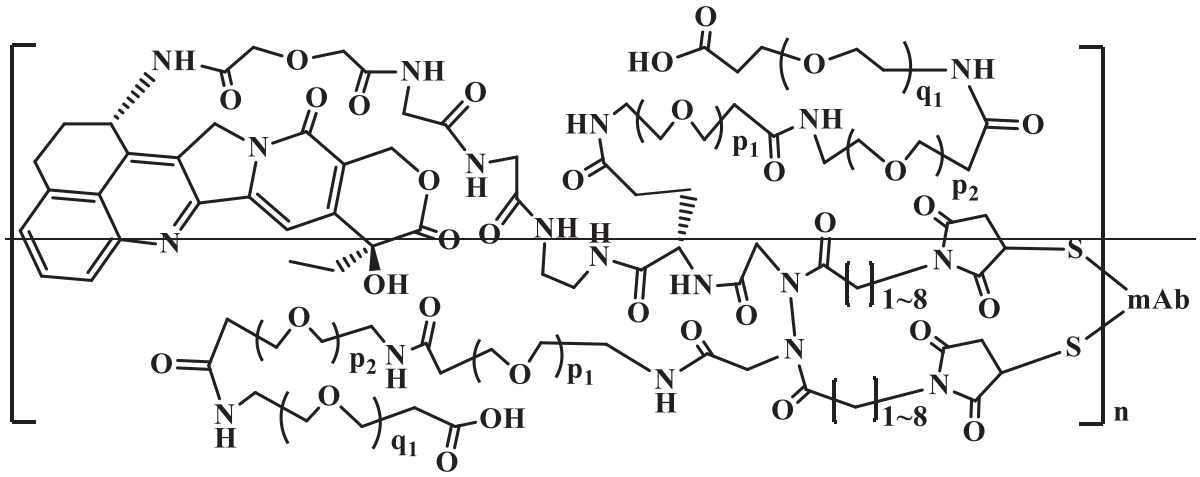
~~a180,~~



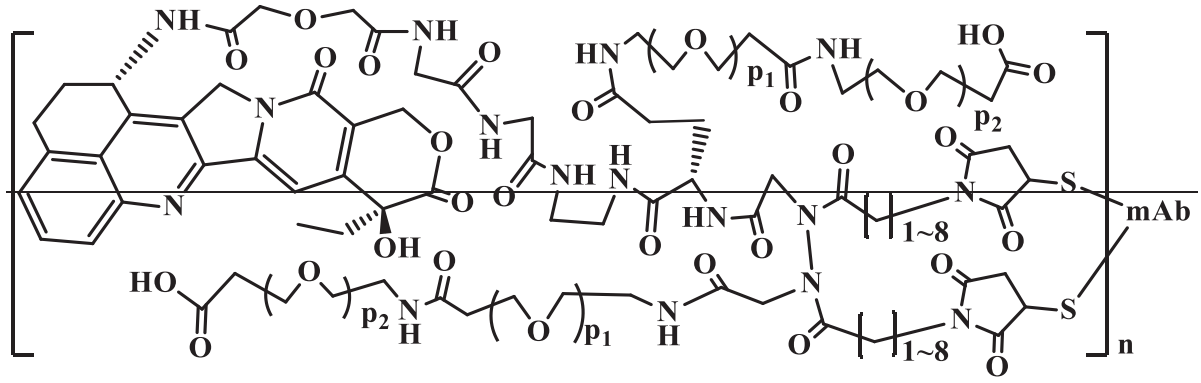
a180,



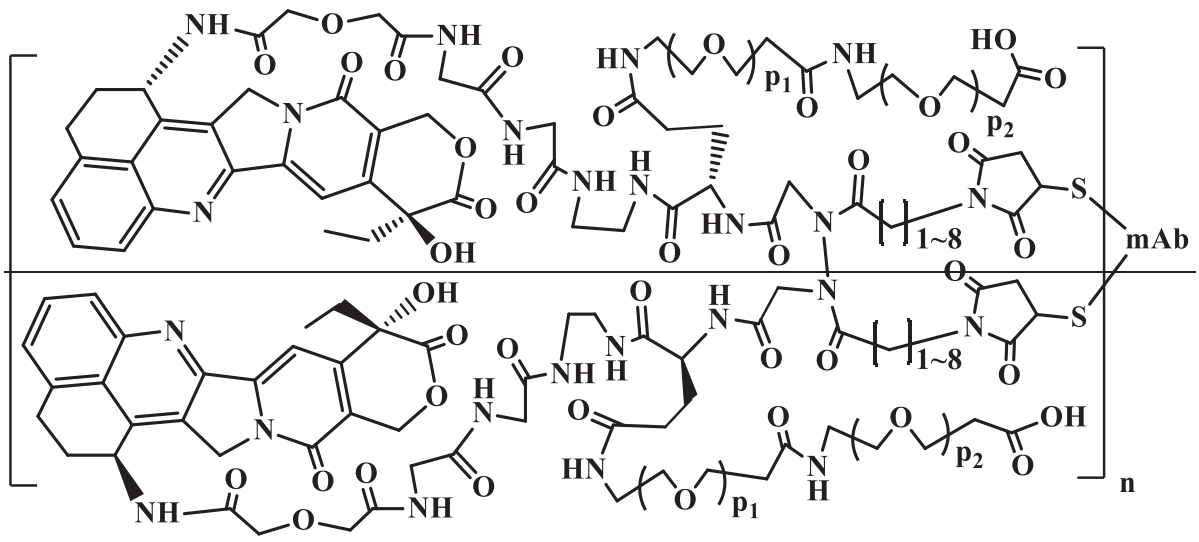
~~a181,~~



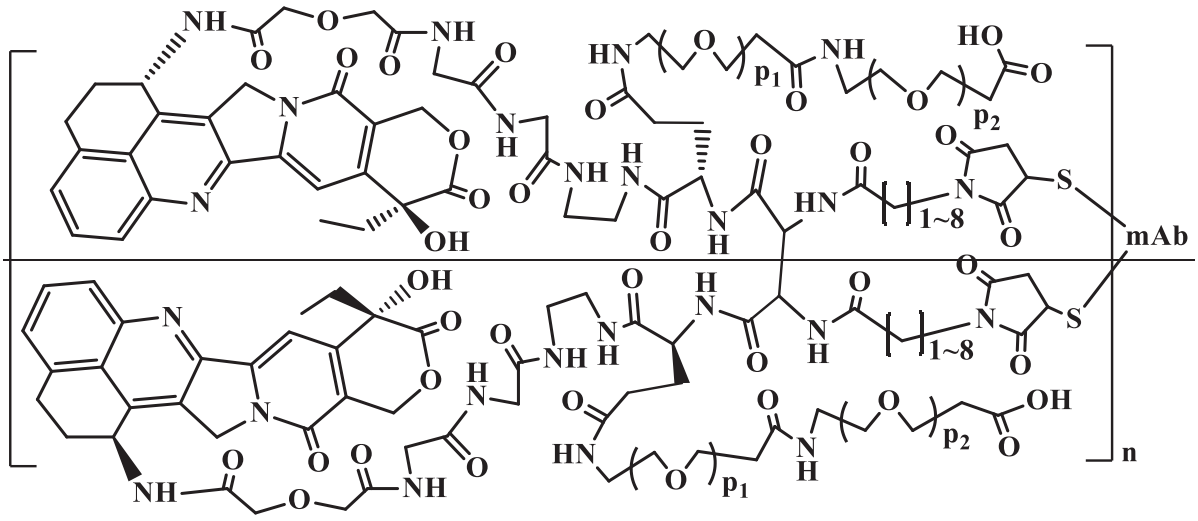
~~a182,~~



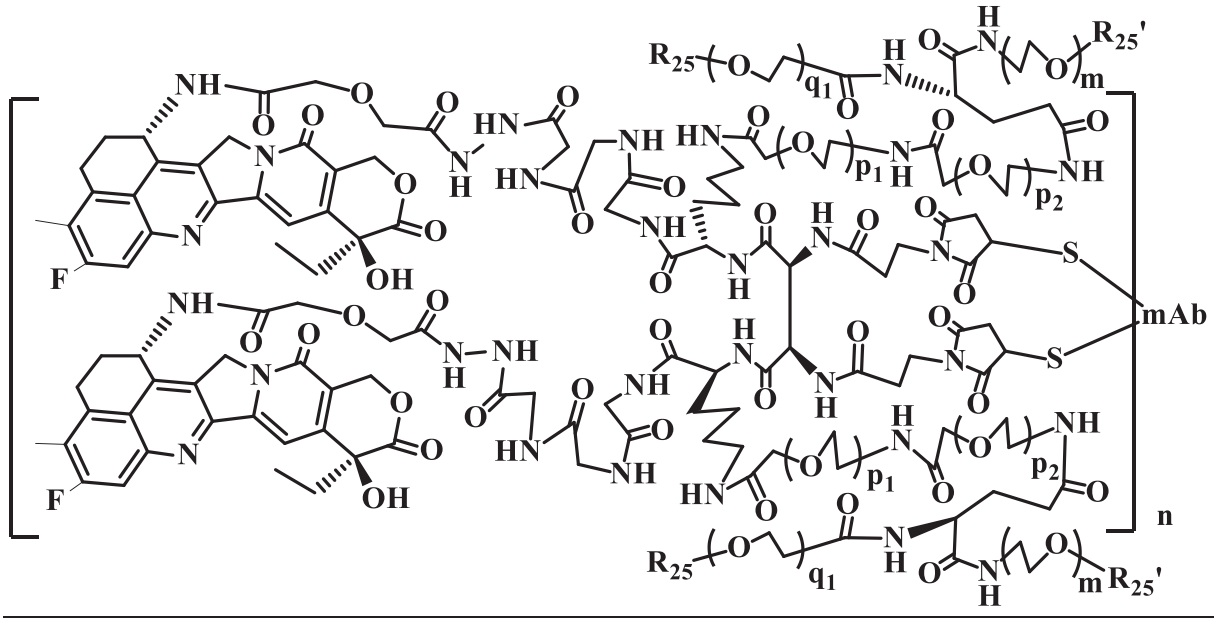
~~a183,~~



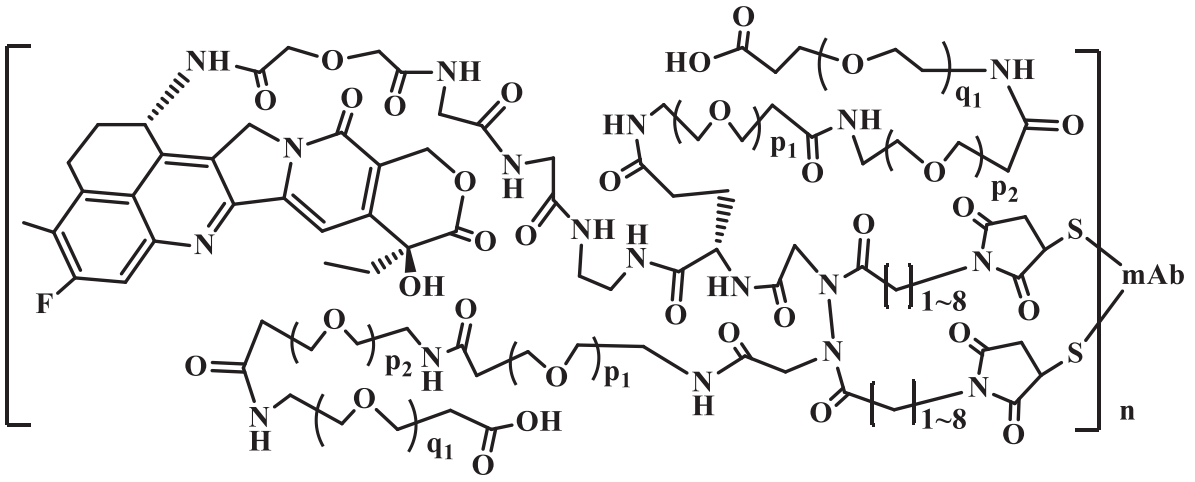
~~a184,~~



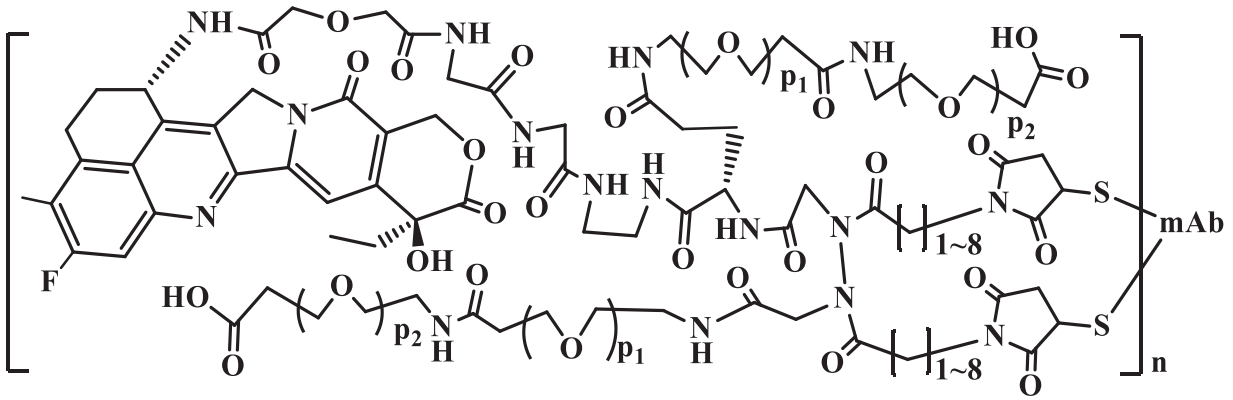
~~a185,~~



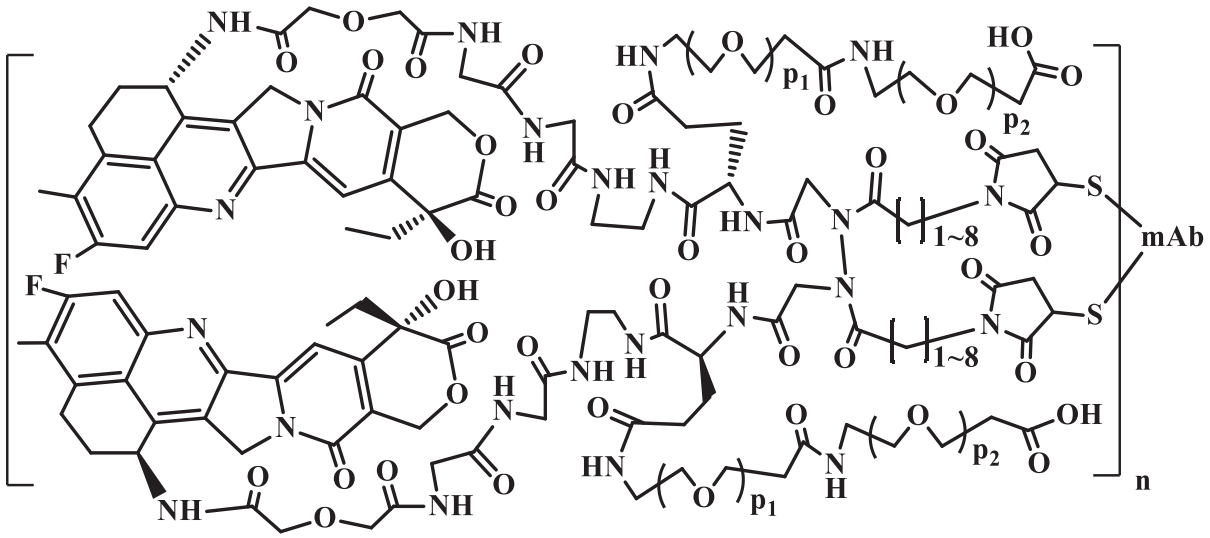
a181,



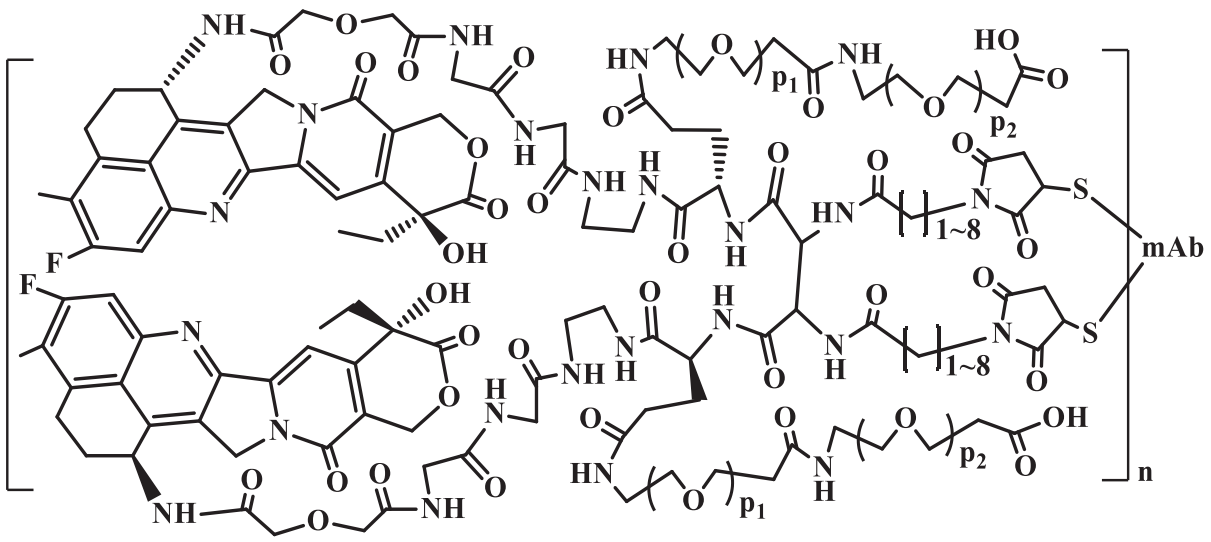
a182,



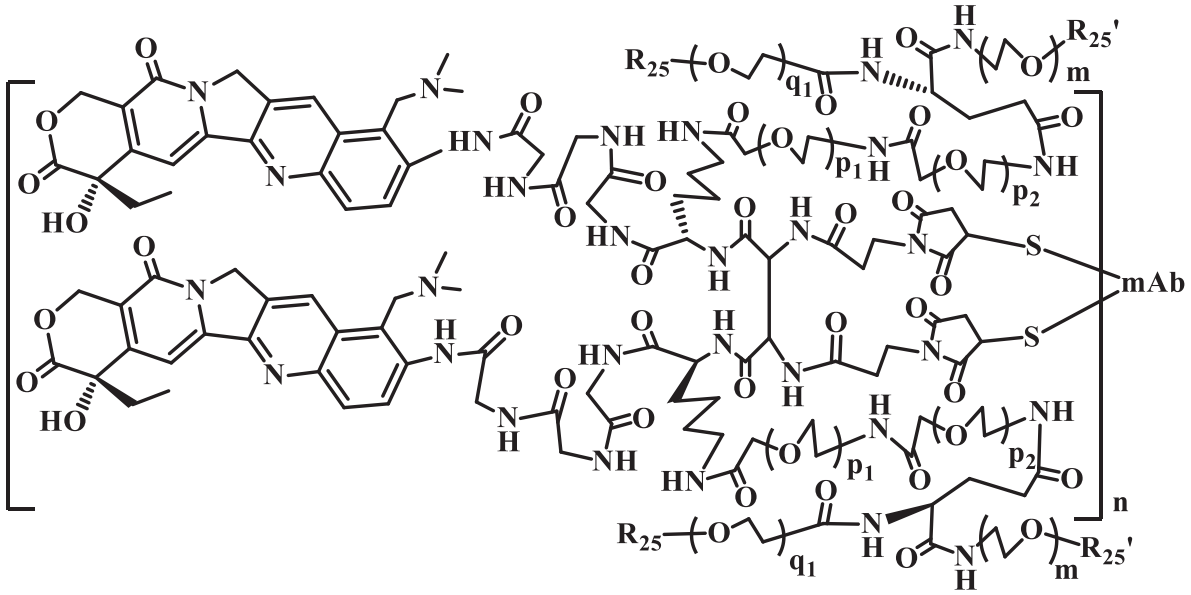
a183,



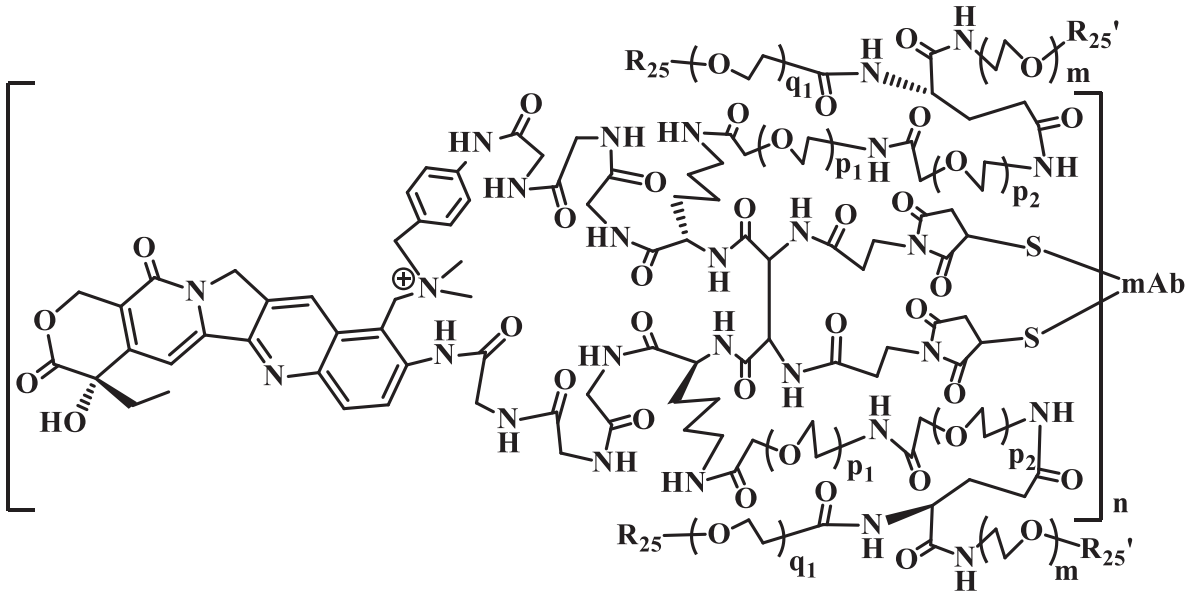
a184,



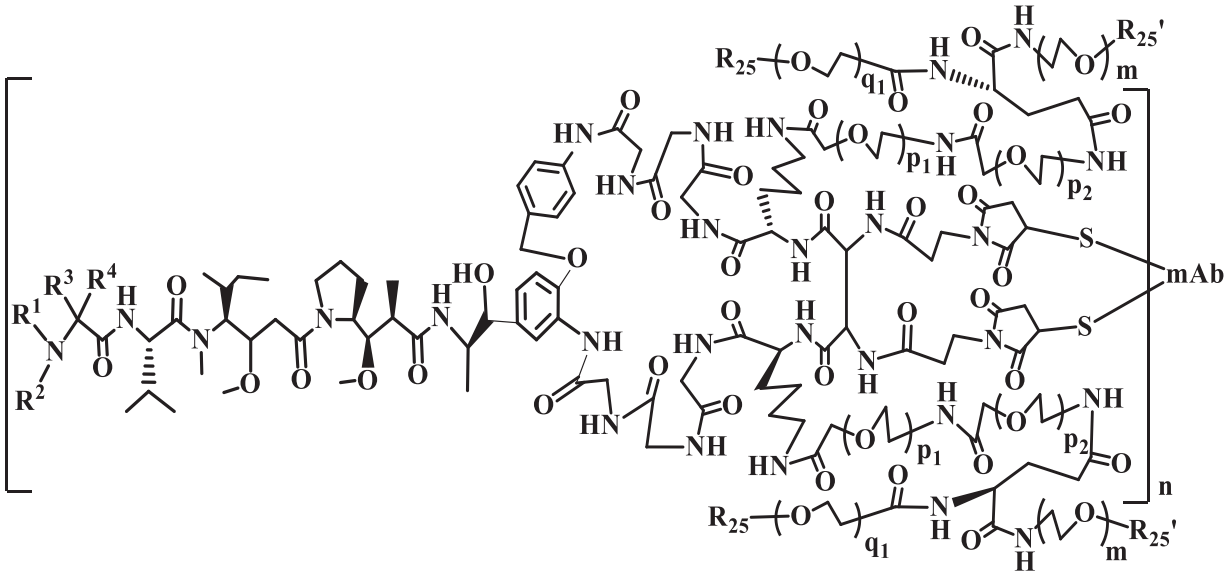
a185,



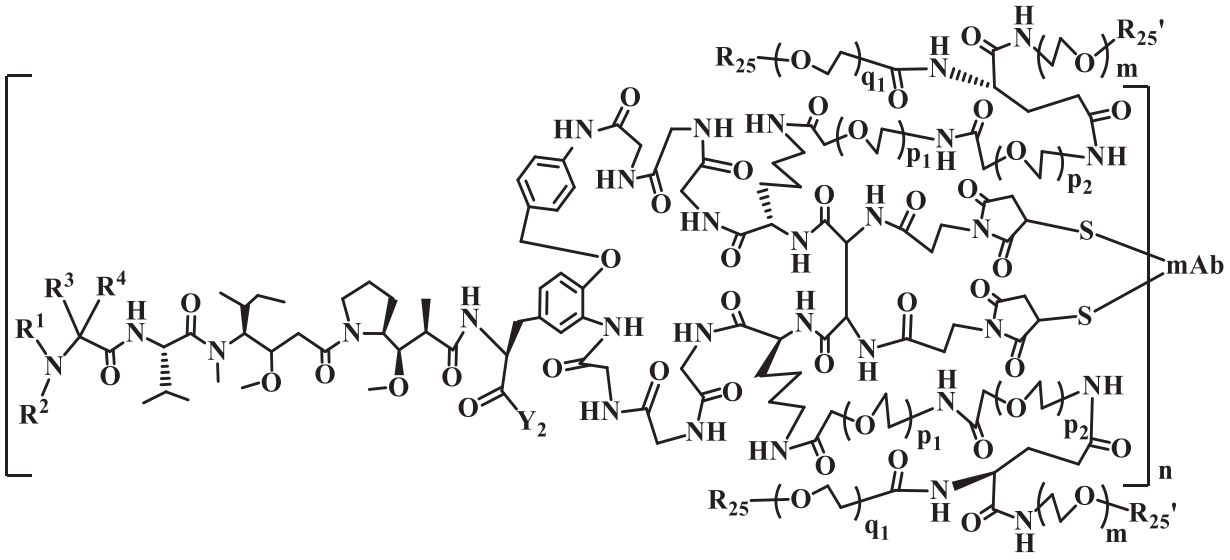
a186,



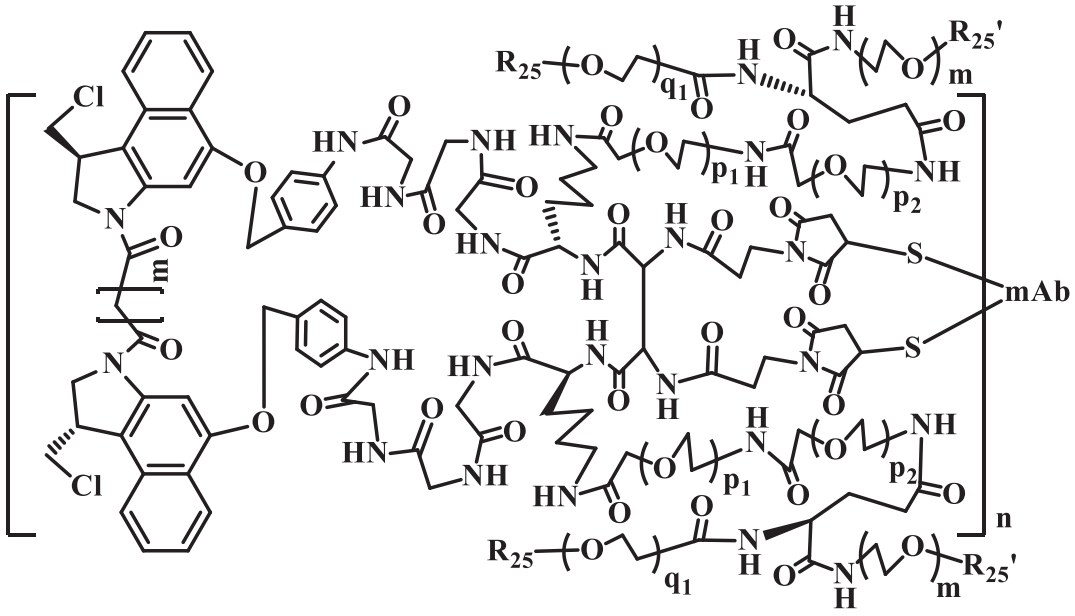
a187,



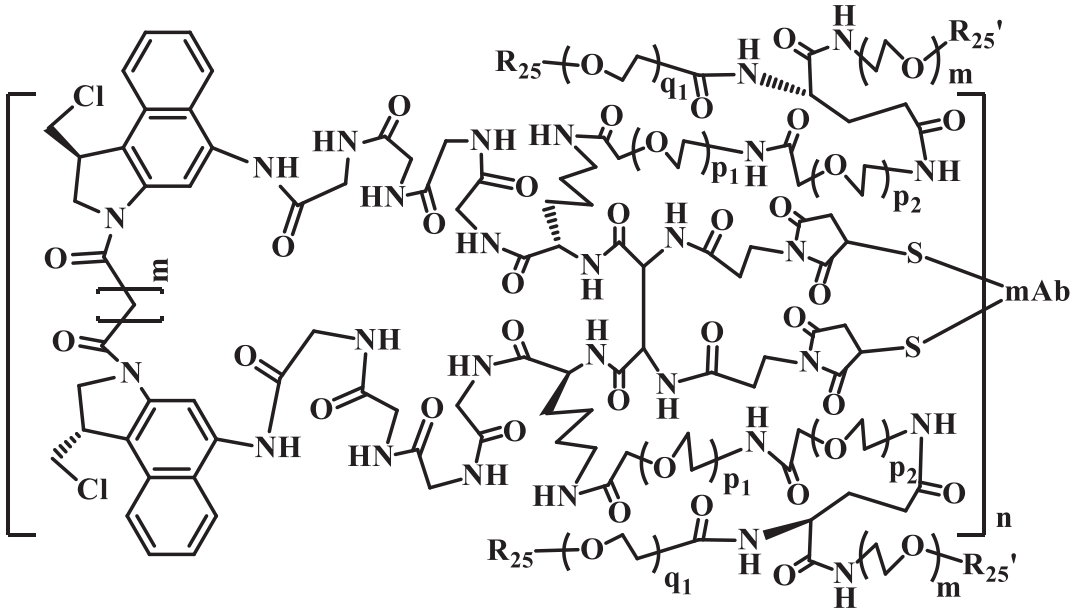
a188,



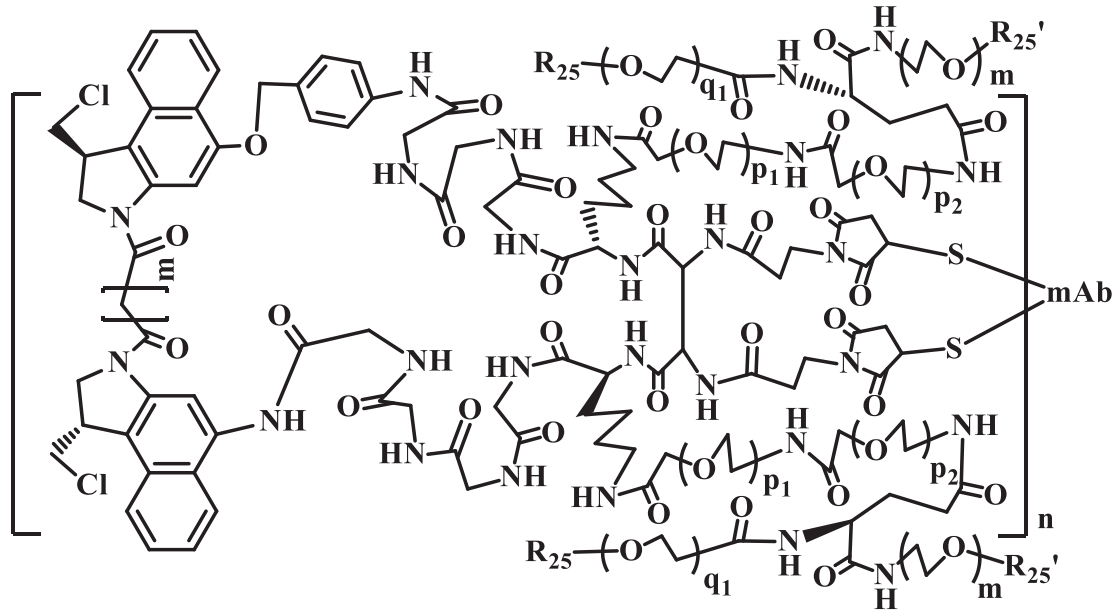
a189,



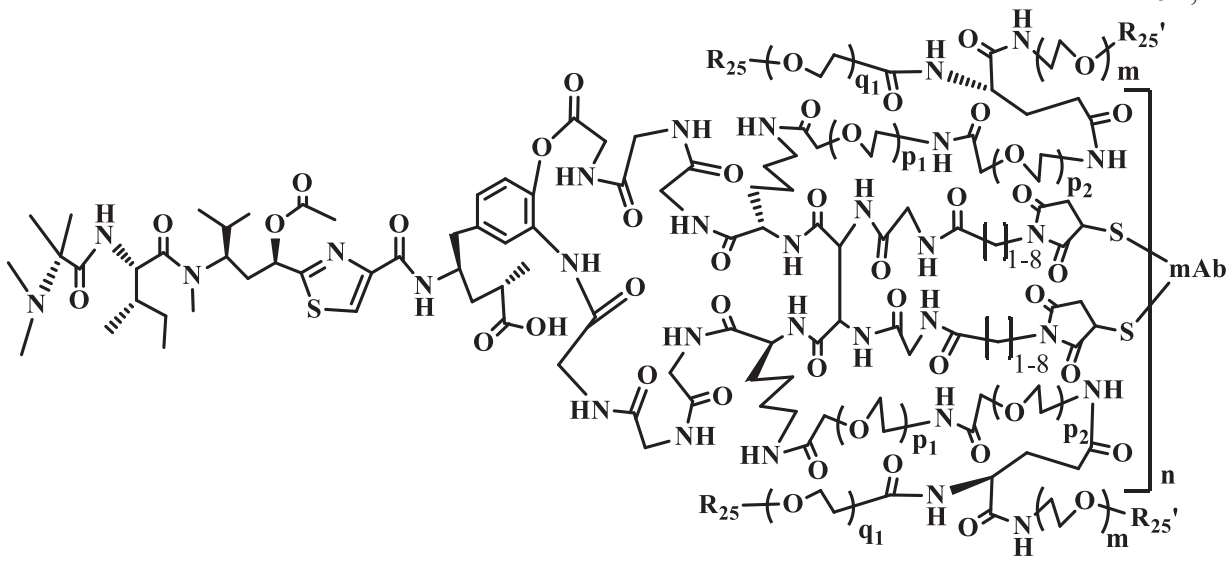
a190,



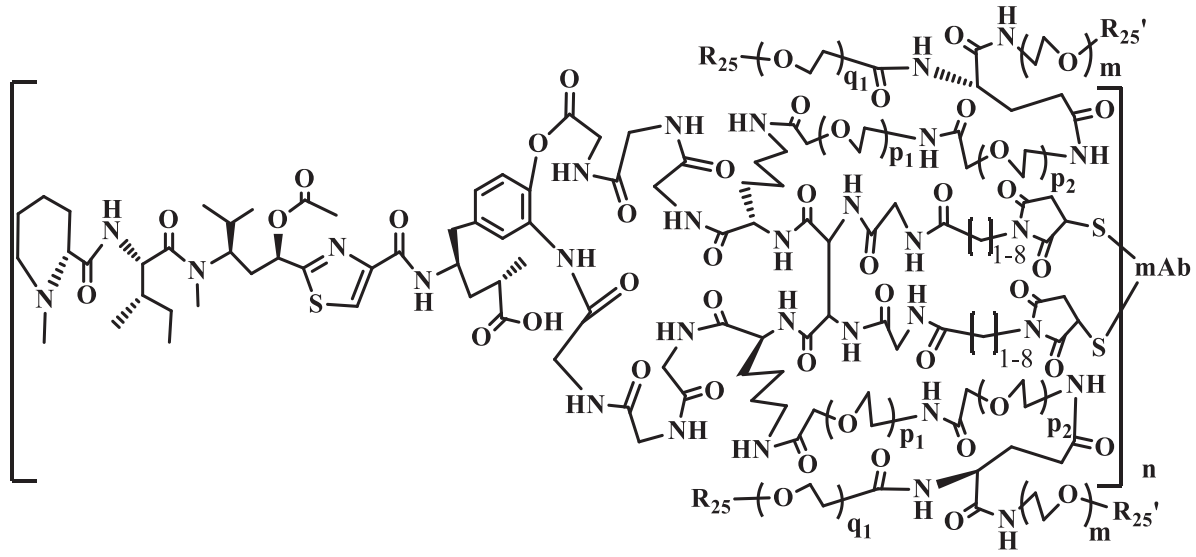
a191,



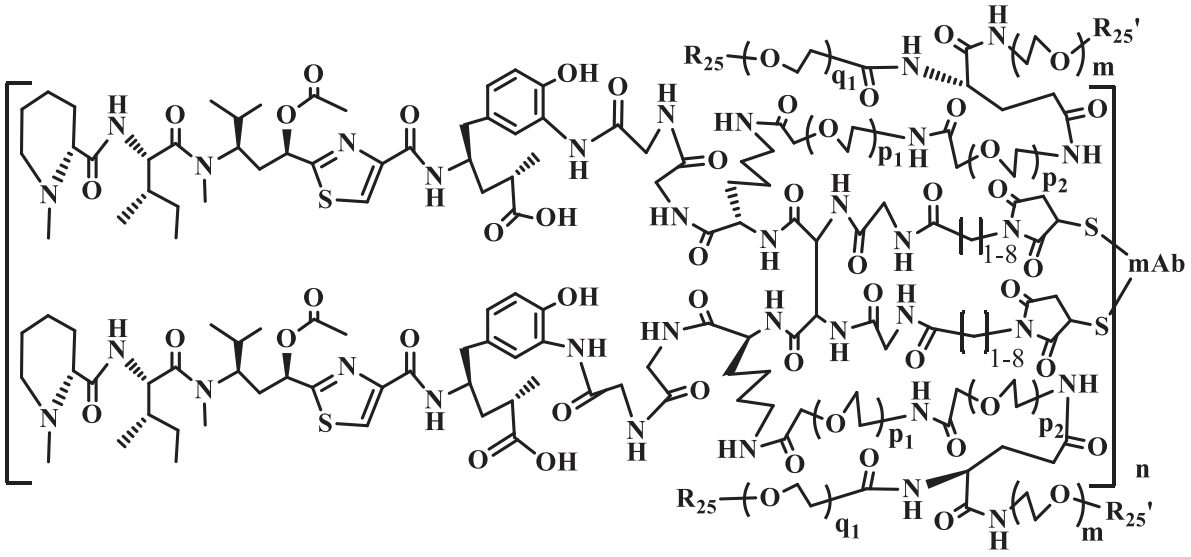
a192,



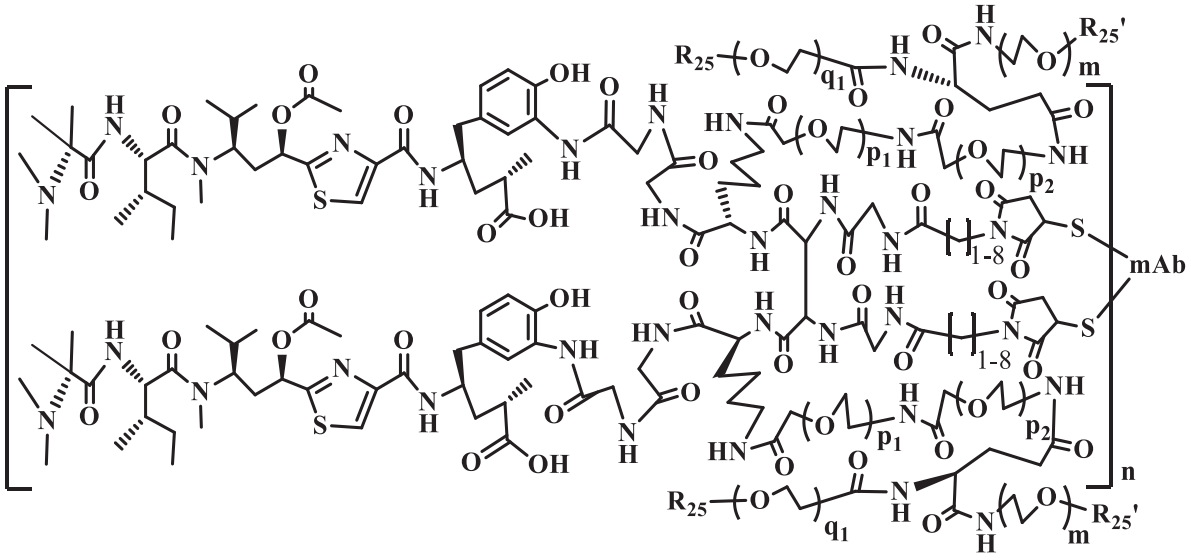
a193,



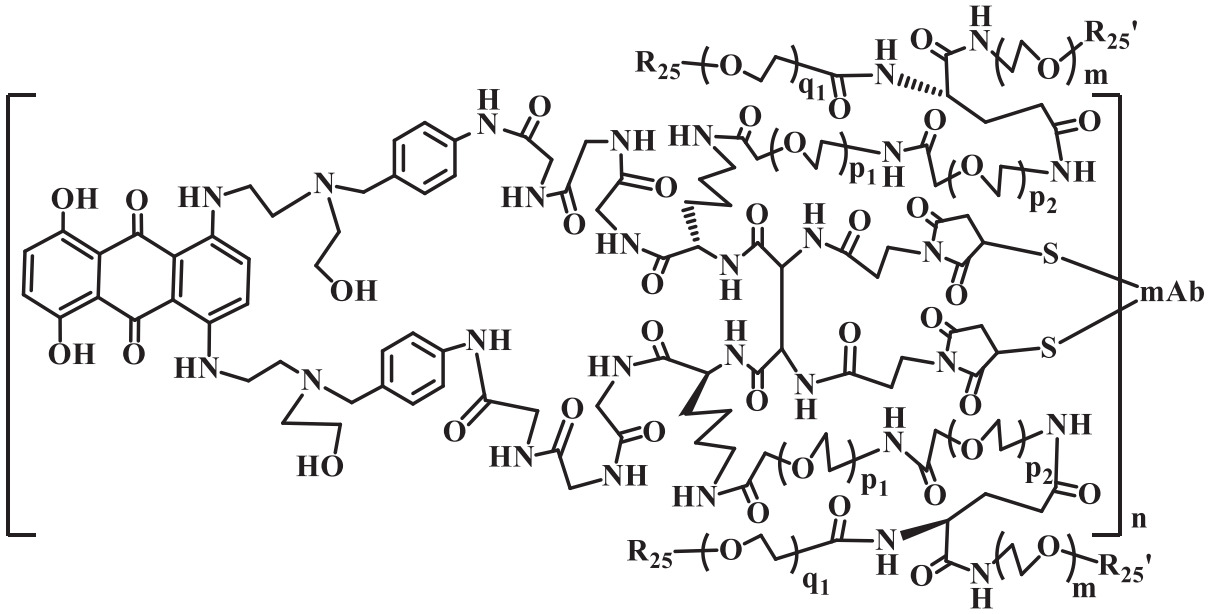
a194,



a195,

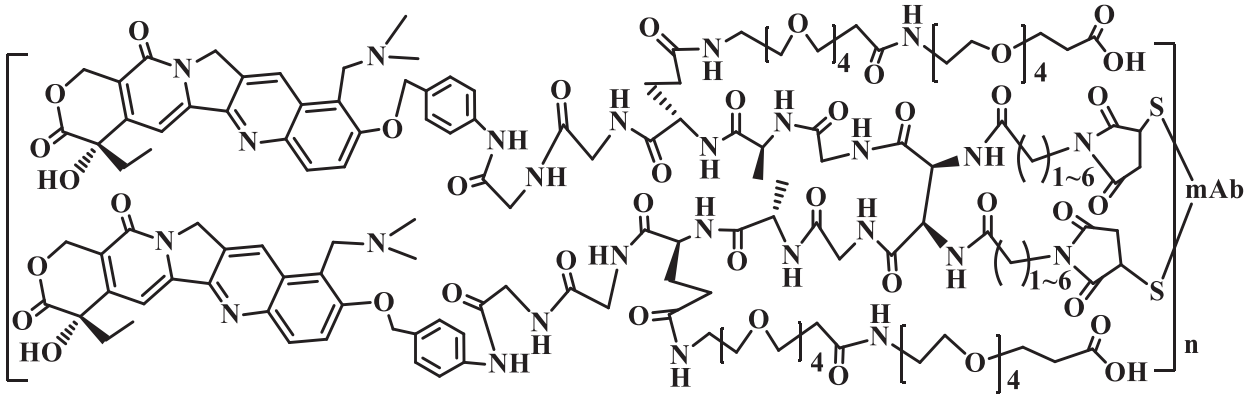


a196,

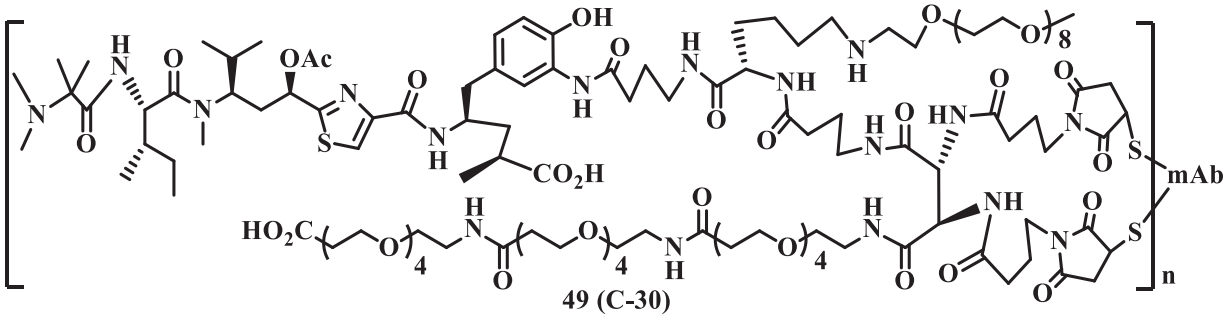


5

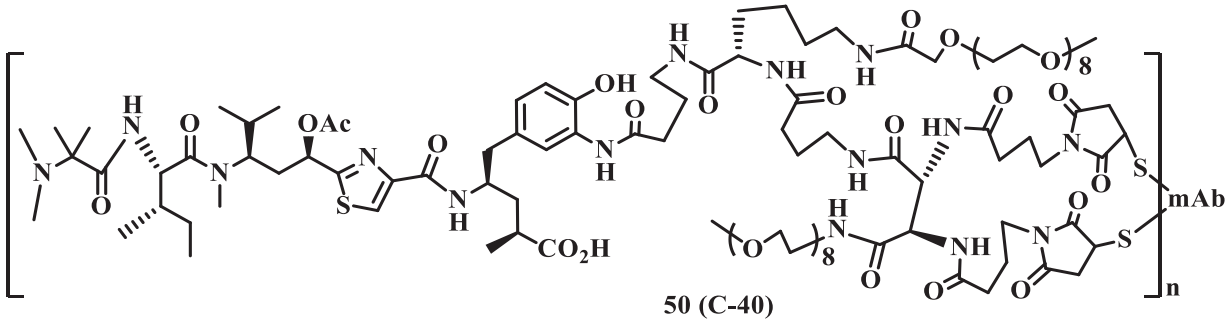
a197,



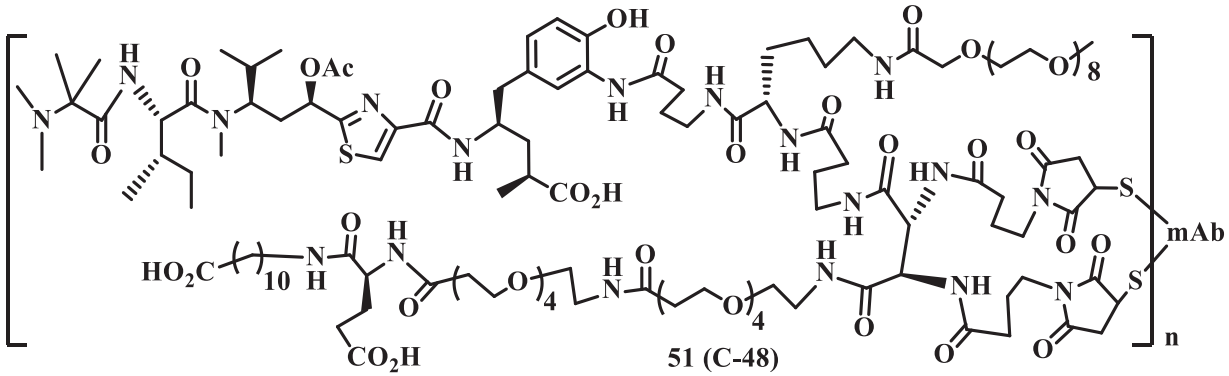
a198,



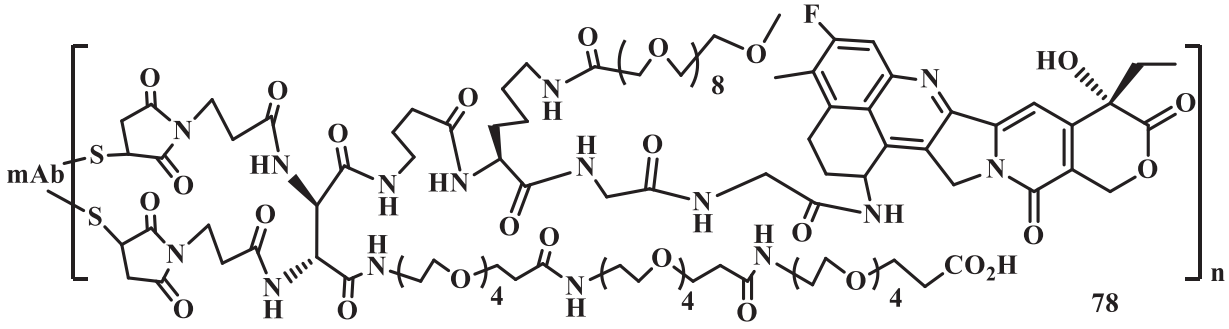
49 (C-30)



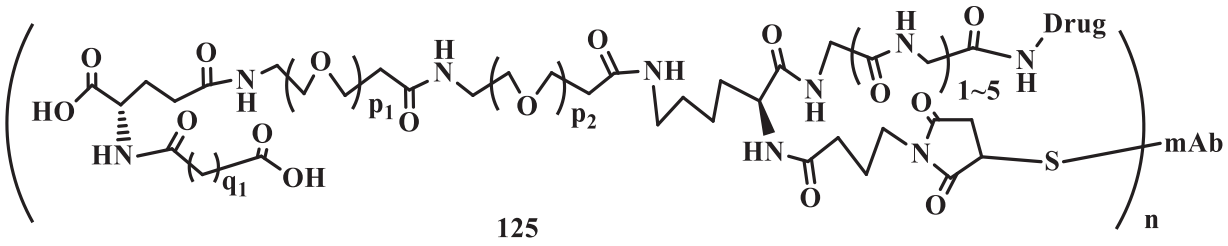
50 (C-40)



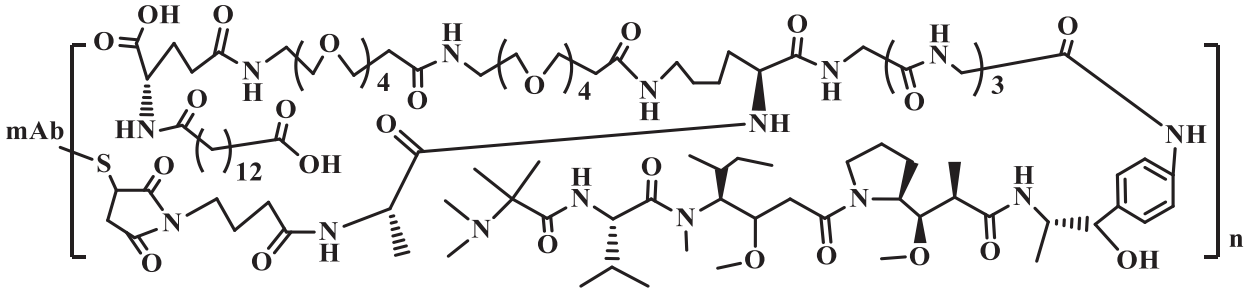
51 (C-48)



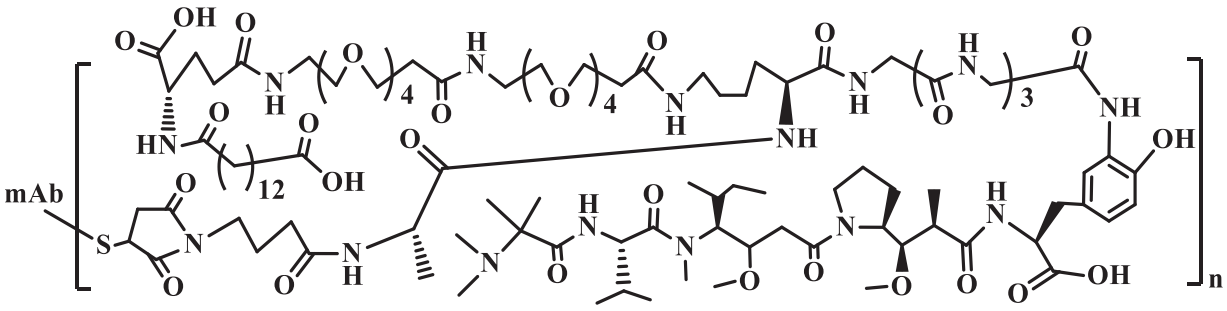
78



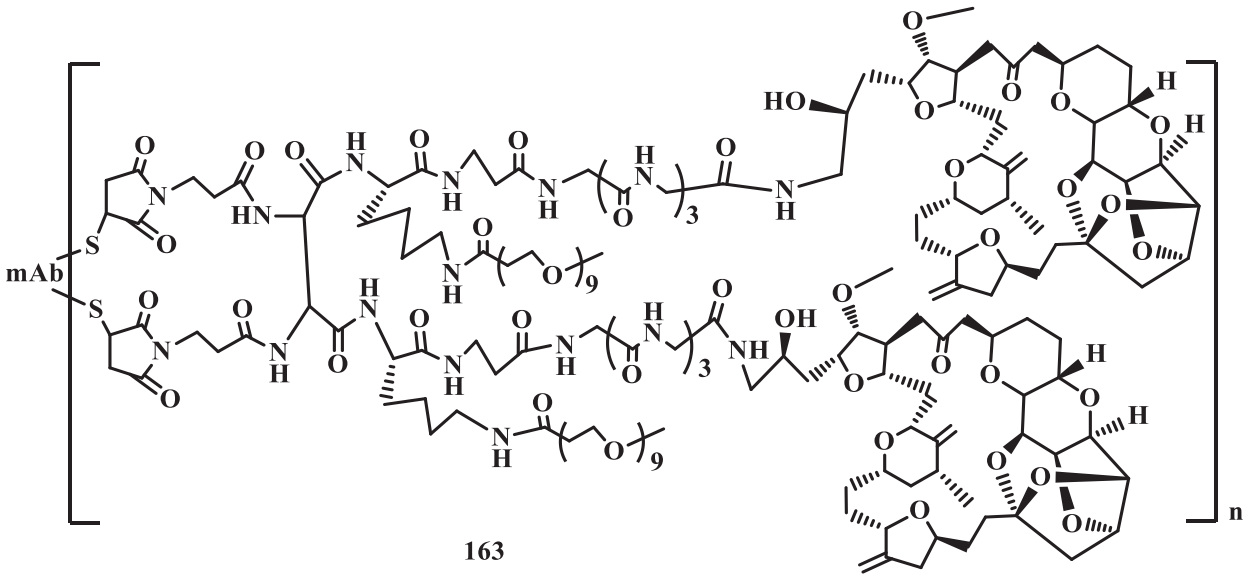
125



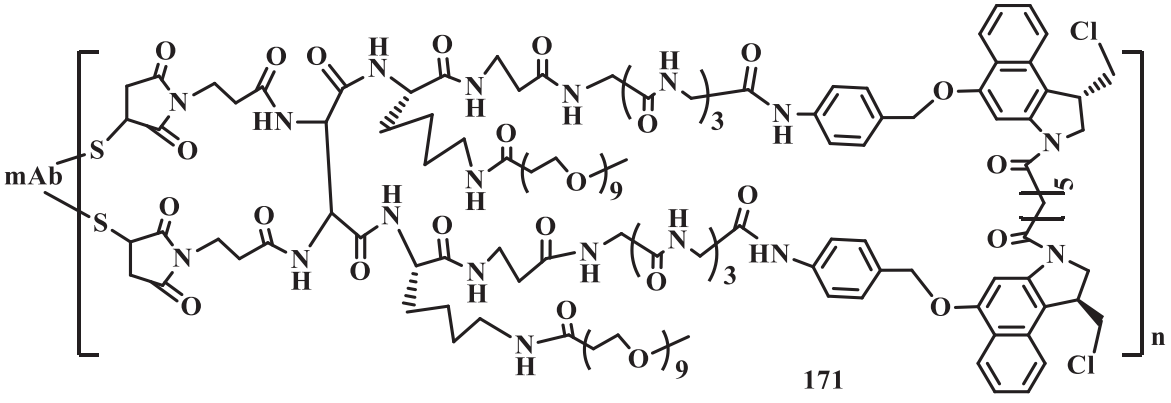
141



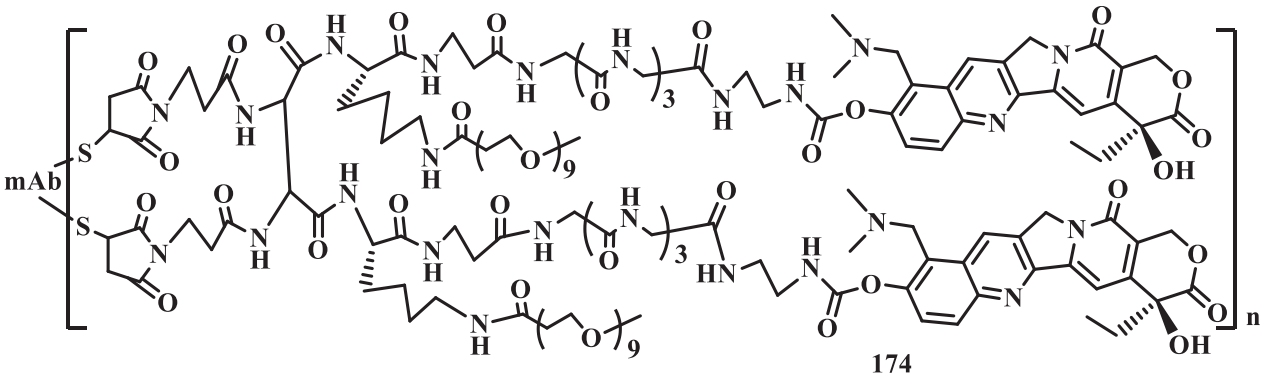
149



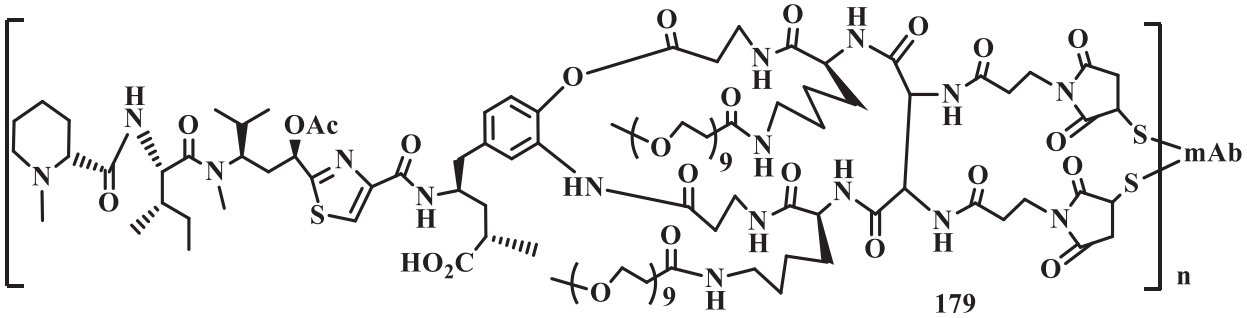
163



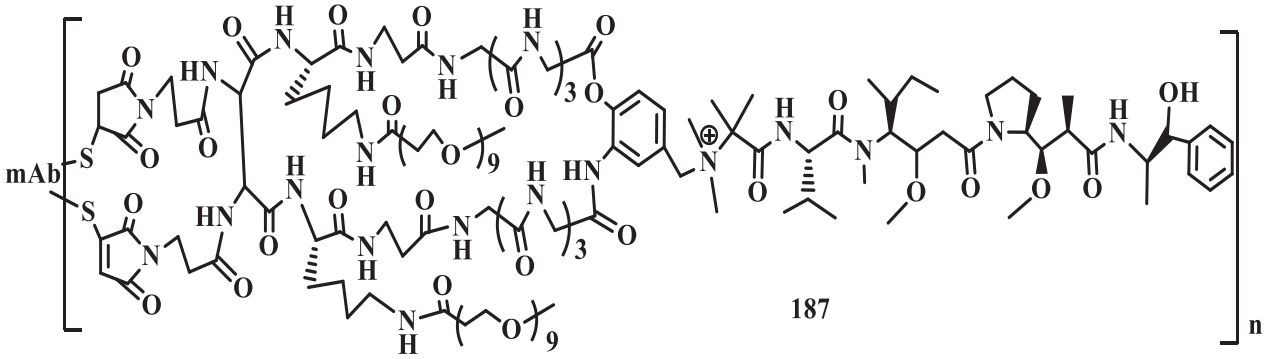
171



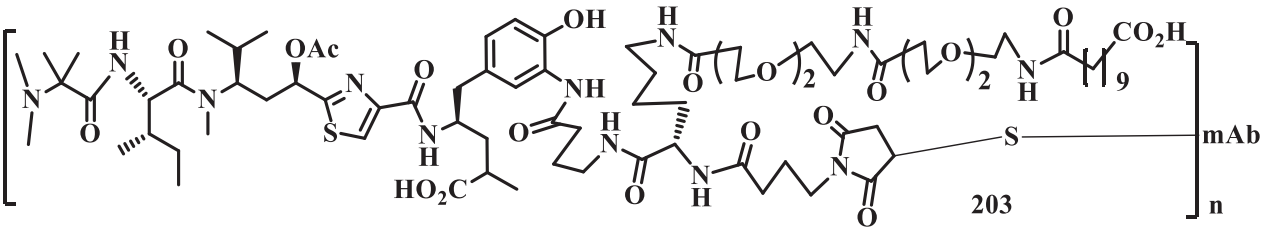
174



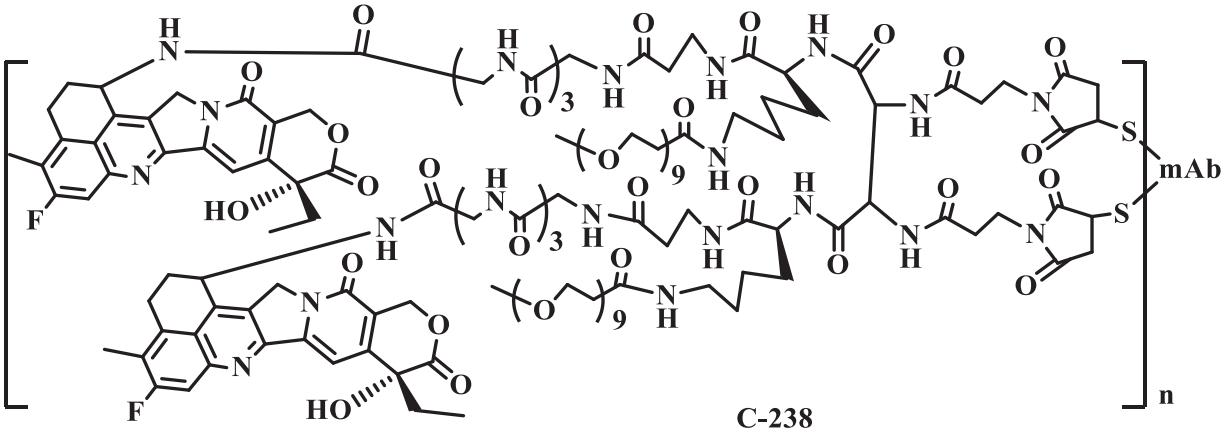
179



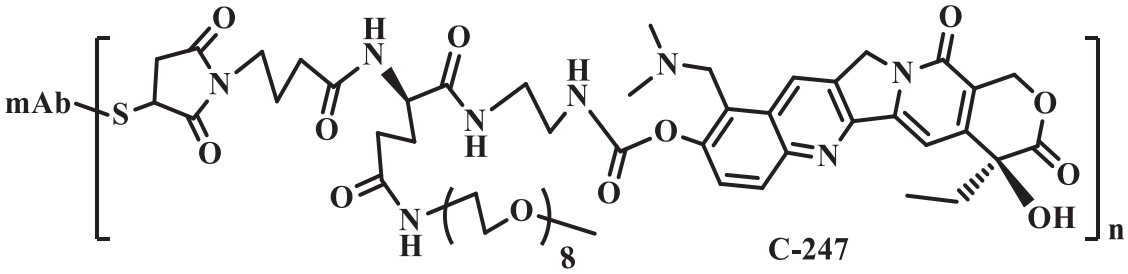
187



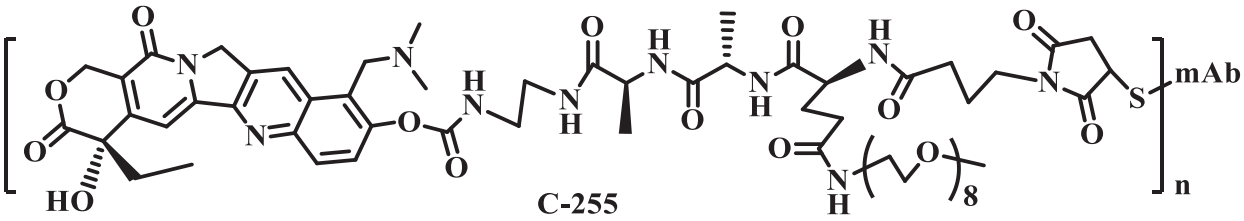
203



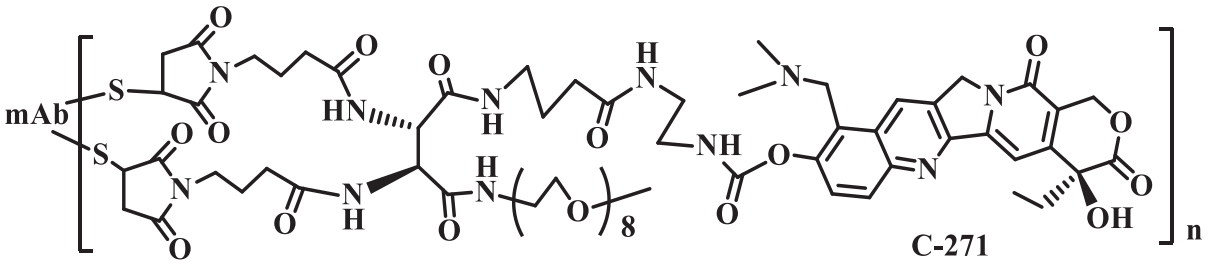
C-238



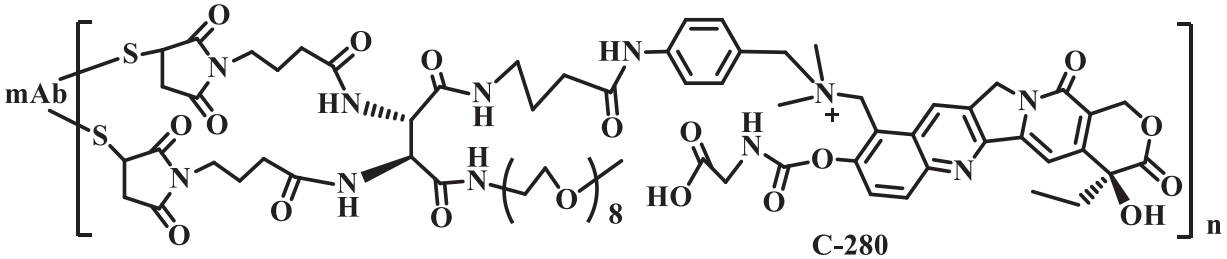
C-247



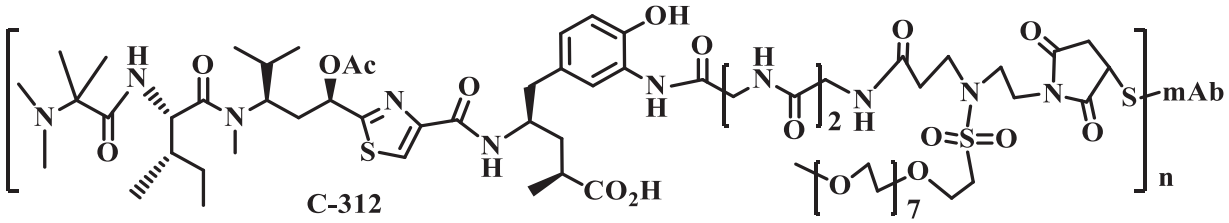
C-255



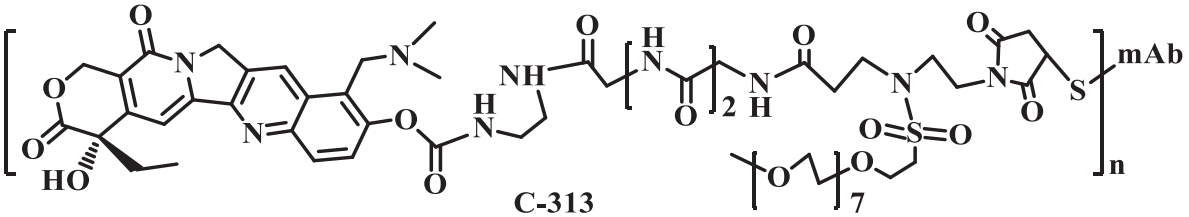
C-271



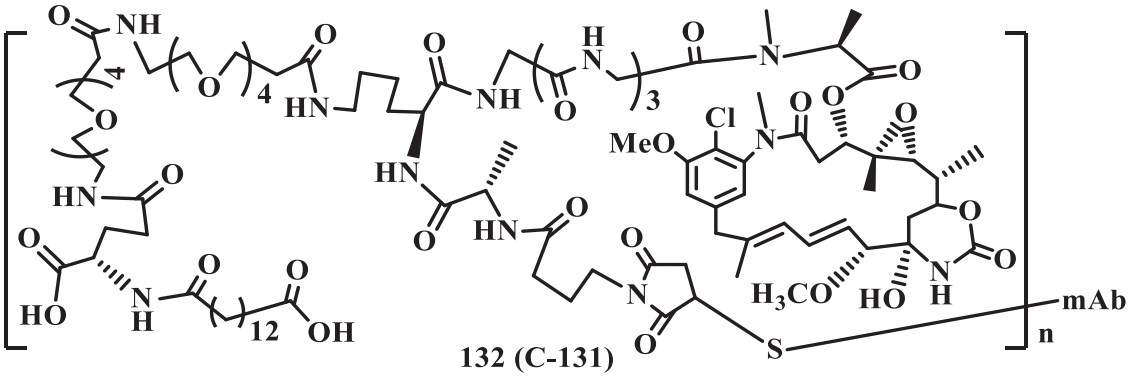
C-280



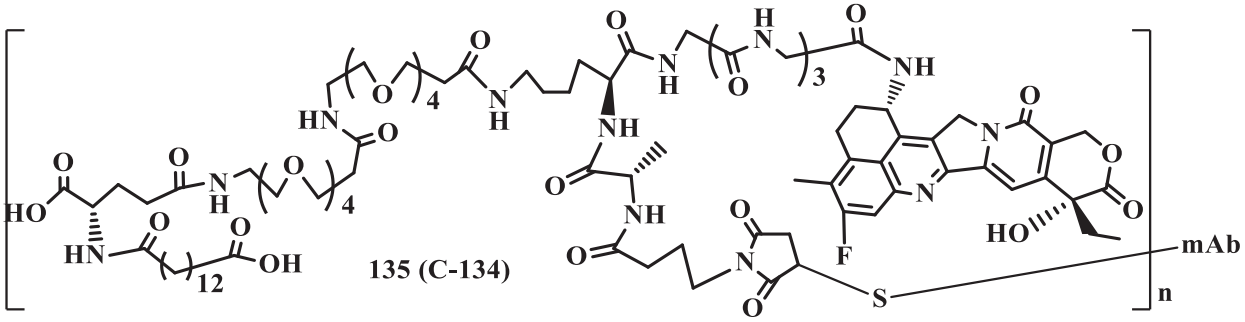
C-312

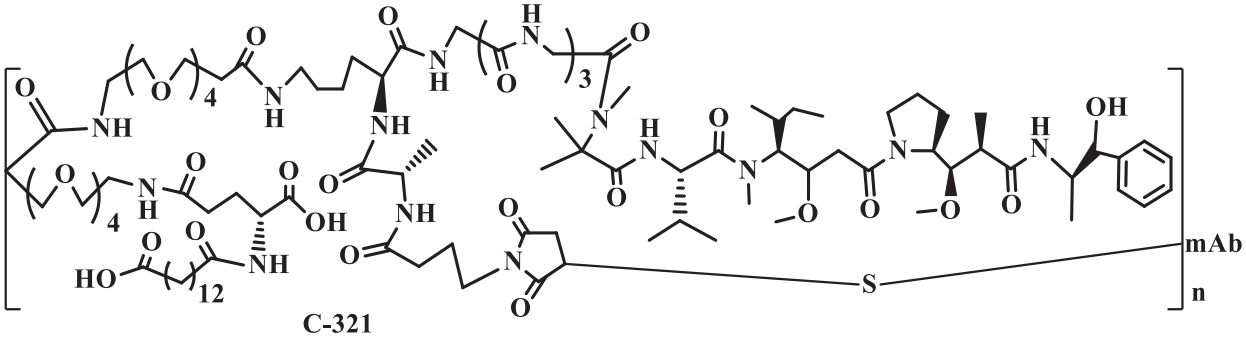


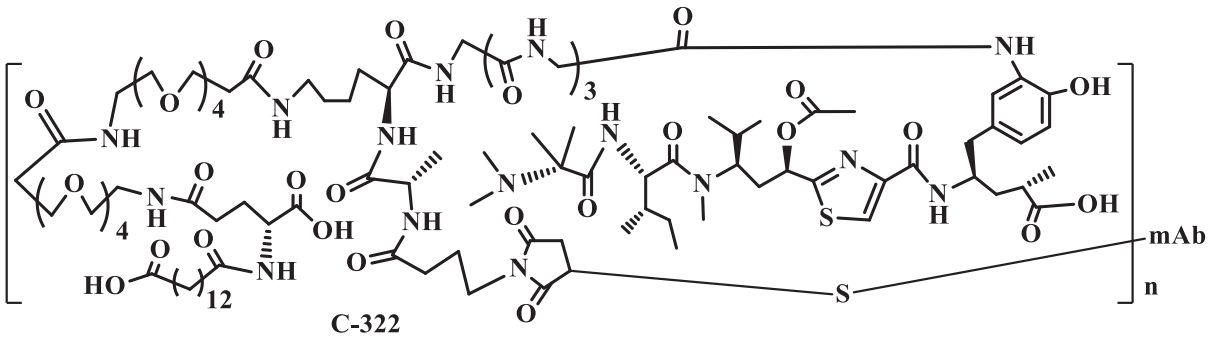
C-313



132 (C-131)

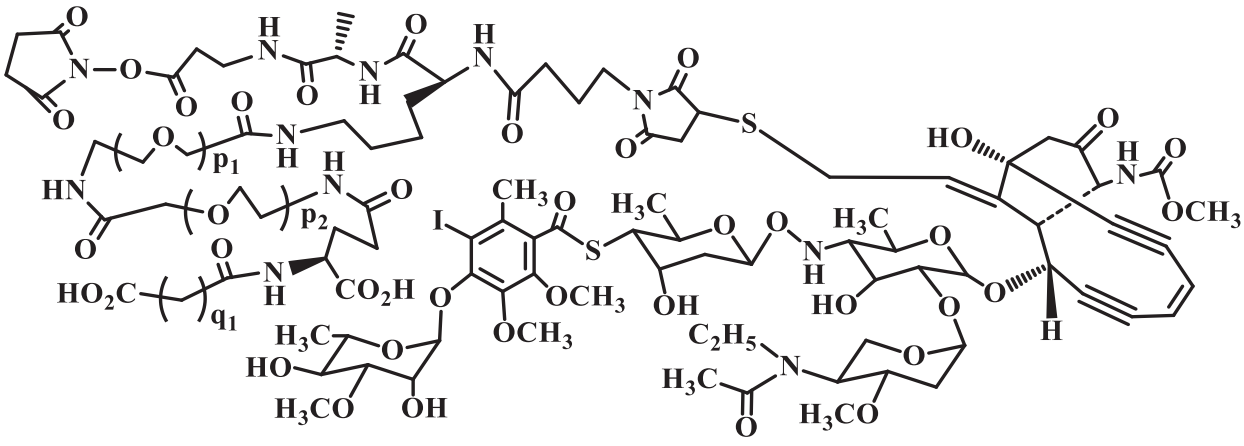




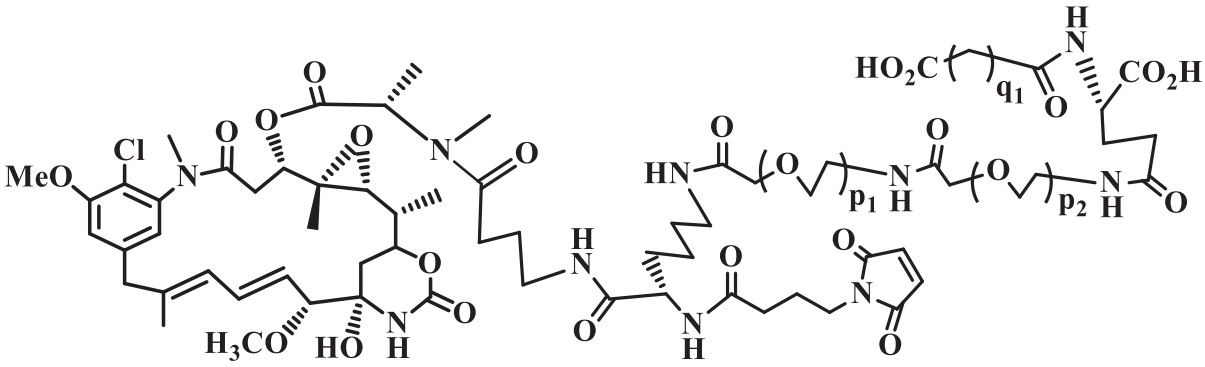


or one or more isotope of chemical elements, pharmaceutically acceptable salts, hydrates, or hydrated salts; or the polymorphic crystalline structures of these compounds; or the optical isomers, racemates, diastereomers or enantiomers; wherein R^1, R^2, R^3, R^4, R^5, R_4, R_5, R_7, R_8, R_9, R_{10}, X_1, X_2, X_3, X_4, X_5, X_6, X_8, Y_1, Y_2, Y_3, Y_5, R_{12}, $R_{12'}$, R_{13}, R_{13}', R_{25}, R_{25}', p_1, p_2, q_1, q_2, m, m_1, n, and mAb are described the same in Claim 1, 2, 3, and 6; Aa is natural or unnatural amino acid; r is 0-12; (Aa)r is a peptide containing the same or different sequence of amino acids when r >2; r = 0 means (Aa)r absent.

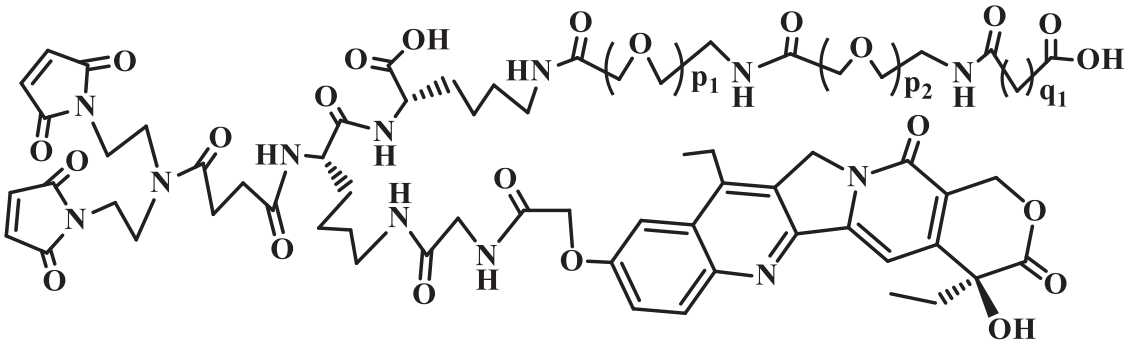
7~~10~~. The compound according to Claim 2~~3 and 4~~ having the following structures from b001 to b197, 30, 40, 48, 77, 124, 140, 148, 162, 170, 173, 178, 186, 202, 238, 247, 255, 271, 279, 312, 313, 131, 134, 321, and 322 illustrated below:



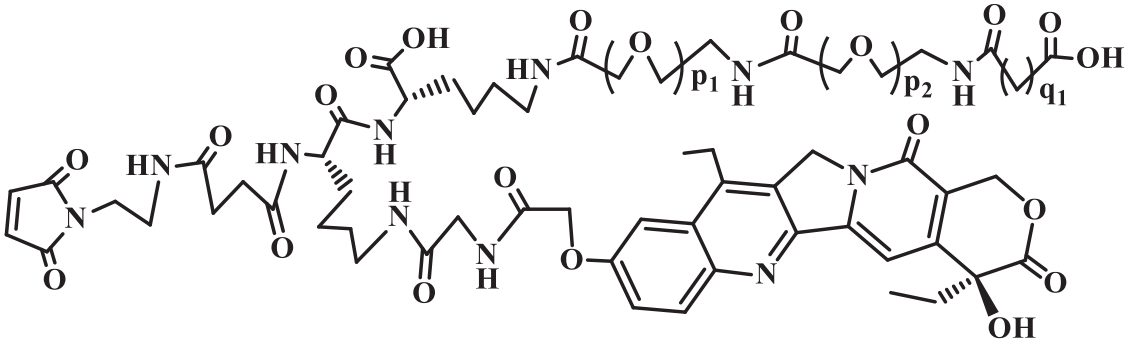
b001,



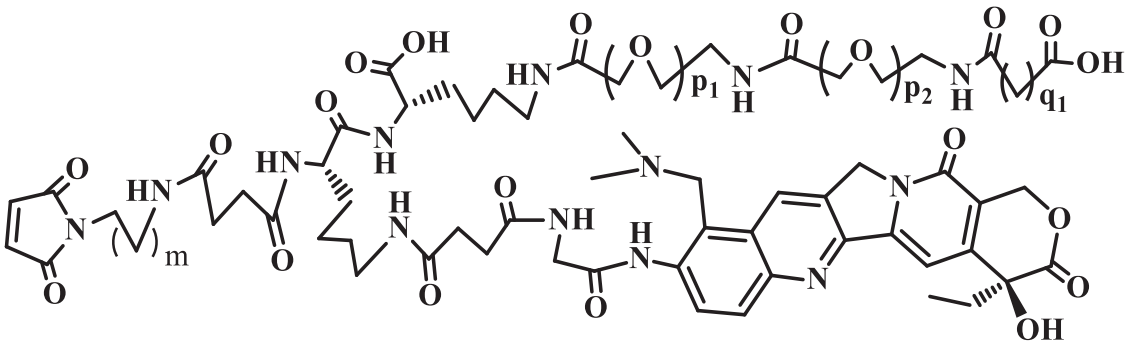
b002,



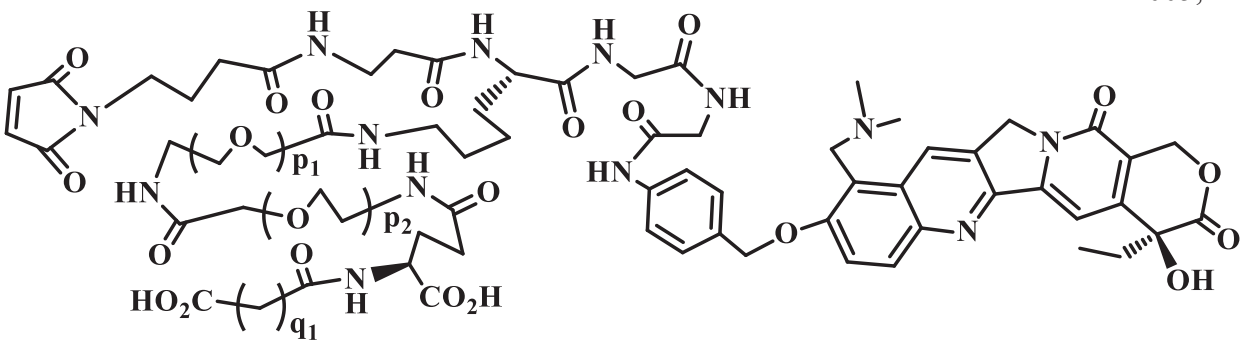
b003,



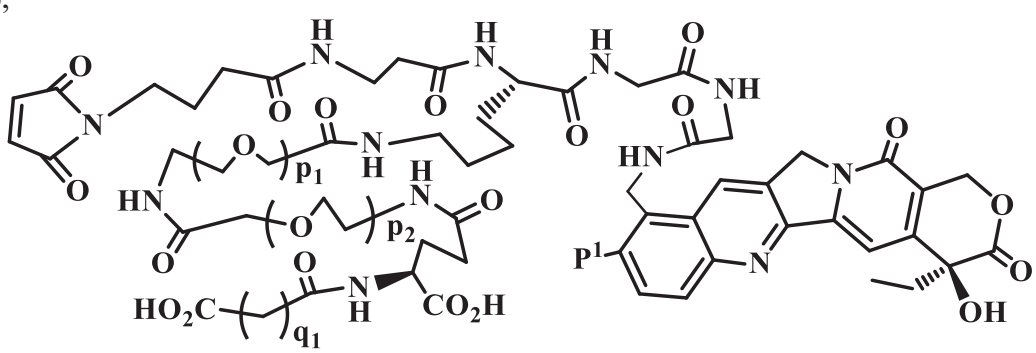
b004,



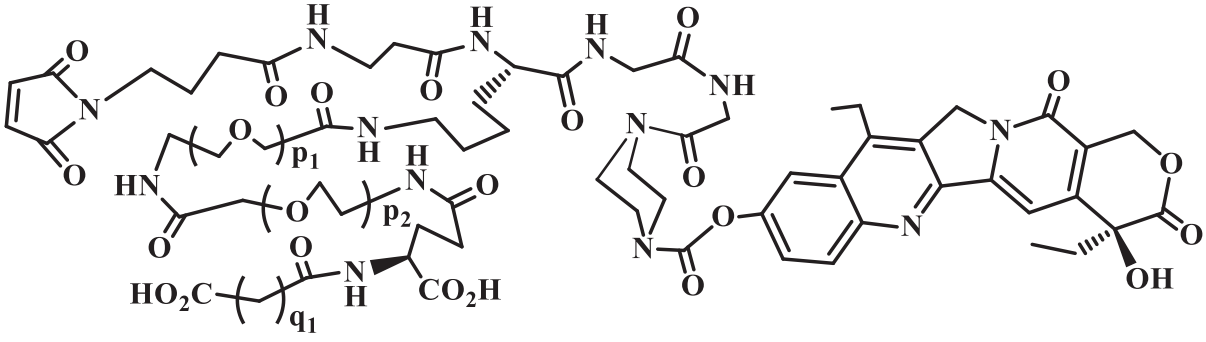
b005,



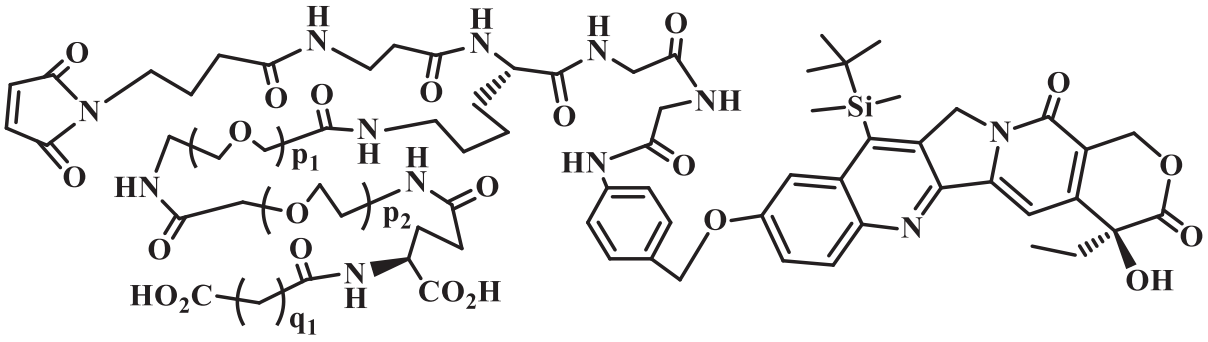
b006,



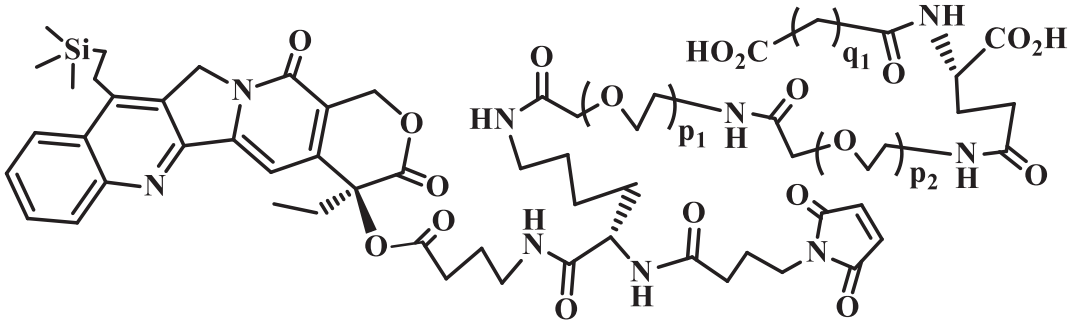
b007,



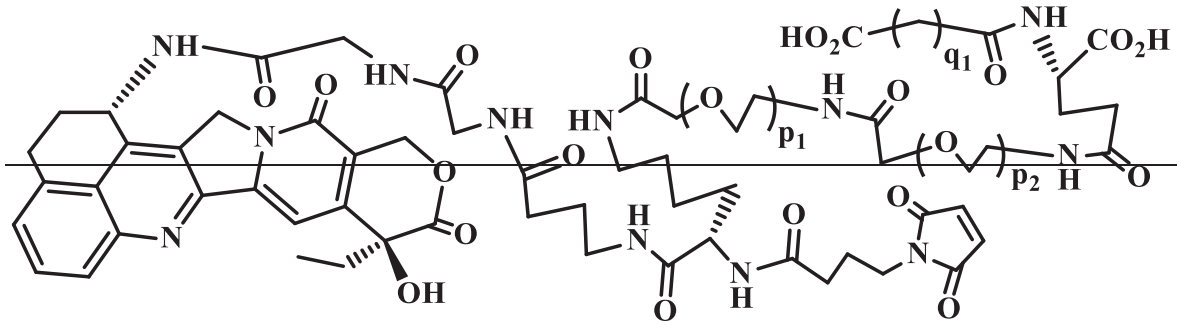
b008,



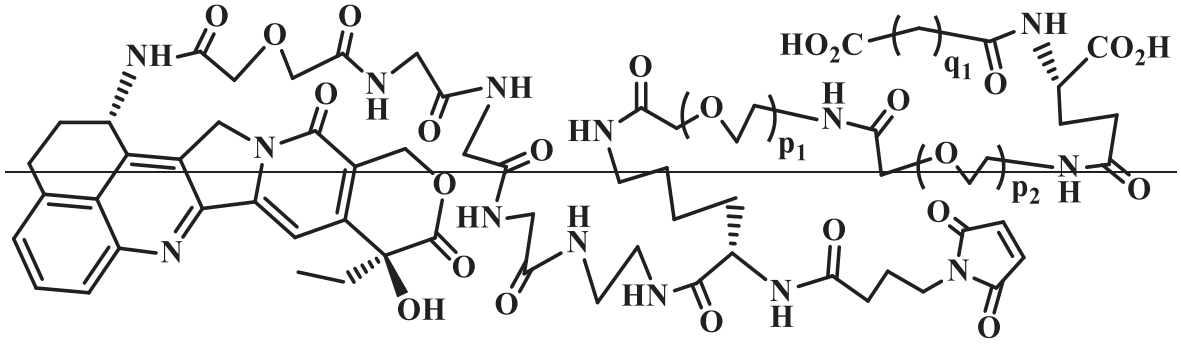
b009,



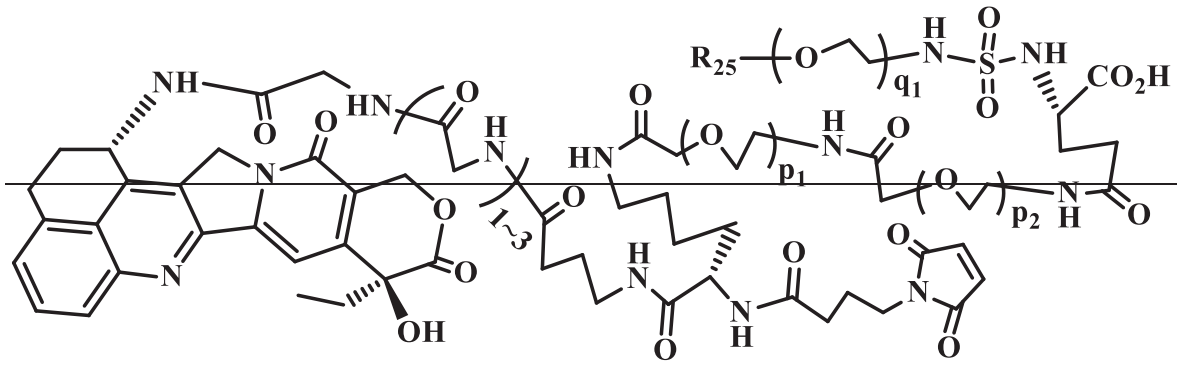
b010,



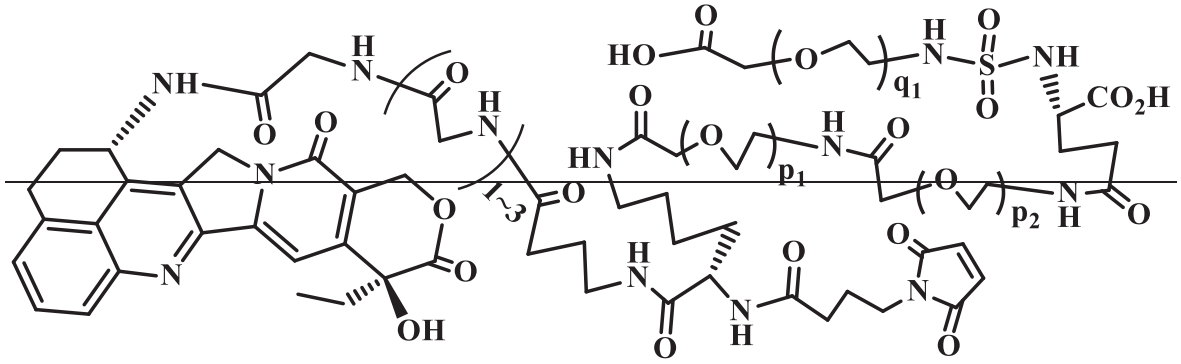
~~b011,~~



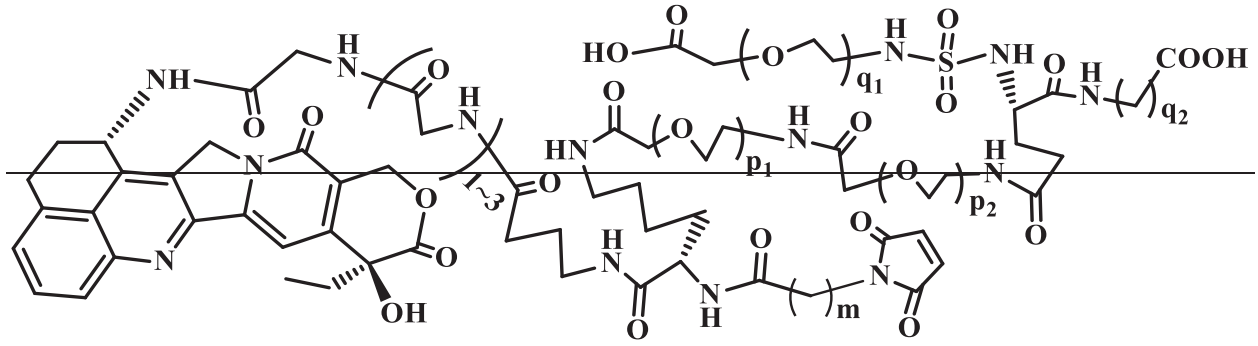
~~b012,~~



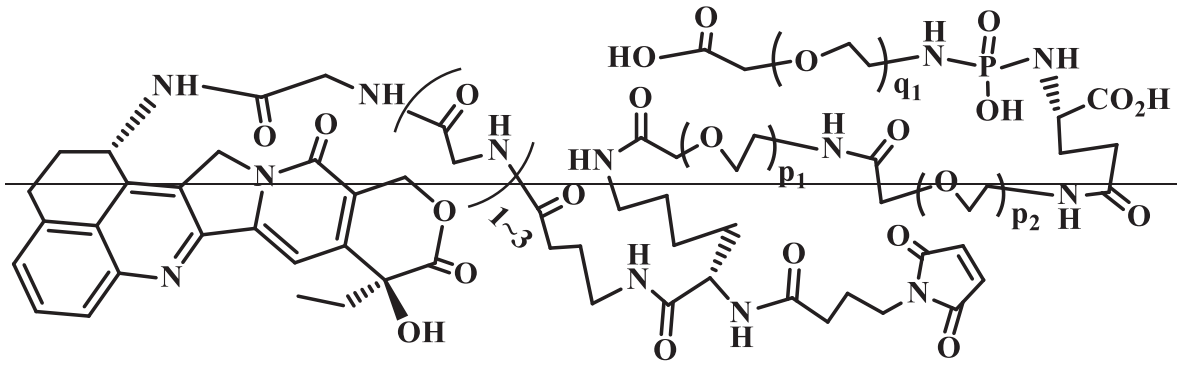
~~b013,~~



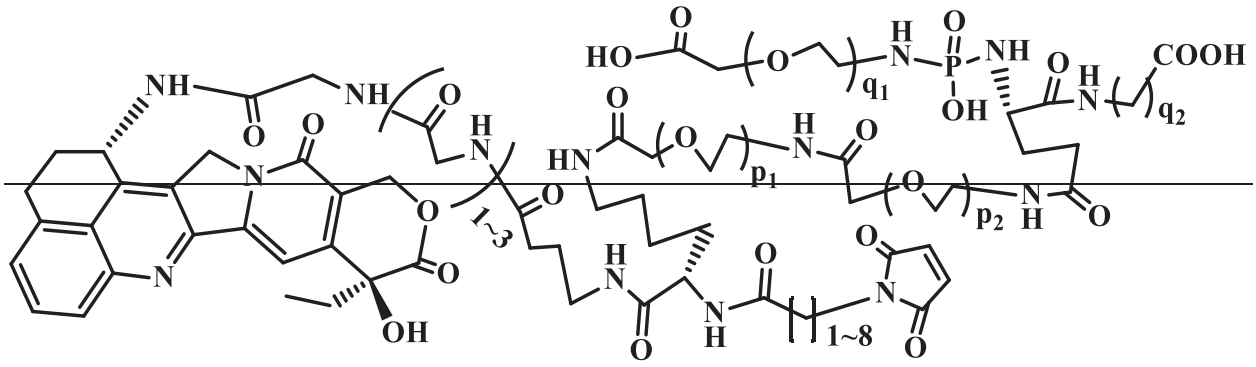
~~b014,~~



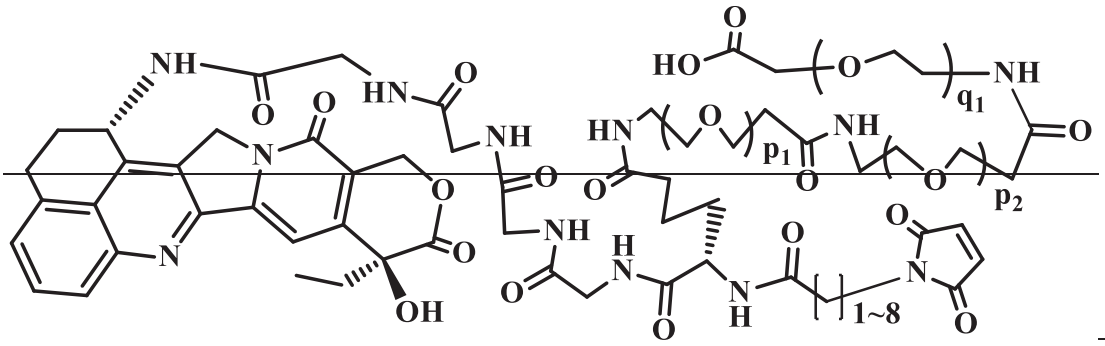
~~b015,~~



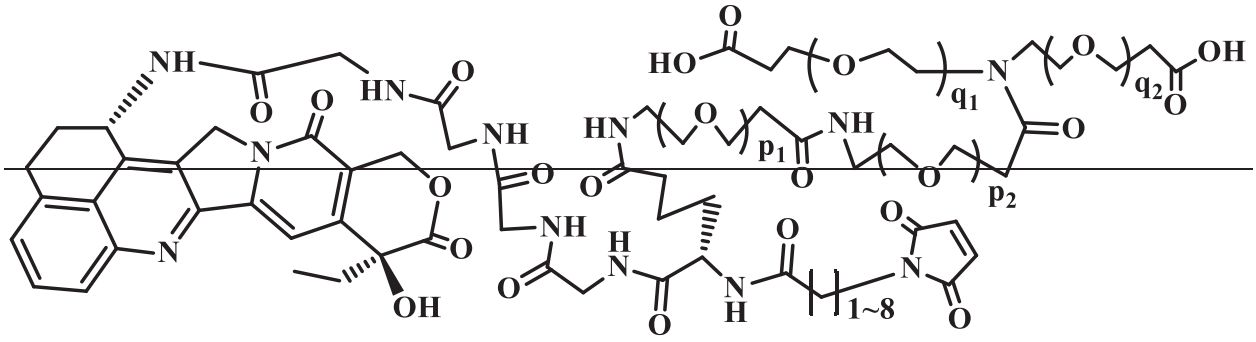
~~b016,~~



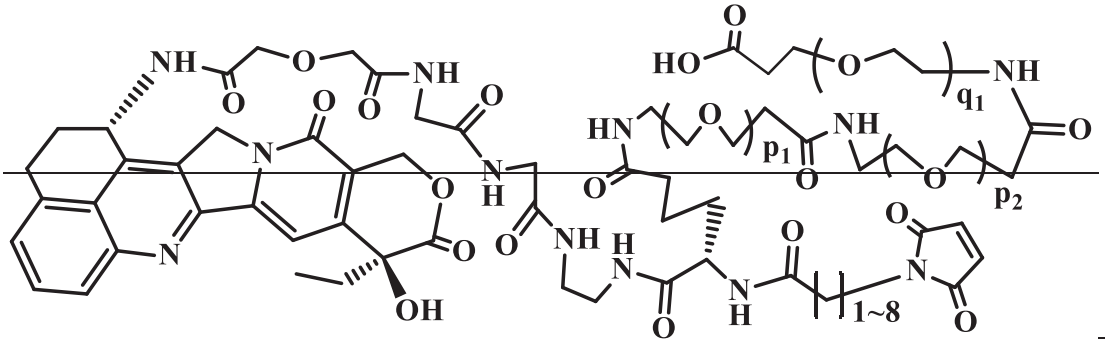
~~b017,~~



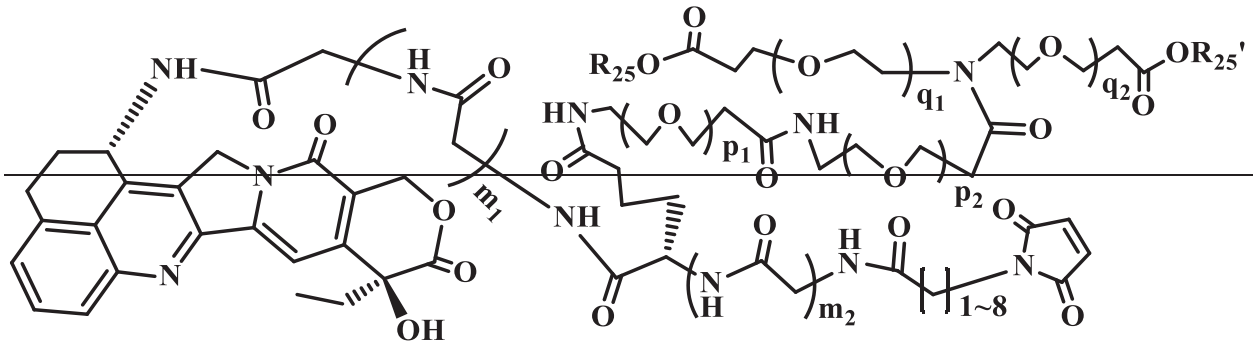
~~b018,~~



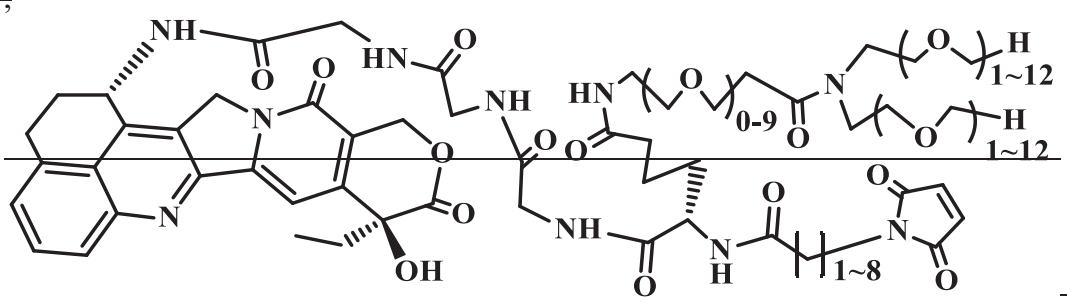
~~b019,~~



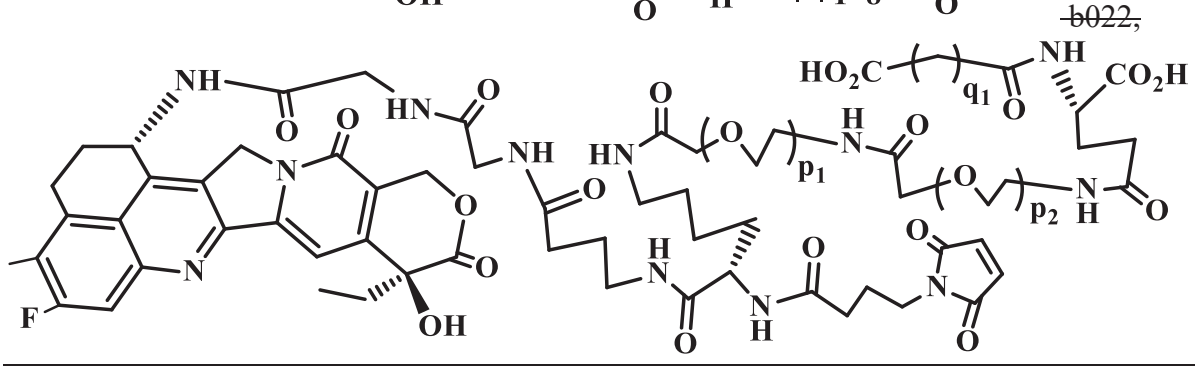
~~b020,~~



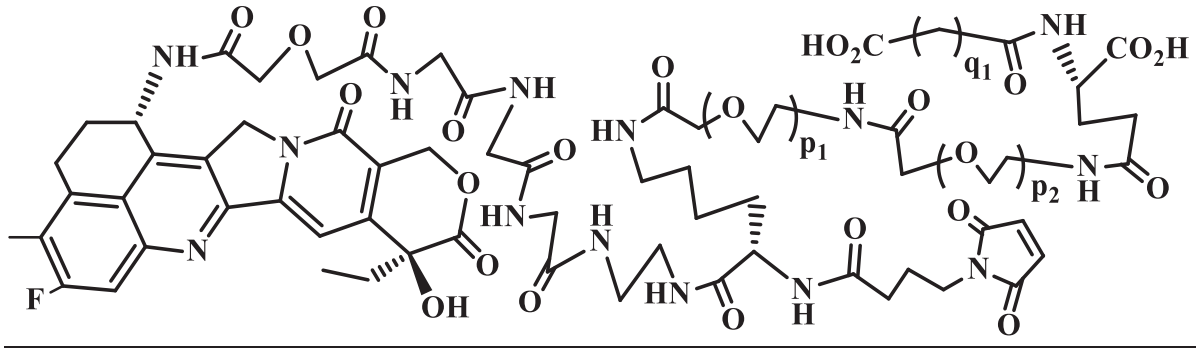
~~b021,~~



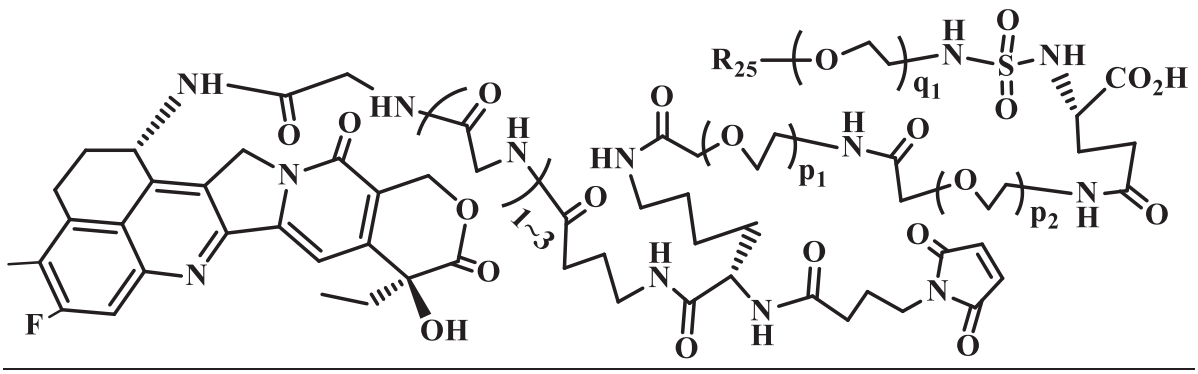
~~b022,~~



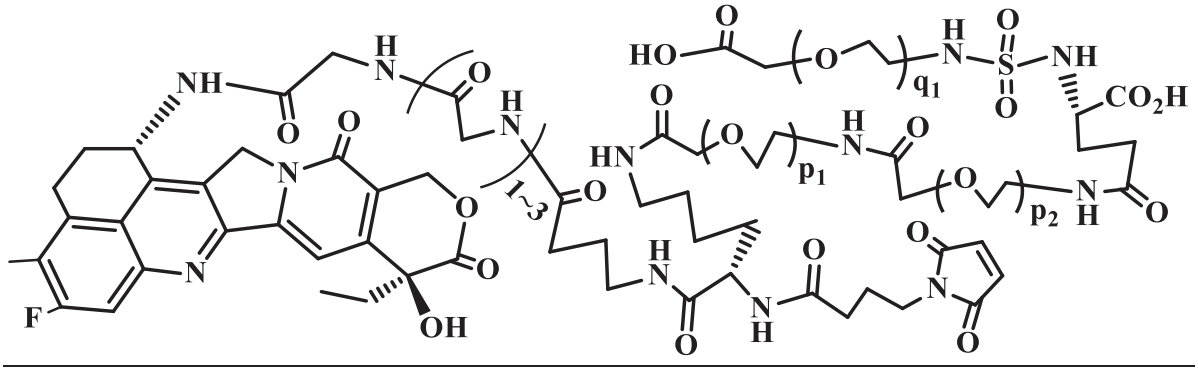
b011,



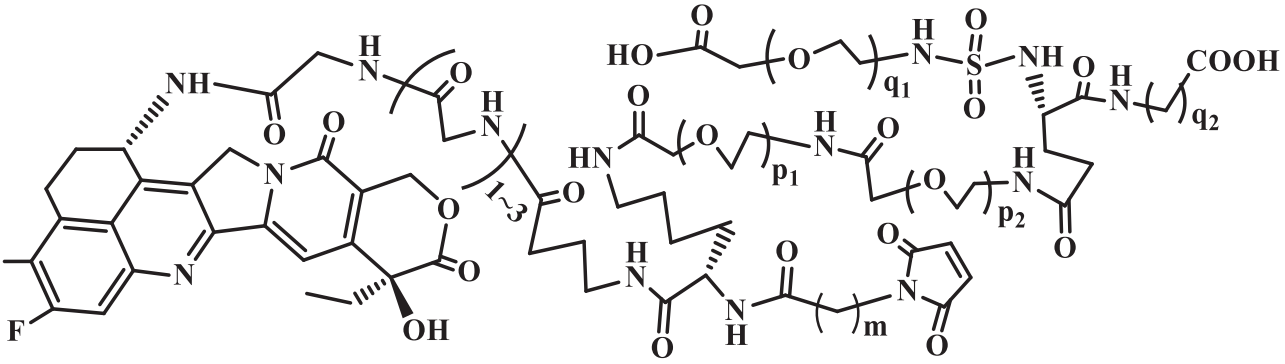
b012,



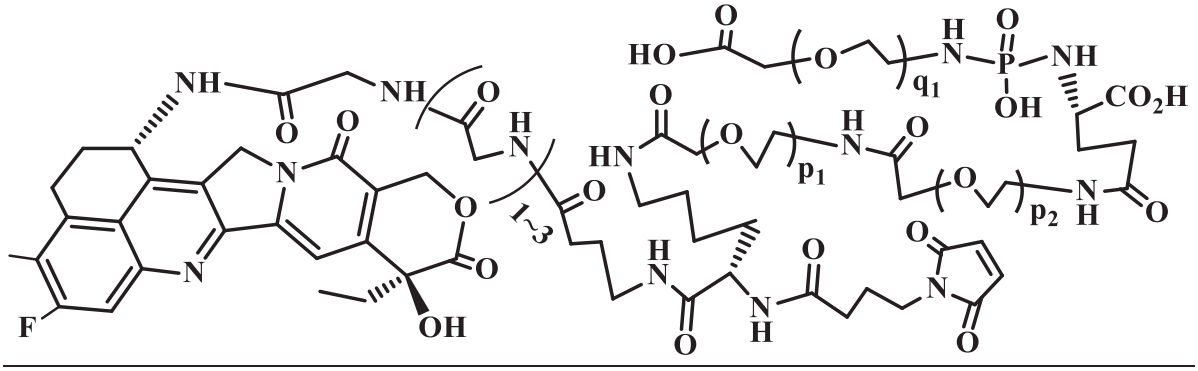
b013,



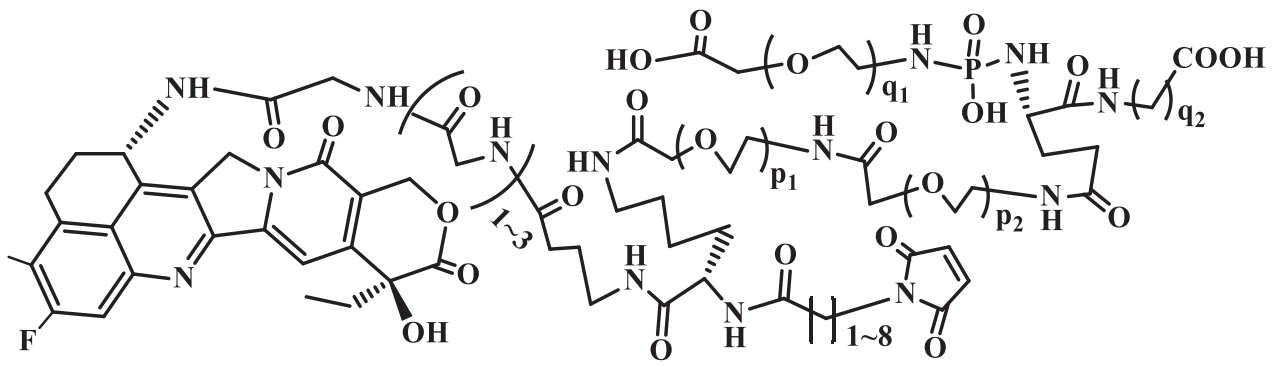
b014,



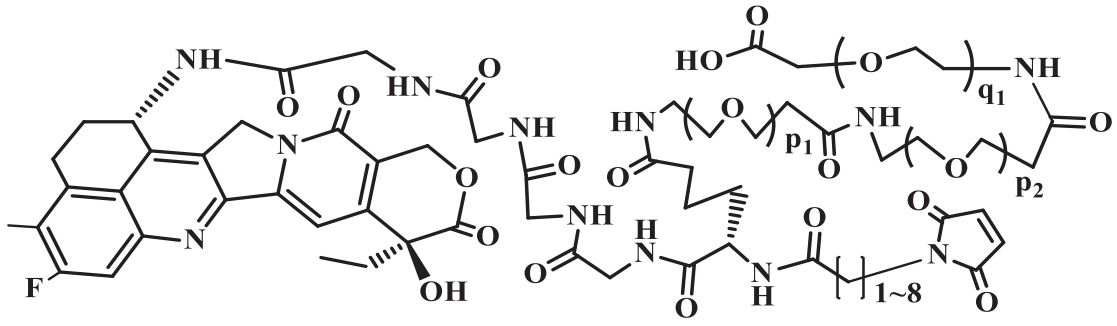
b015,



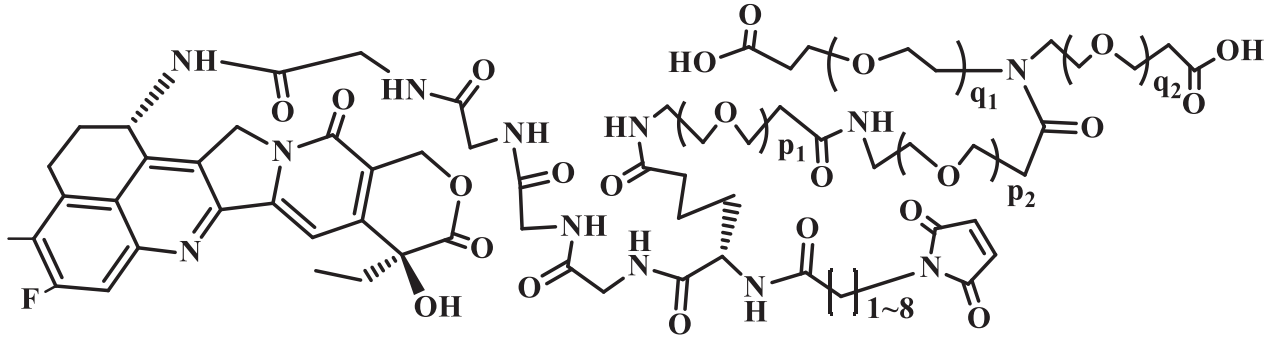
b016,



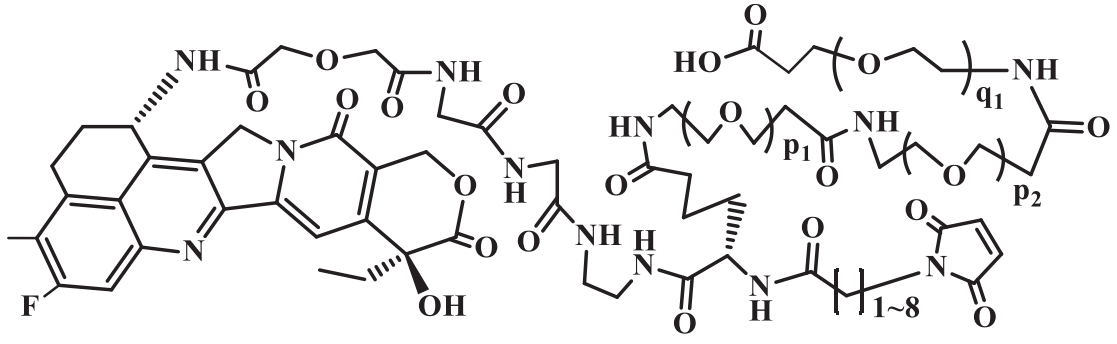
b017,



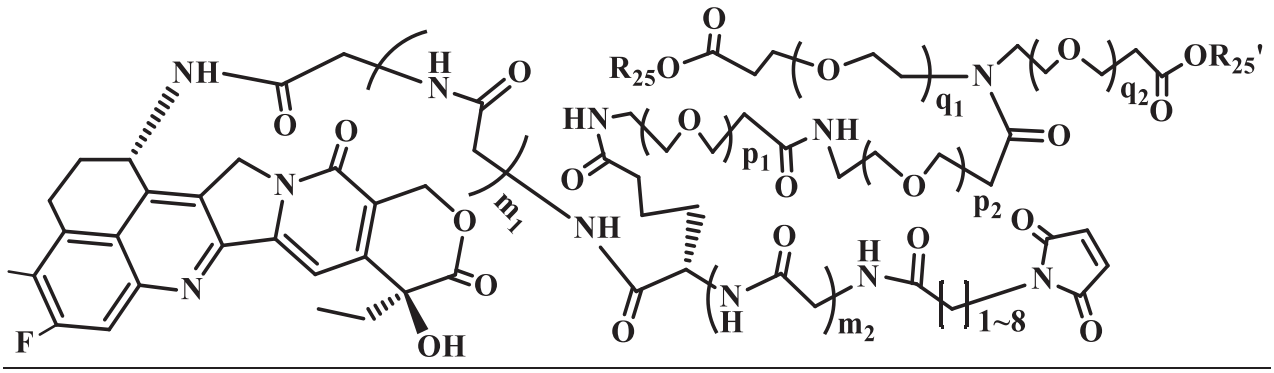
b018,



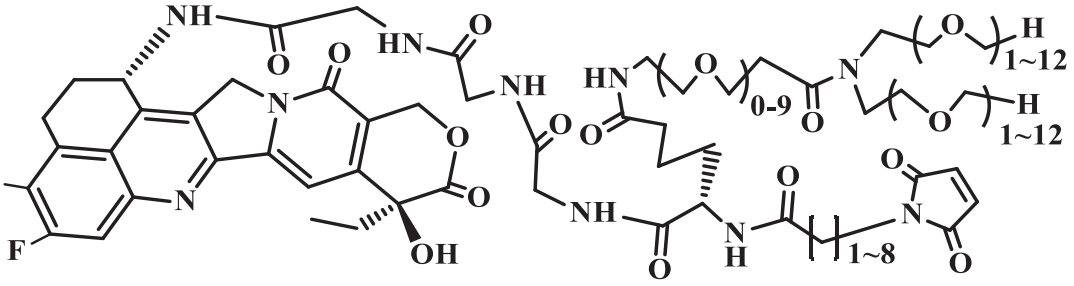
b019,



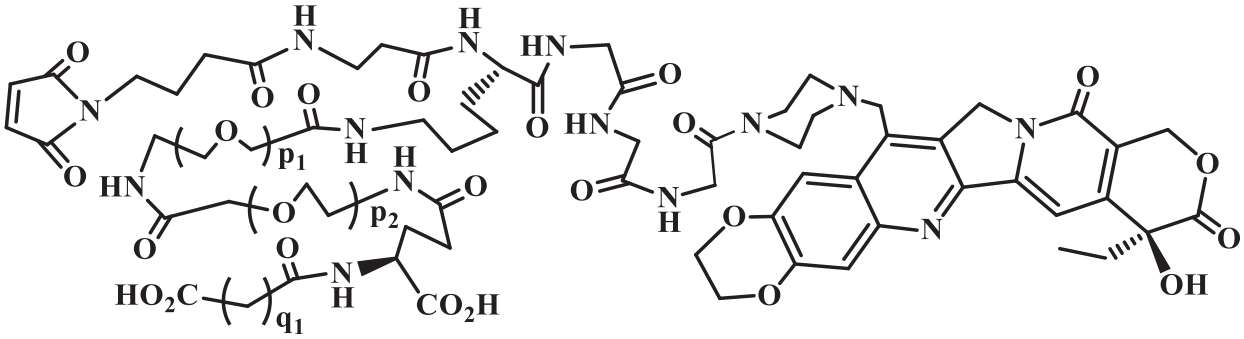
b020,



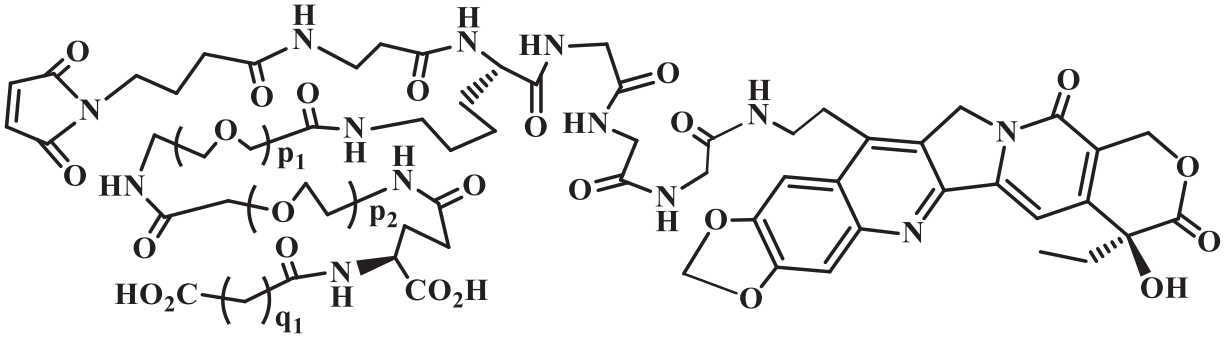
b021,



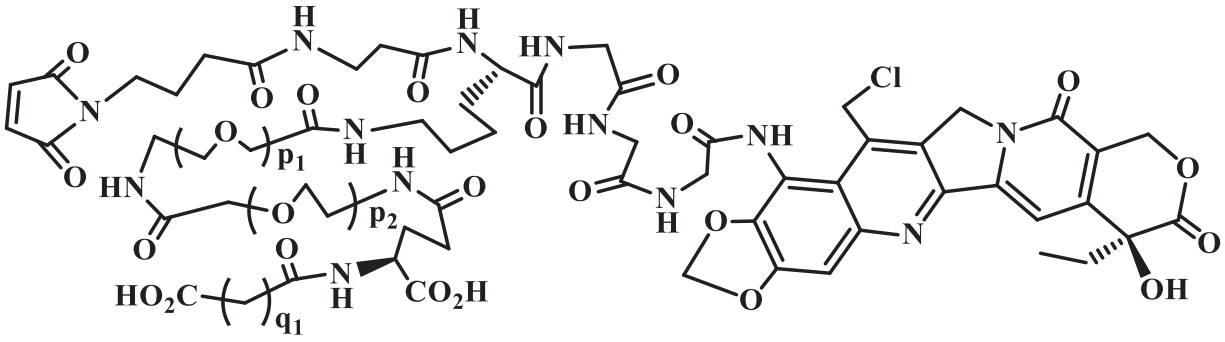
b022,



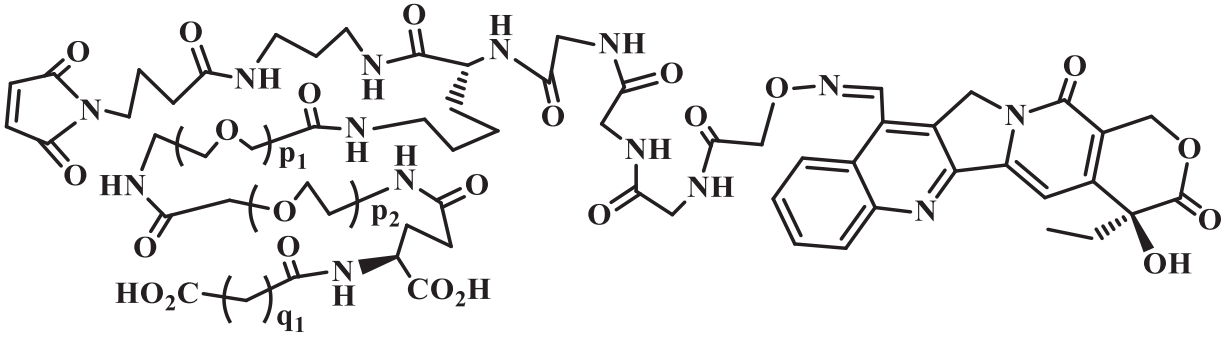
b023,



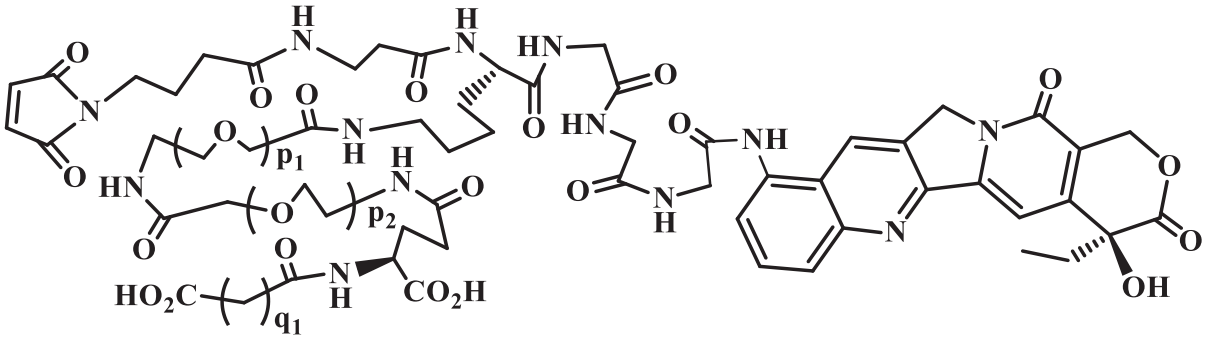
b024,



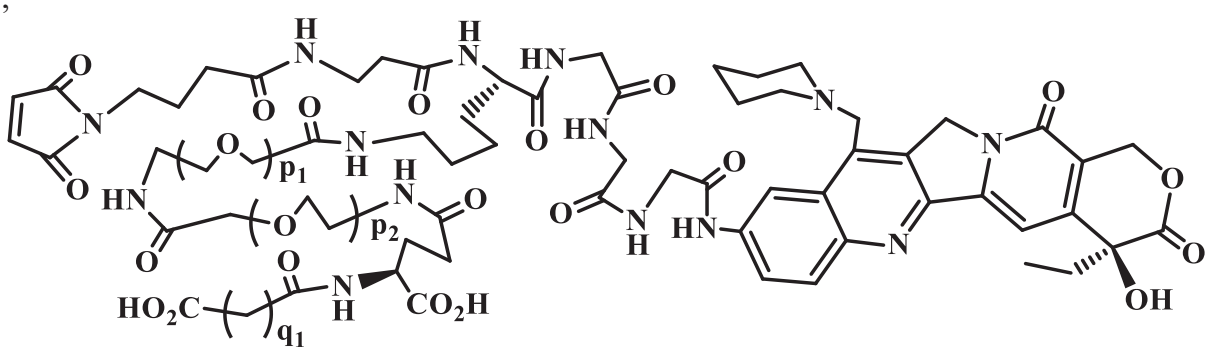
b025,



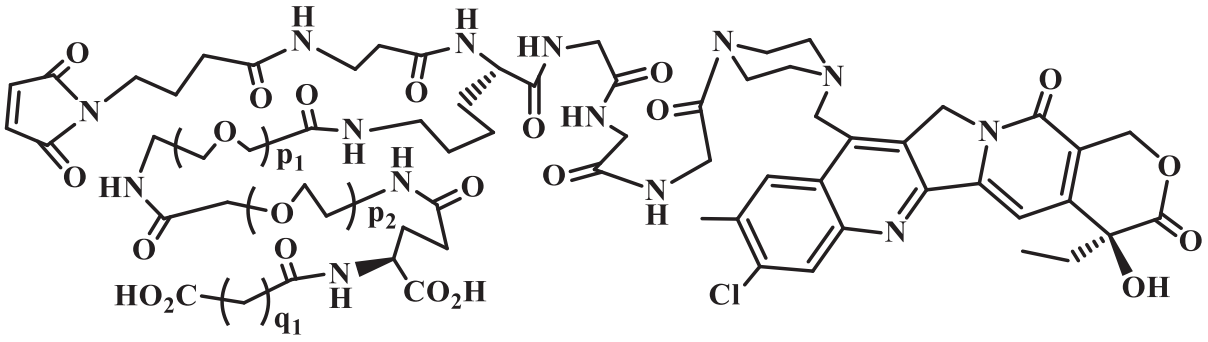
b026,



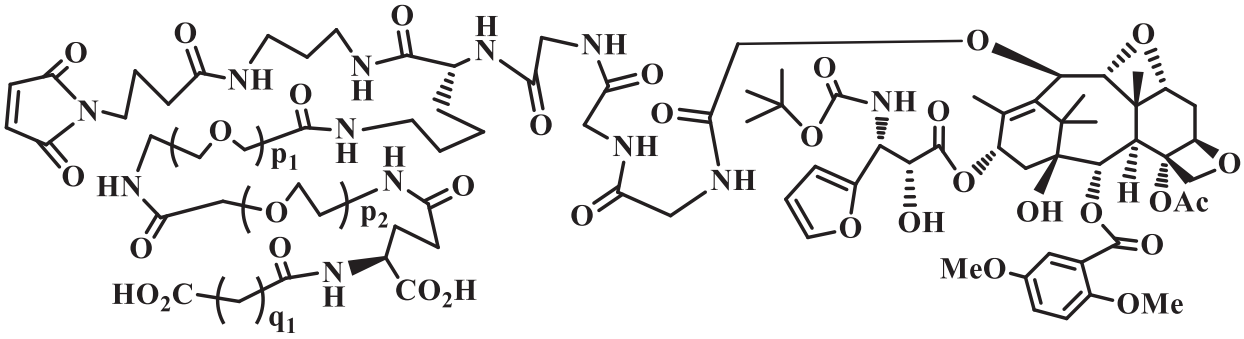
b027,



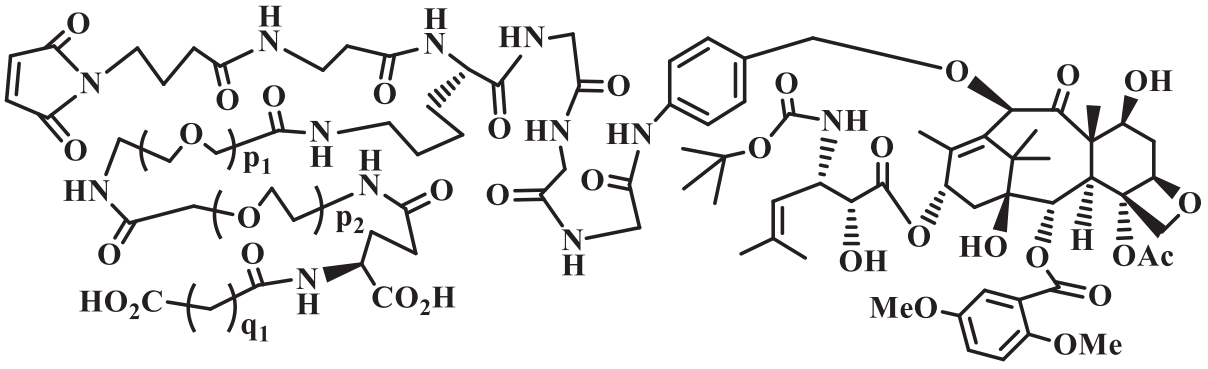
b028,



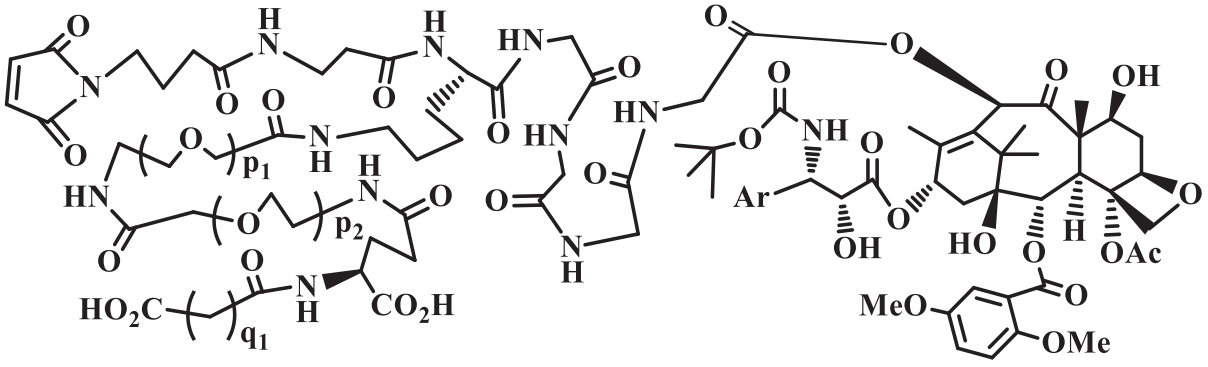
b029,



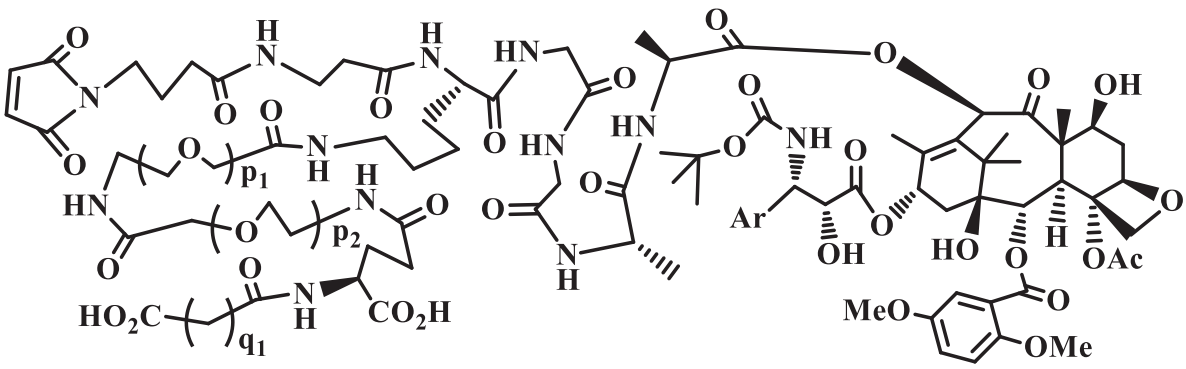
b030,



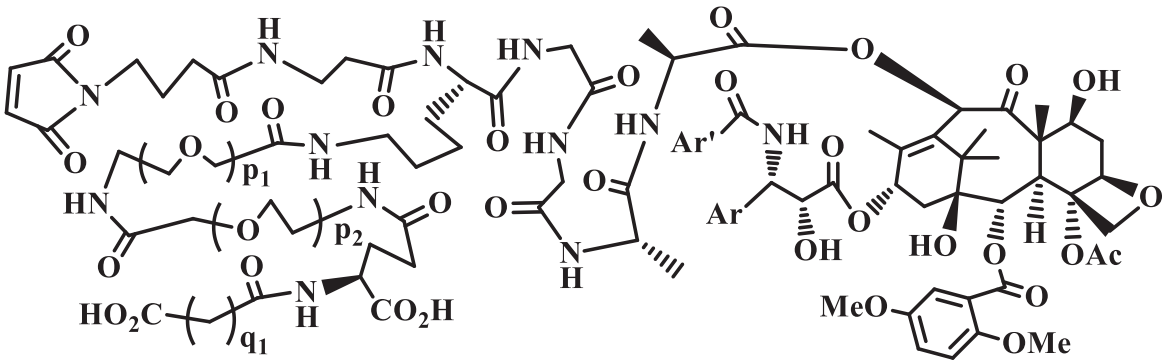
b031,



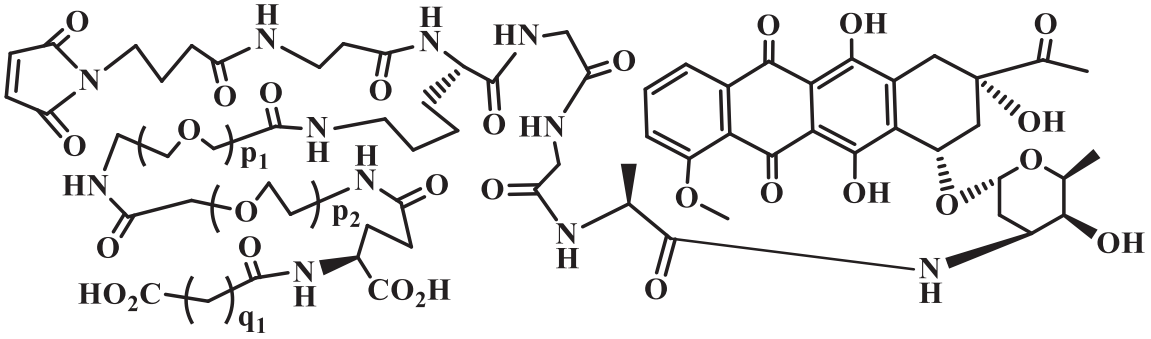
b032,



b033,

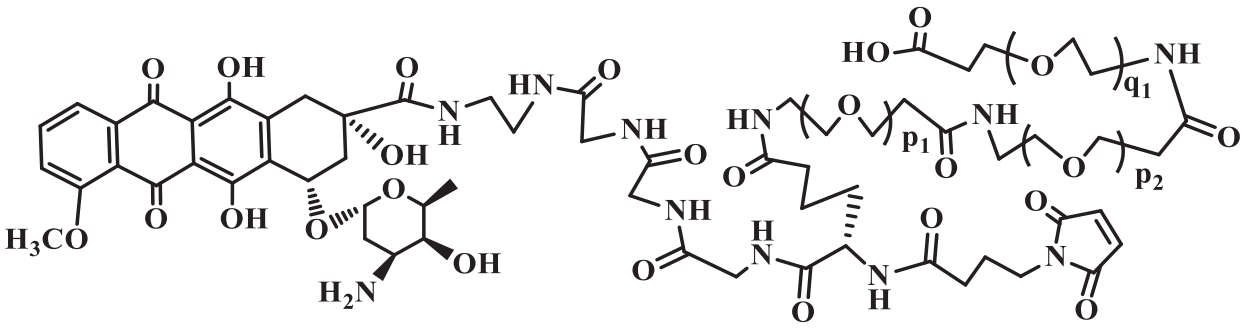


b034,

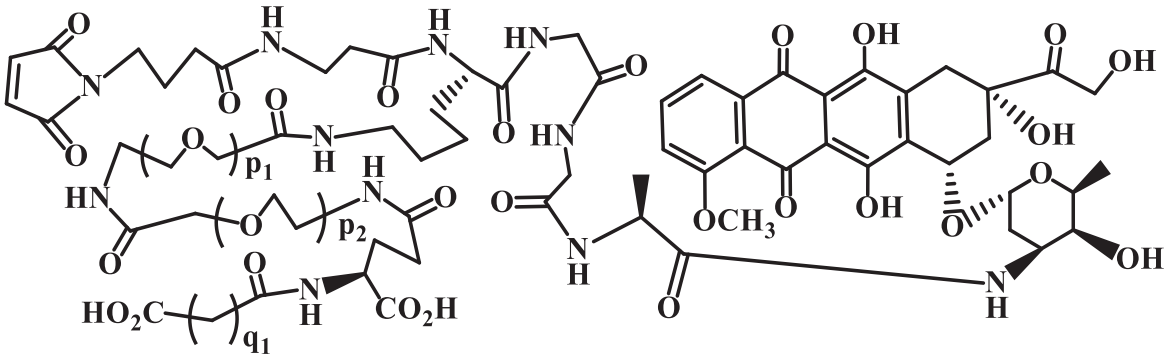


5

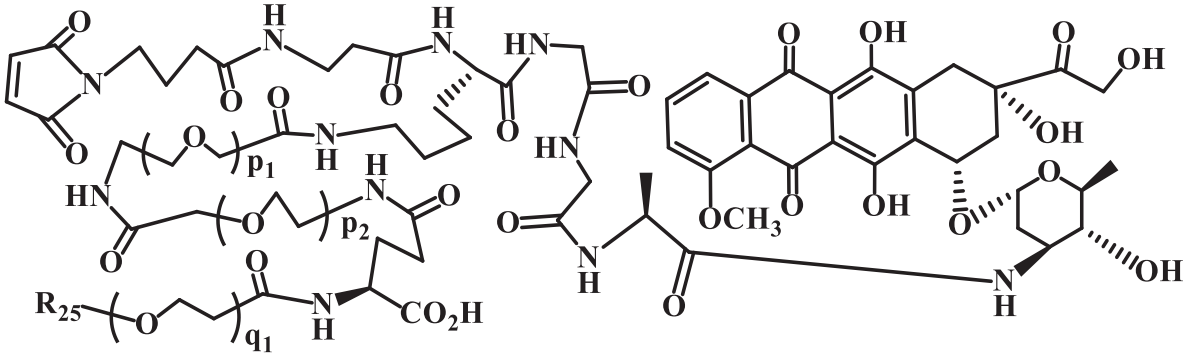
b035,



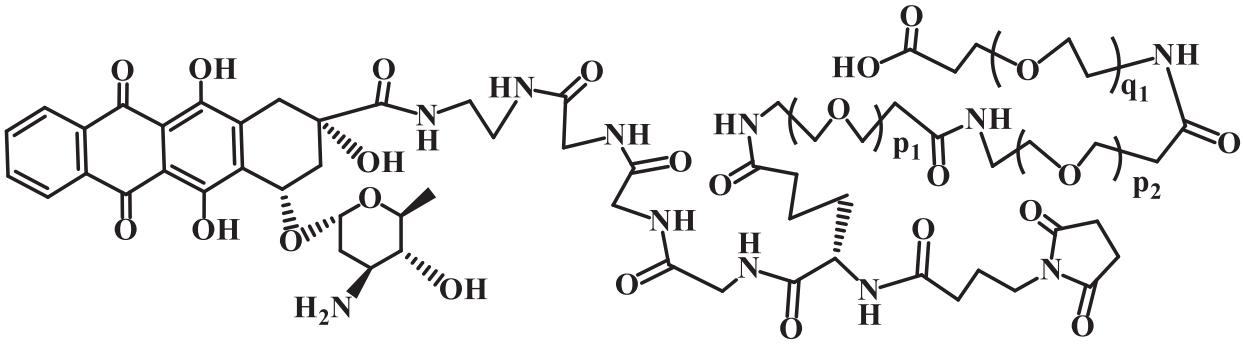
b036,



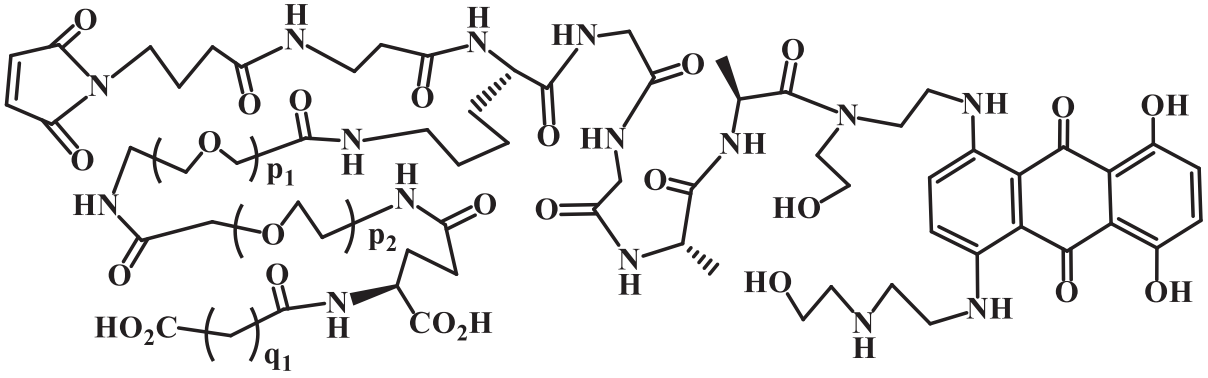
b037,



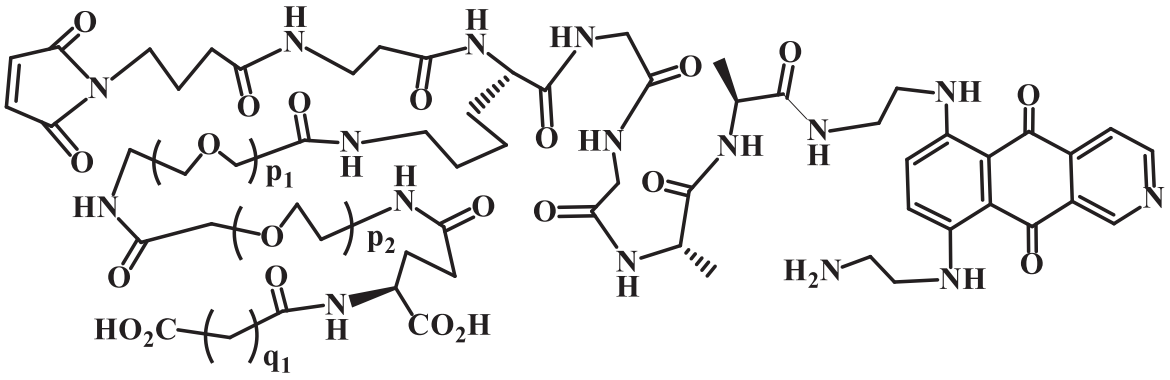
b038,



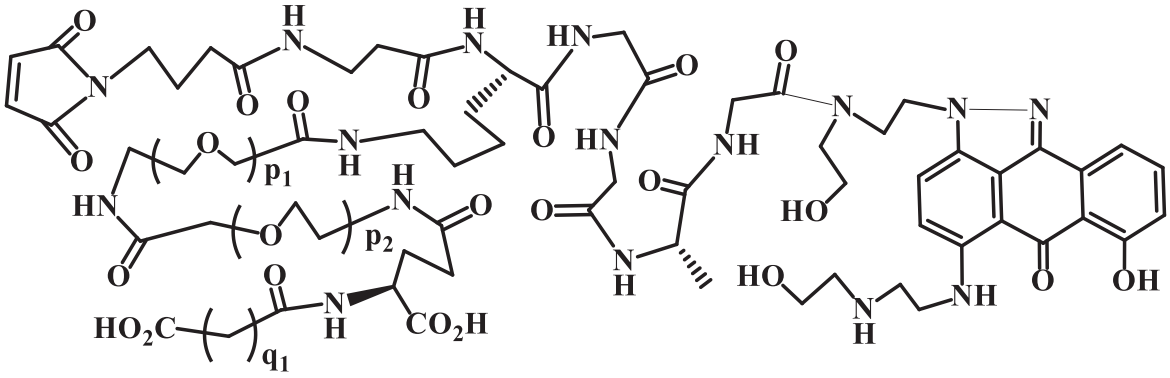
b039,



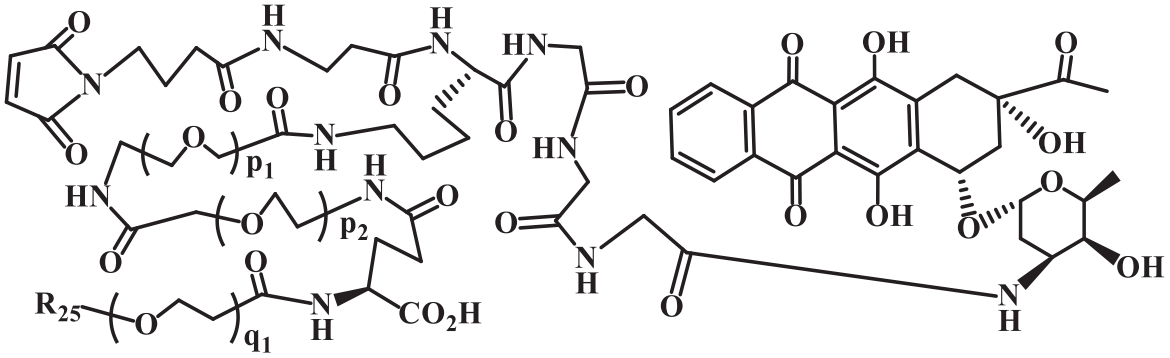
b040,



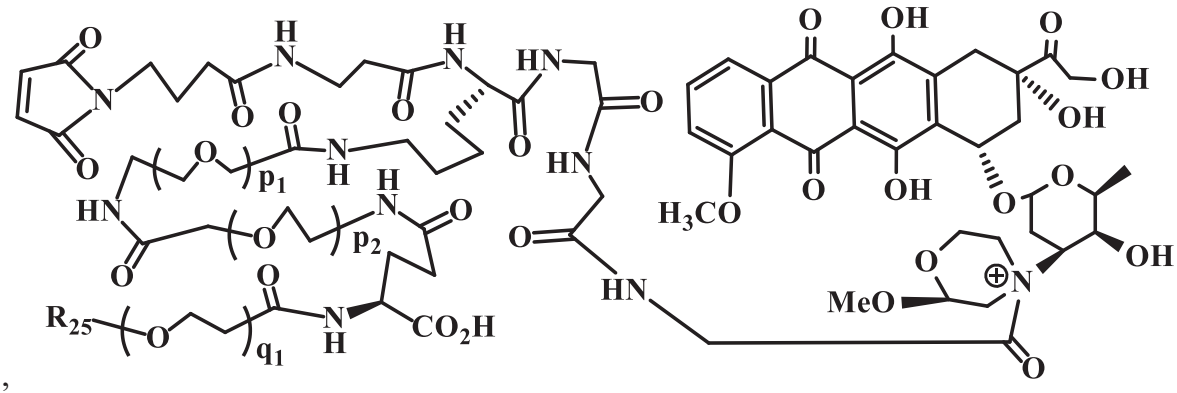
b041,



b042,

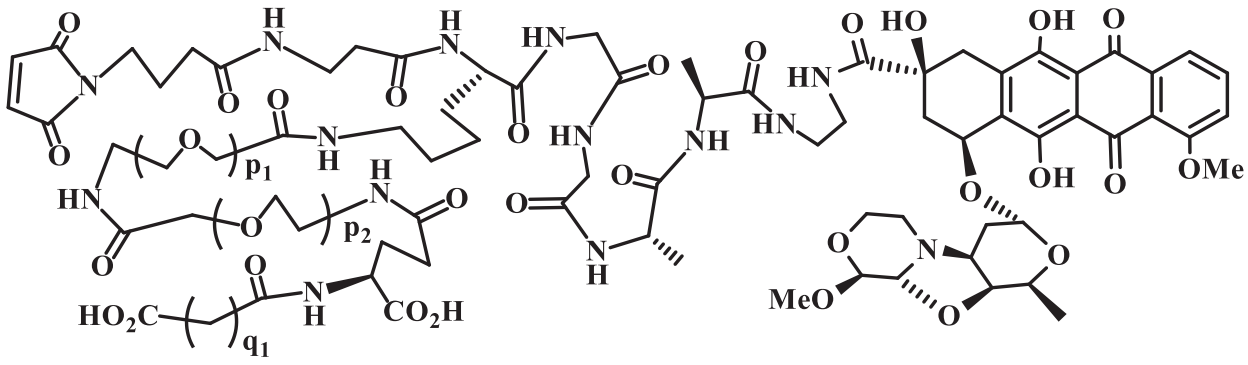


5

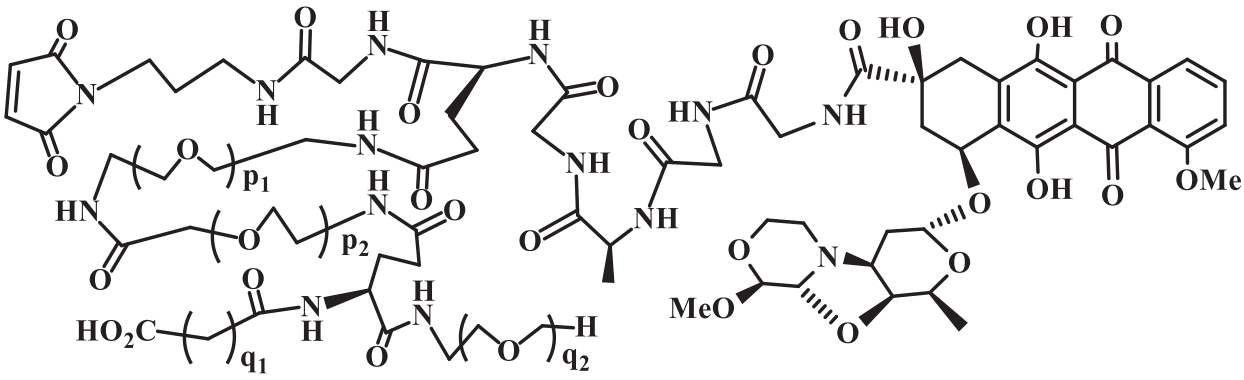


b043,

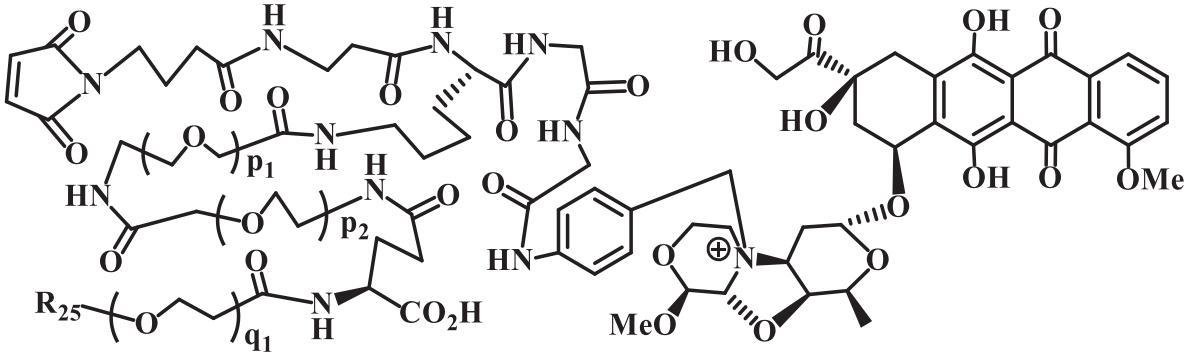
b044,



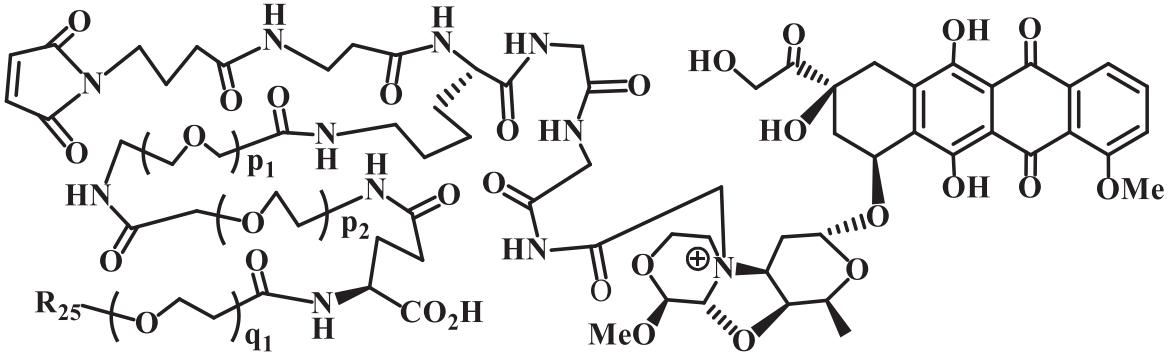
b045,



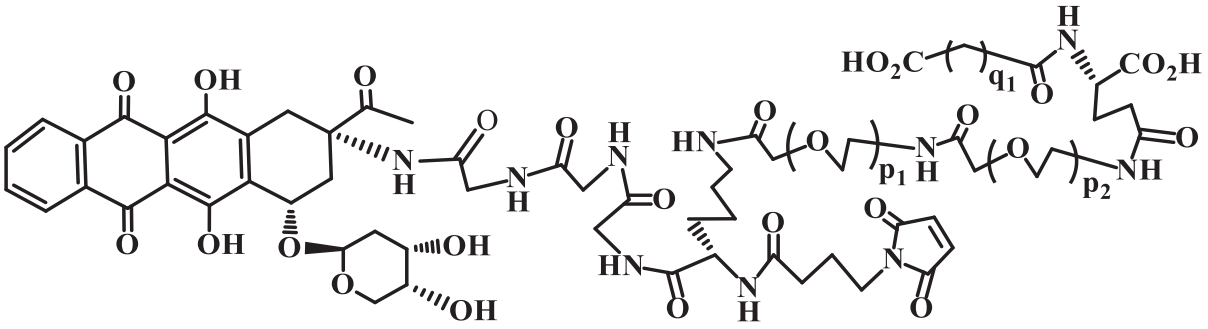
b046,



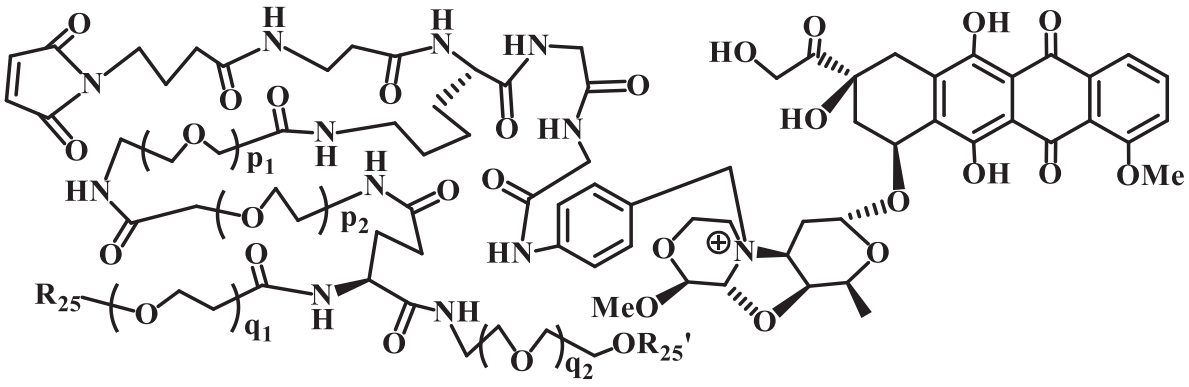
b047,



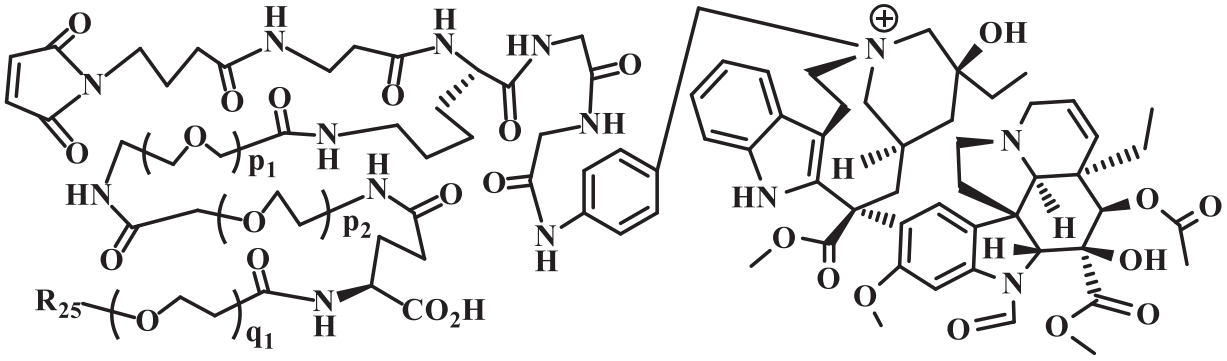
b048,



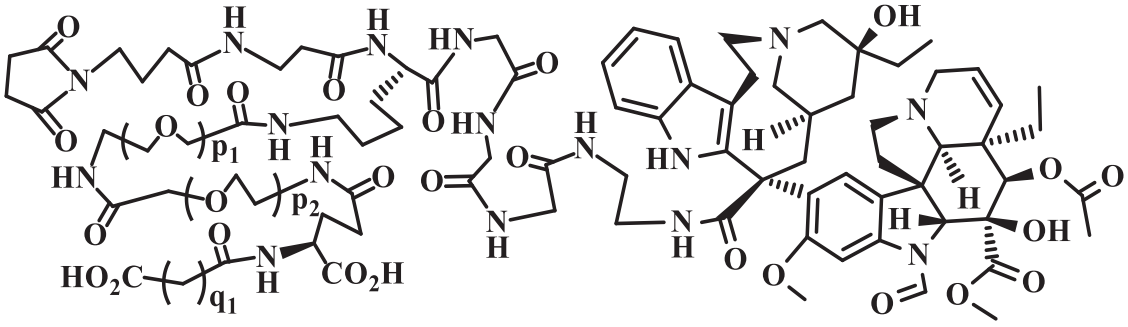
b049,



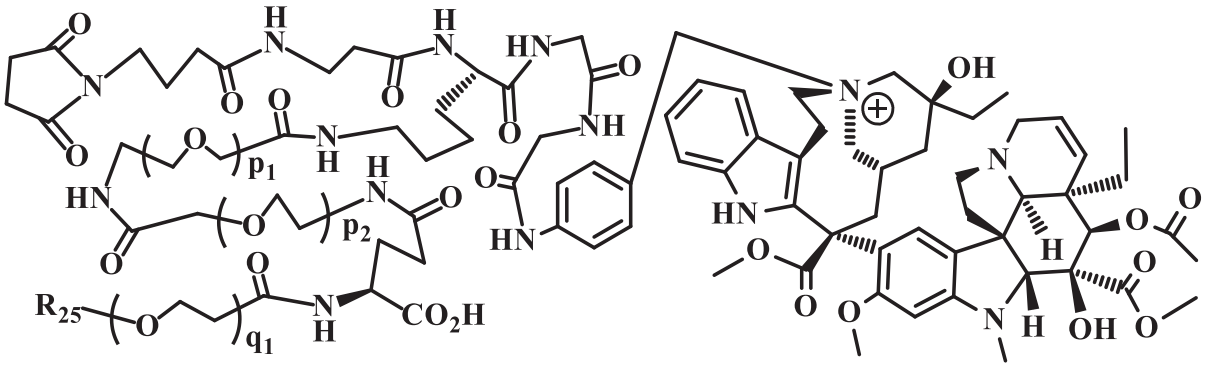
b050,



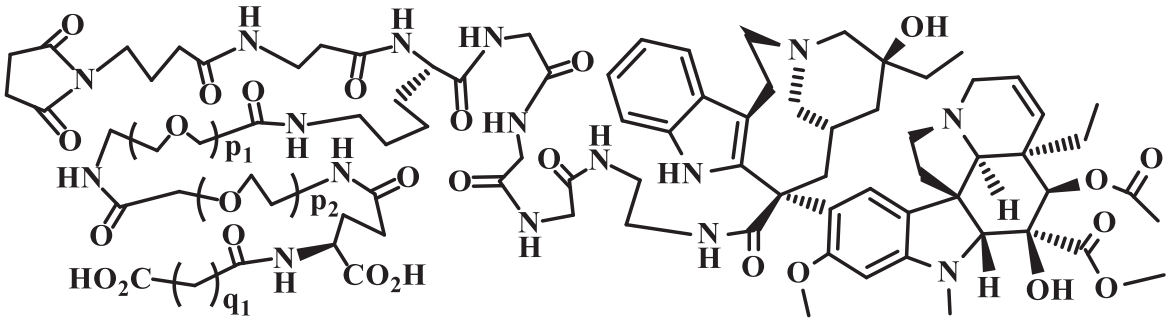
b051,



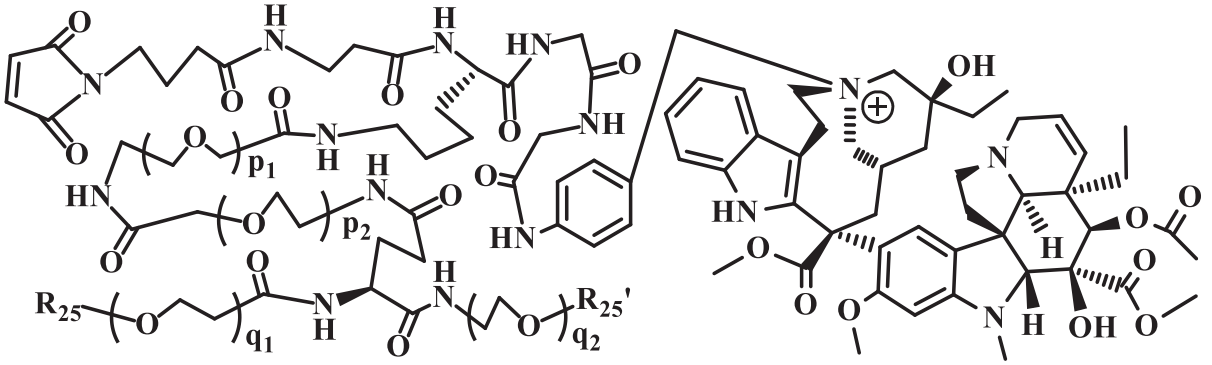
b052,



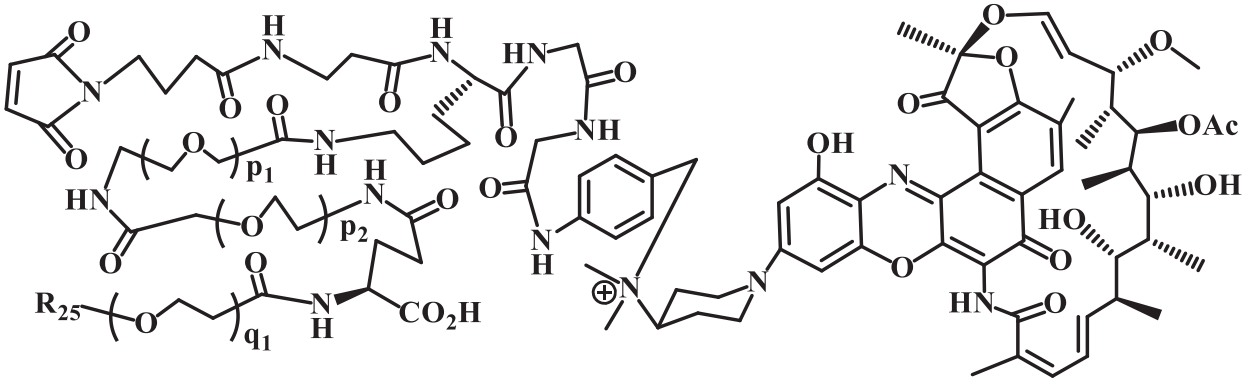
b053,



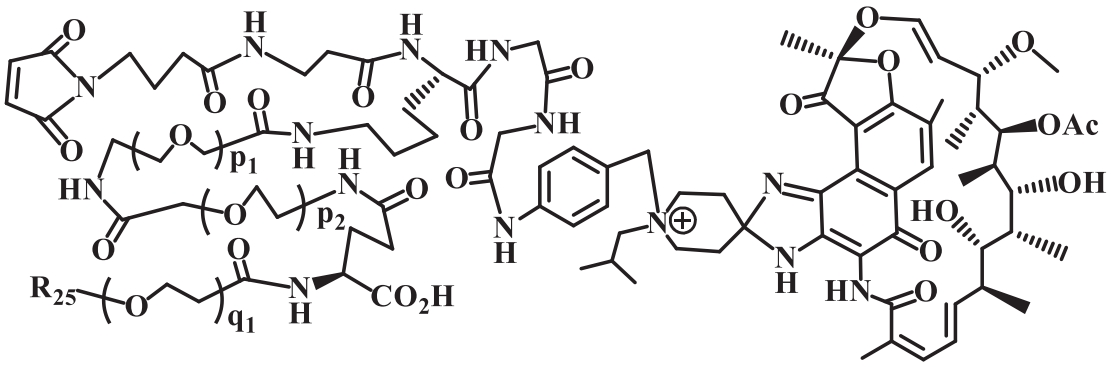
b054,



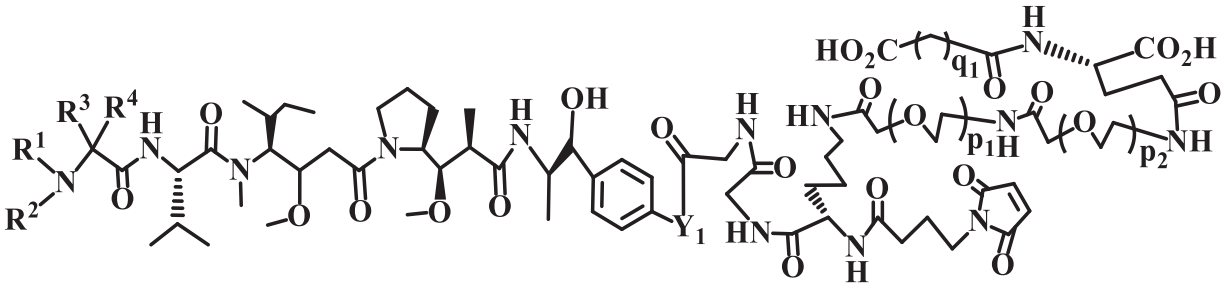
b055,



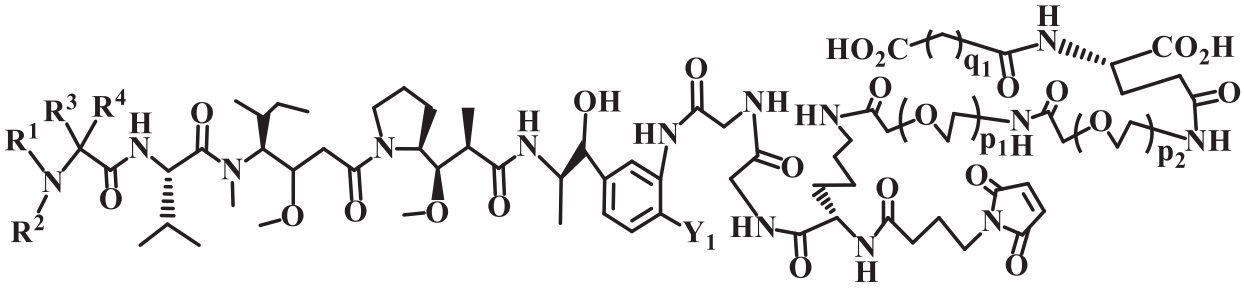
b056,



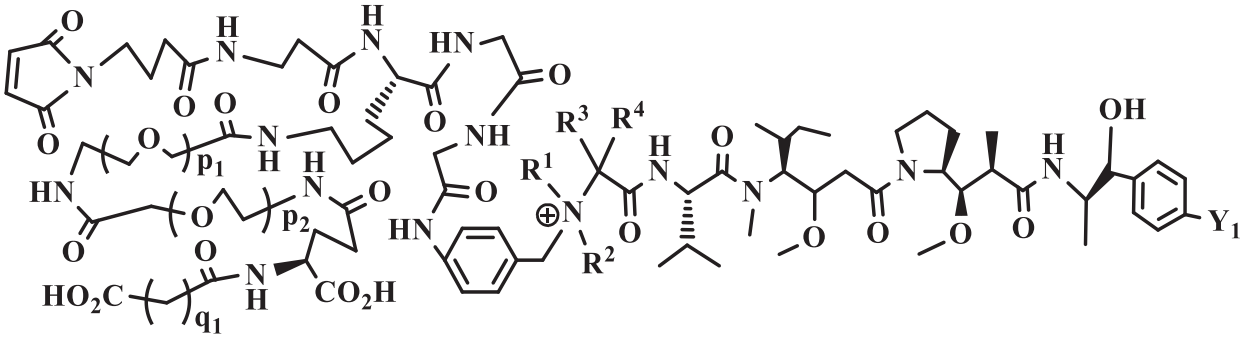
b057,



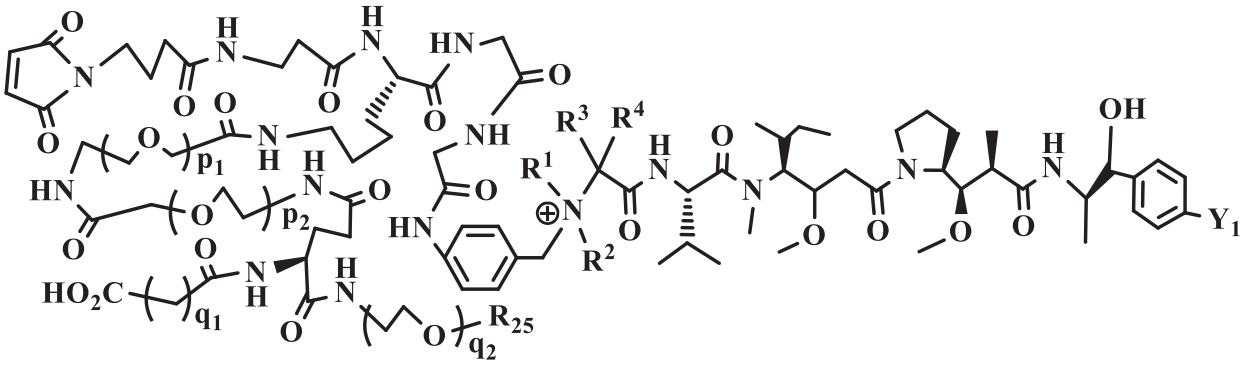
b058,



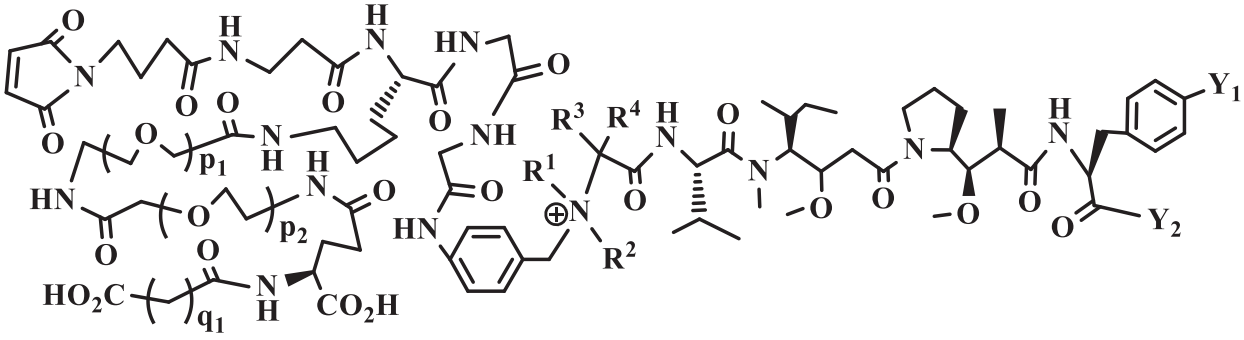
b059,



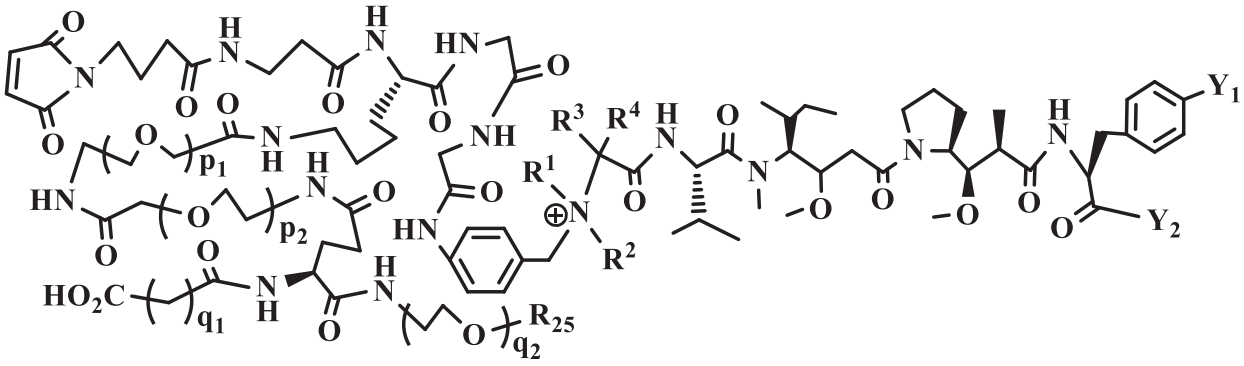
b060,



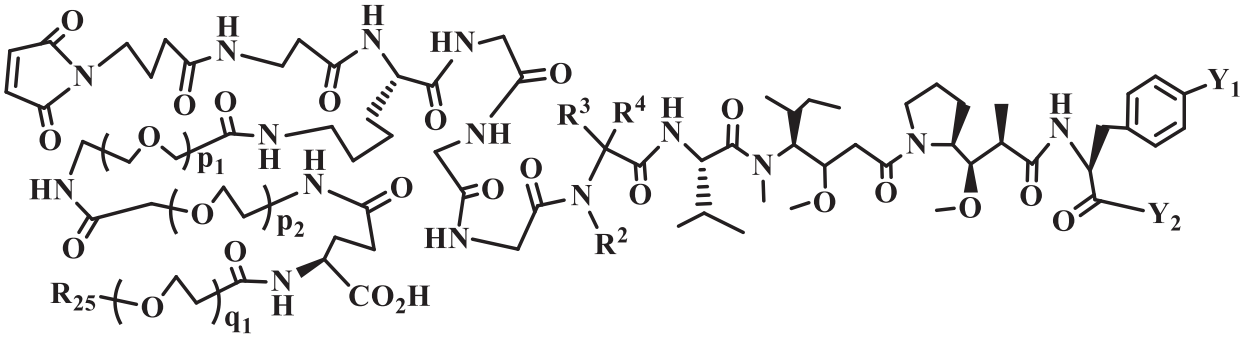
b061,



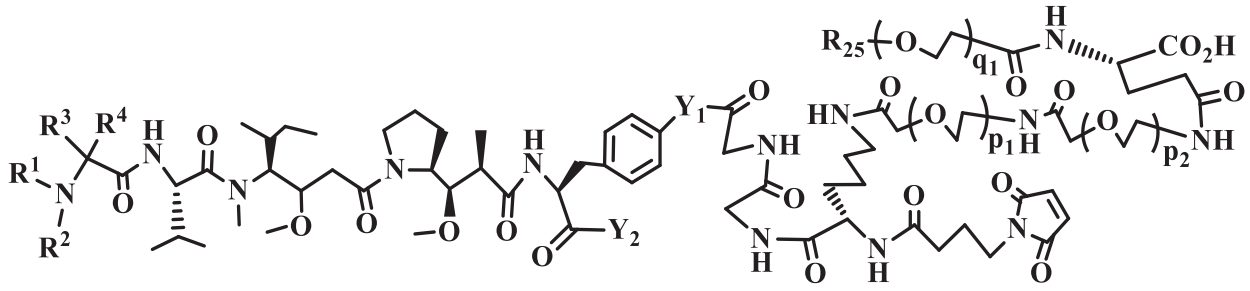
b062,



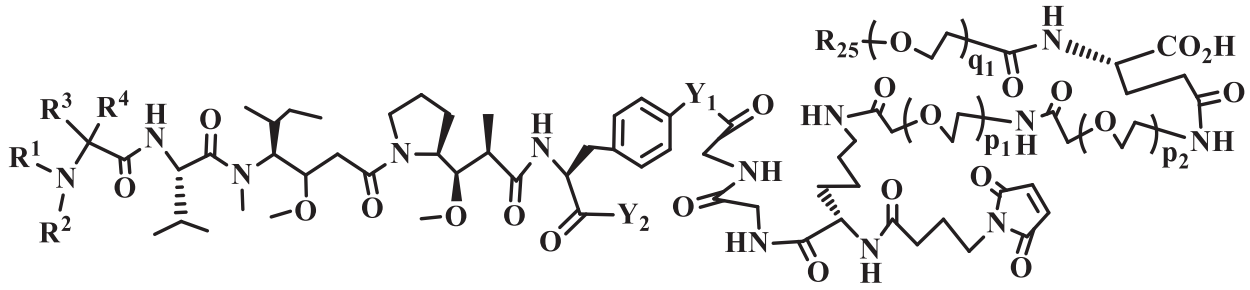
b063,



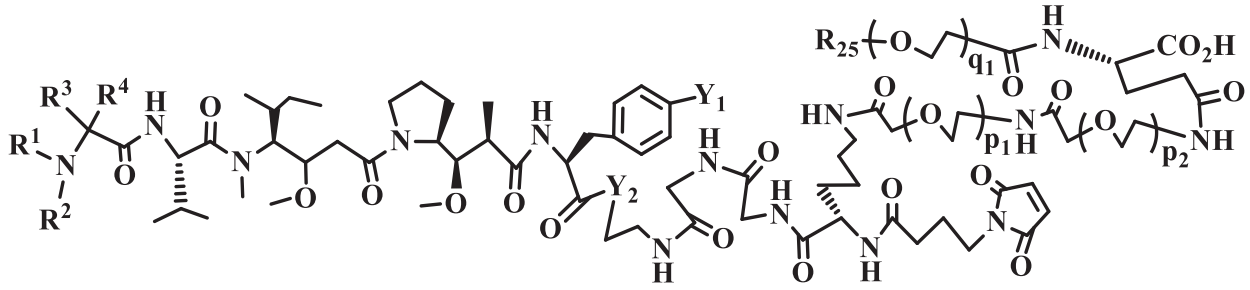
b064,



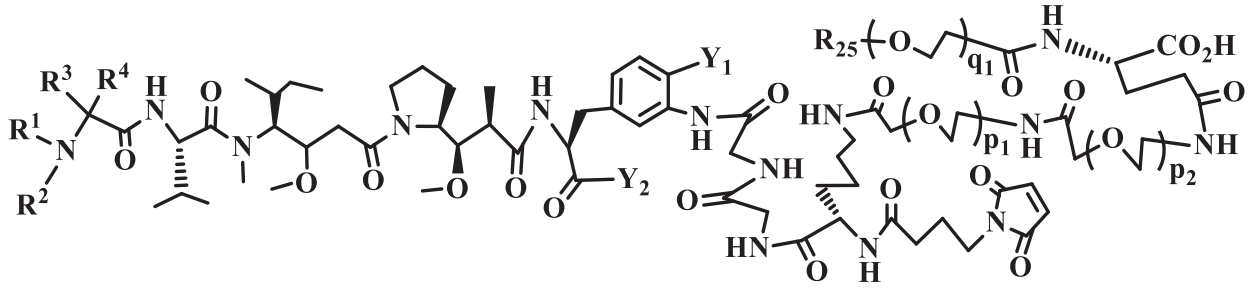
b065,



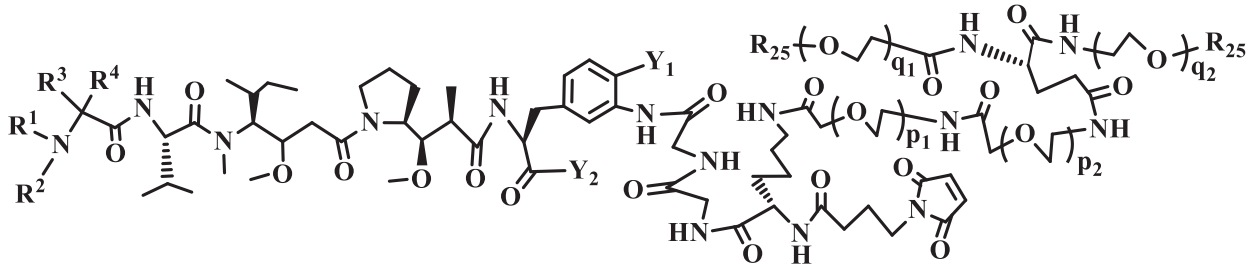
b066,



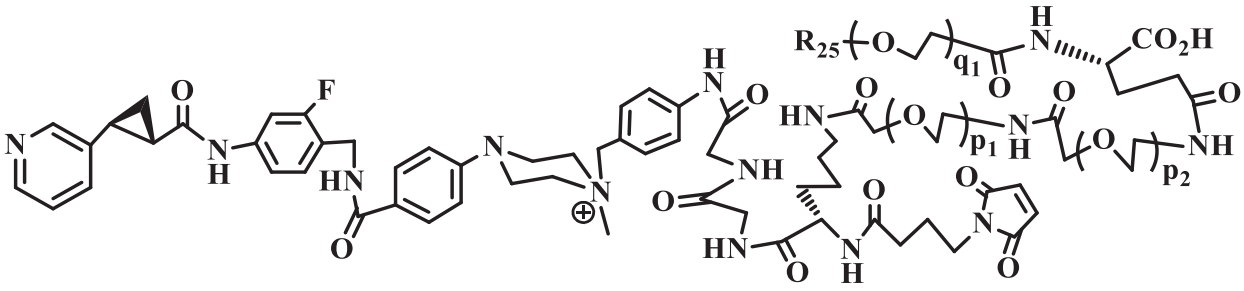
b067,



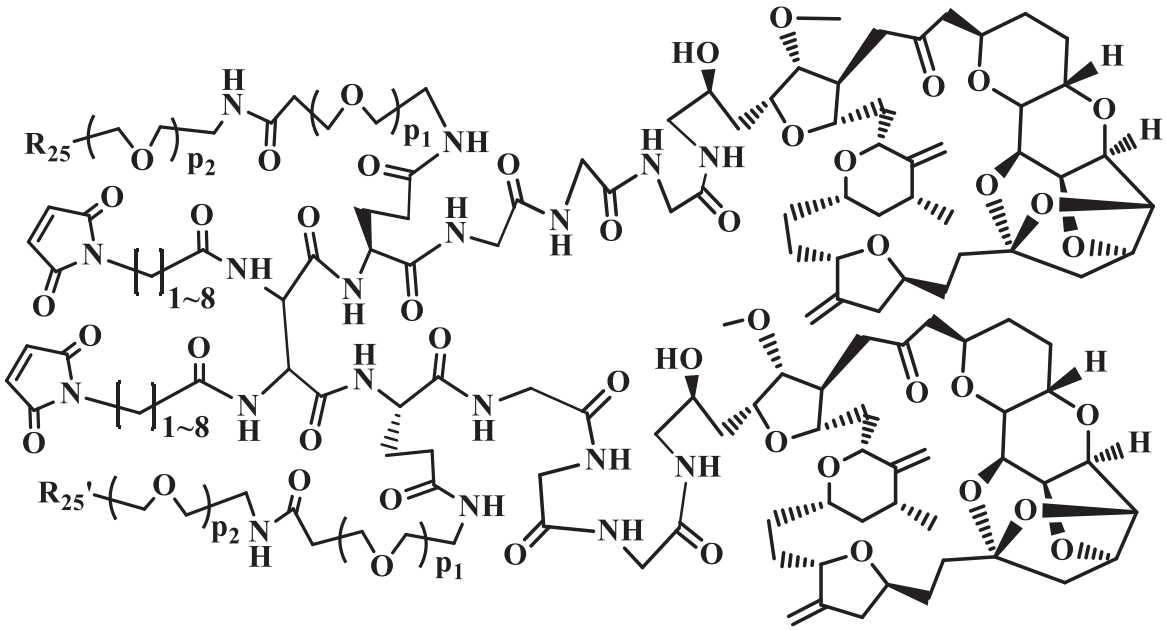
b068,



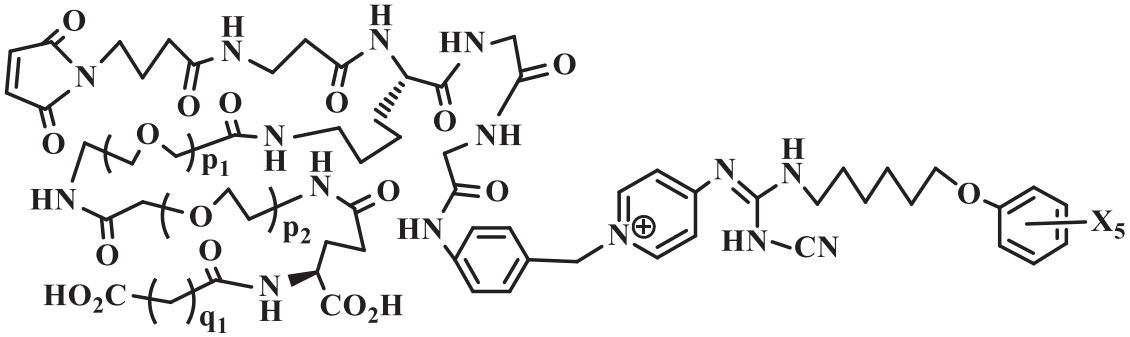
b069,



b070,

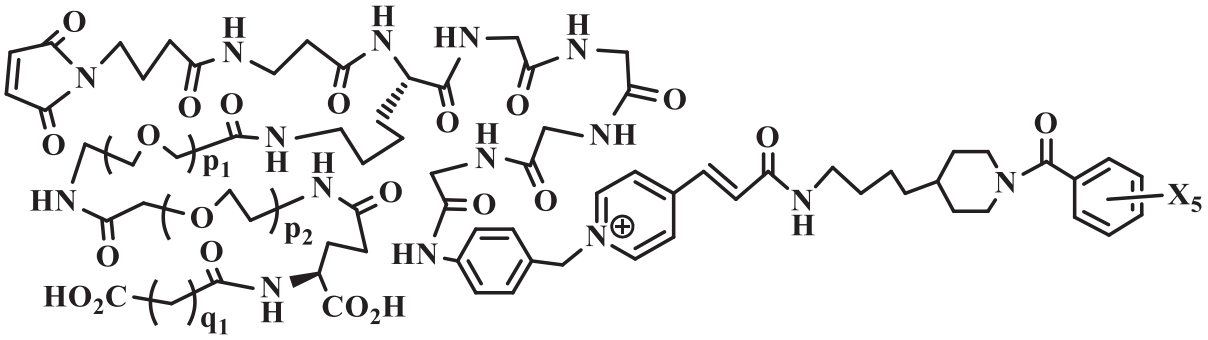


b071,

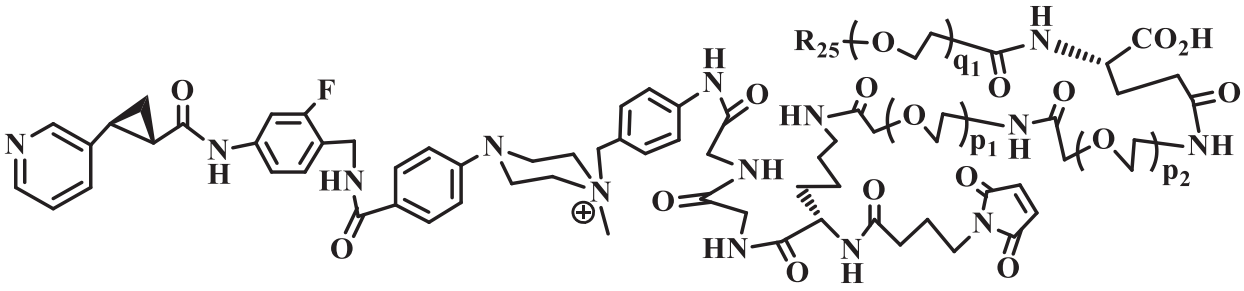


5

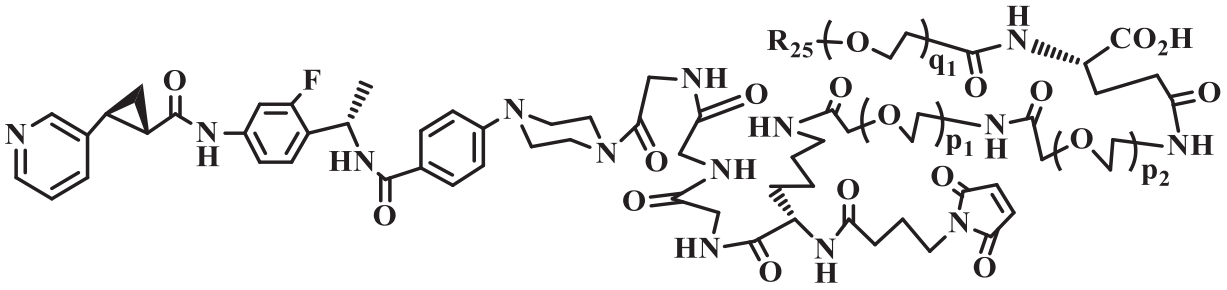
b072,



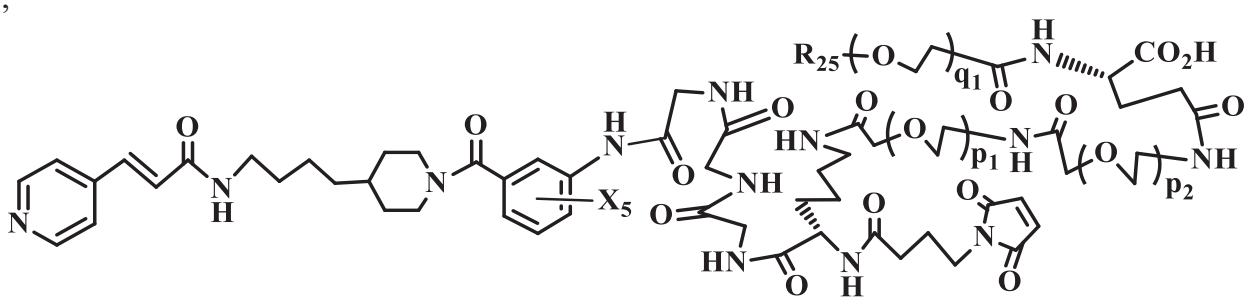
b073,



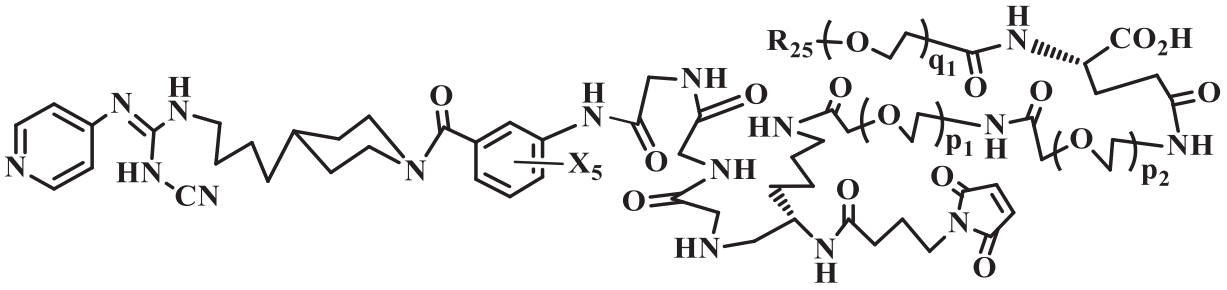
b074,



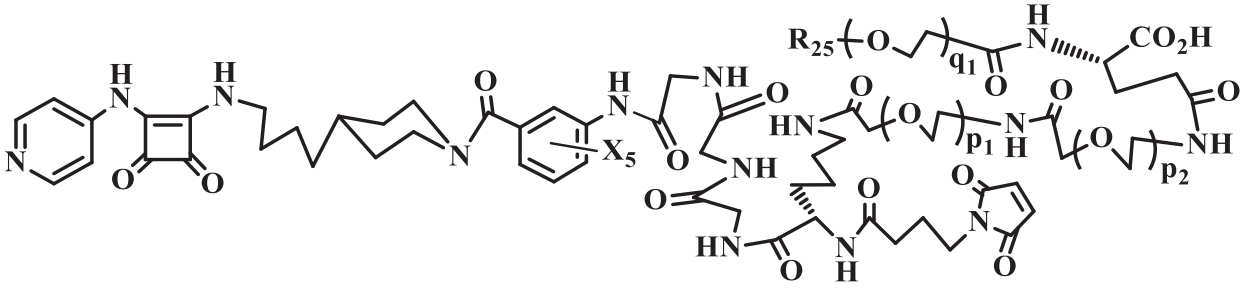
b075,



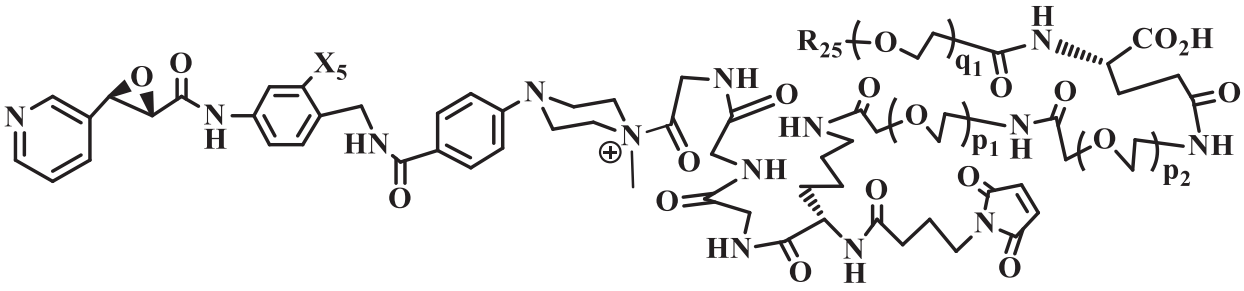
b076,



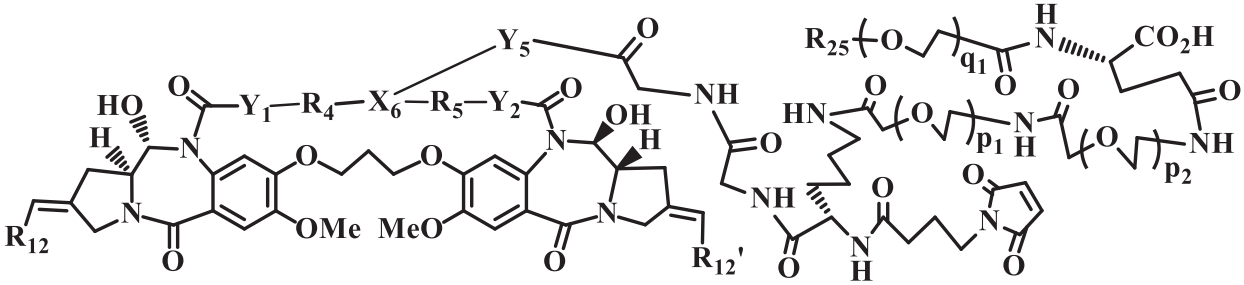
b077,



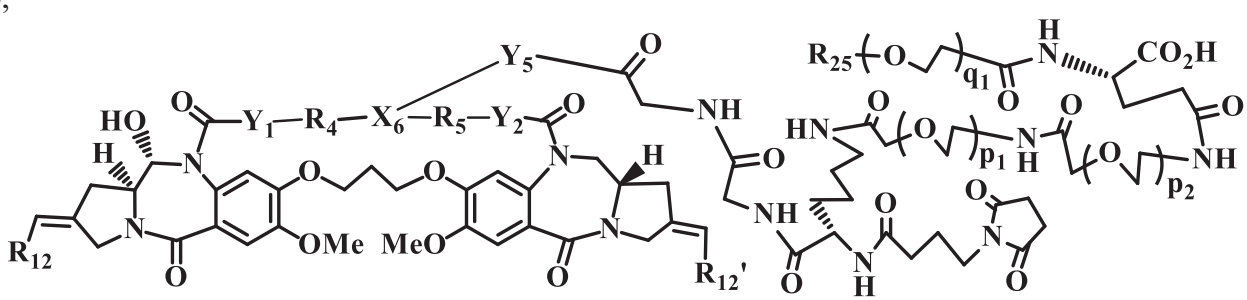
b078,



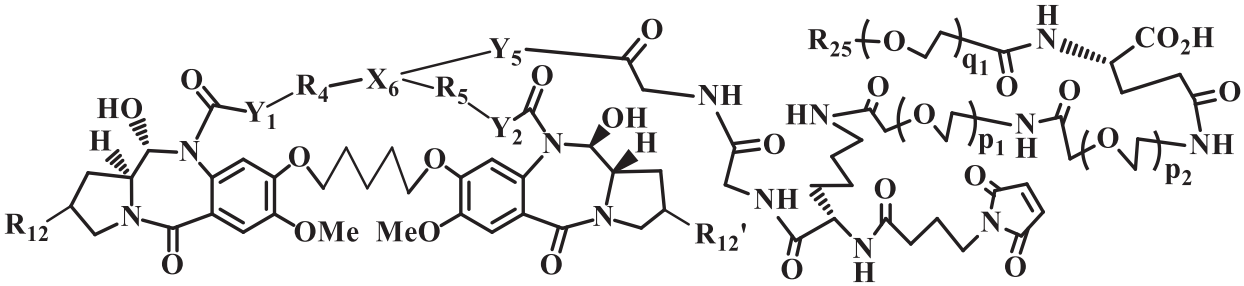
b079,



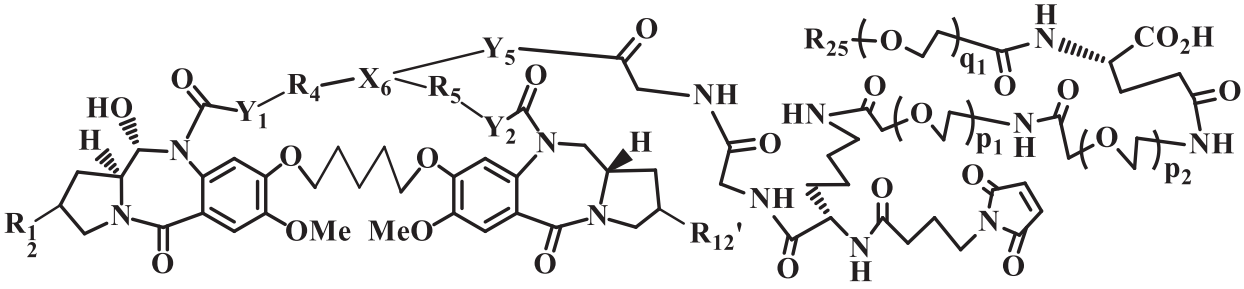
b080,



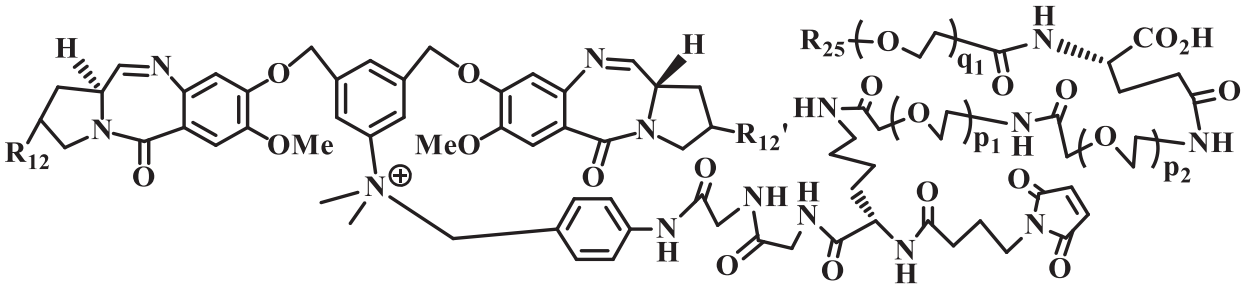
b081,



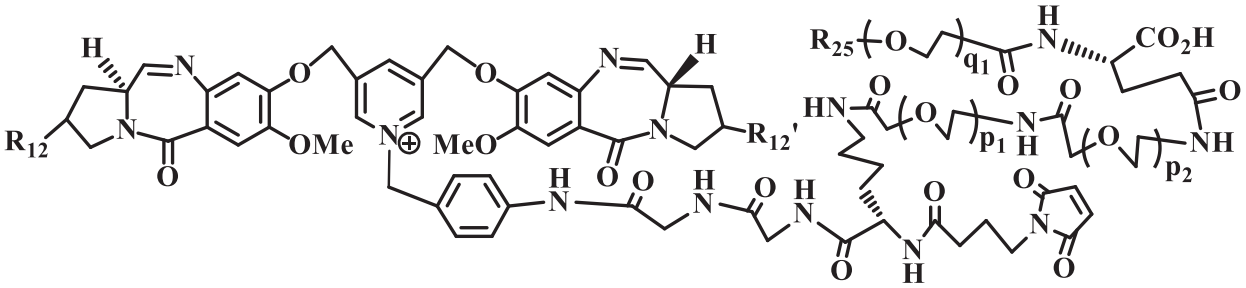
b082,



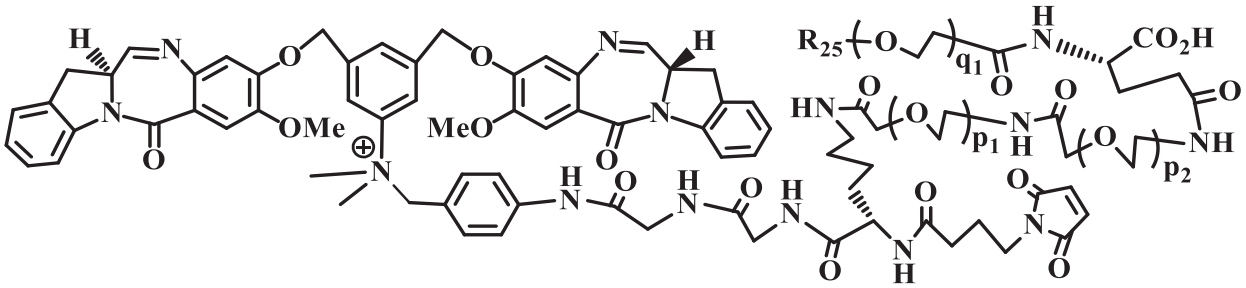
b083,



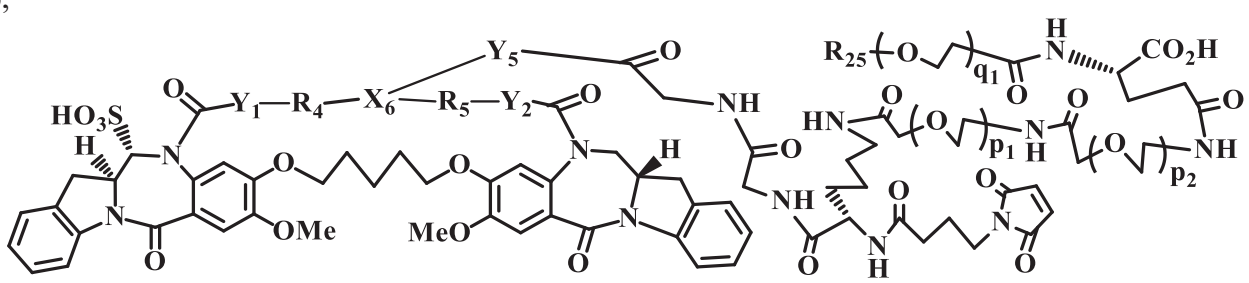
b084,



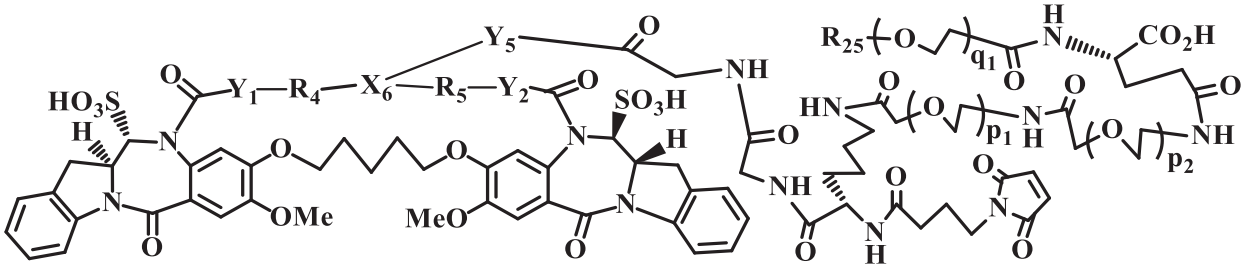
b085,



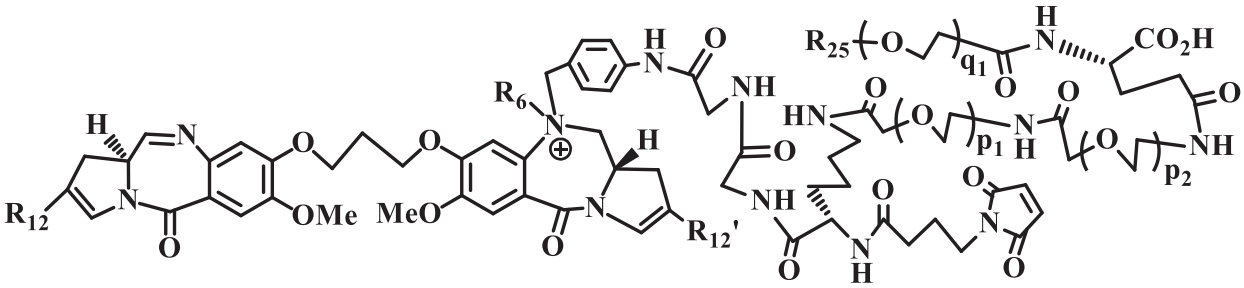
b086,



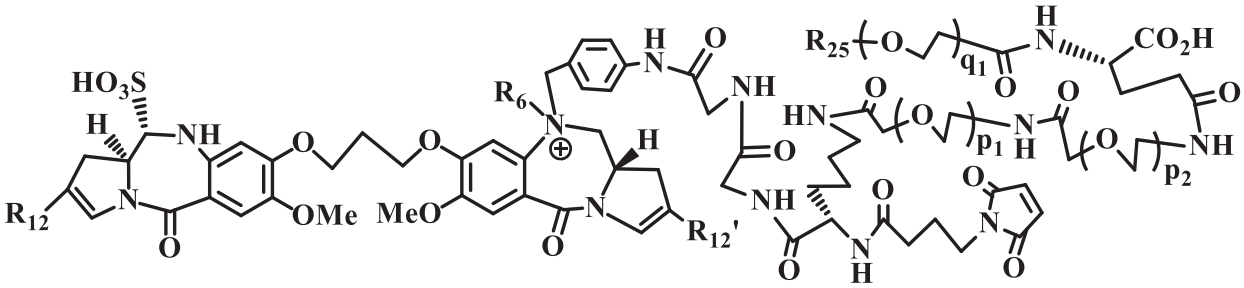
b087,



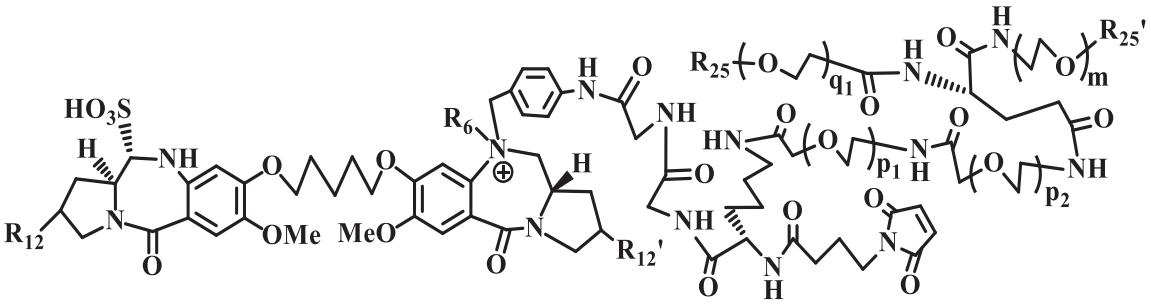
b088,



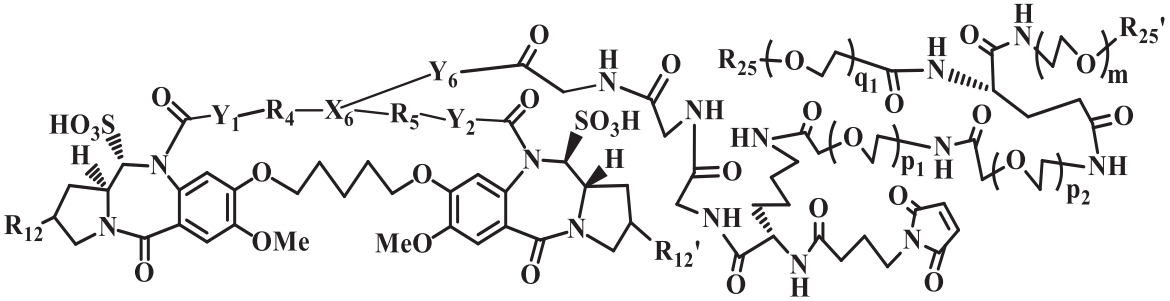
b089,



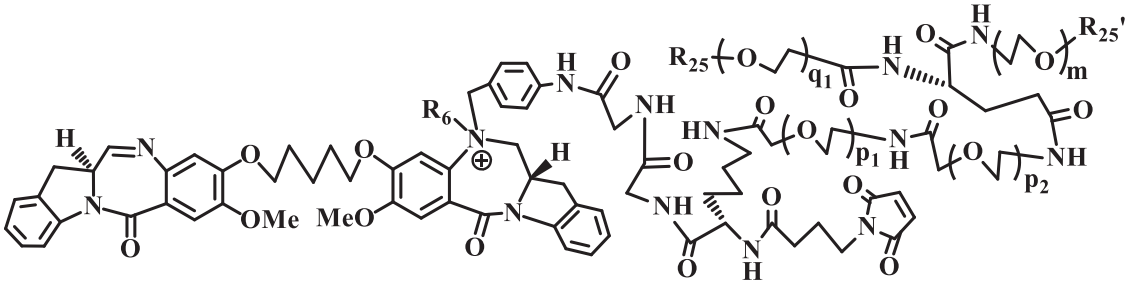
b090,



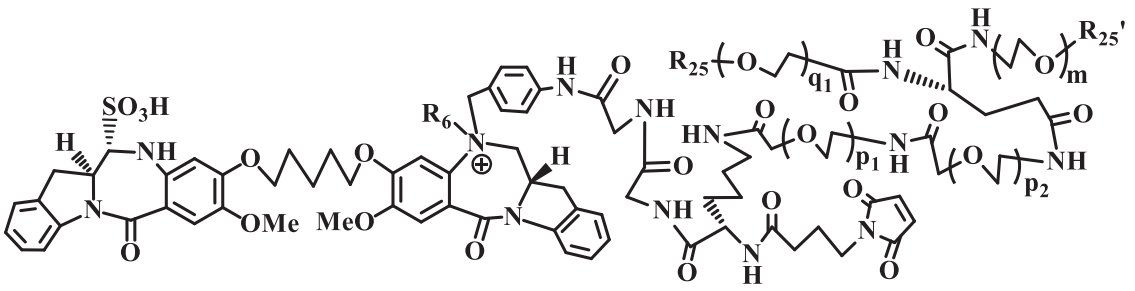
b091,



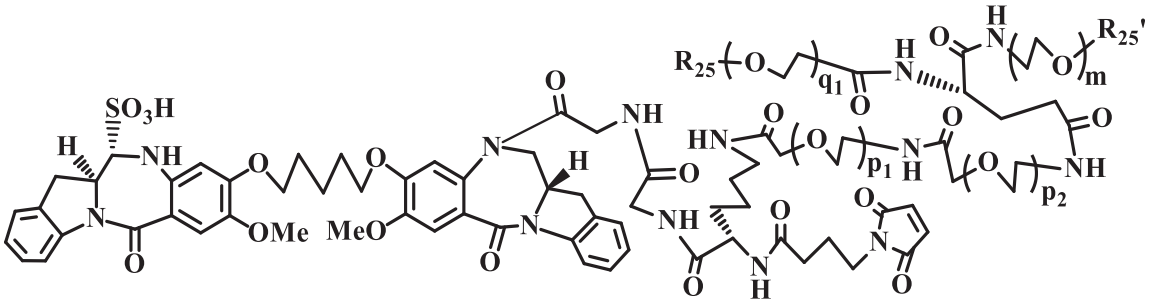
b092,



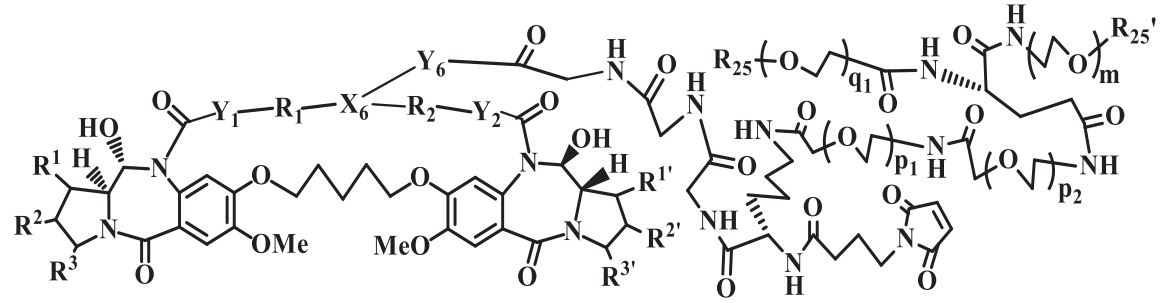
b093,



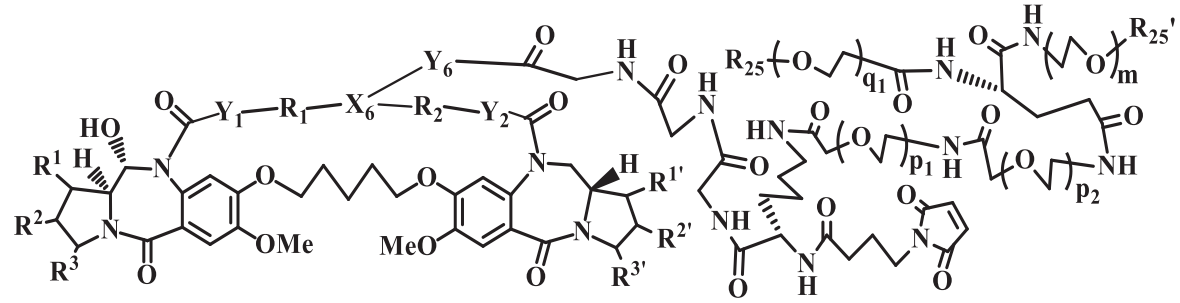
b094,



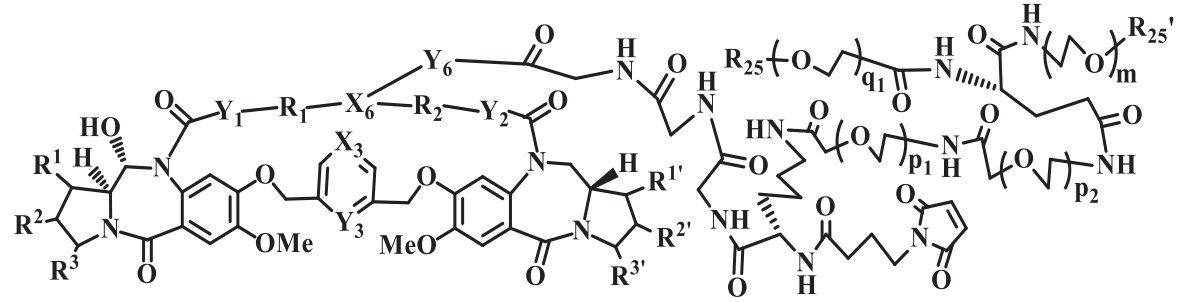
b095,



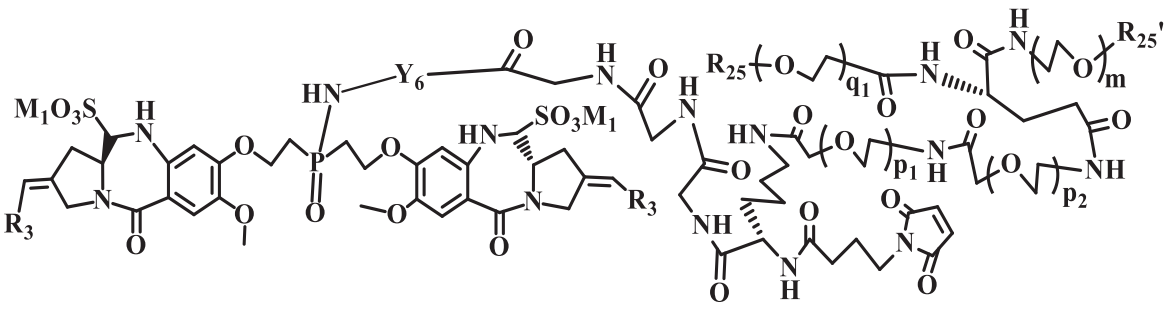
b096,



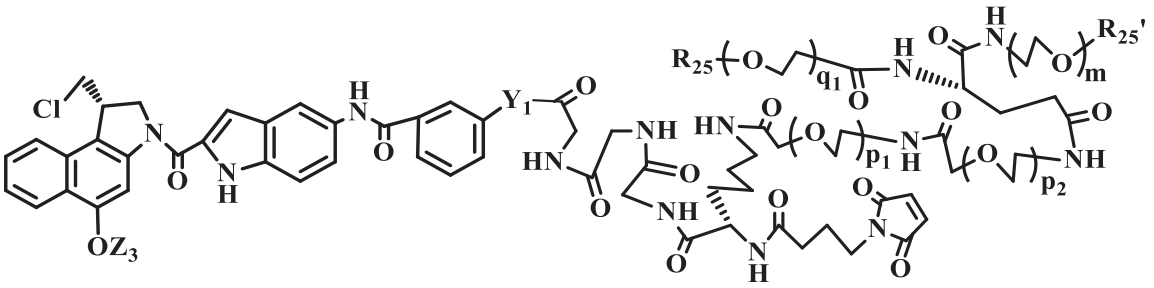
b097,



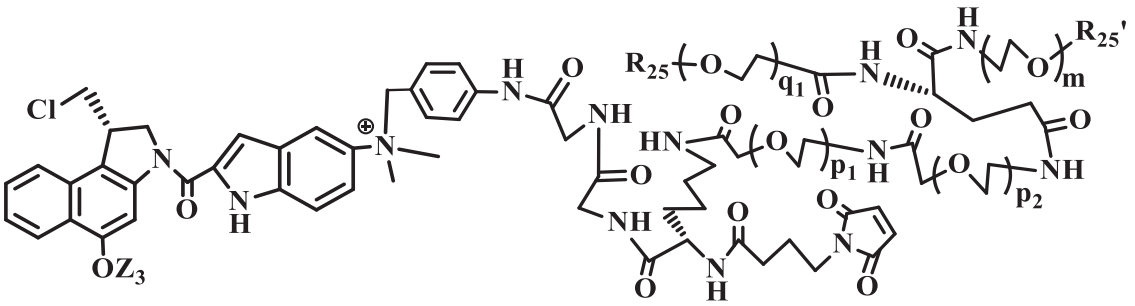
b098,



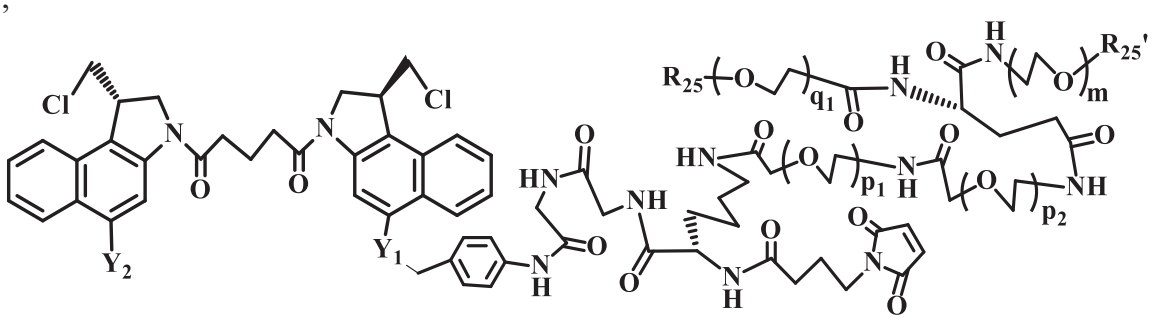
b099,



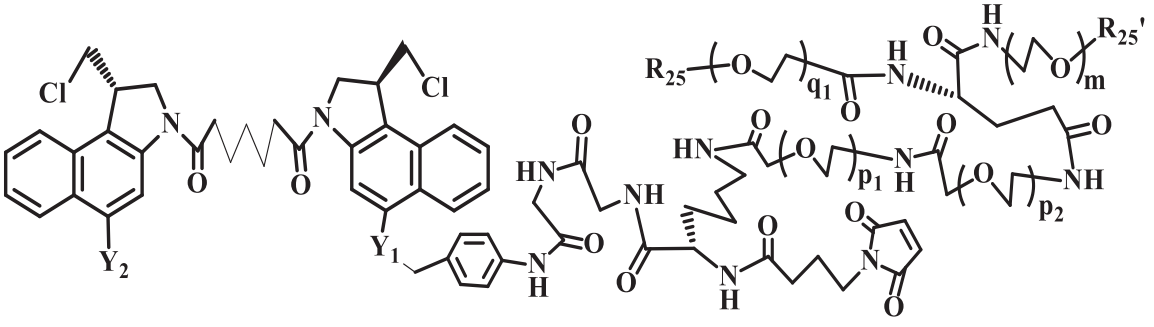
b100,



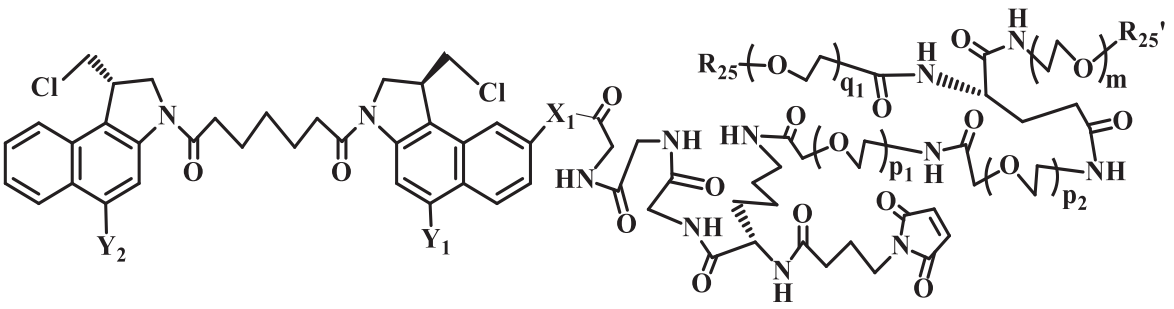
b101,



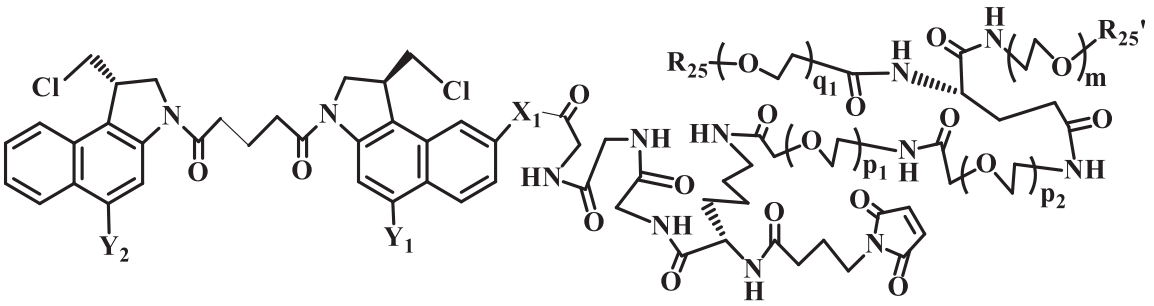
b102,



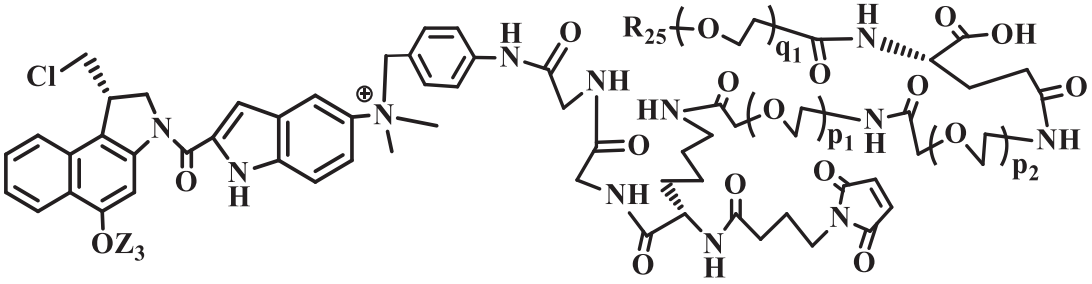
b103,



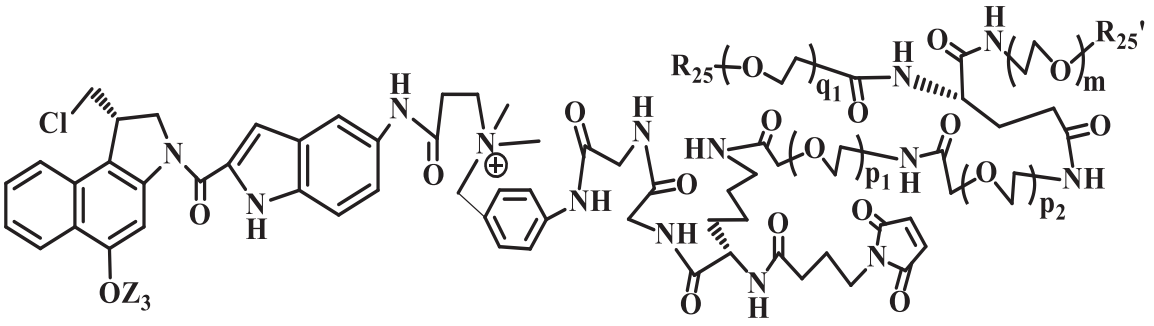
b104,



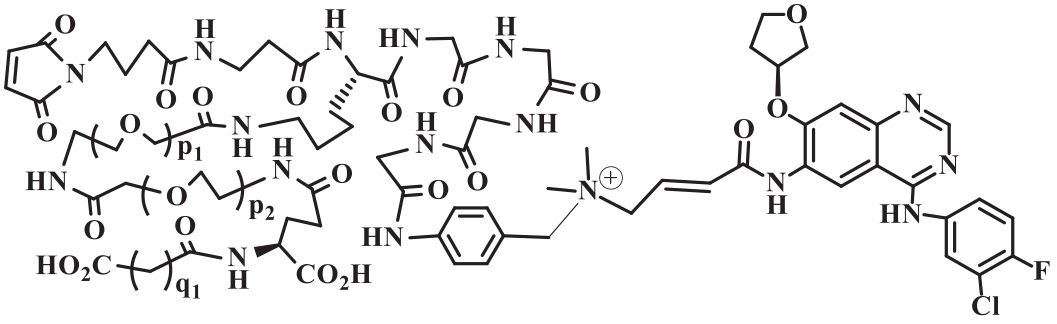
b105,



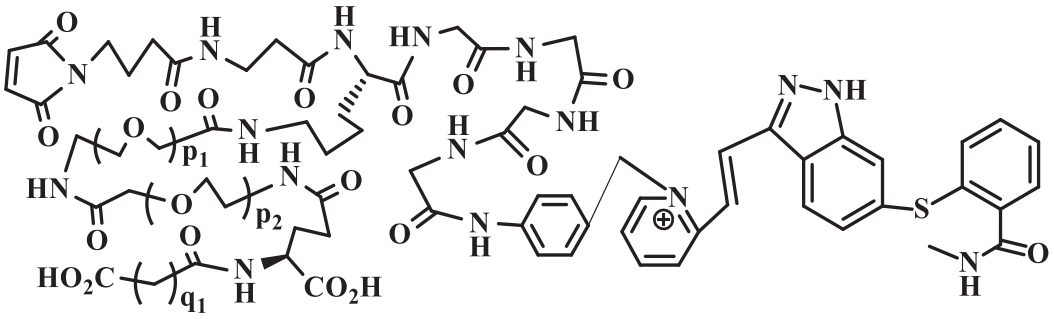
b106,



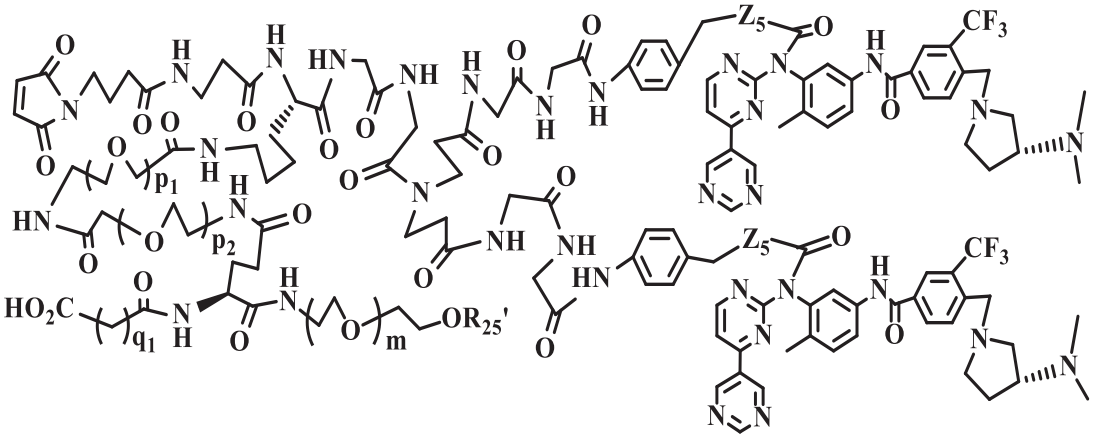
b107,



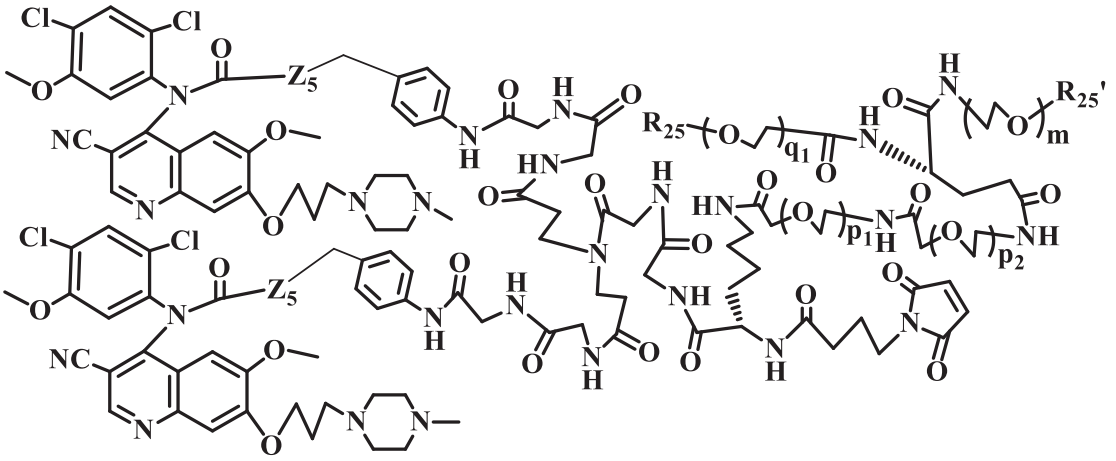
b108,



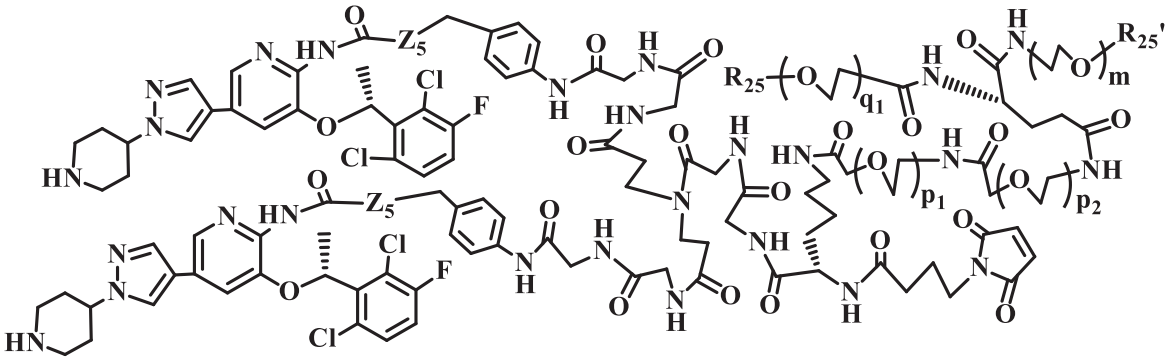
b109,



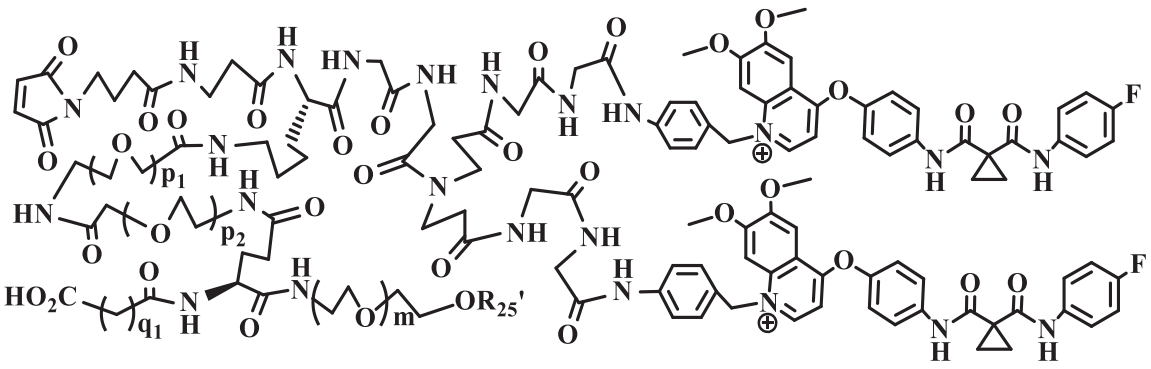
b110,



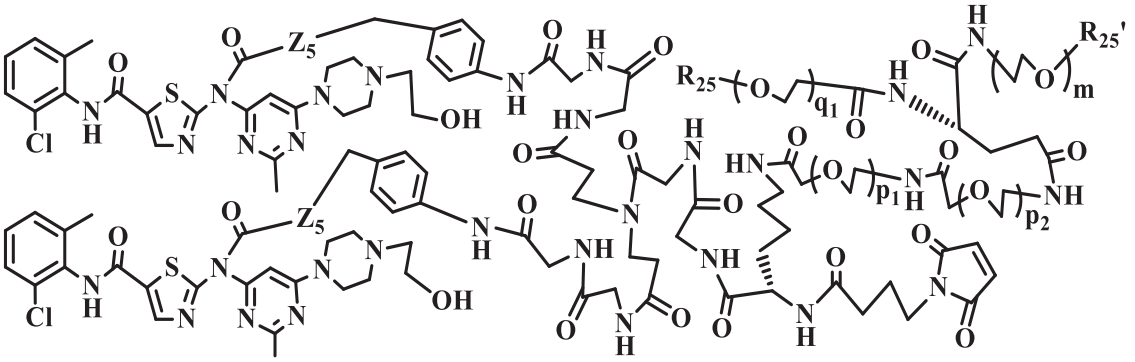
b111,



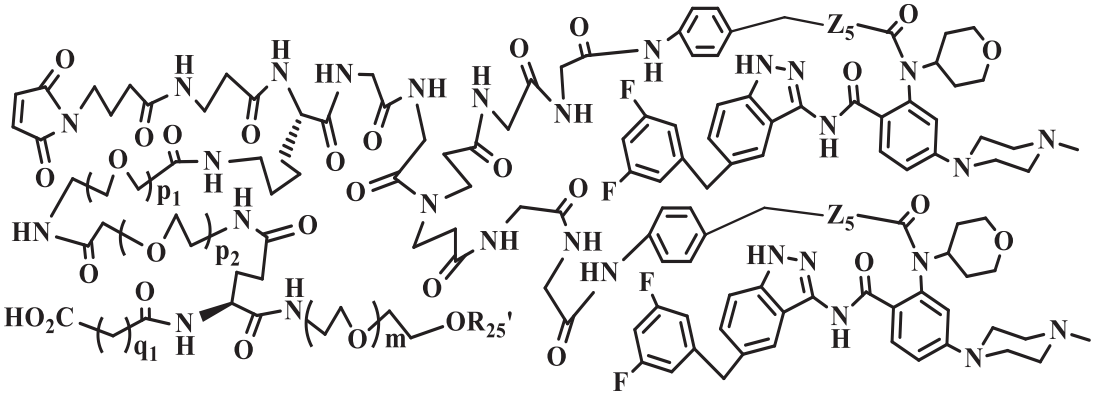
b112,



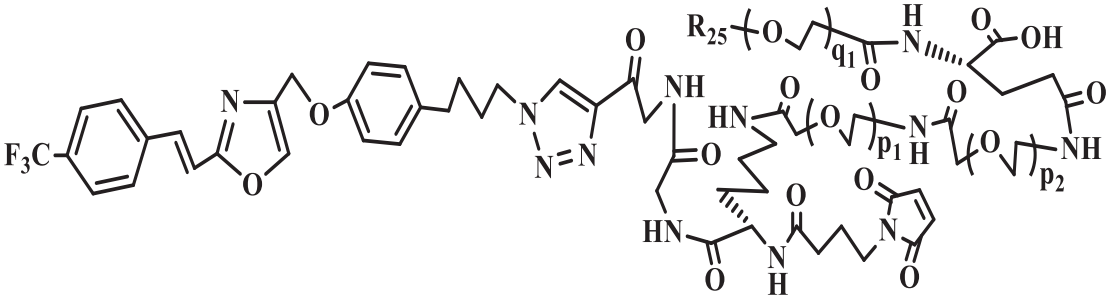
b113,



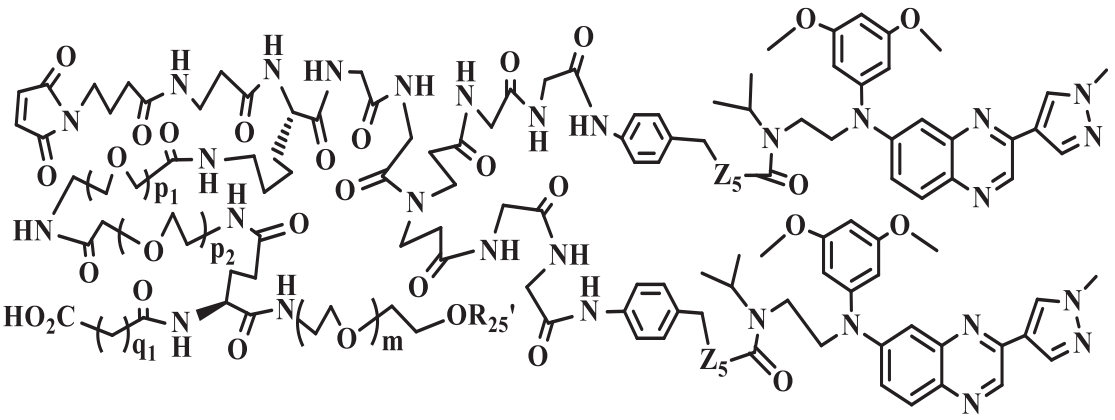
b114,



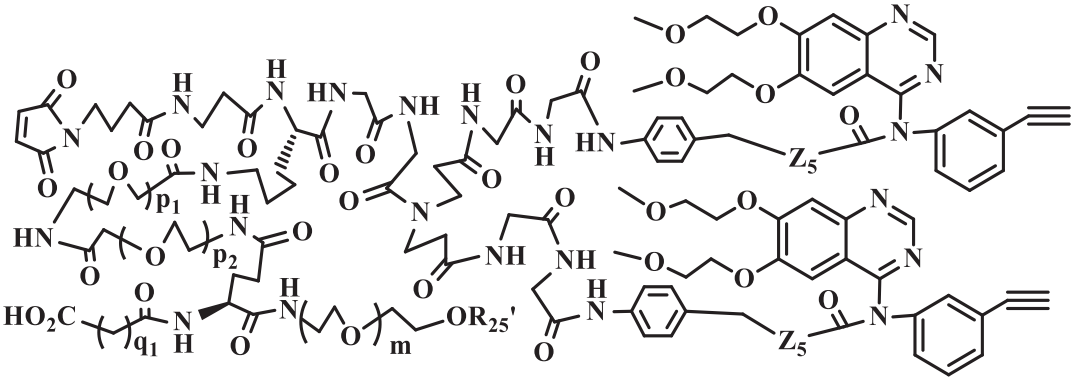
b115,



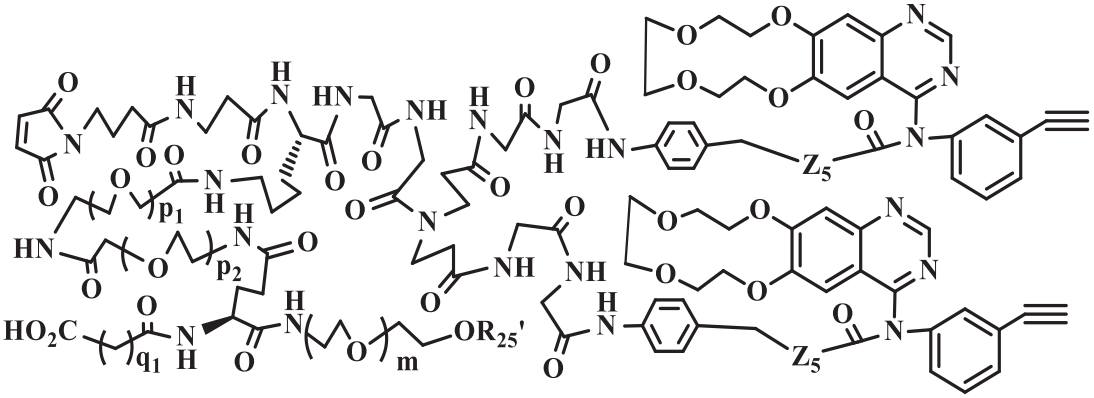
b116,



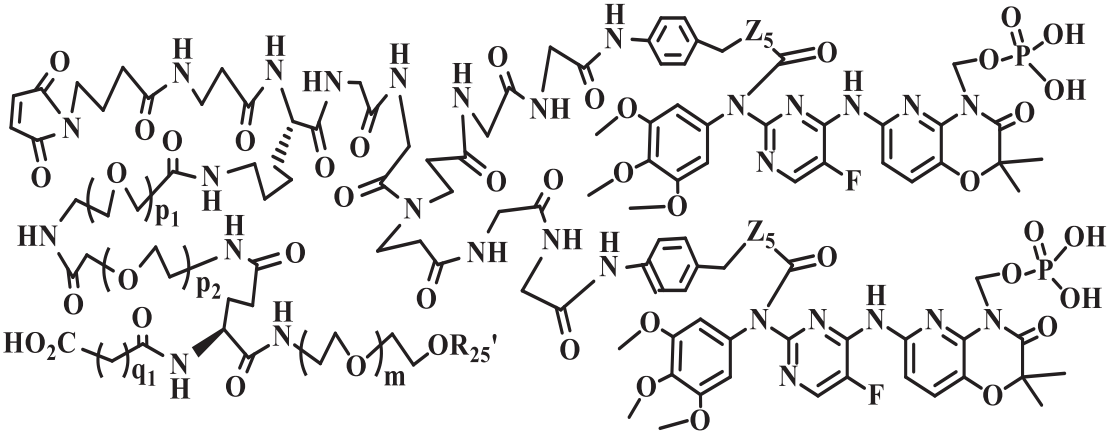
b117,



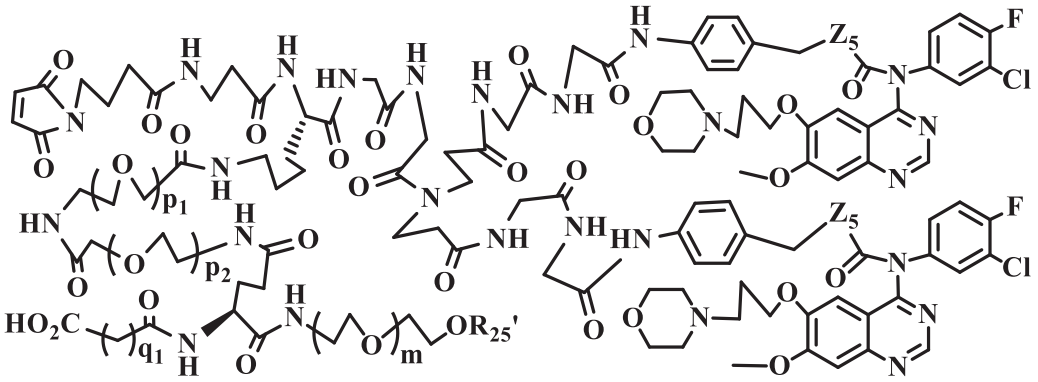
b118,



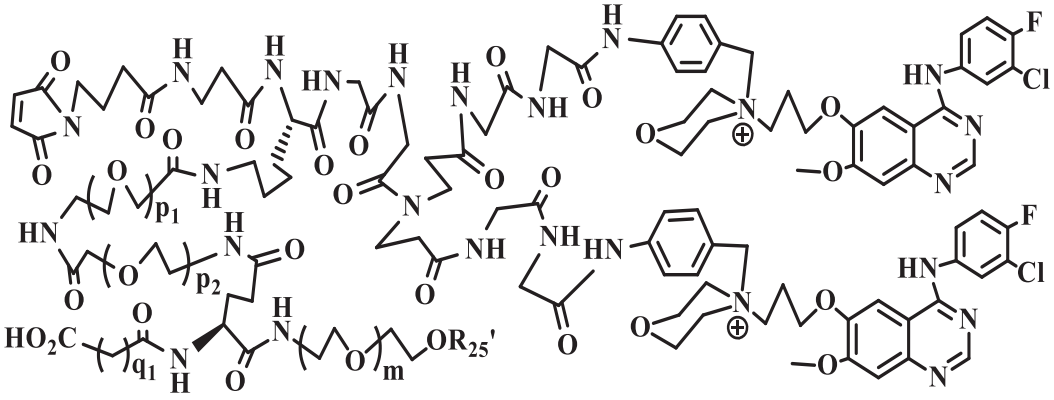
b119,



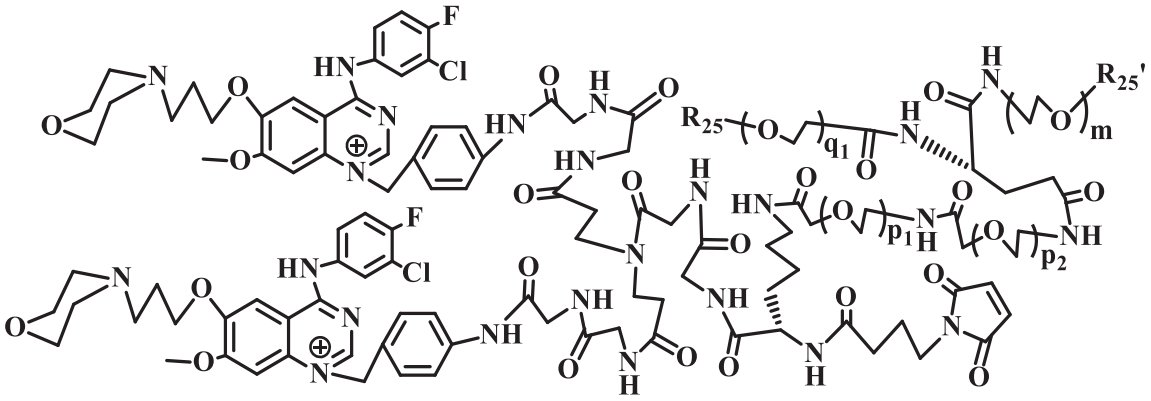
b120,



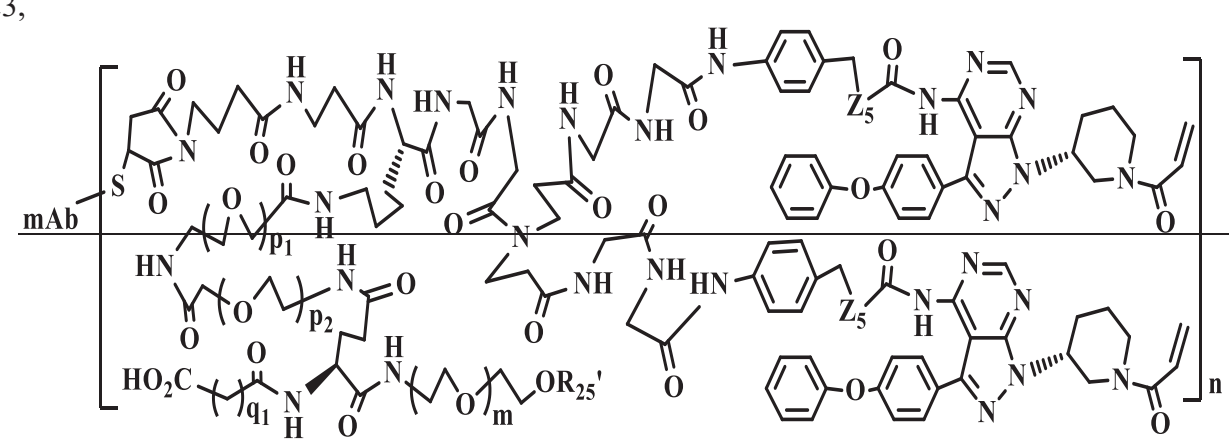
b121,



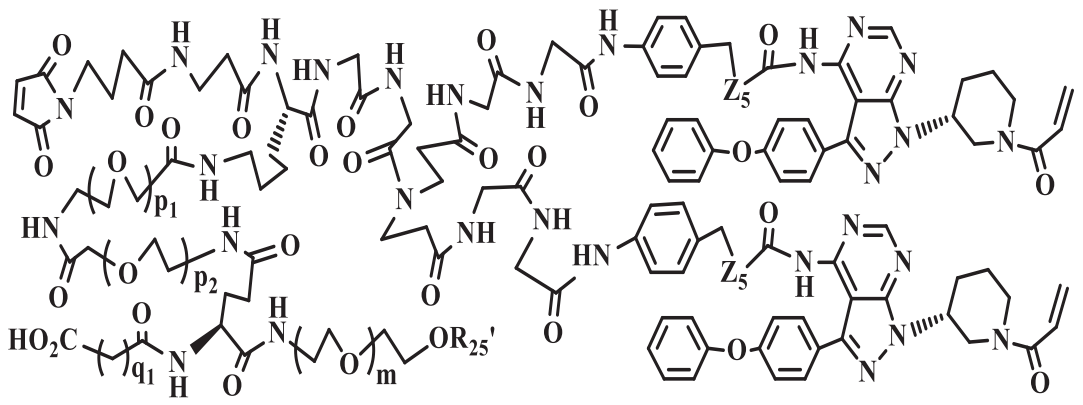
b122,



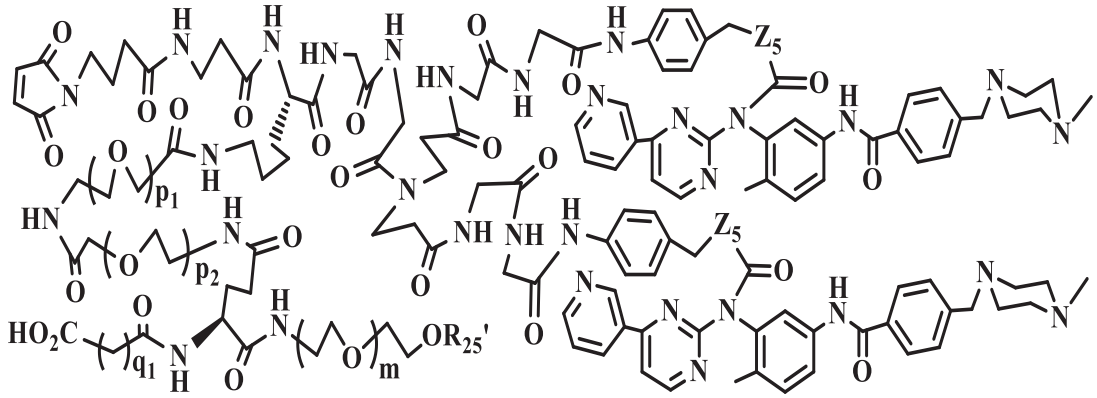
b123,



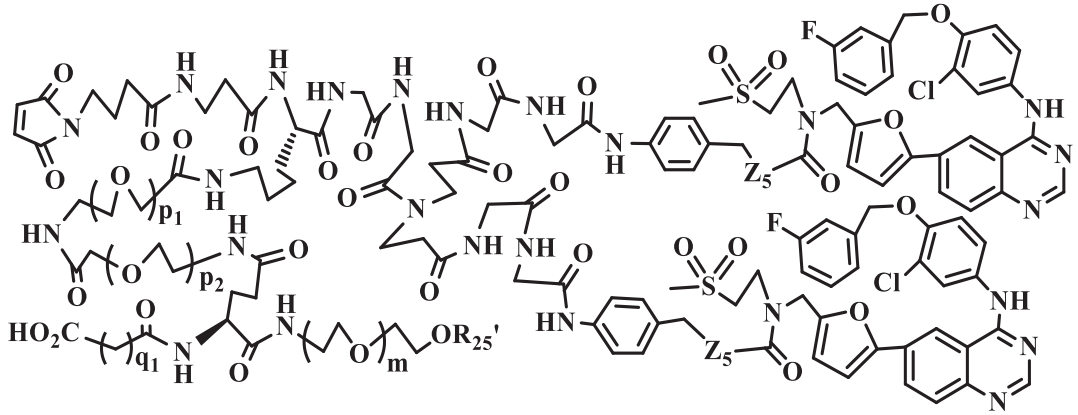
~~b124,~~



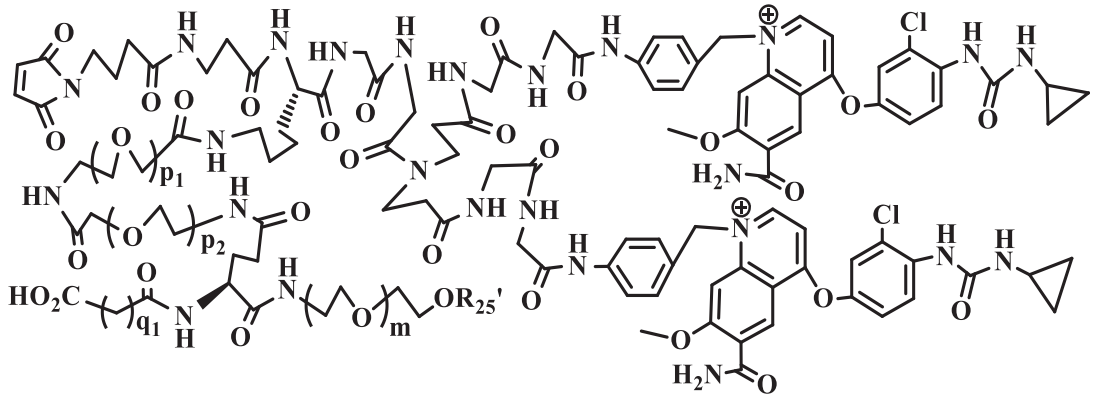
b124,



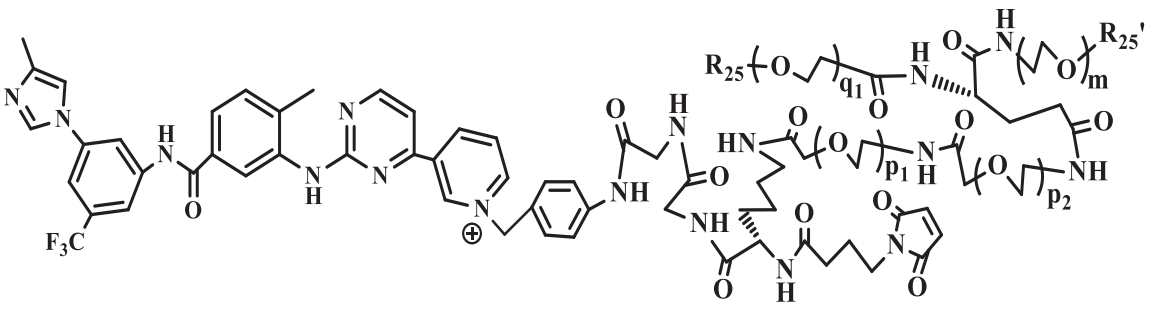
b125,



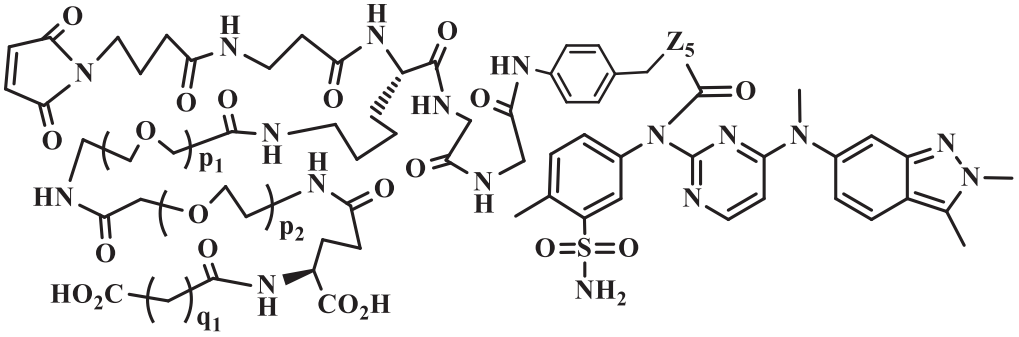
b126,



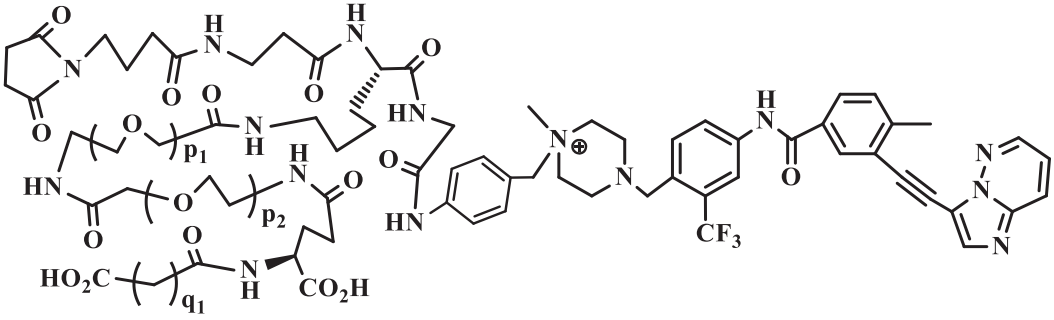
b127,



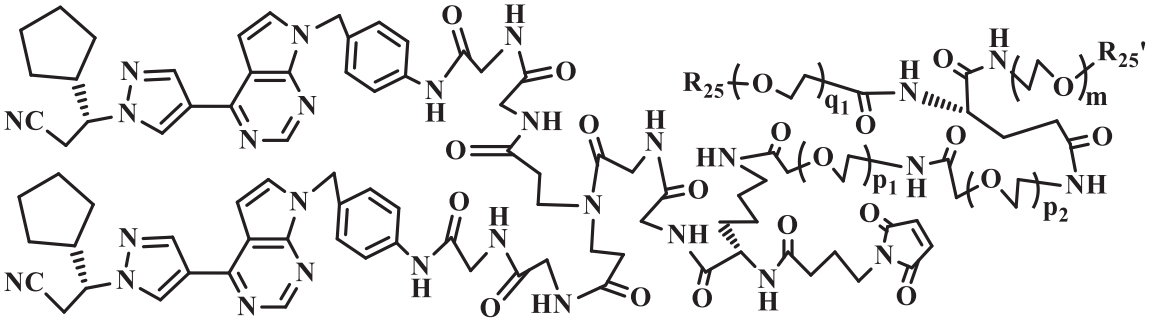
b128,



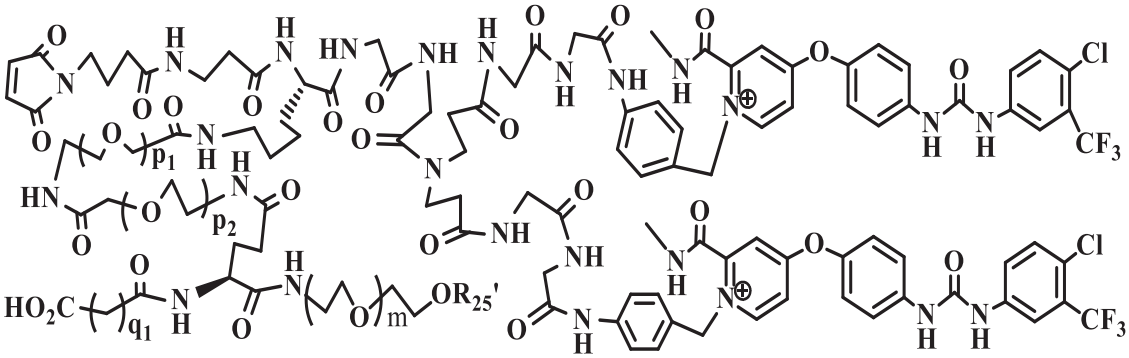
b129,



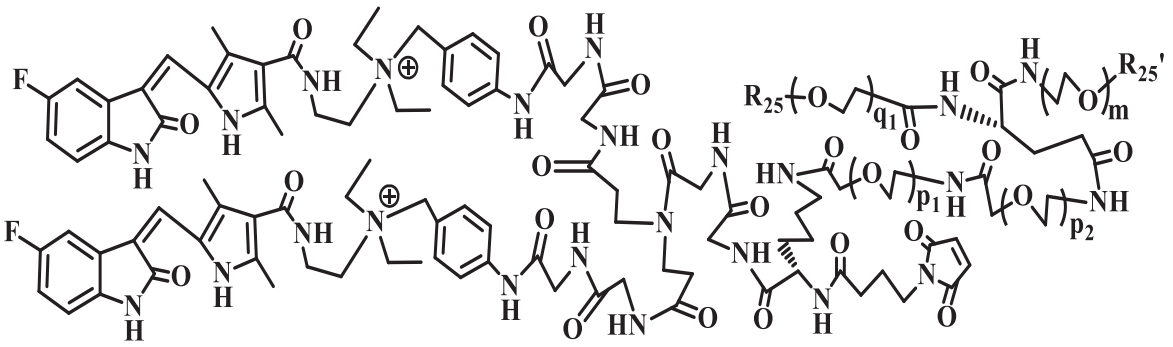
b130,



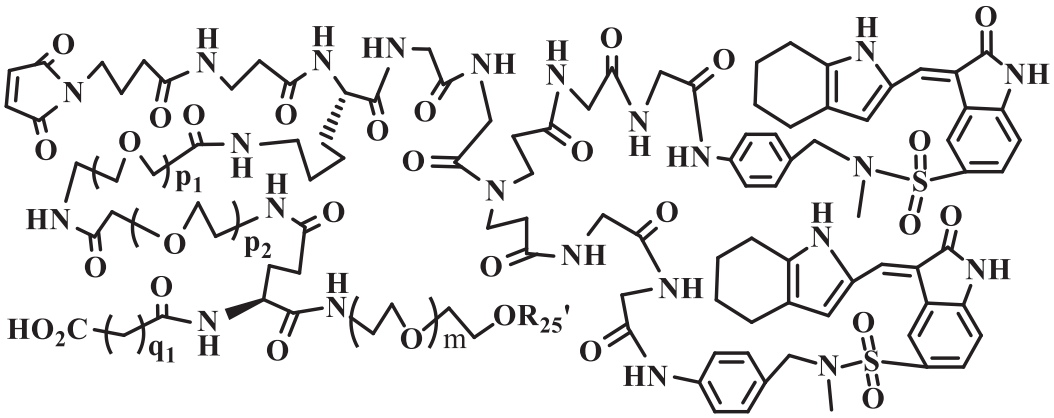
b131,



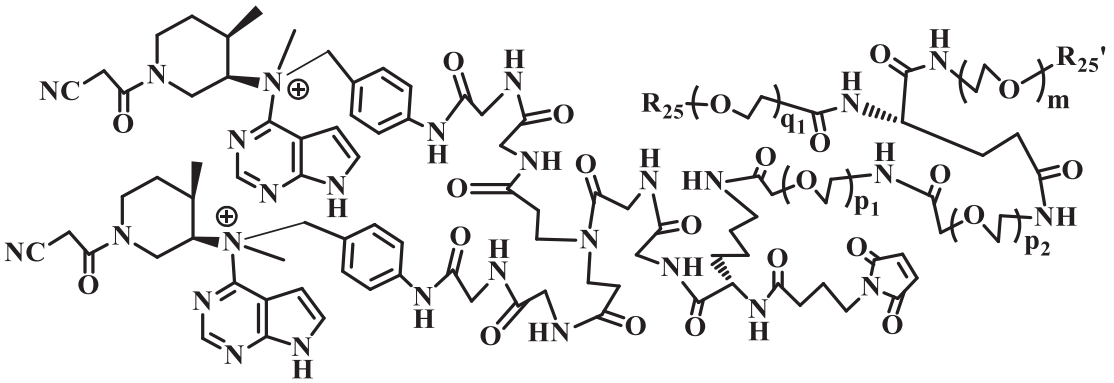
b132,



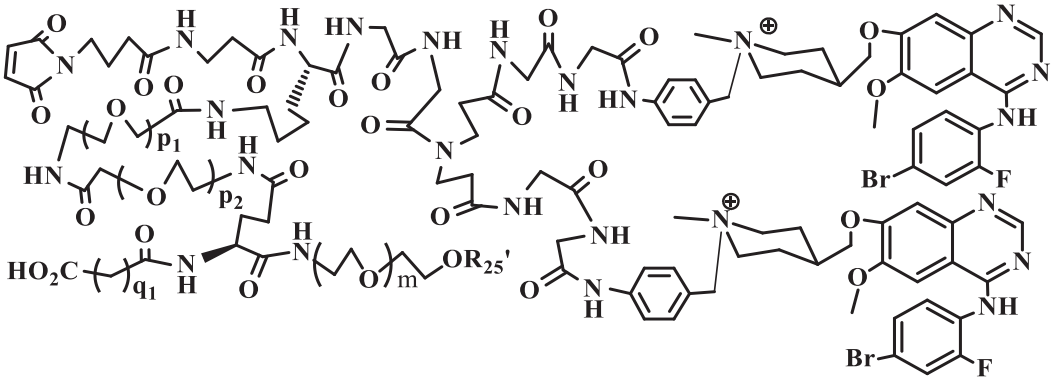
b133,



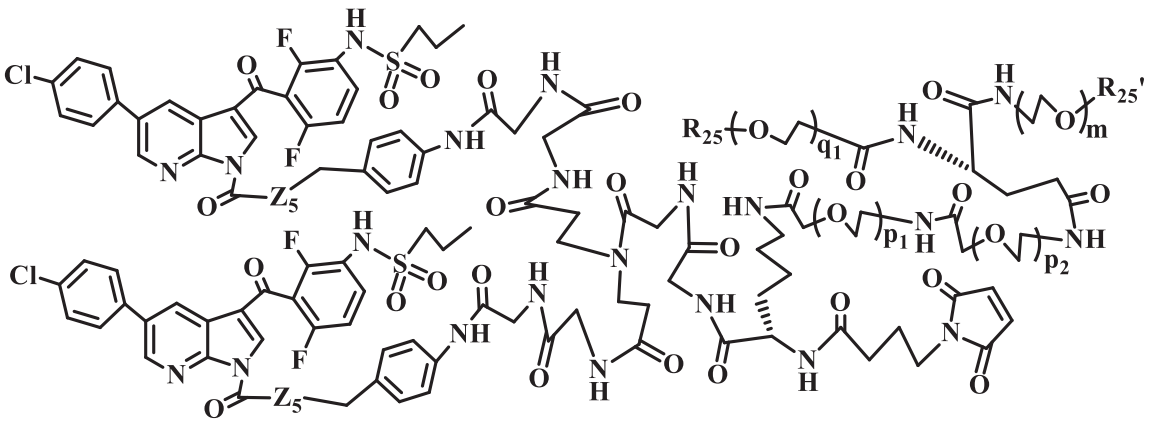
b134,



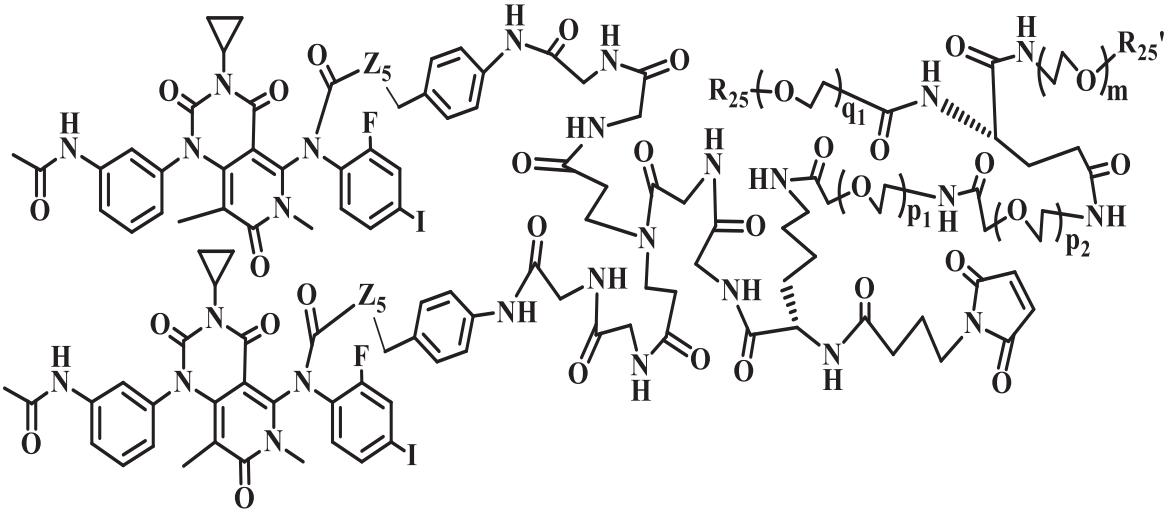
b135,



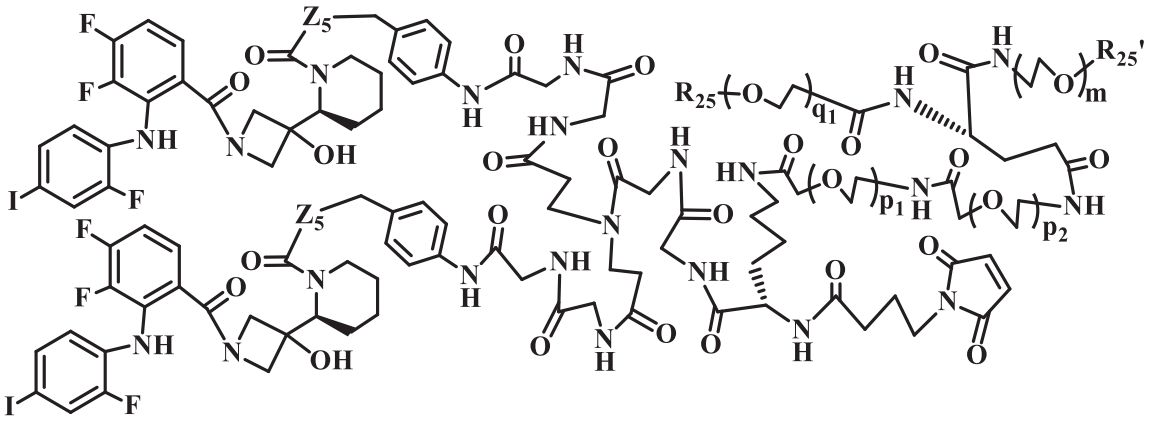
b136,



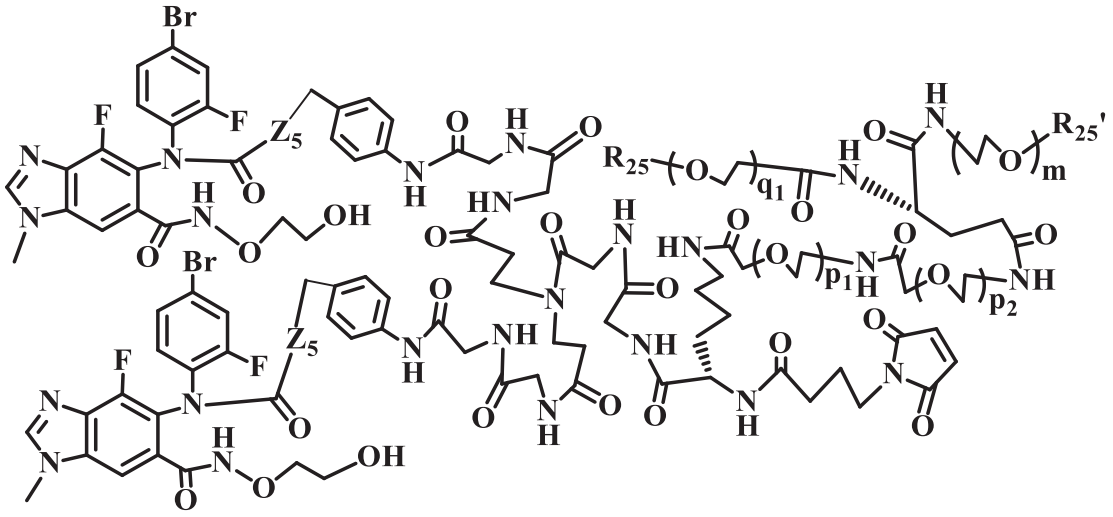
b137,



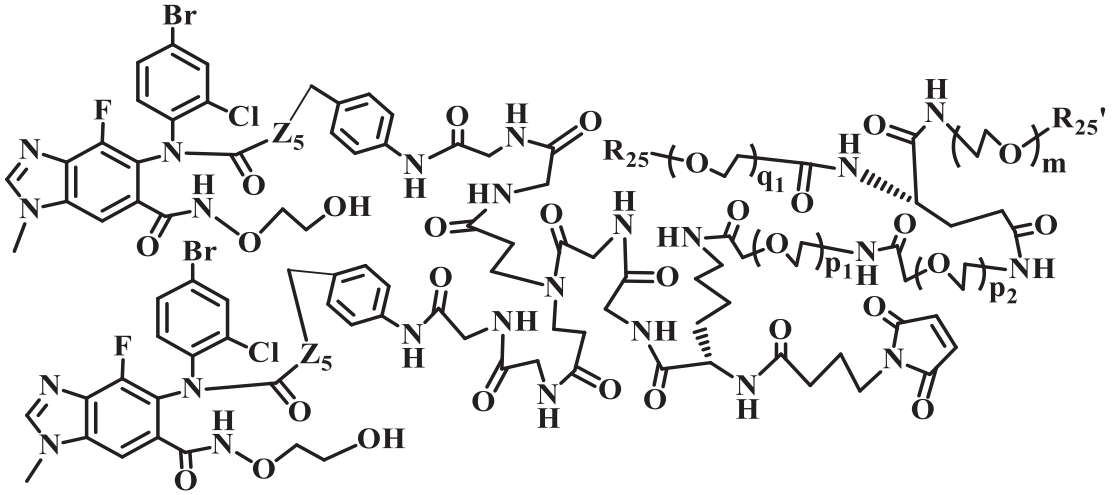
b138,



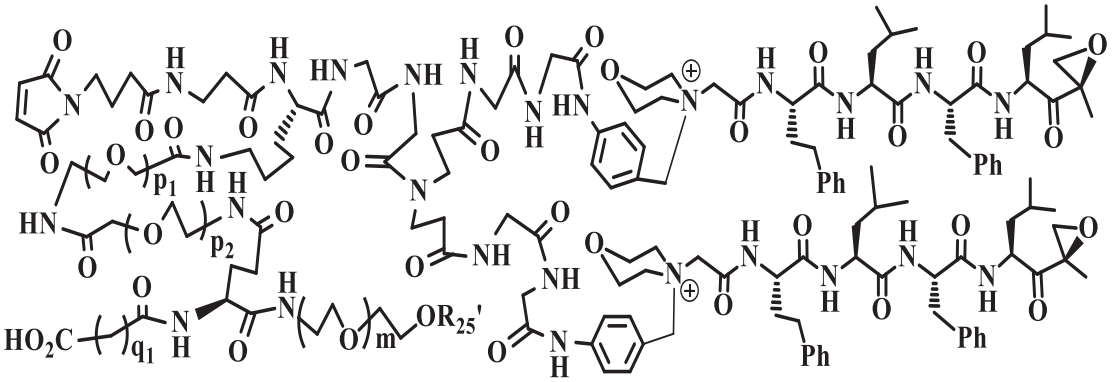
b139,



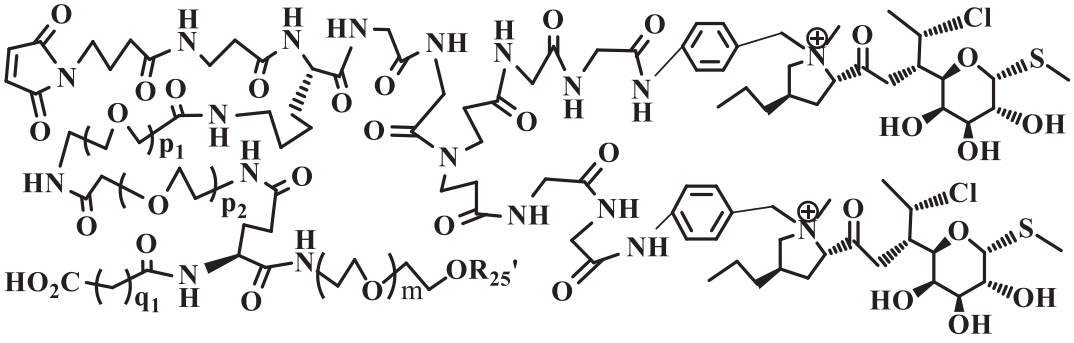
b140,



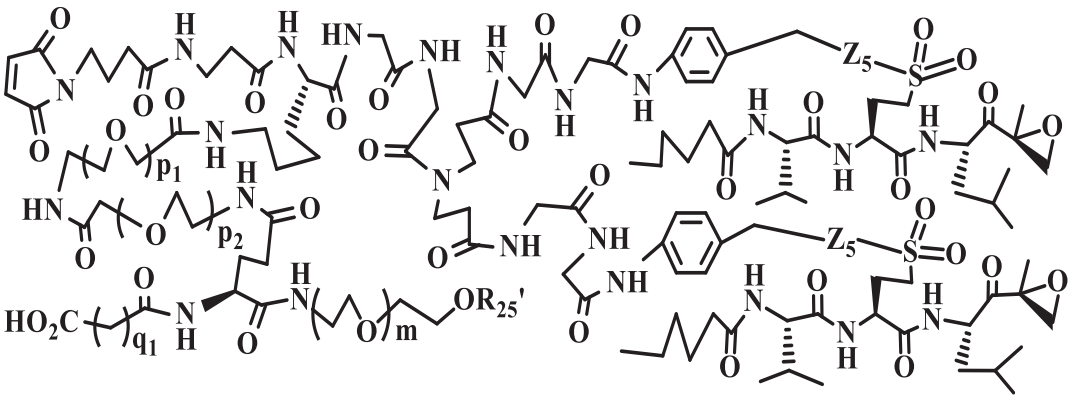
b141,



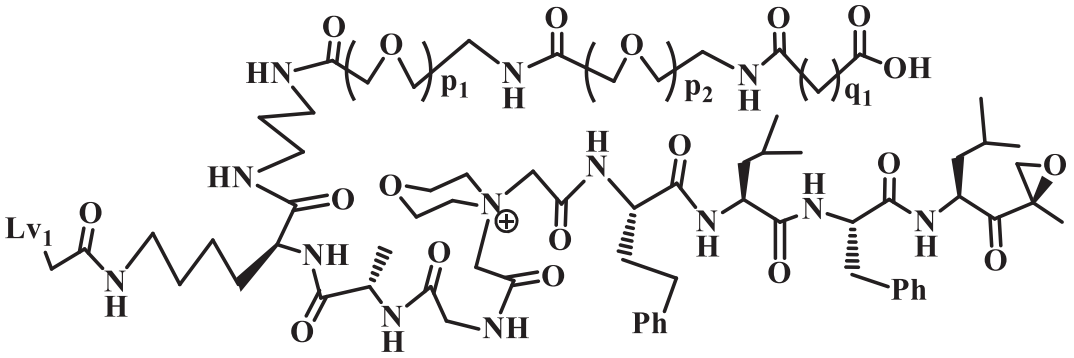
b142,



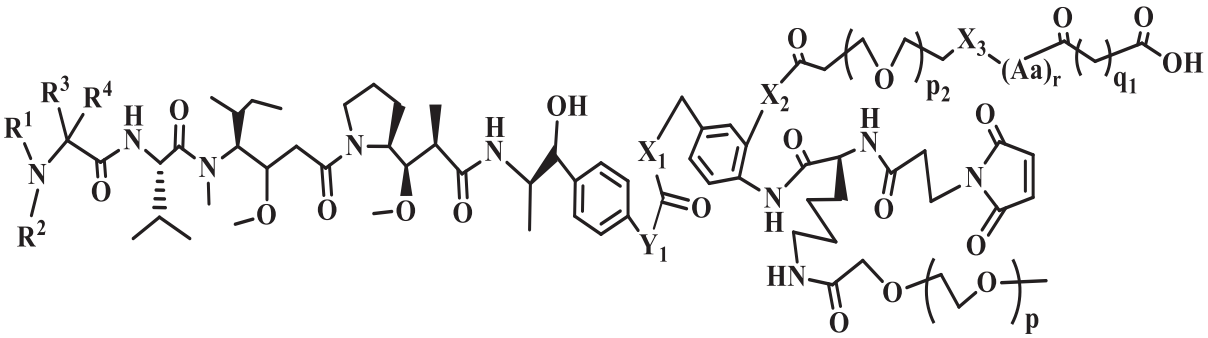
b143,



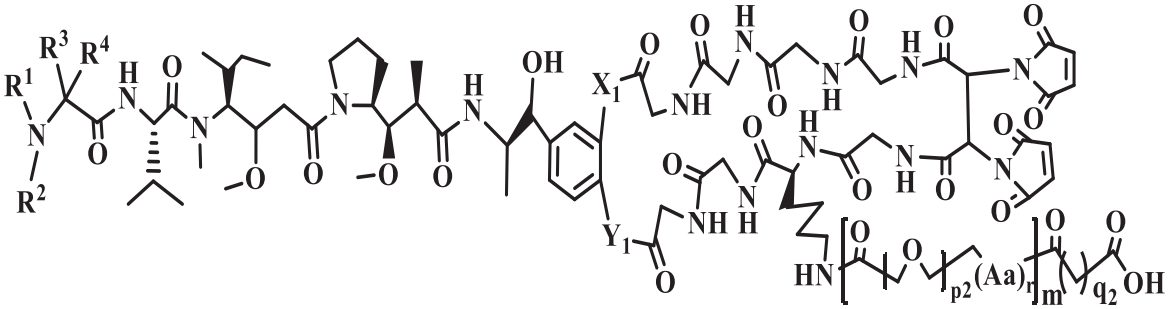
b144,



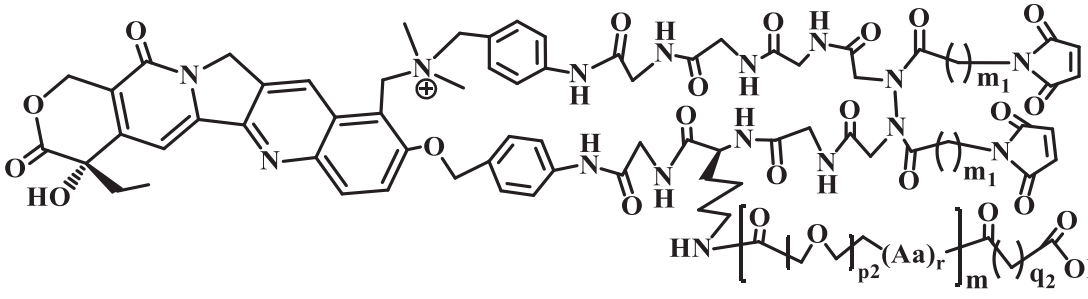
b145,



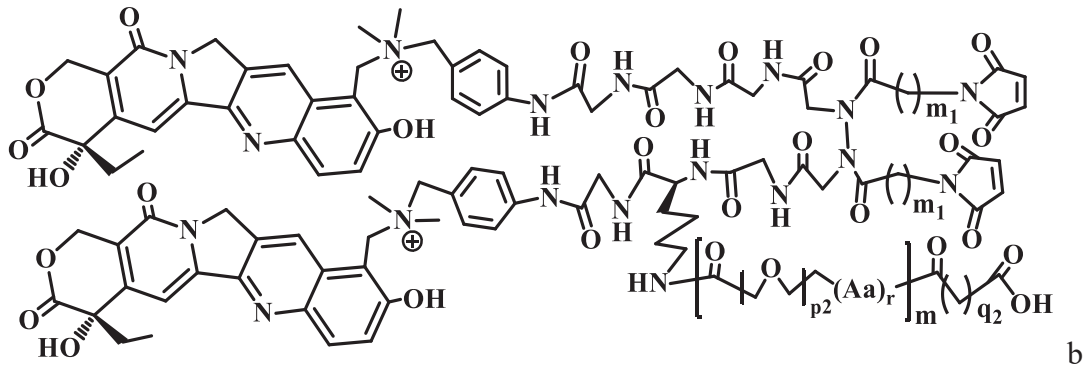
b146,



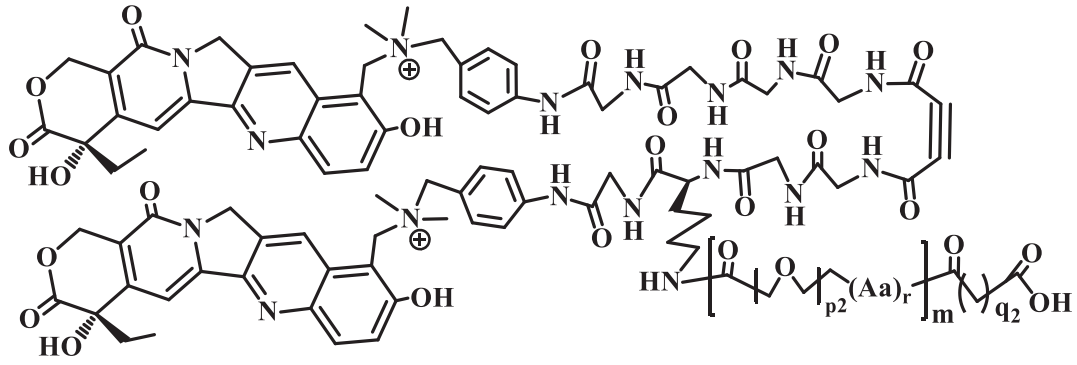
b147,



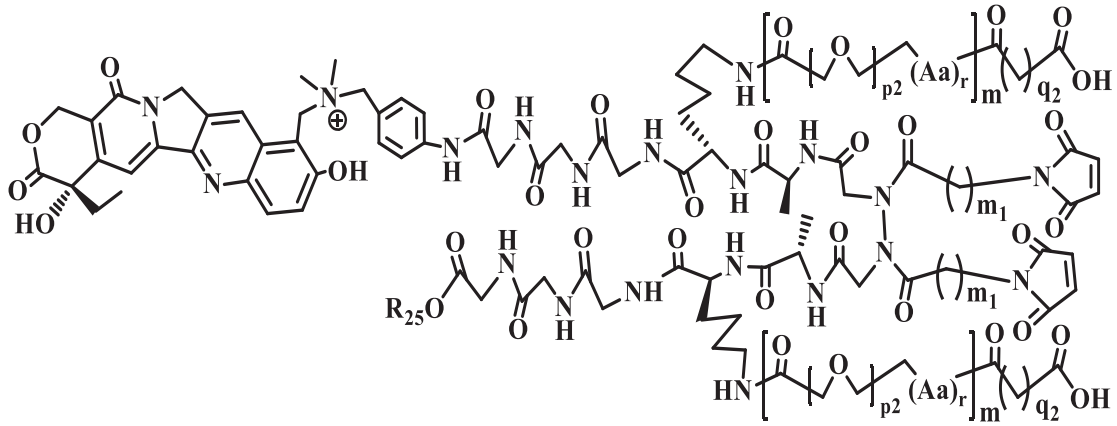
b148,



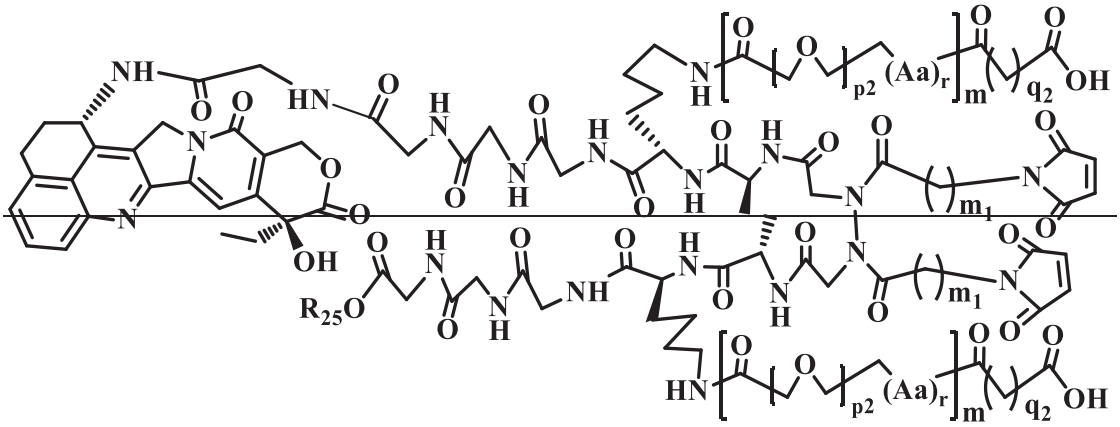
b149,



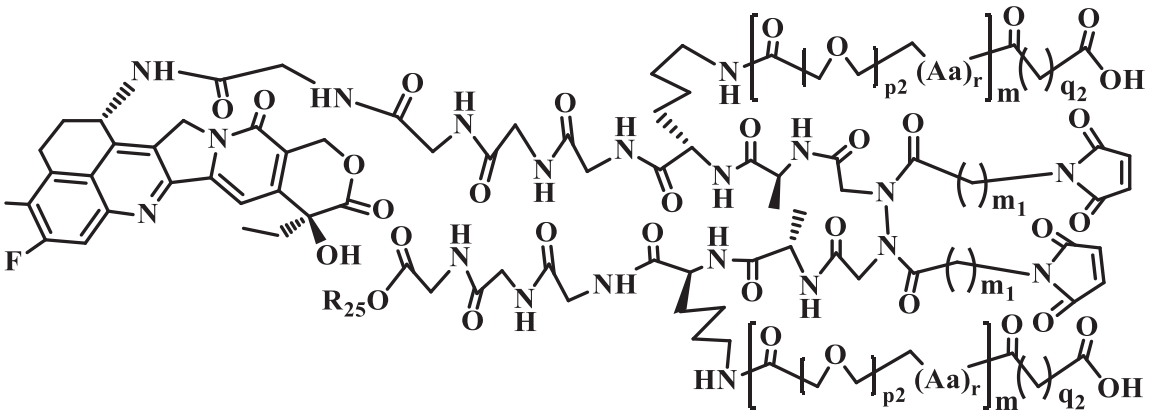
b150,



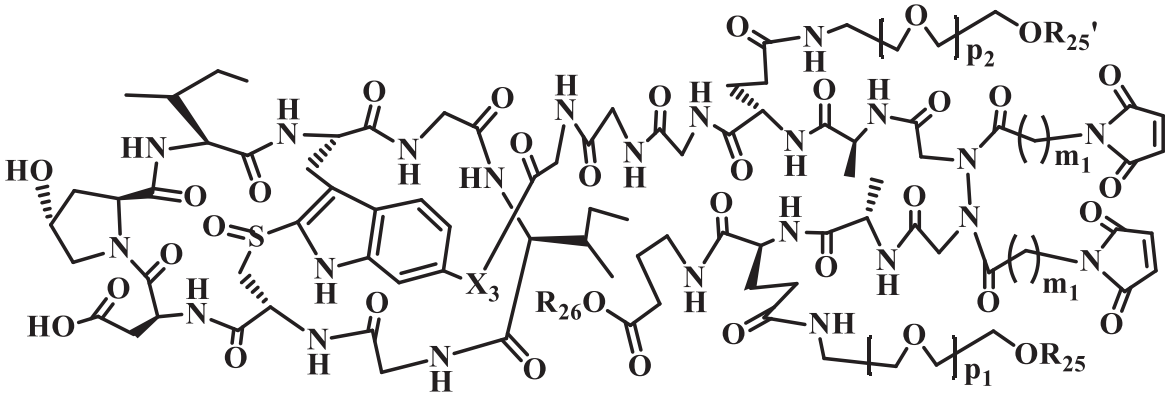
b151,



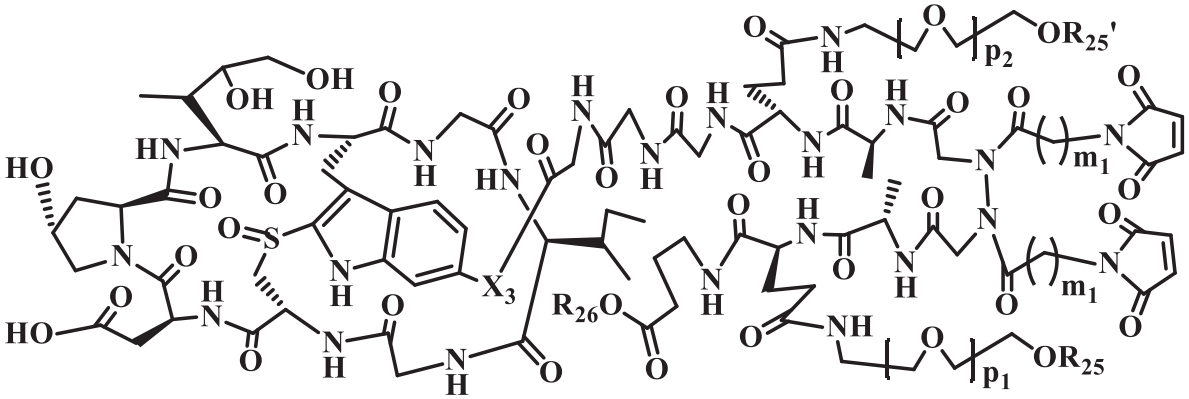
~~b152,~~



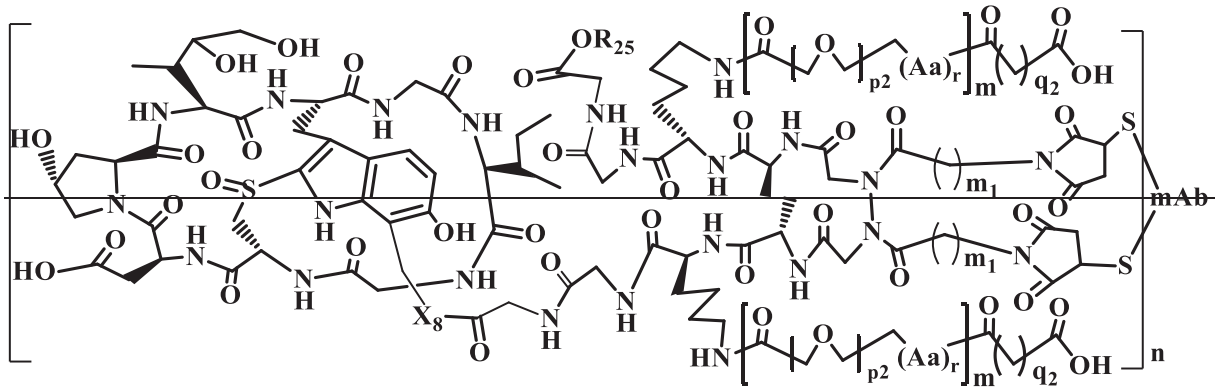
b152,



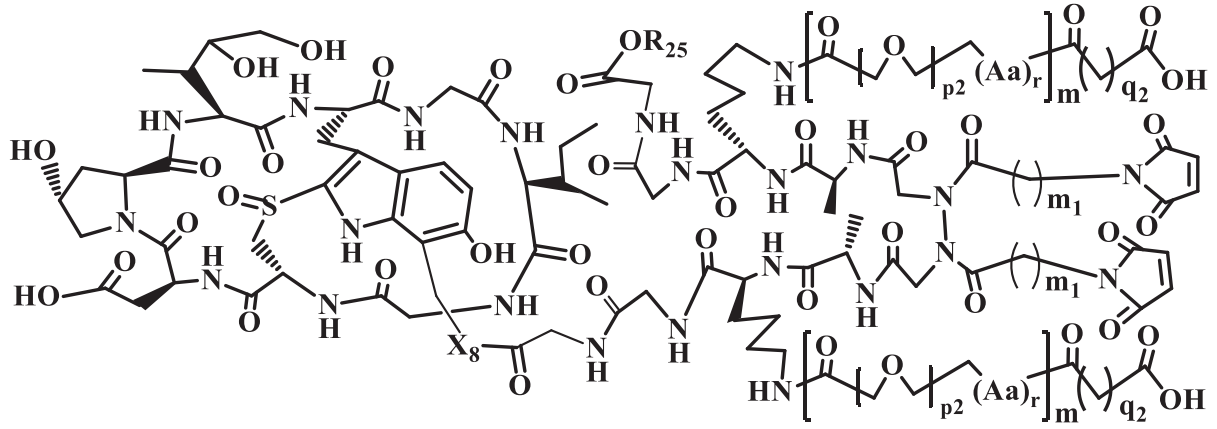
b153,



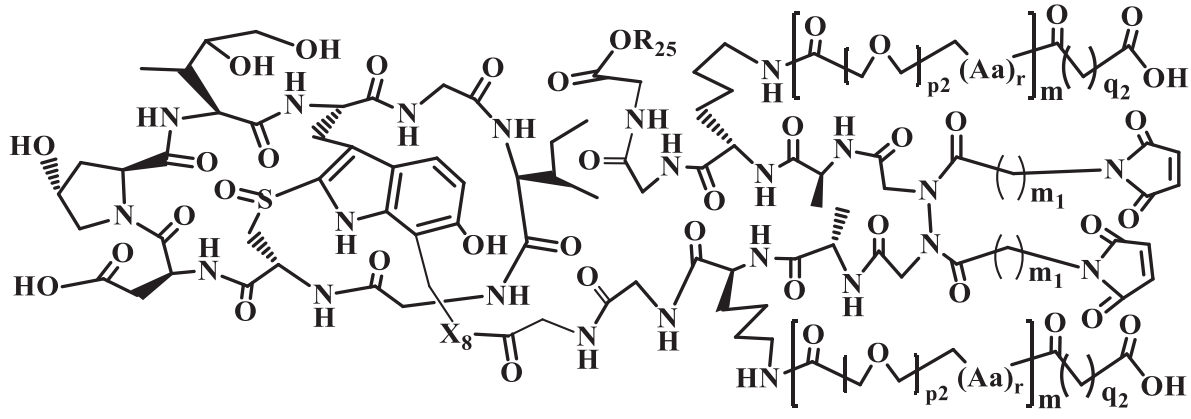
b154,



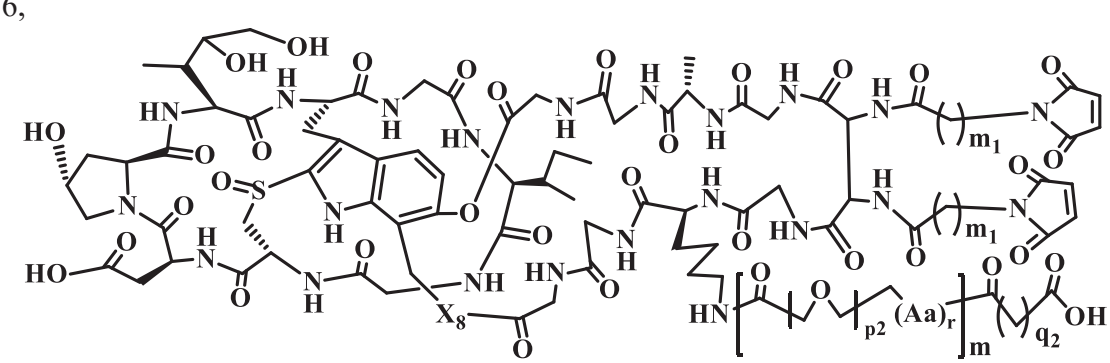
~~b155,~~



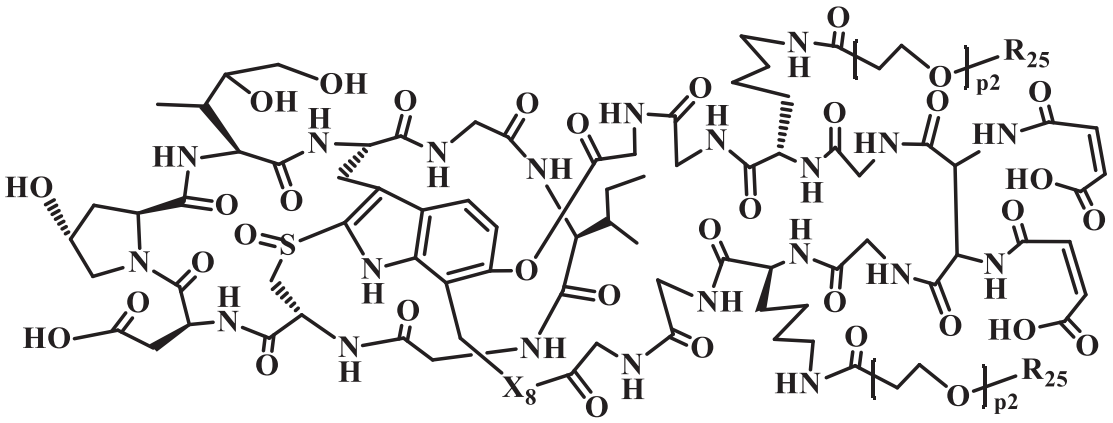
b155,



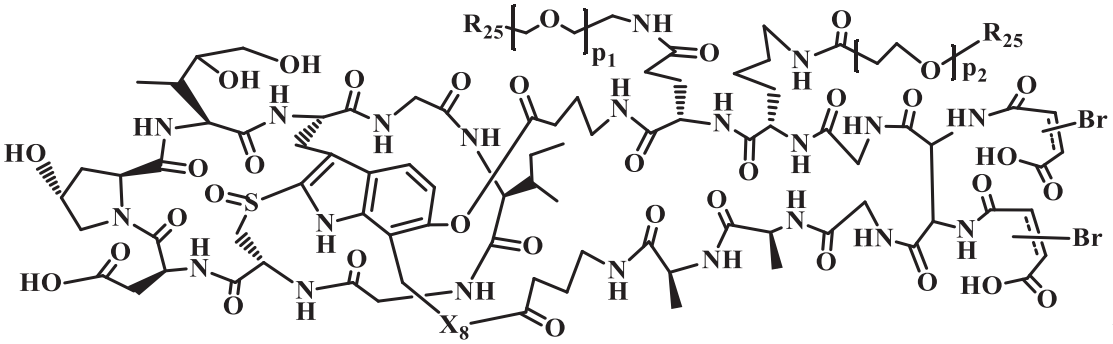
b156,



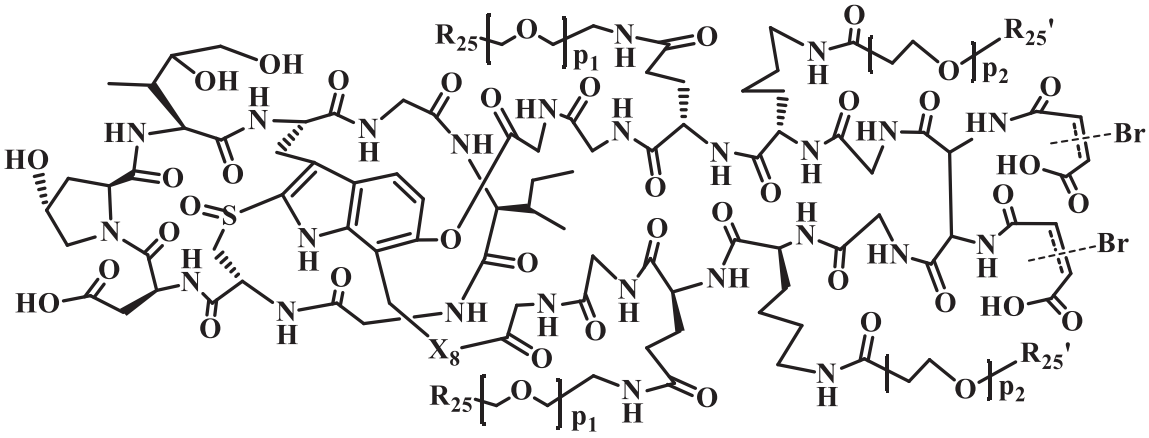
b157,



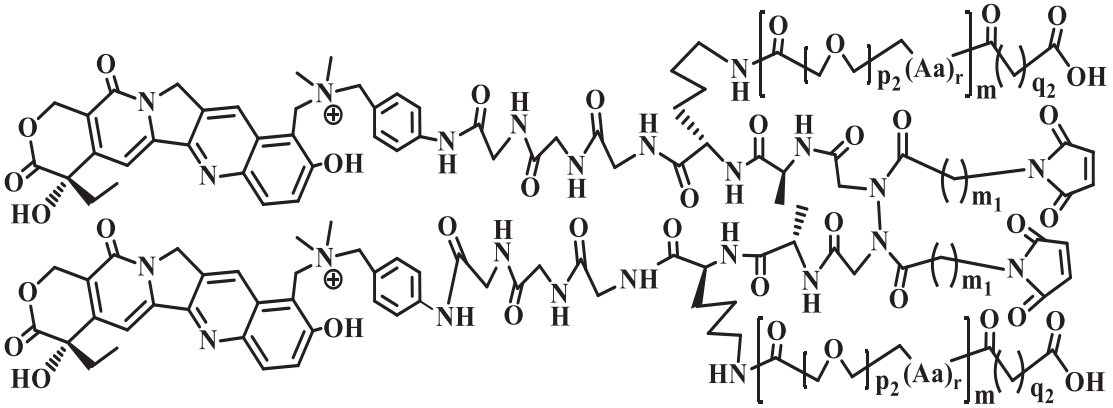
b158,



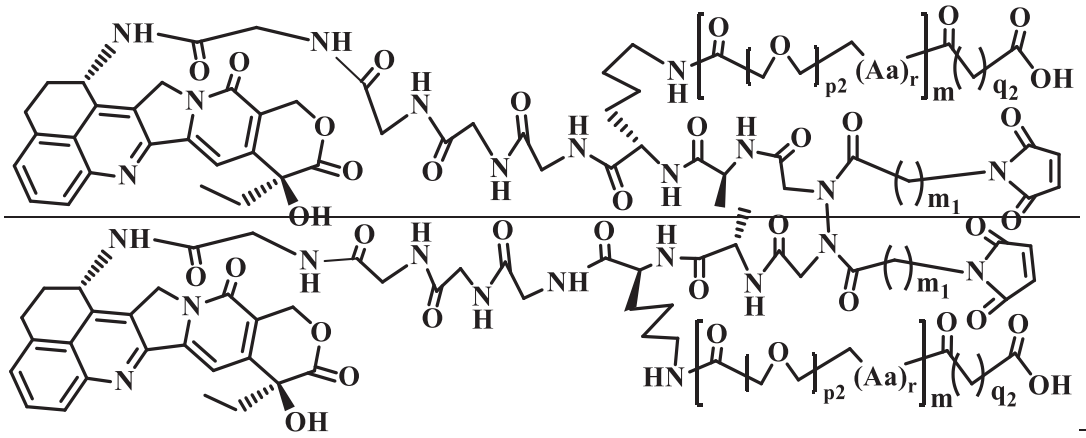
b159,



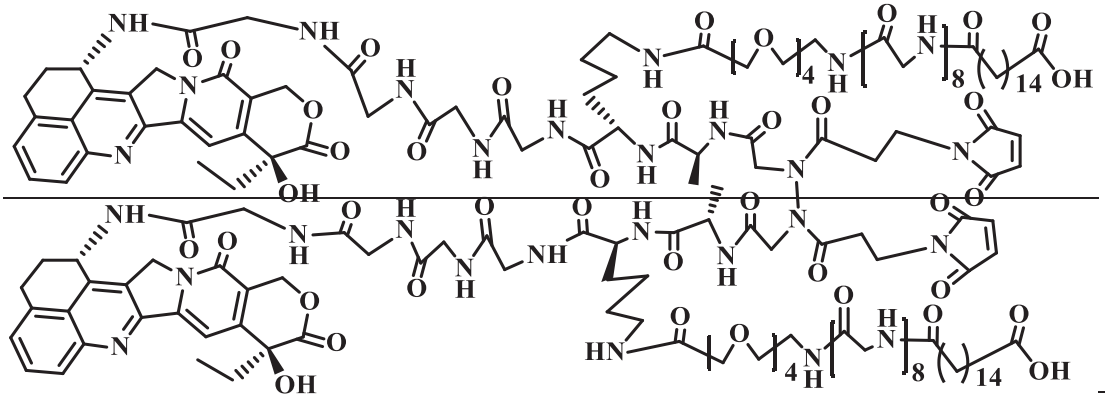
b160,



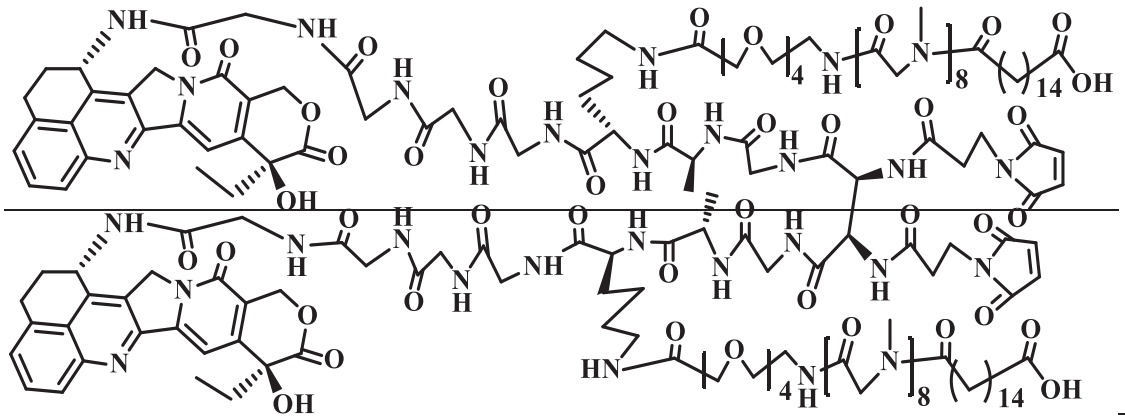
b161,



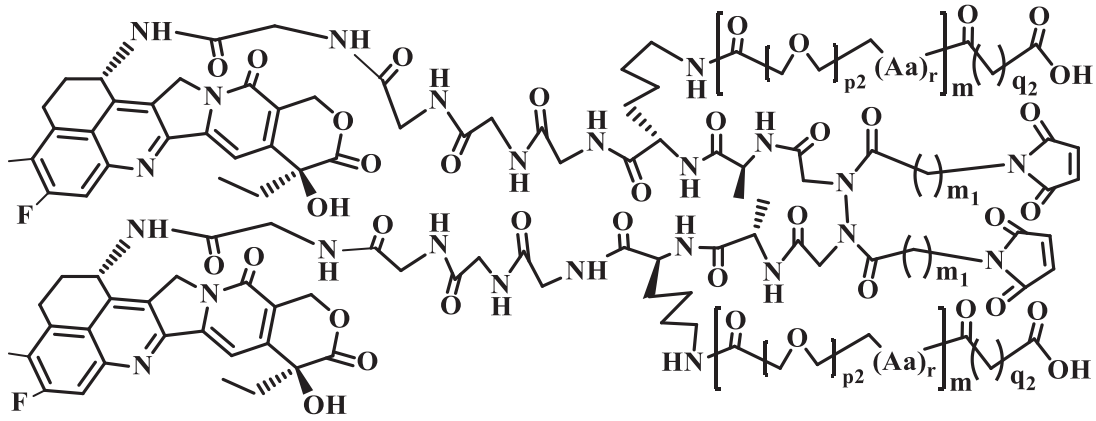
~~b162,~~



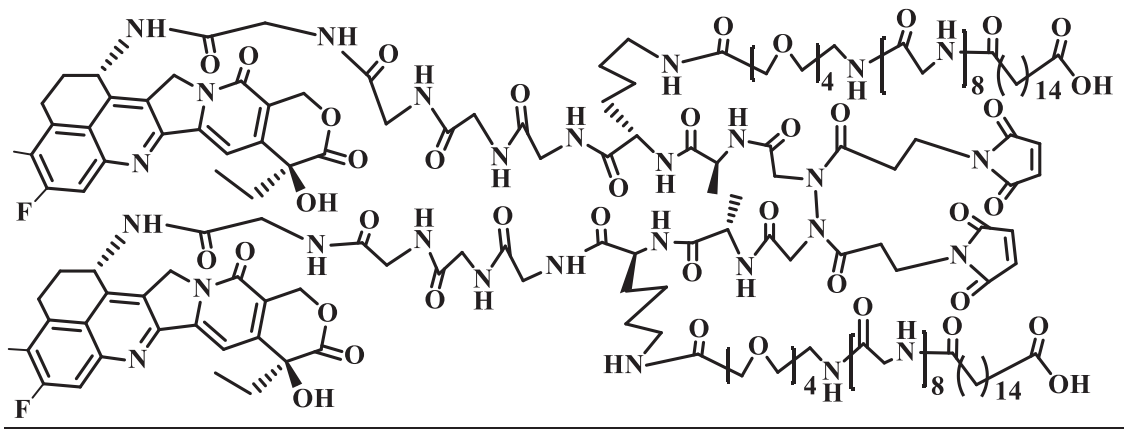
~~b163,~~



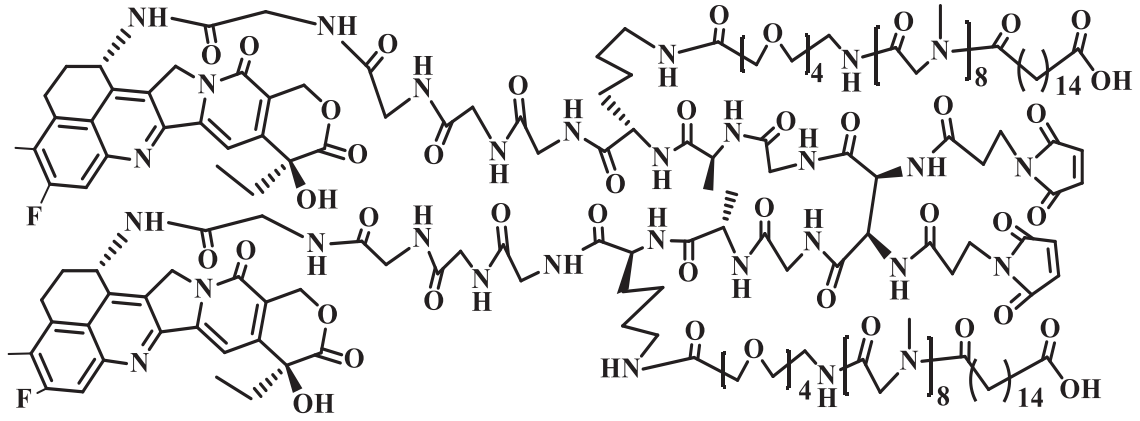
~~b164,~~



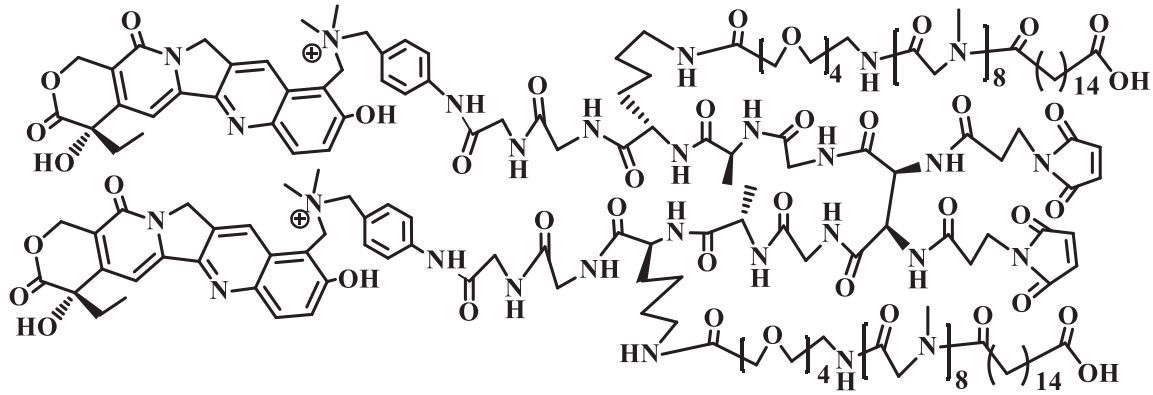
b162,



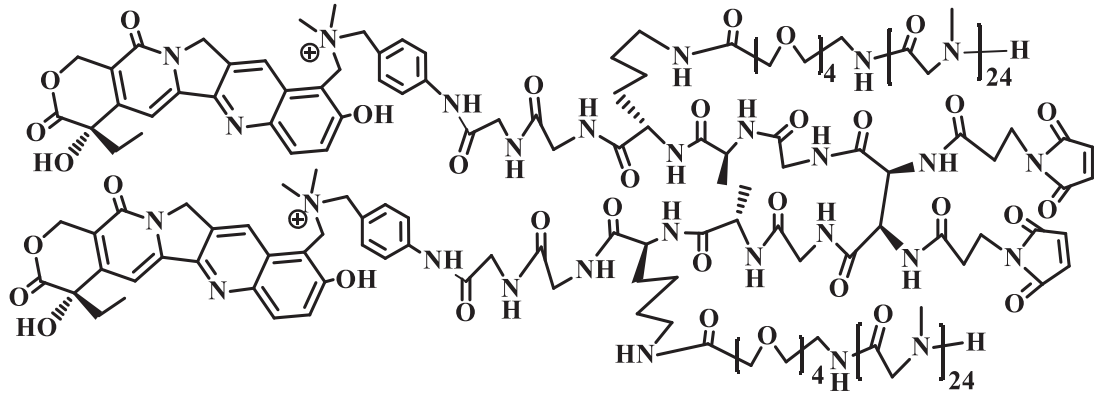
b163,



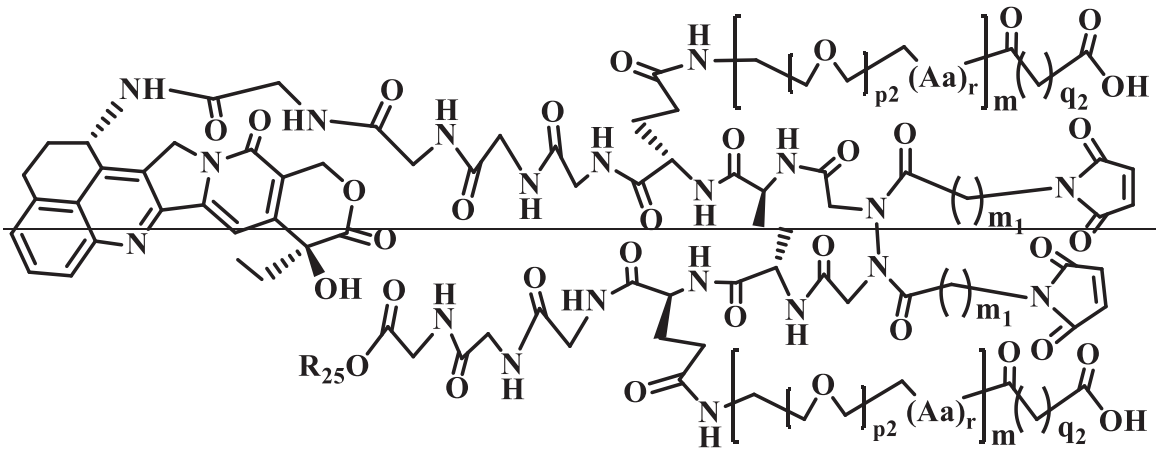
b164,



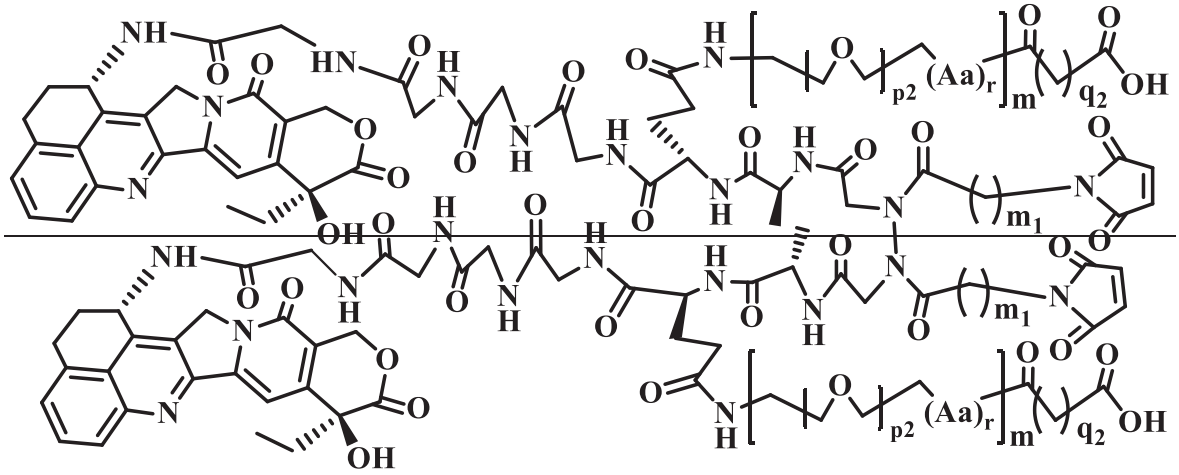
b165,



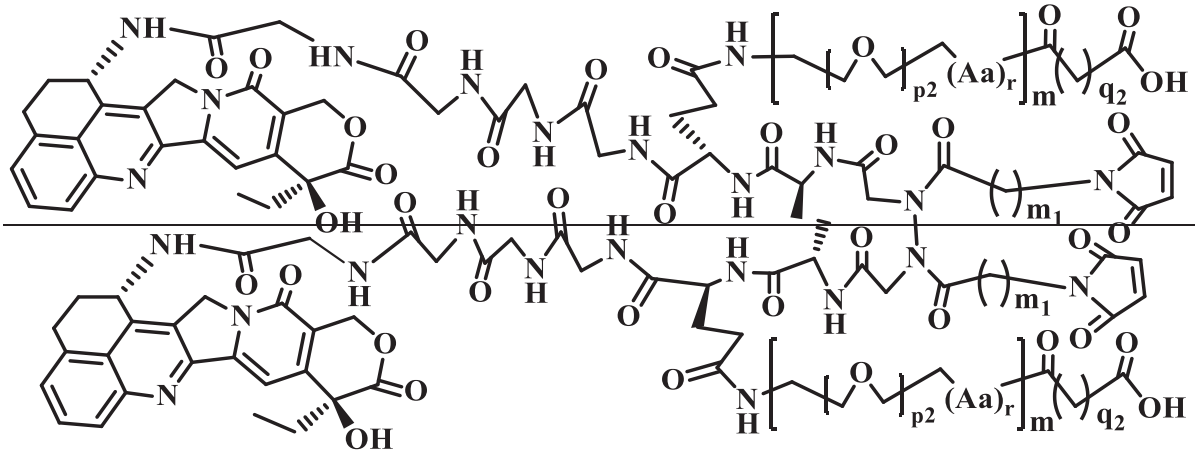
b166,



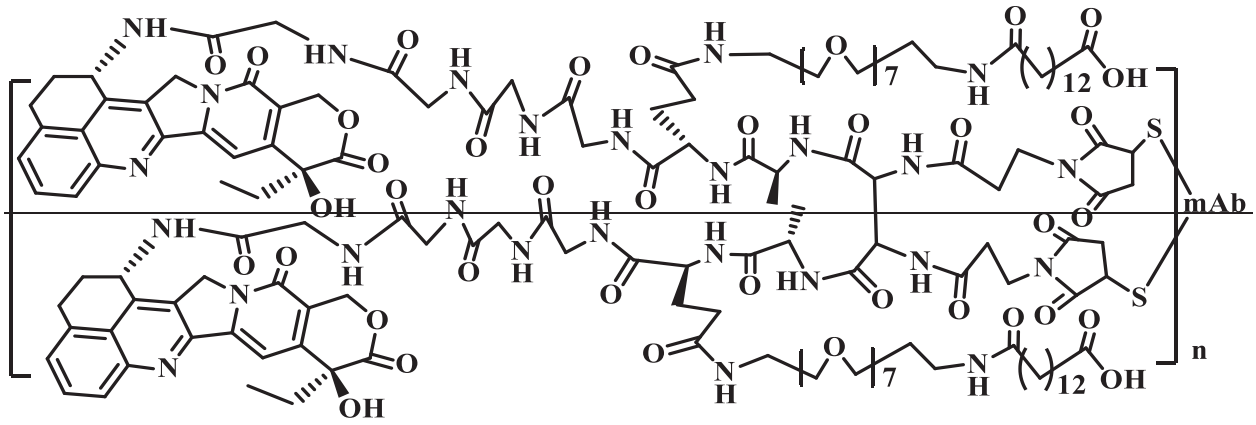
~~b167,~~



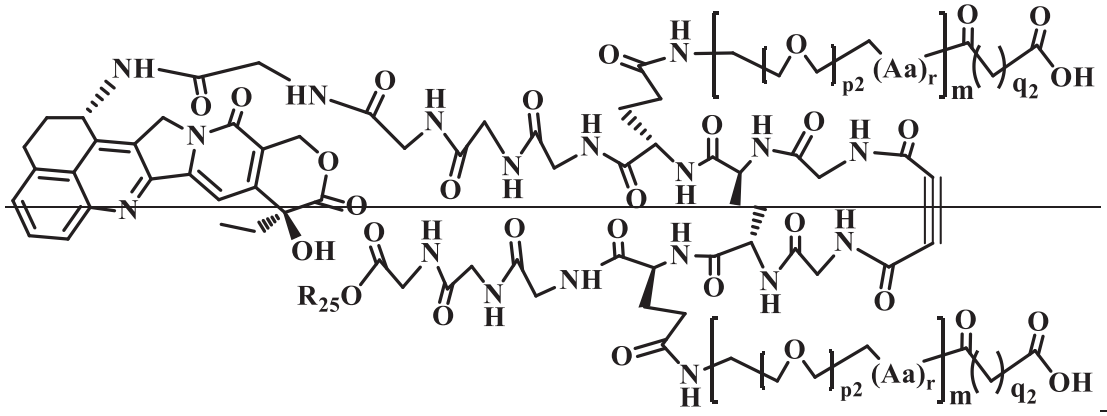
~~b168,~~



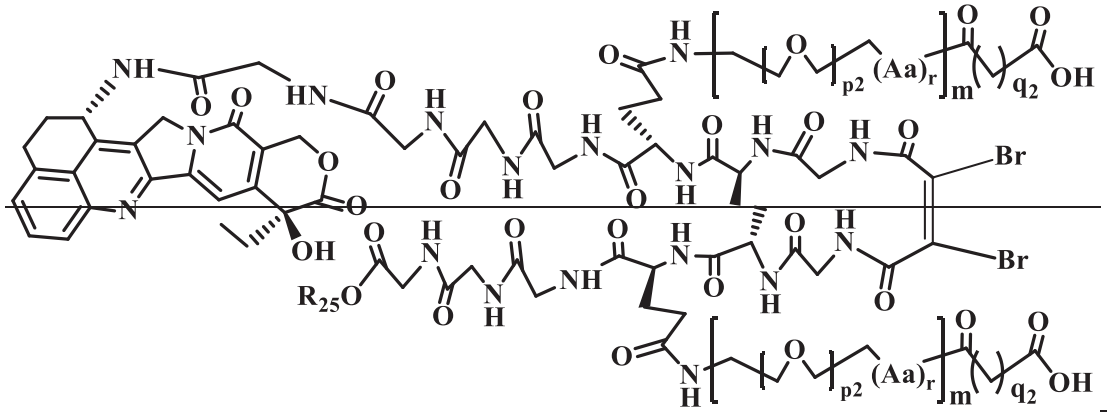
~~b169,~~



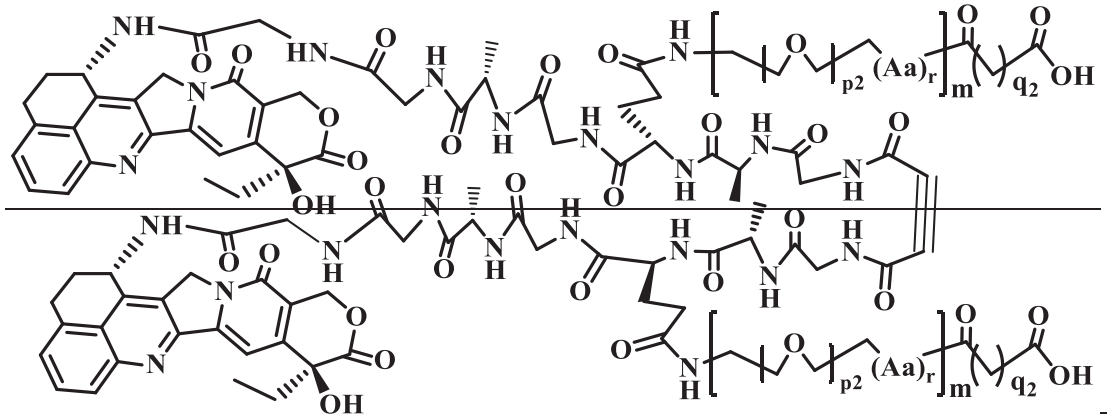
~~b170,~~



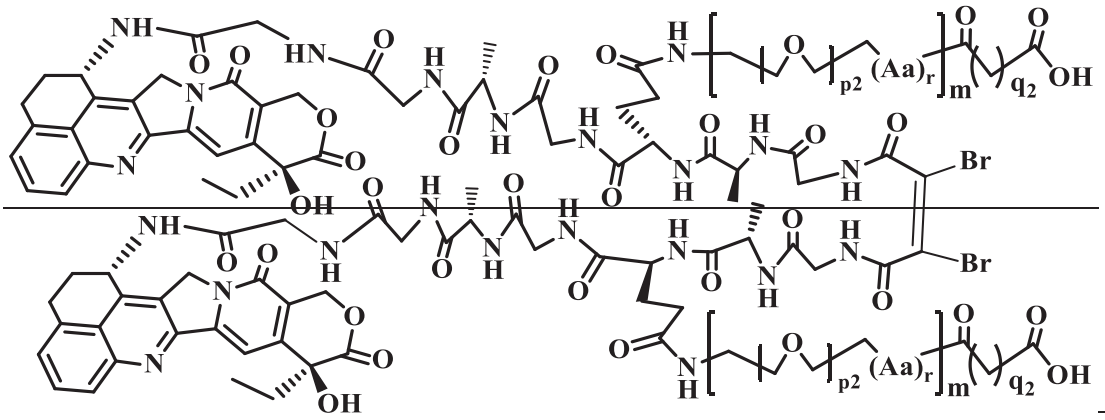
~~b171,~~



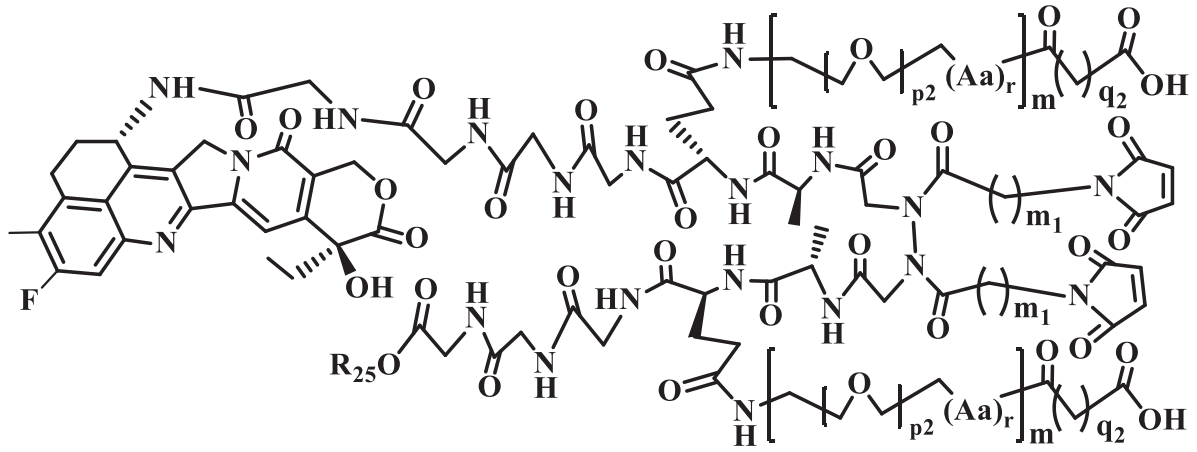
~~b172,~~



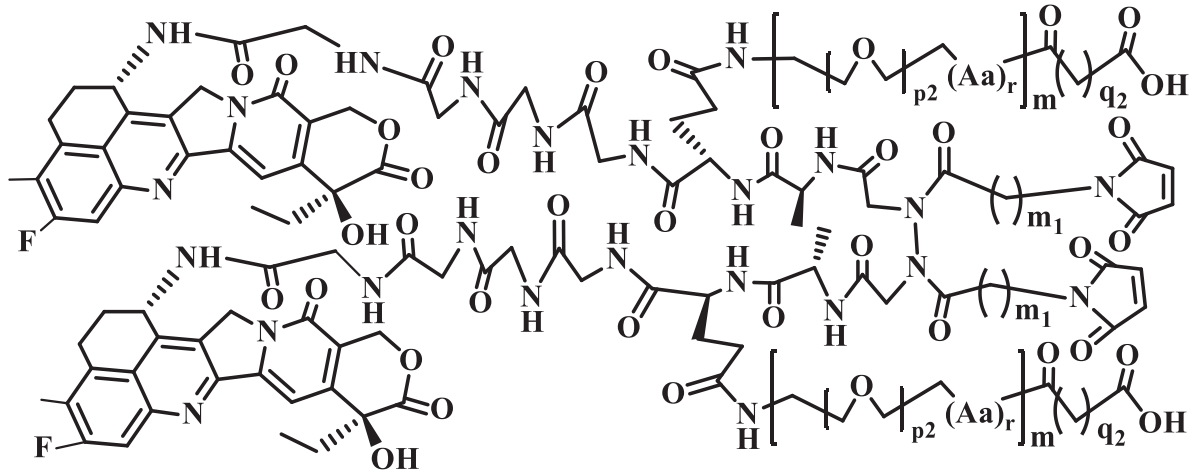
~~b173,~~



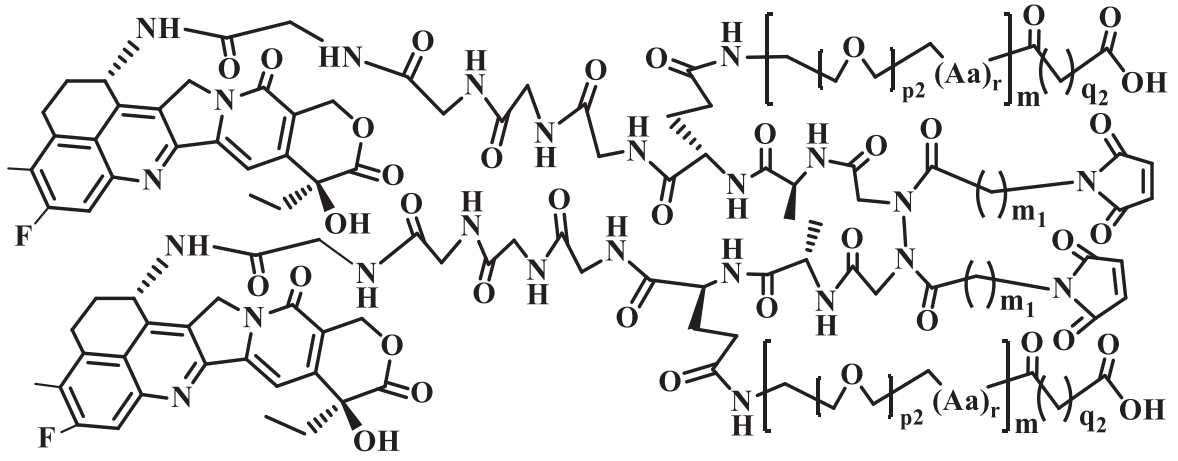
~~b174,~~



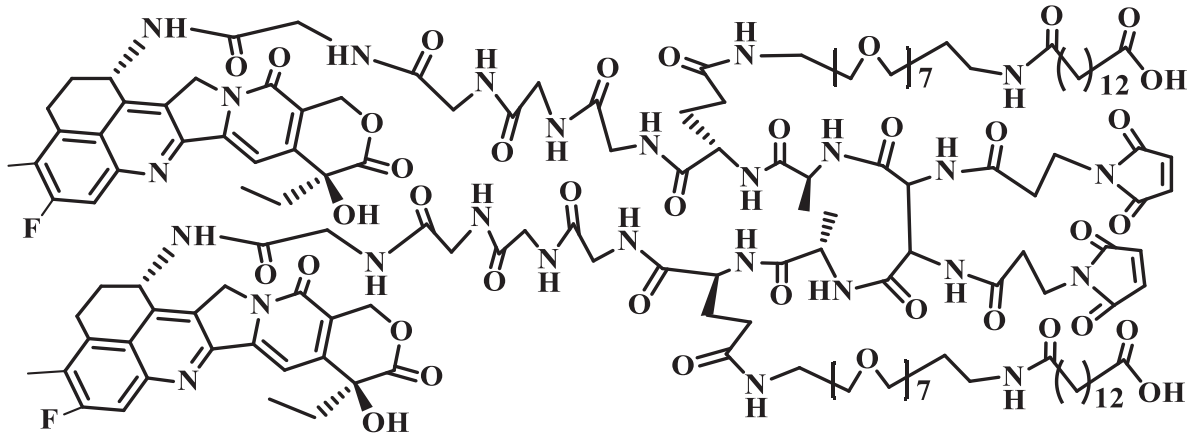
b167,



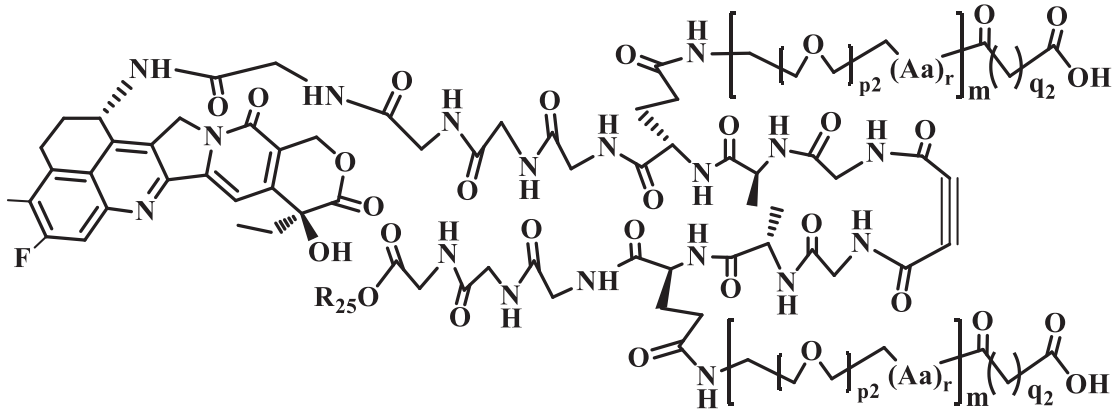
b168,



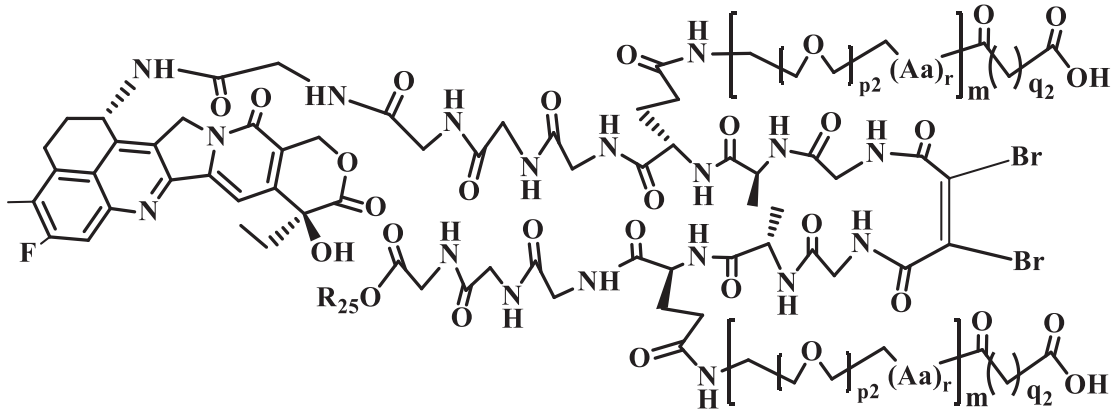
b169,



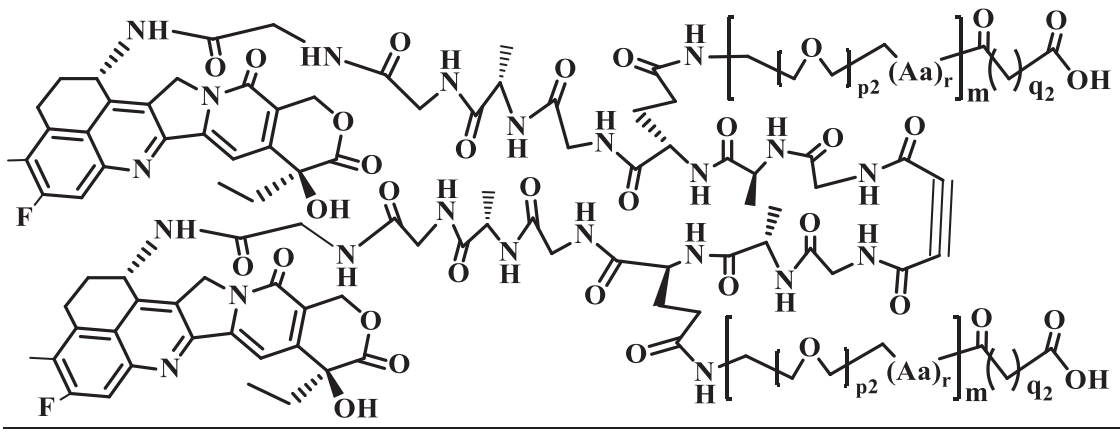
b170,



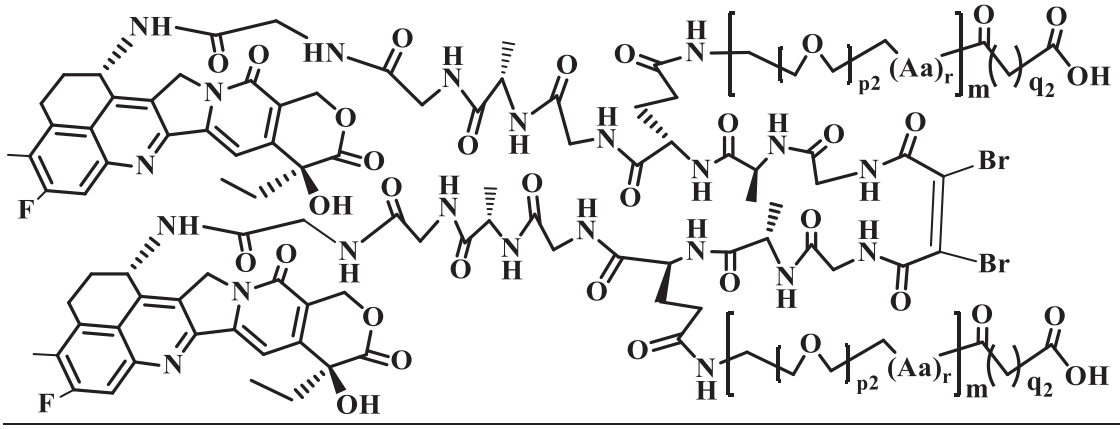
b171,



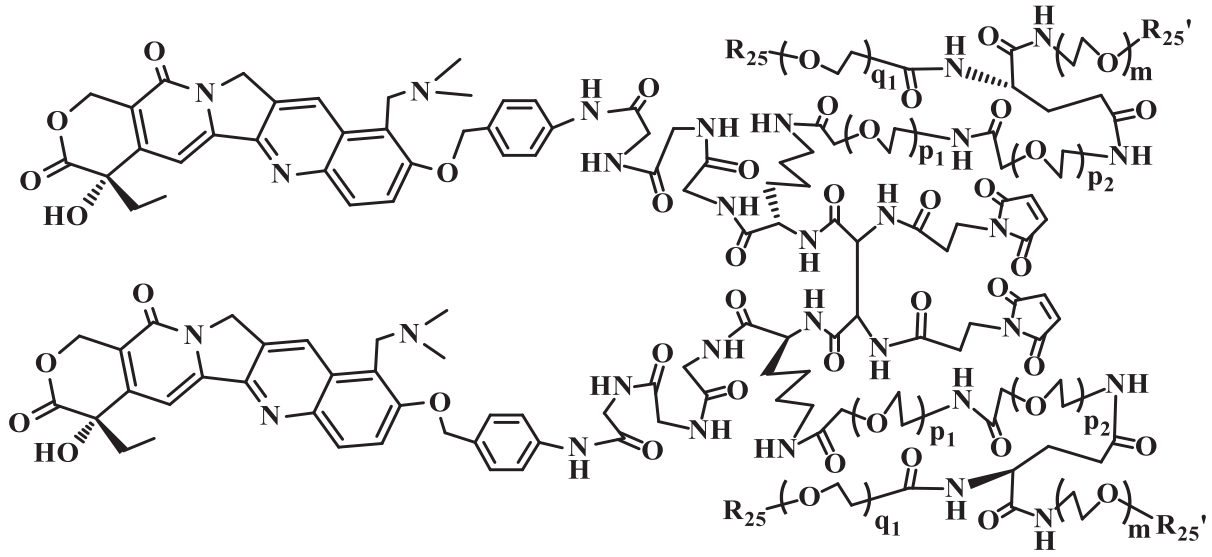
b172,



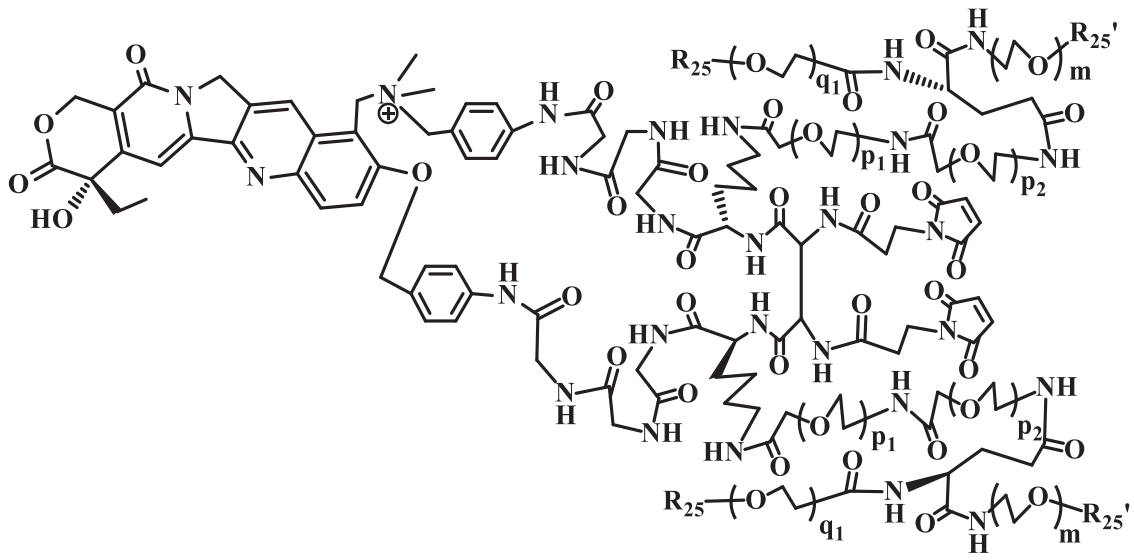
b173,



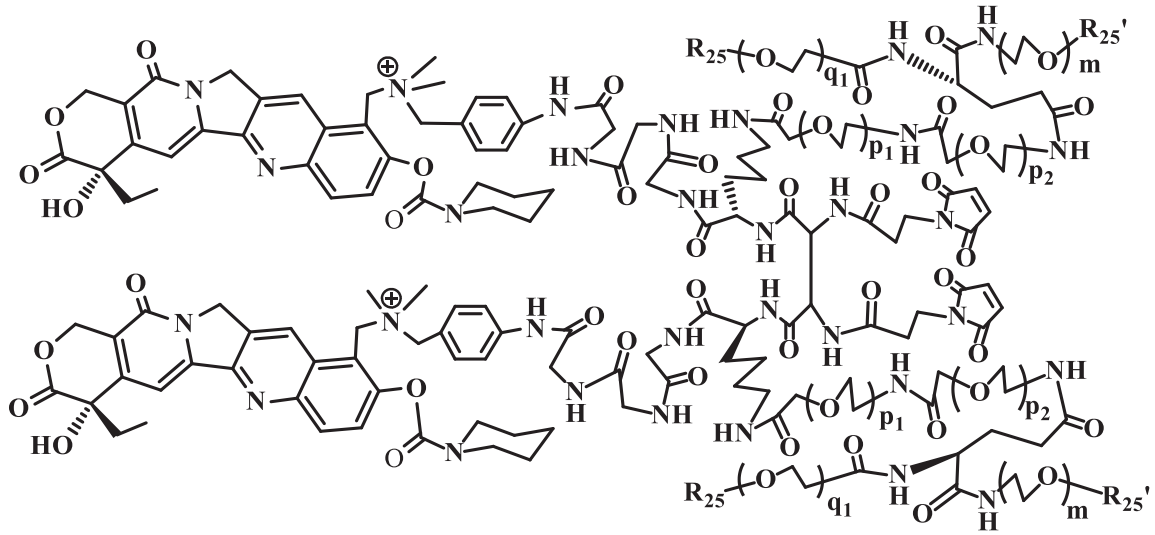
b174,



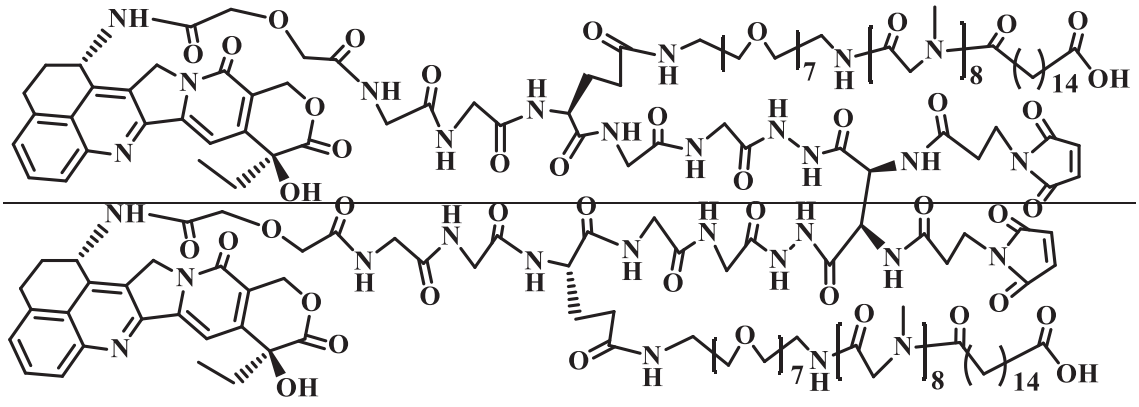
b175,



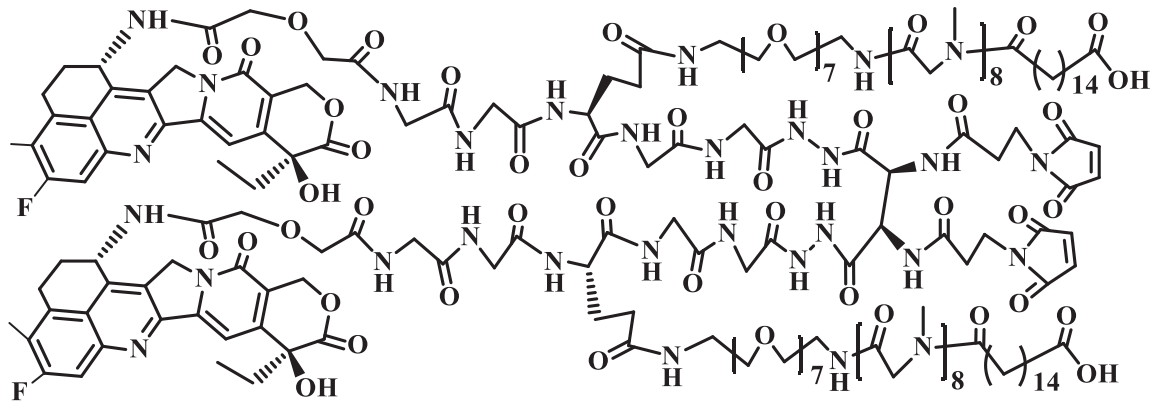
b176,



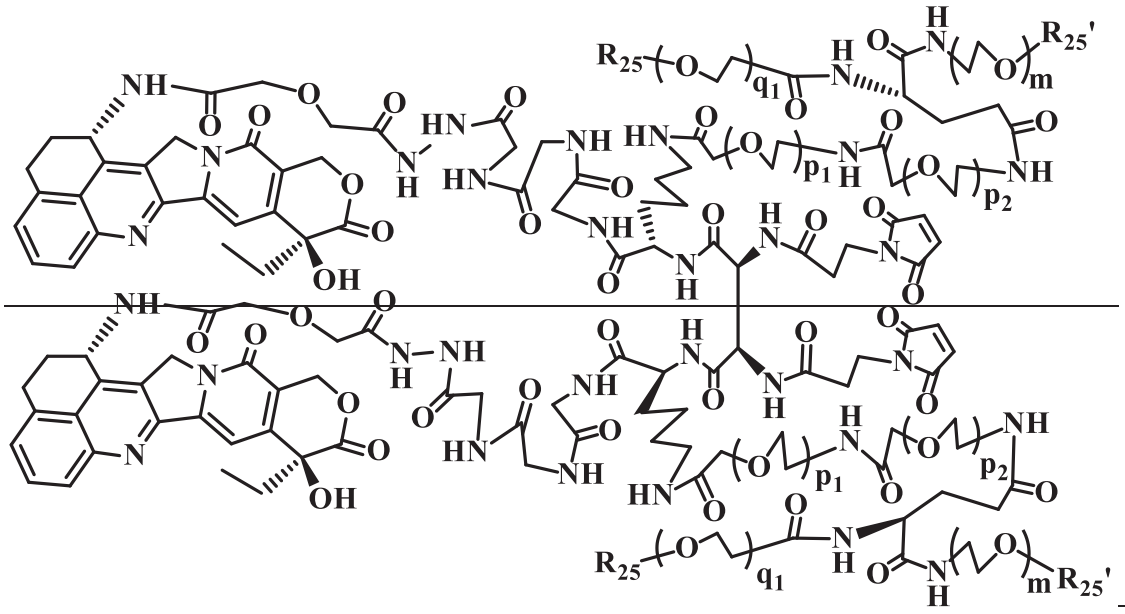
b177,



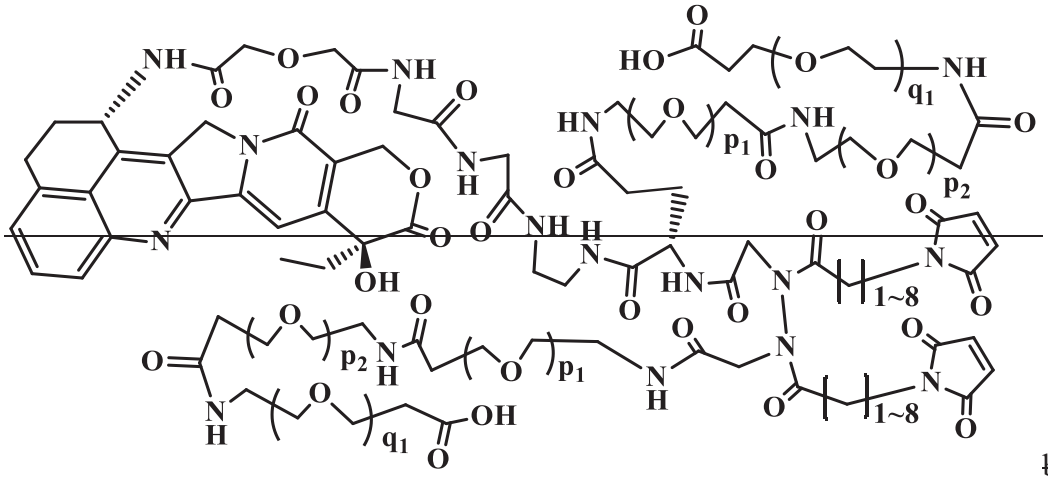
~~b178,~~



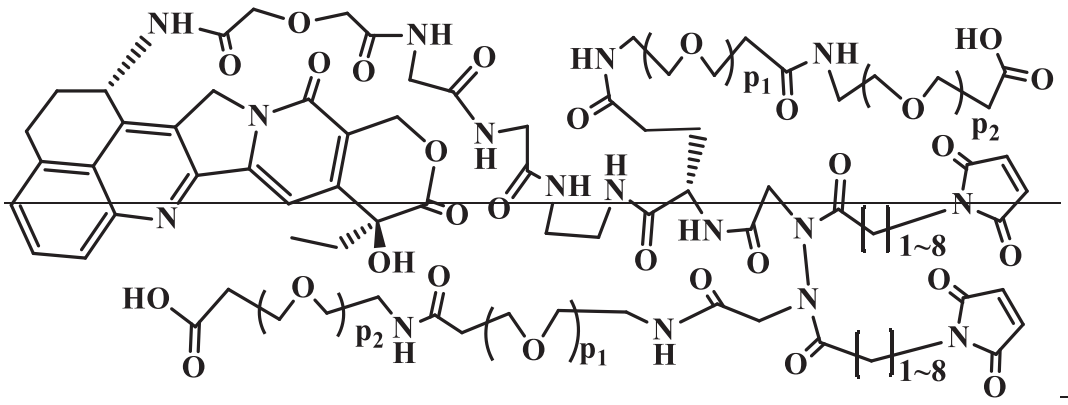
b178,



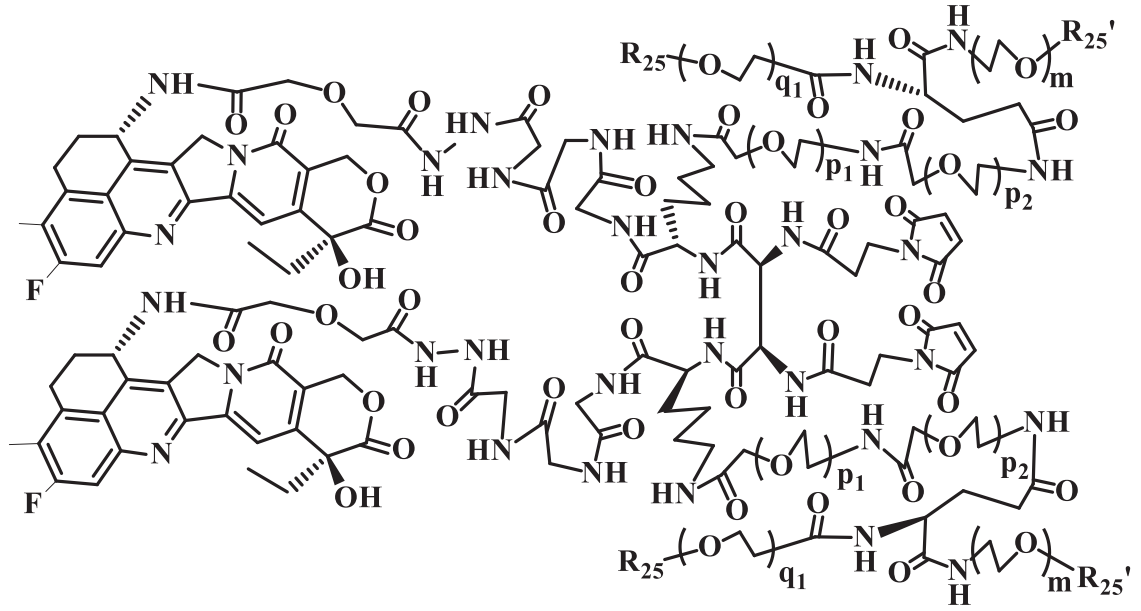
~~b179,~~



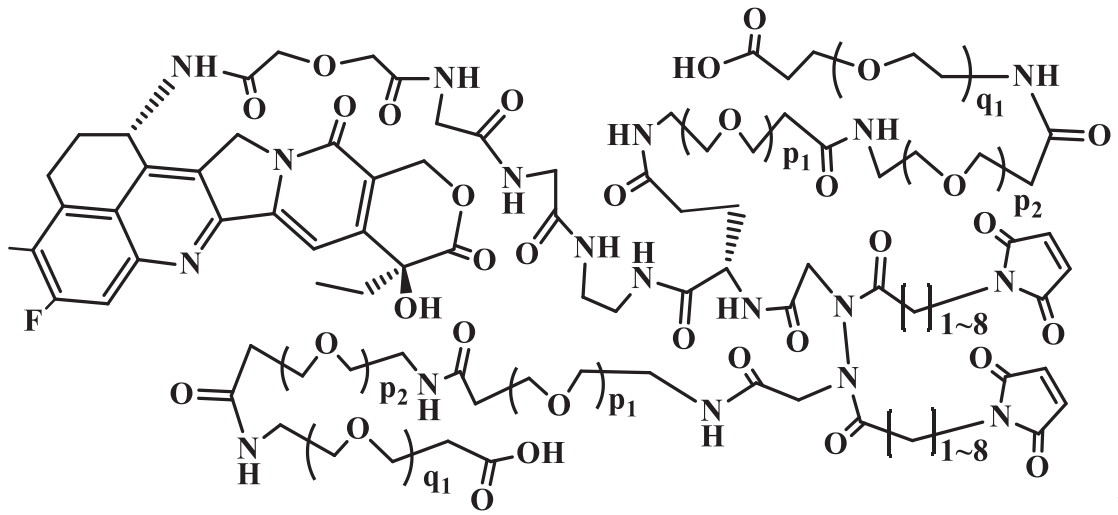
~~b180,~~



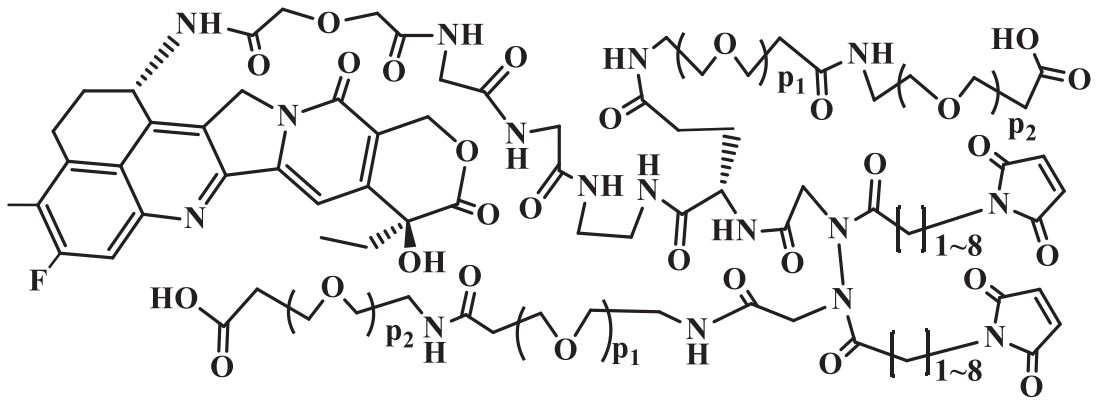
~~b181,~~



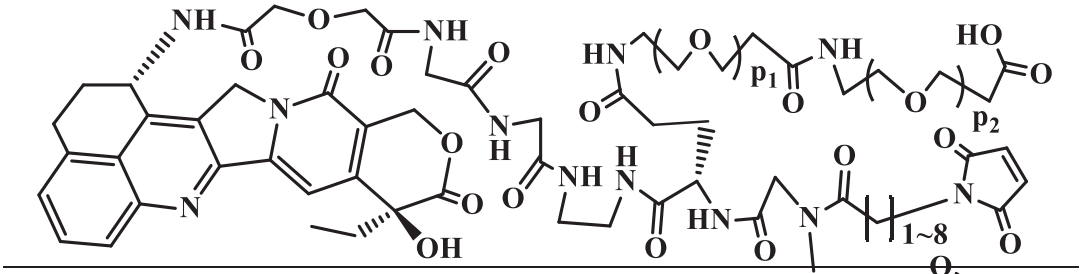
b179,



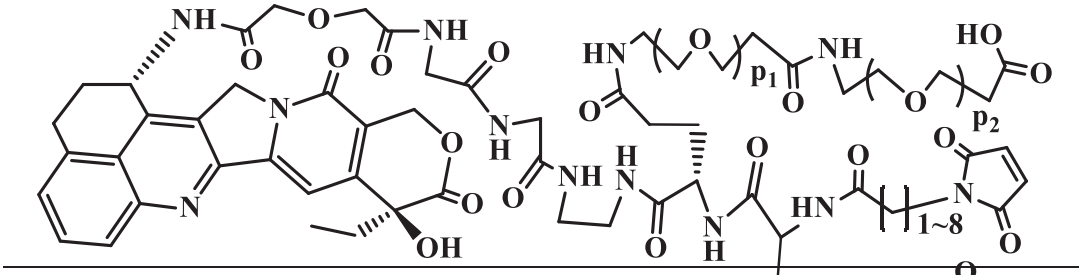
b180,



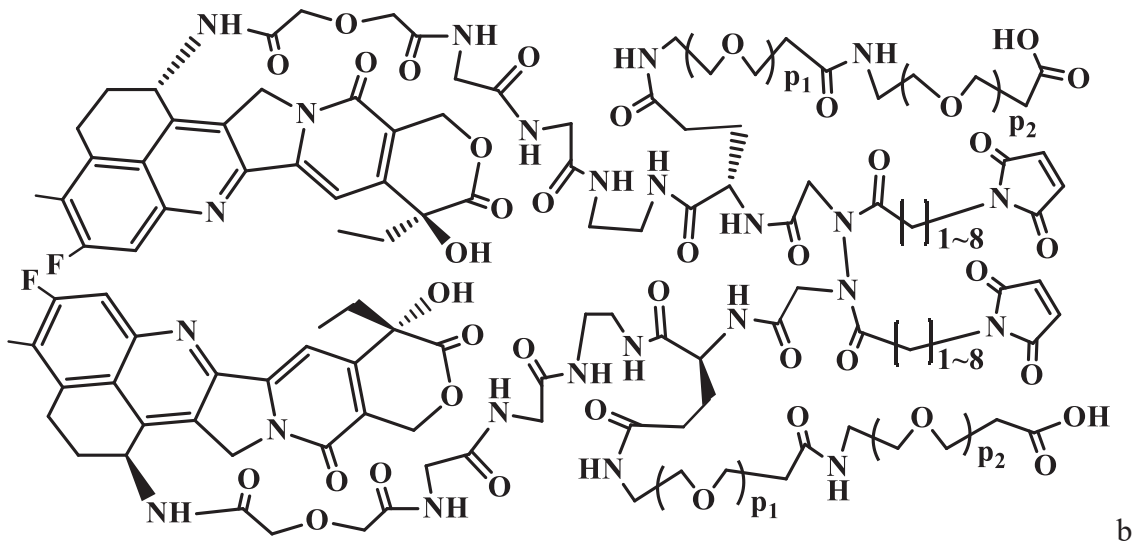
b181,



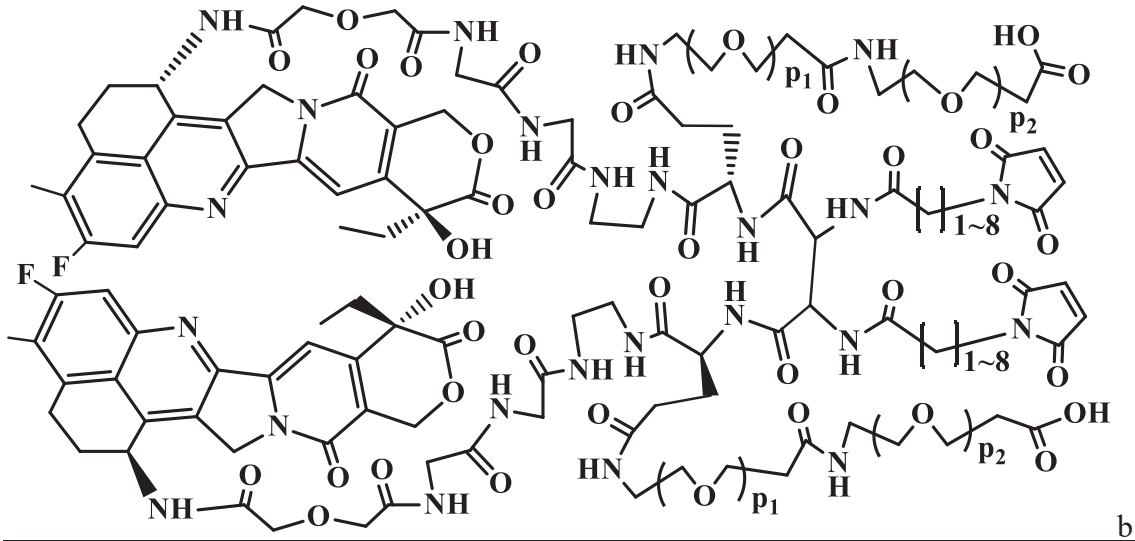
b182,



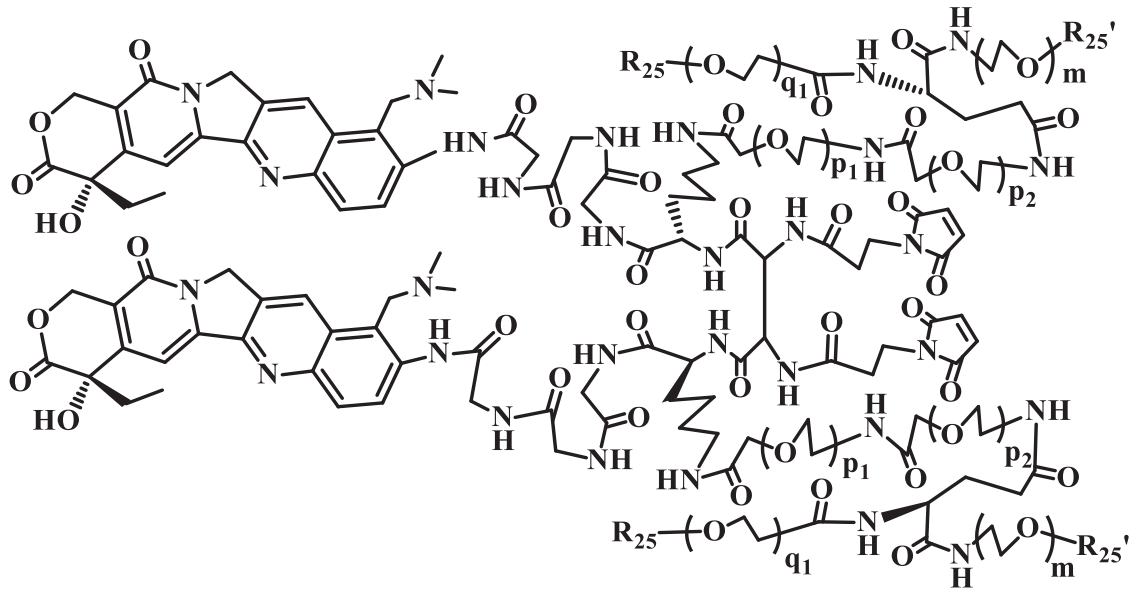
b183,



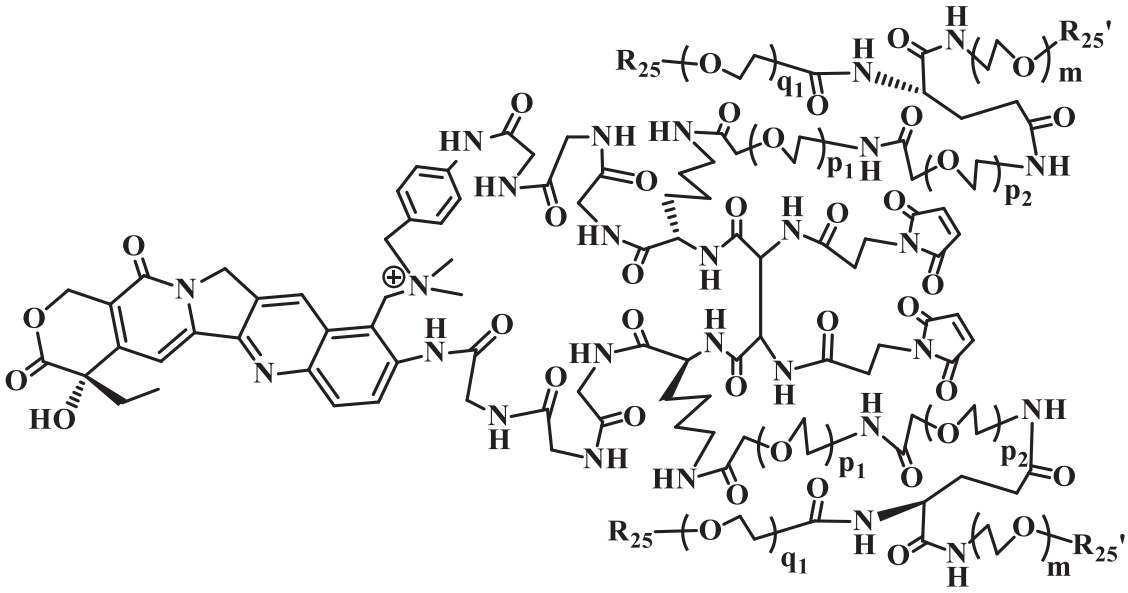
b182,



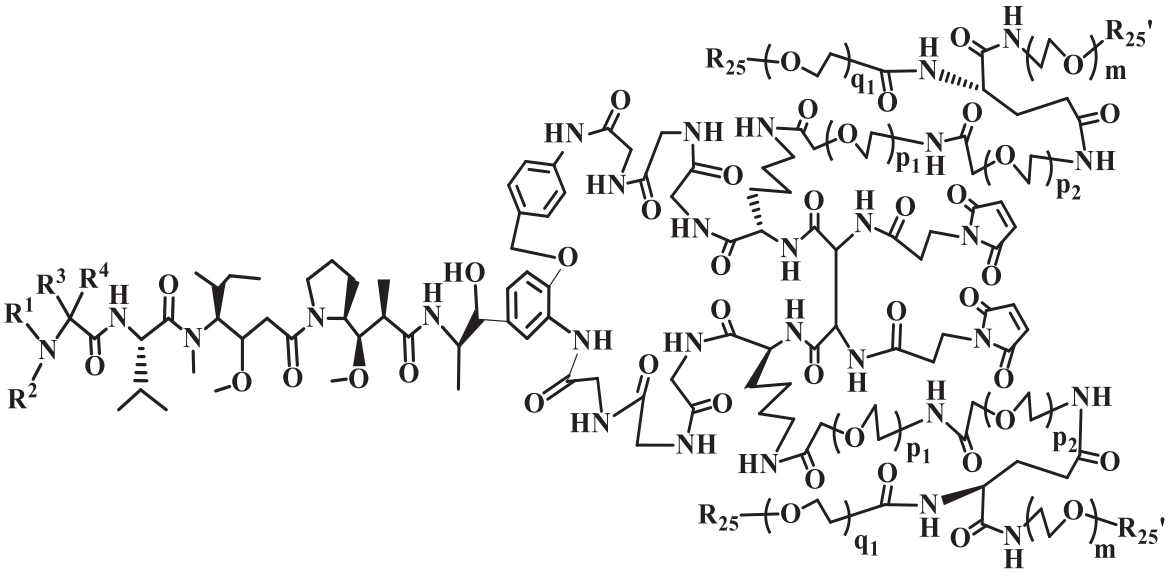
b183,



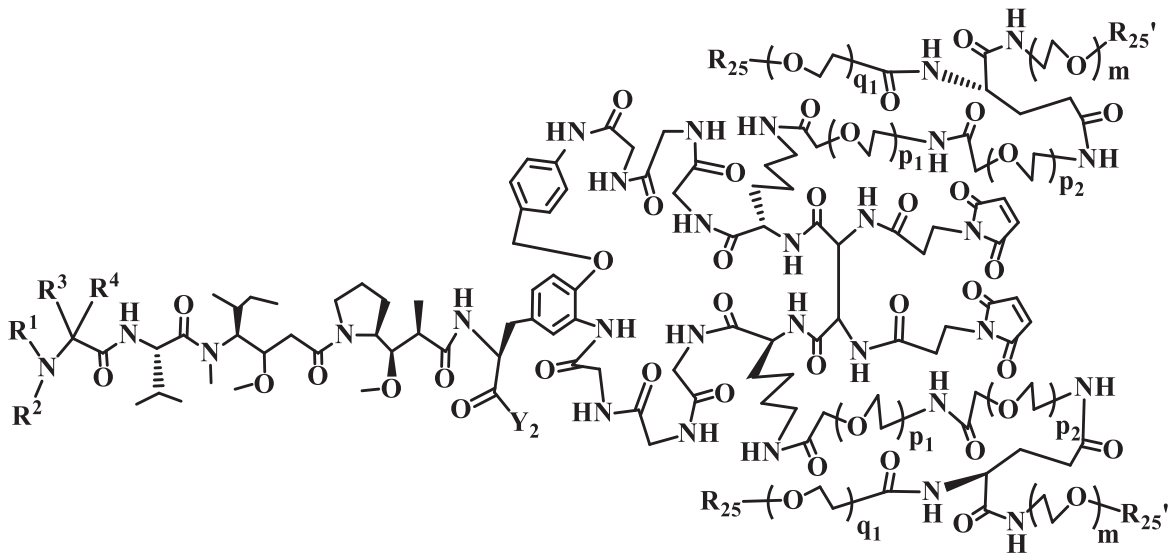
b184,



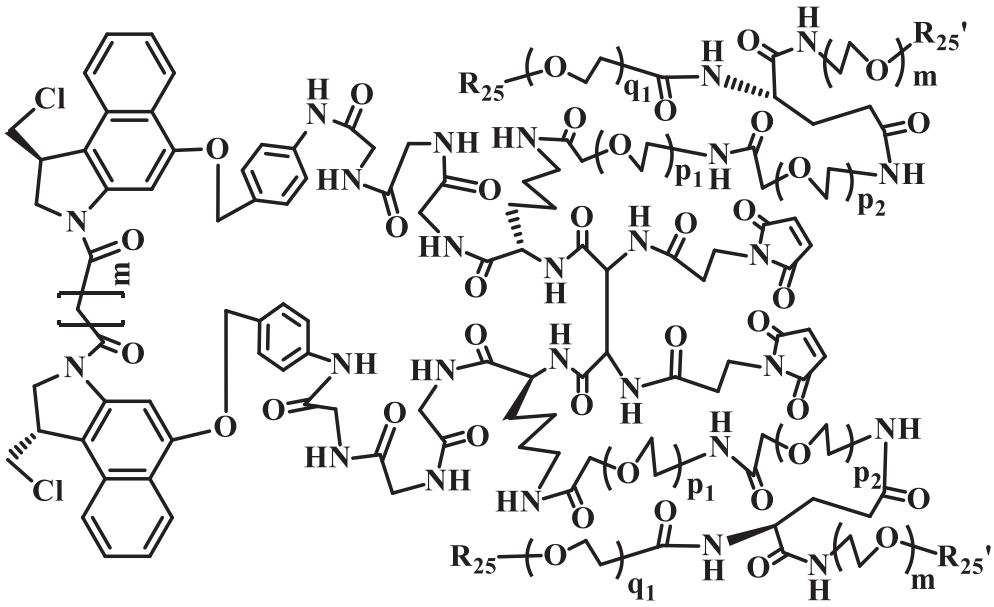
b185,



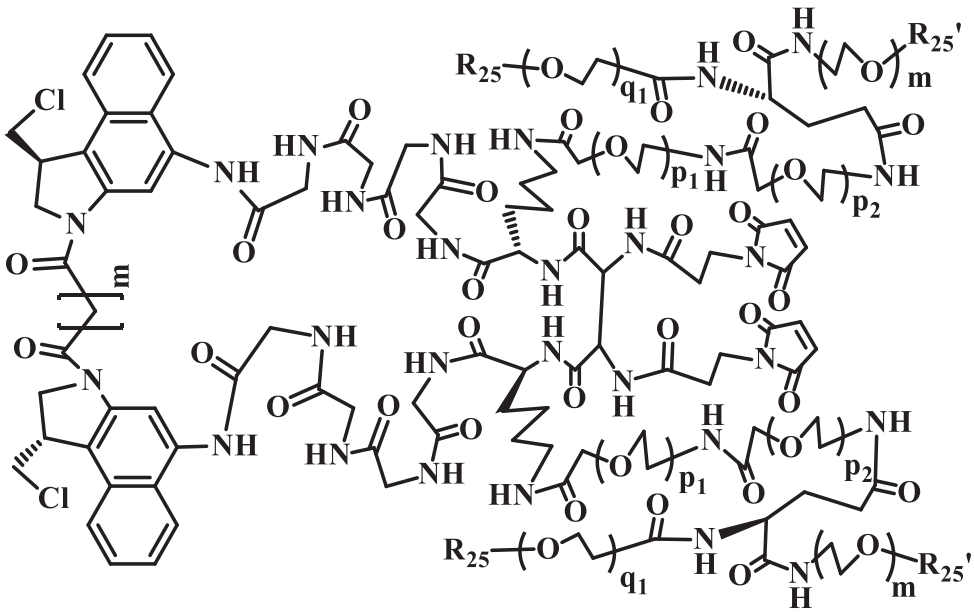
b186,



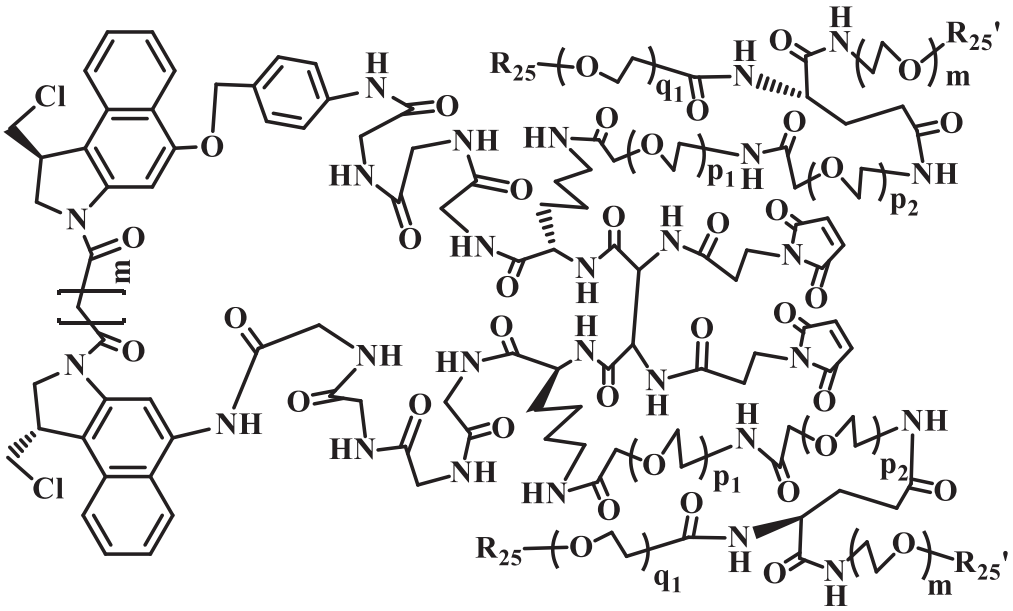
b187,



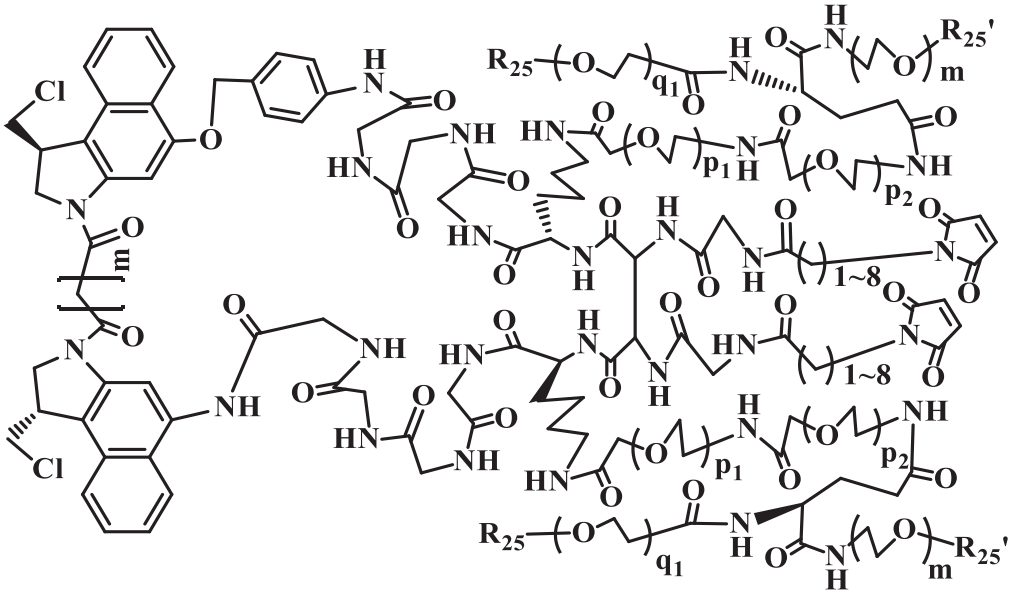
b188,



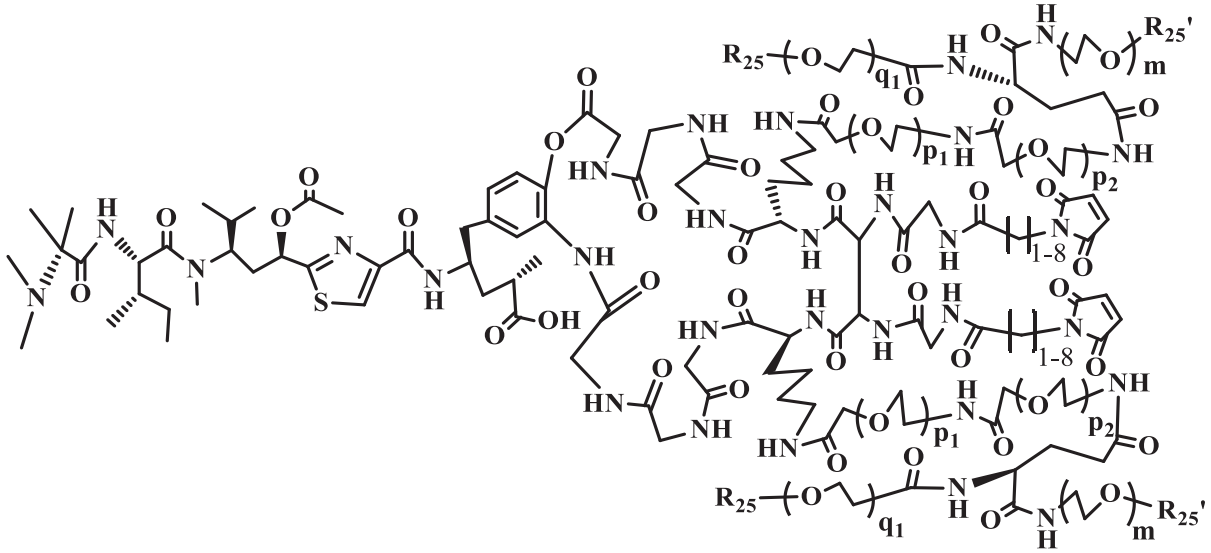
b189,



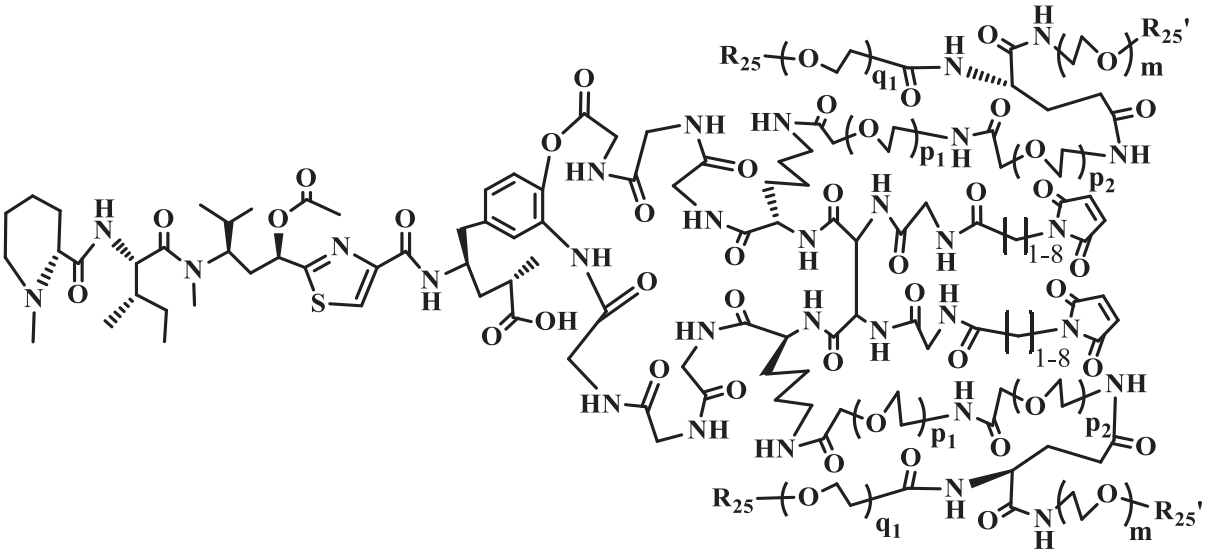
b190,



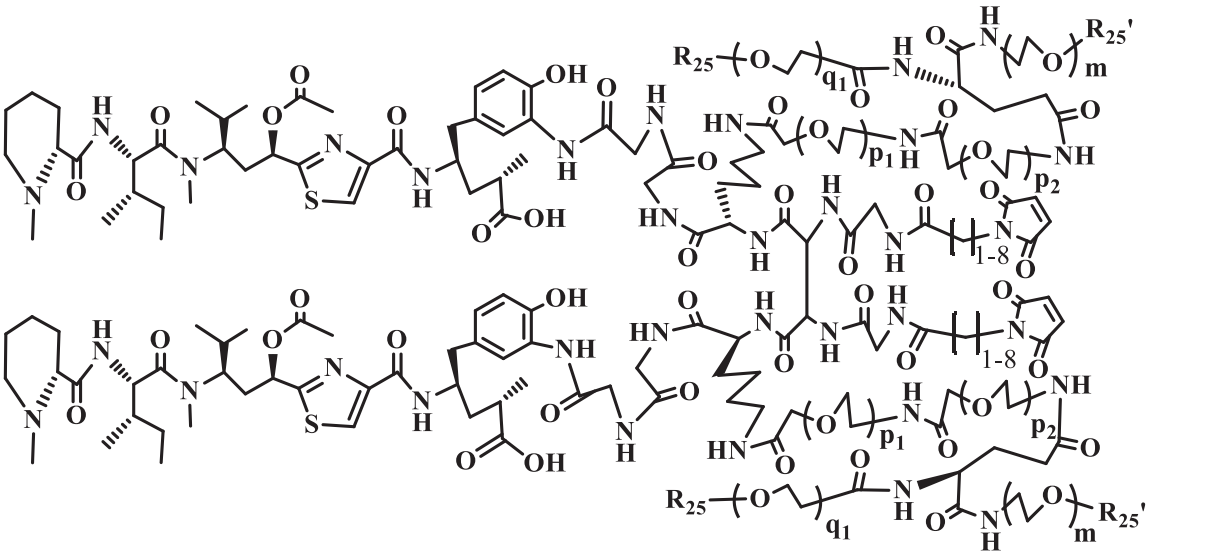
b191

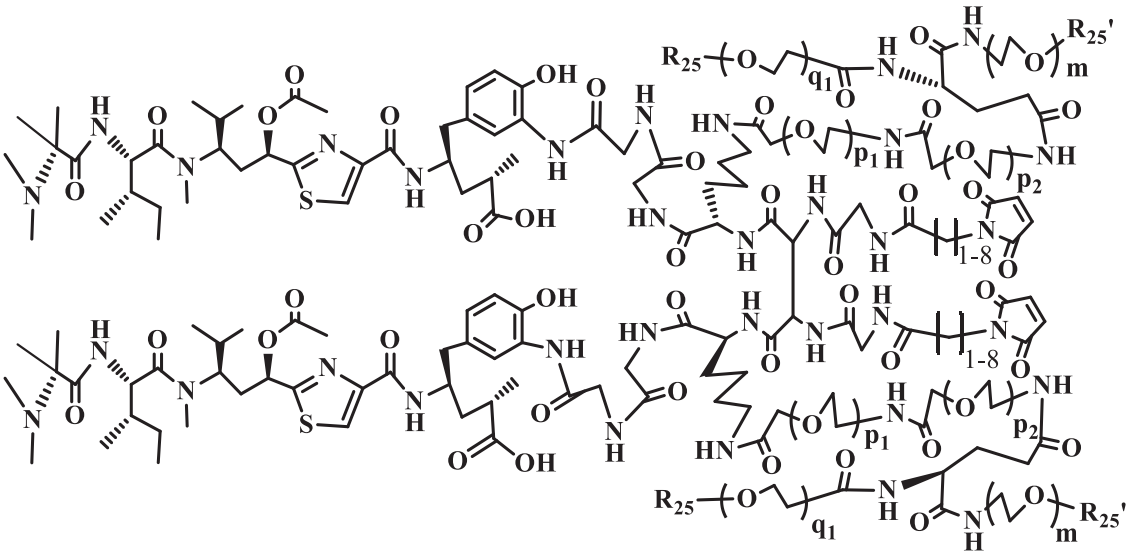


b192,

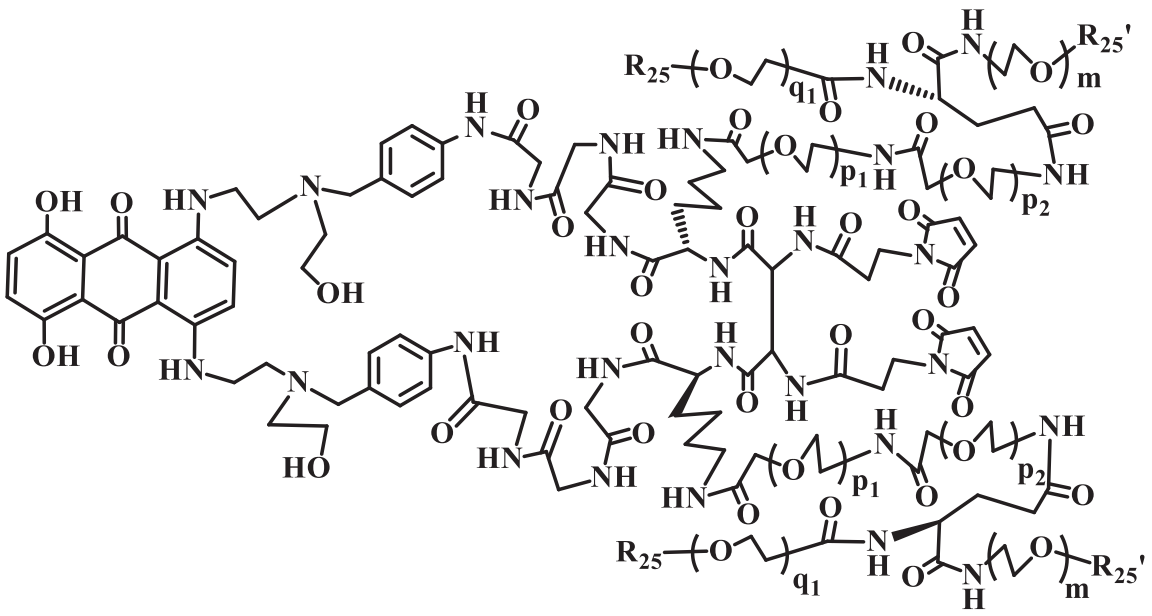


b193,



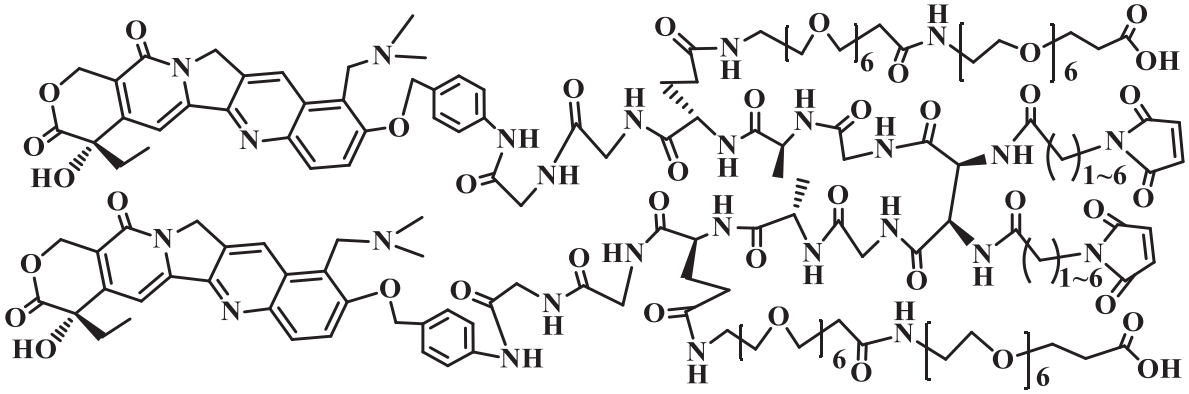


b194,

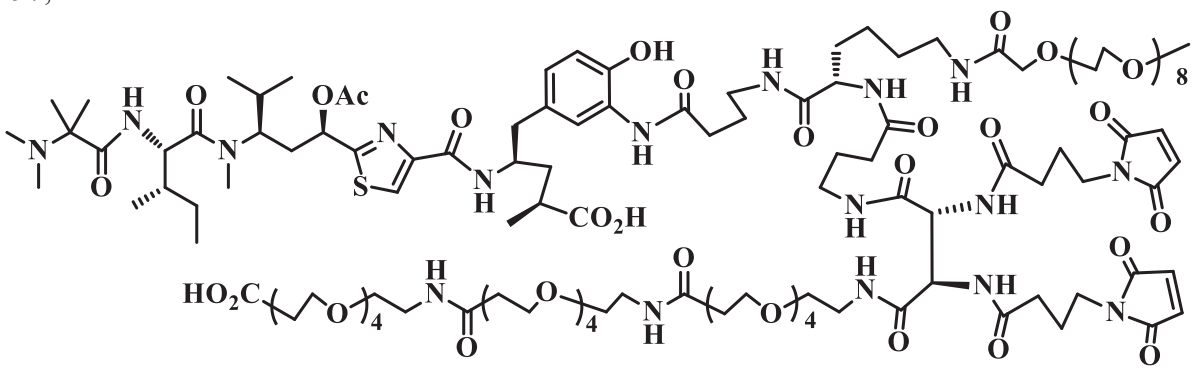


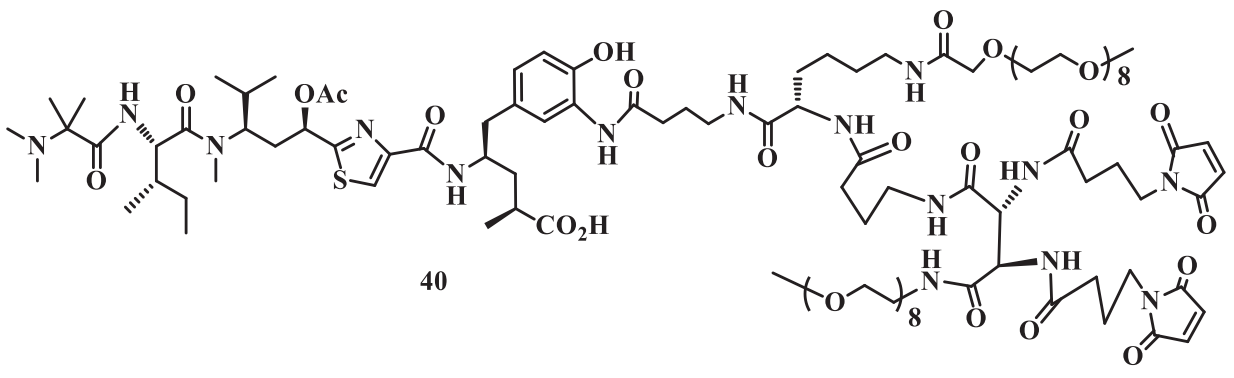
b195,

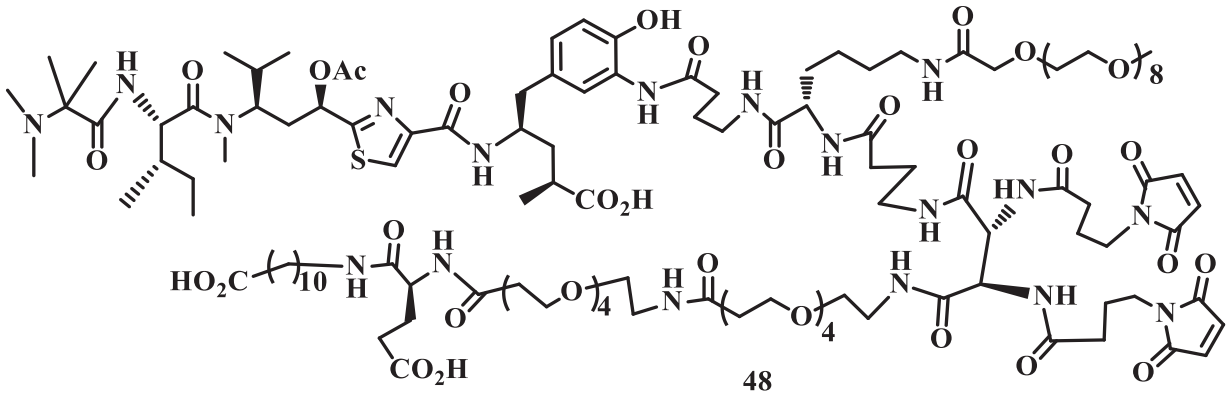
b196,



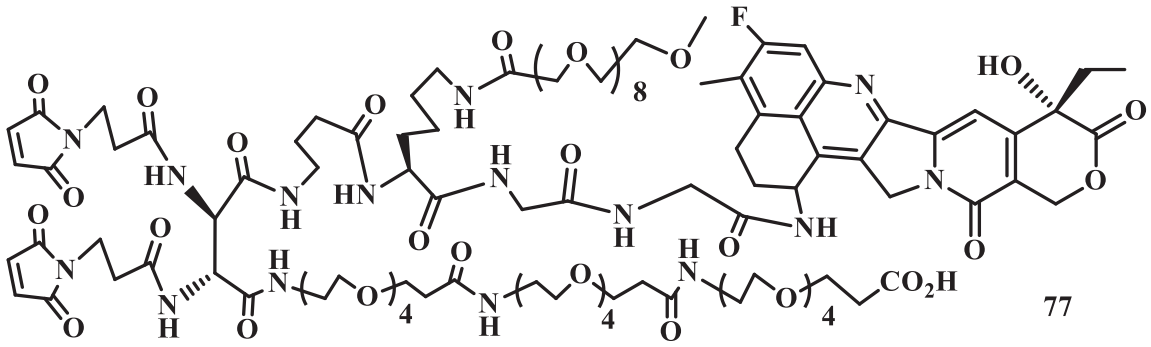
b197,



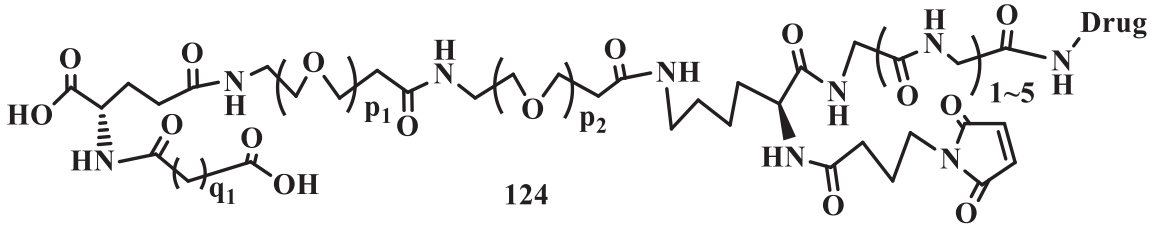




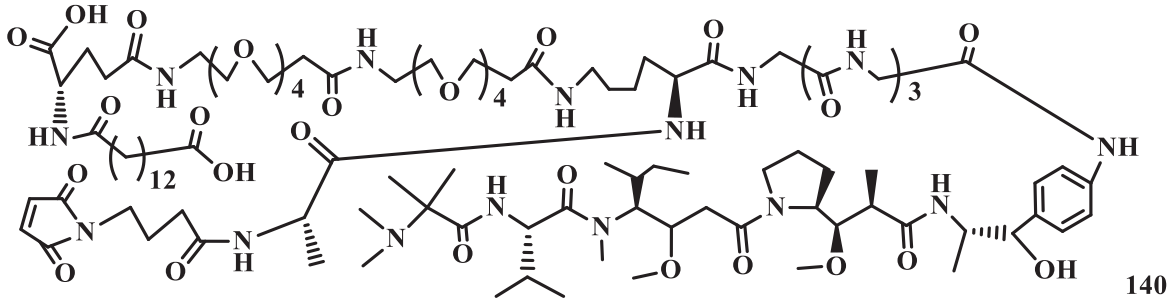
48



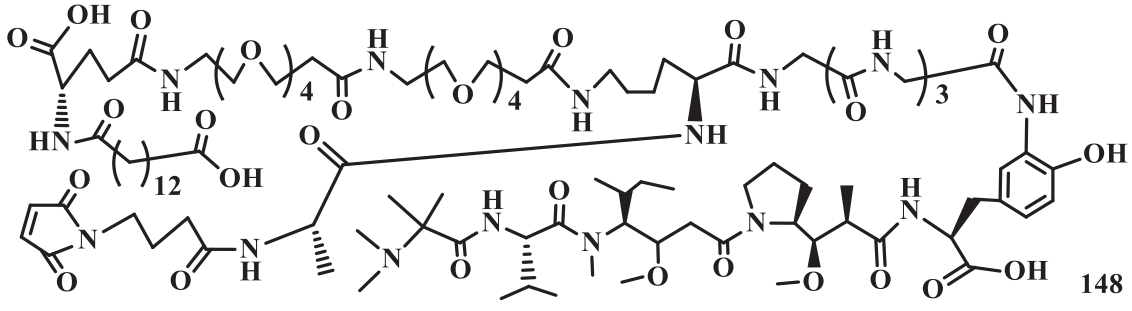
77



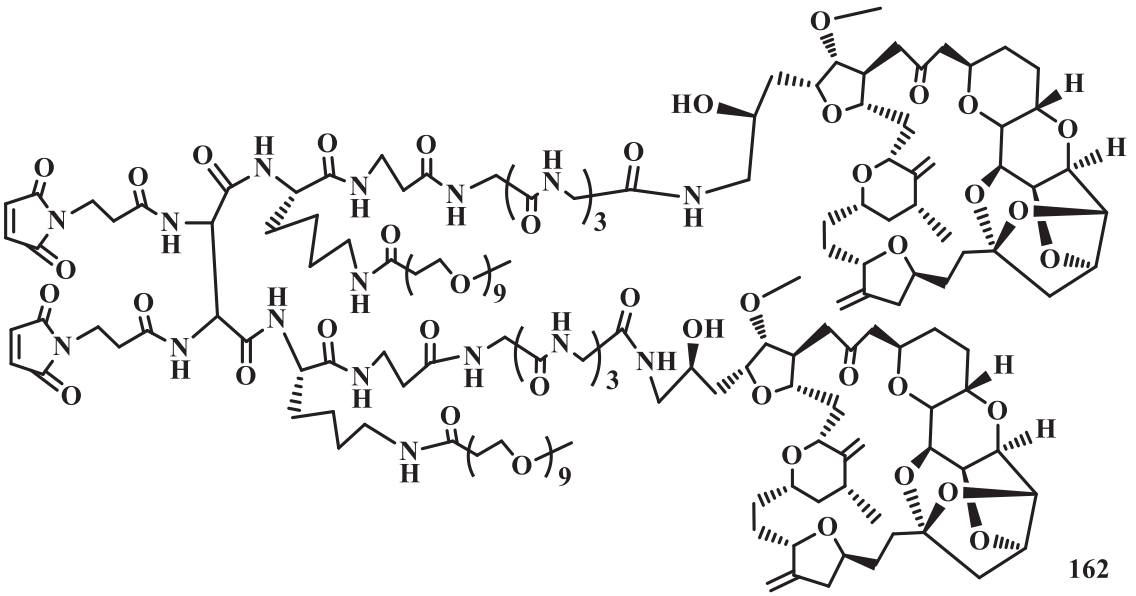
124



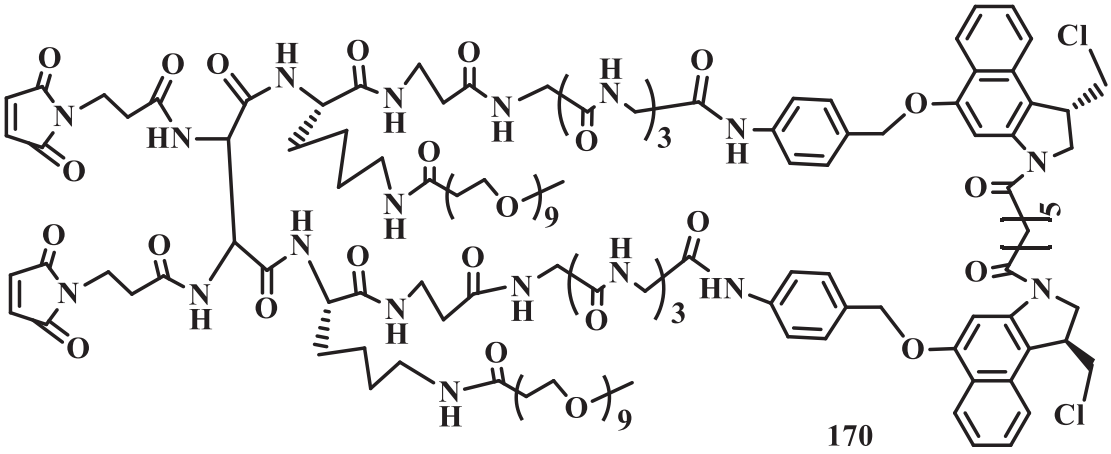
140



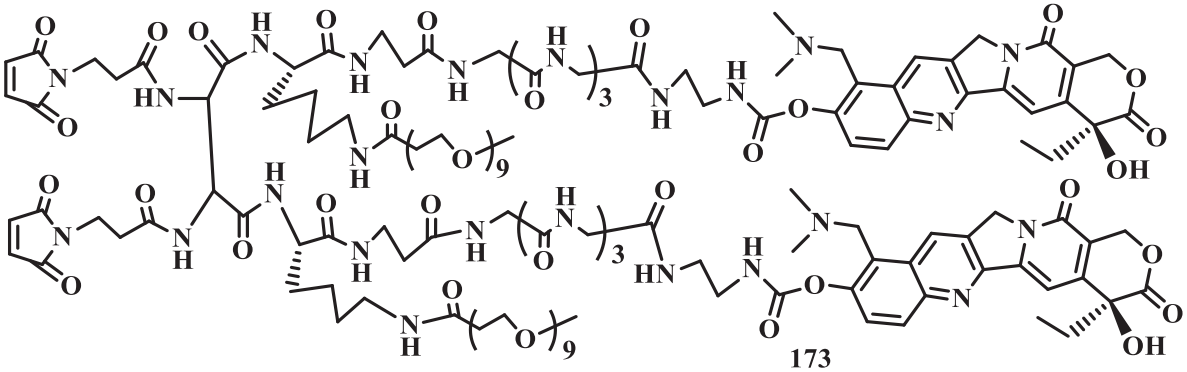
148



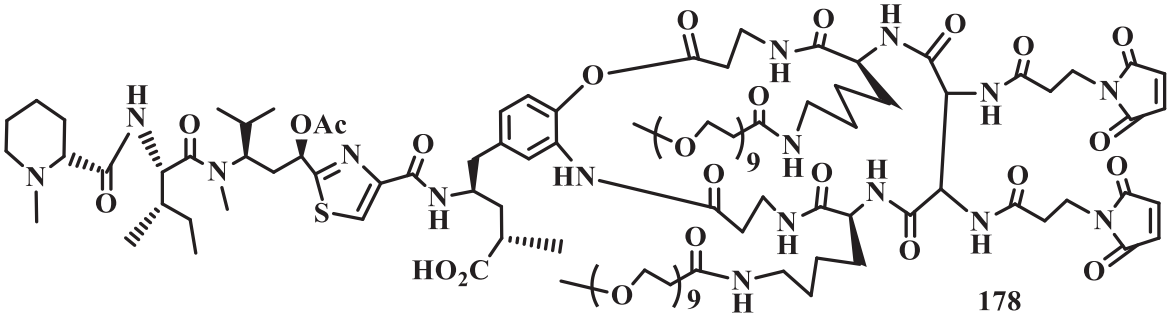
162



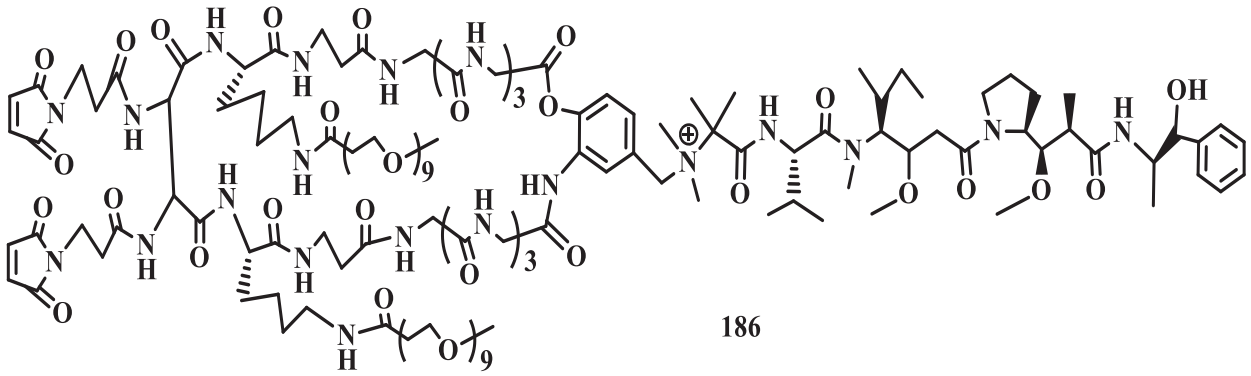
170



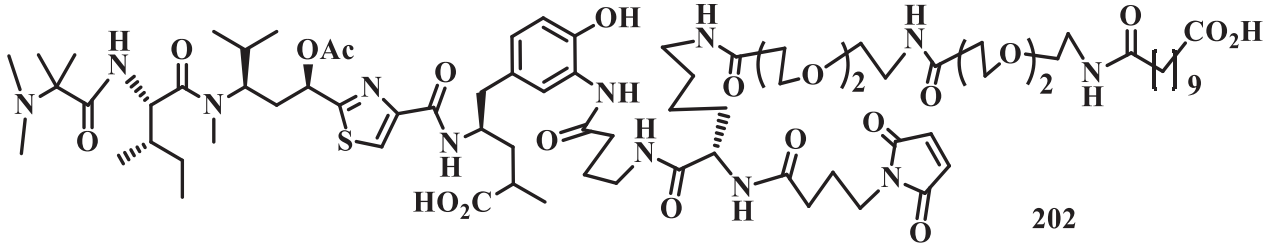
173



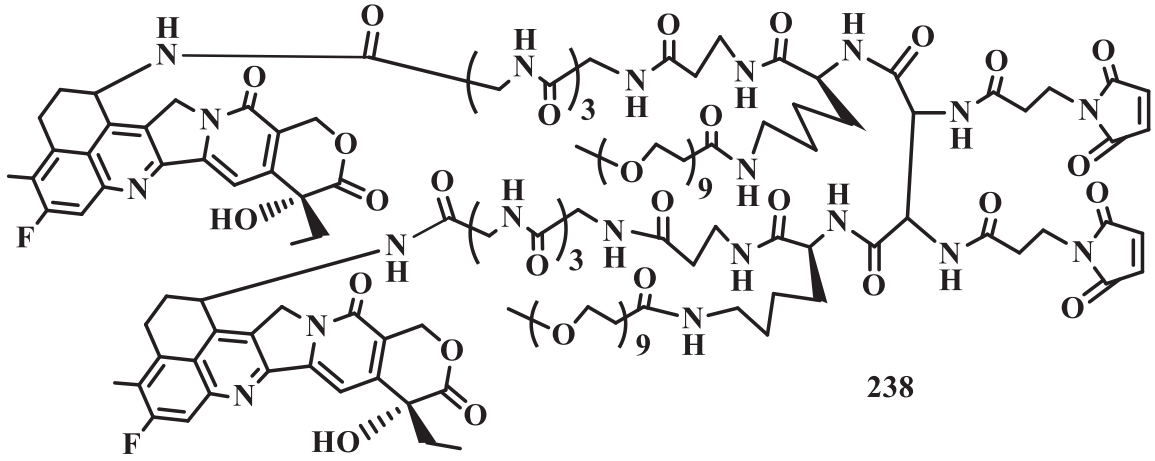
178



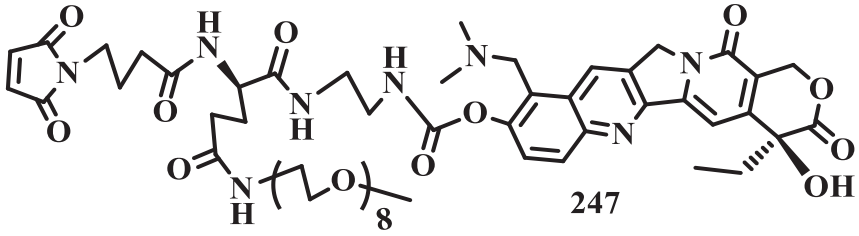
186



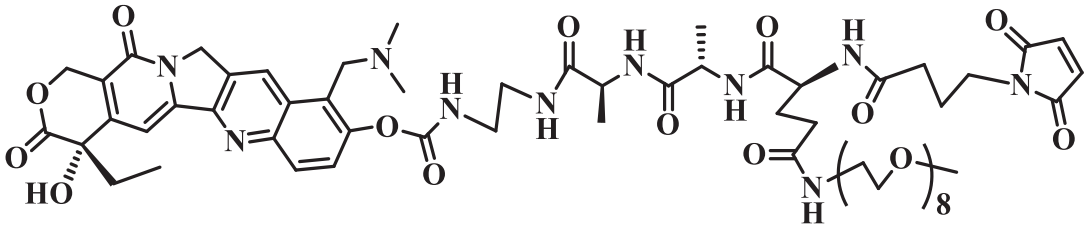
202



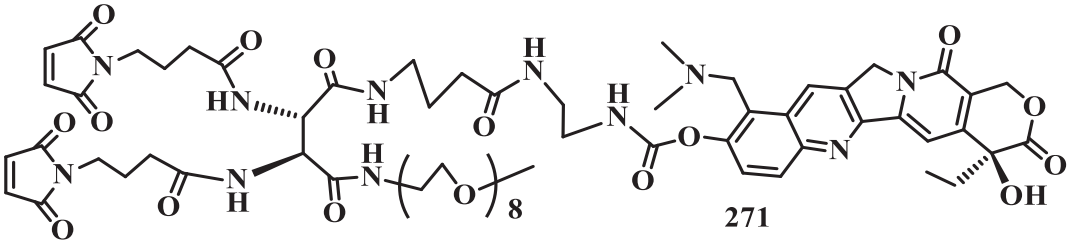
238



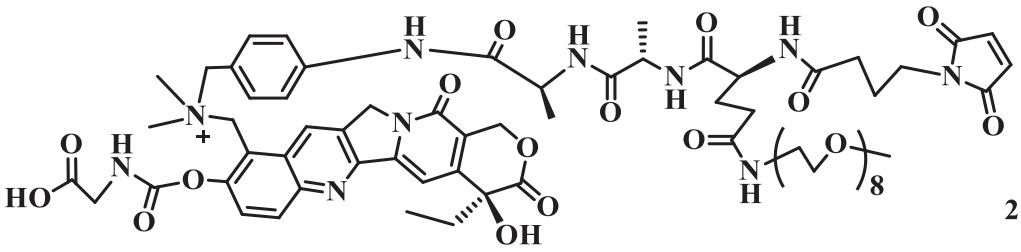
247



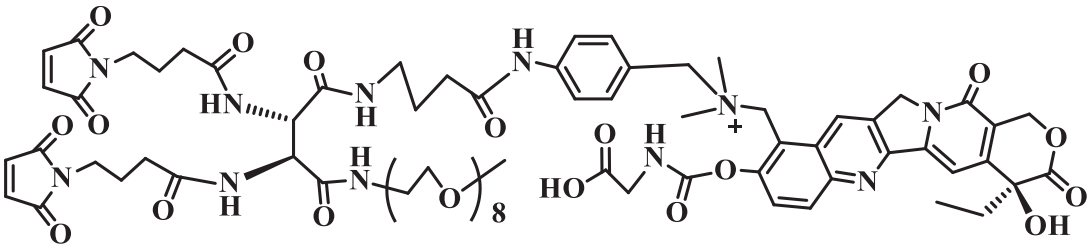
255



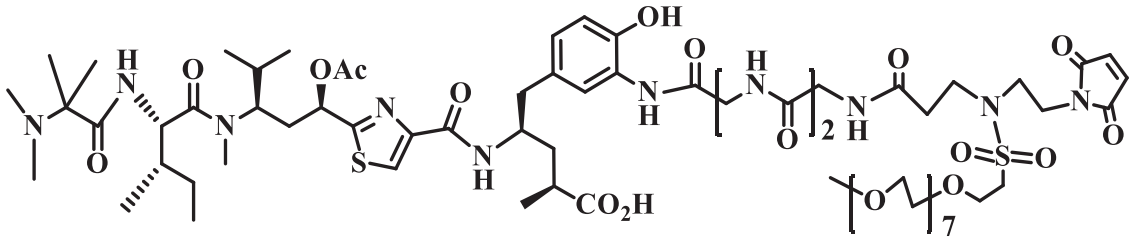
271



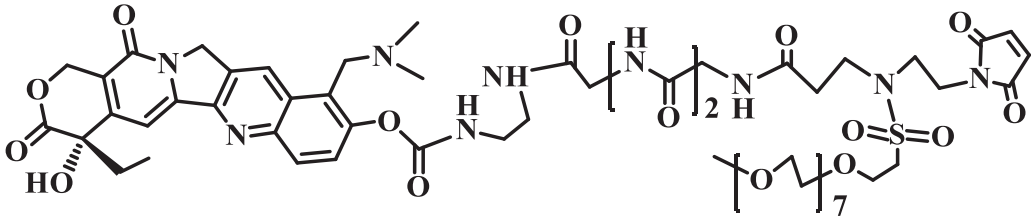
279



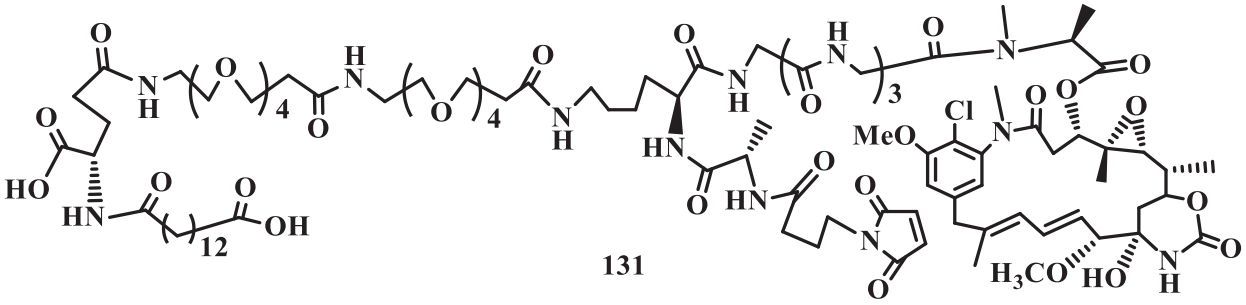
280



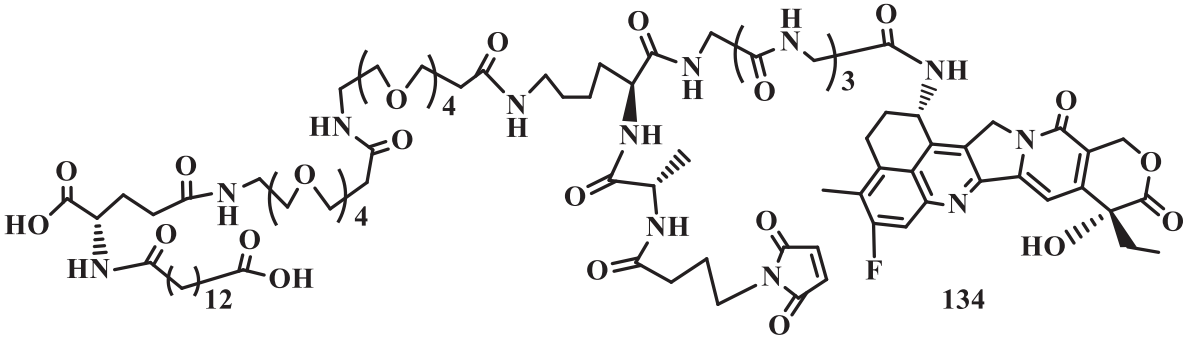
312



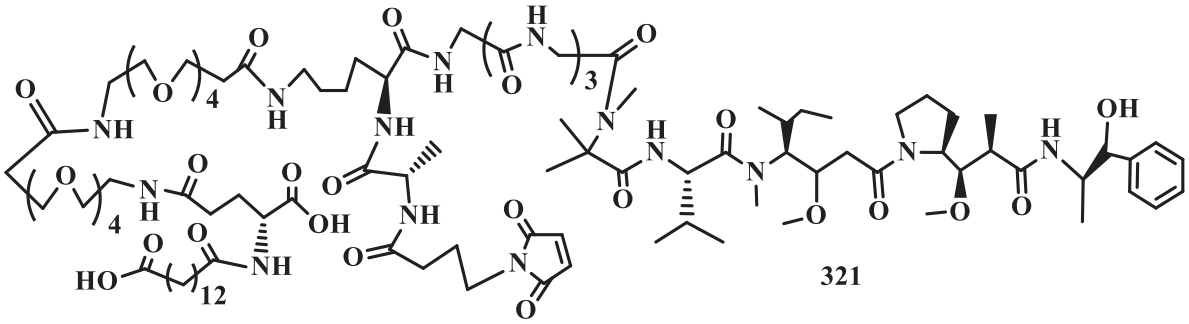
313



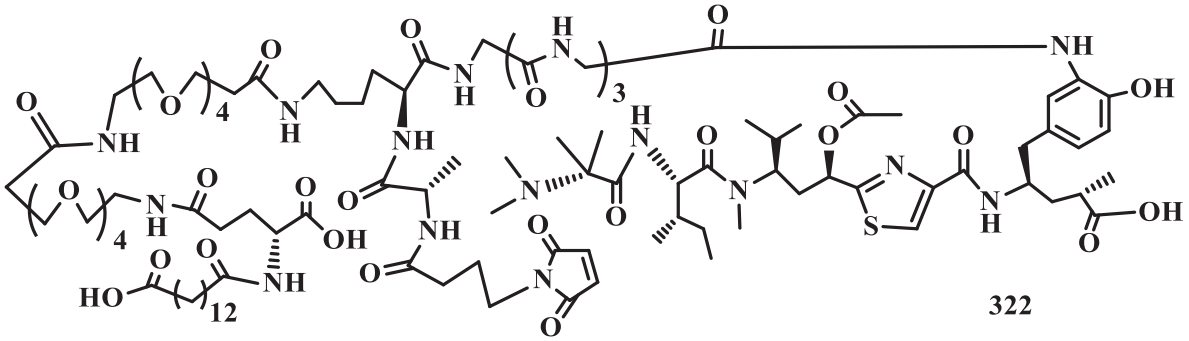
131



134



321



322

or one or more isotope of chemical elements, pharmaceutically acceptable salts, hydrates, or hydrated salts; or the polymorphic crystalline structures of these compounds; or the optical isomers, racemates, diastereomers or enantiomers; wherein R^1, R^2, R^3, R^4, R^5, R_4, R_5, R_7, R_8, R_9, R_{10}, X_1, X_2, X_3, X_4, X_5, X_6, X_8, Y_1, Y_2, Y_3, Y_5, R_{12}, $R_{12'}$, R_{13}, R_{13}', R_{25}, R_{25}', Z_2, Z_3, p, ~~p~~ p_1, p_2, p_3, q_1, q_2, Lv_1, Lv_2, Lv_3, Lv_3', m, m_1, n, and mAb are described the same in Claim 3 and 6; Aa is natural or unnatural amino acid; r is 0-12; (Aa)r is a peptide containing the same or different sequence of amino acids when r >2; r = 0 means (Aa)r absent.

8~~11~~. The compound according to claim **1~~, 2,~~** or **6~~9~~,** wherein cell binding agent/molecule, (T or mAb), is selected from:

(A): the group consisting of an antibody, a protein, probody, nanobody, a vitamin (including folate), peptides, a polymeric micelle, a liposome, a lipoprotein-based drug carrier, a nano-particle drug carrier, a dendrimer, and a molecule or a particle said above coating or linking with a cell-binding ligand, or a combination of said above thereof;

(B): an antibody-like protein, a full-length antibody (polyclonal antibody, monoclonal antibody, antibody dimer, antibody multimer), multispecific antibody (selected from, bispecific antibody, trispecific antibody, or tetraspecific antibody); a single chain antibody, an antibody fragment that binds to the target cell, a monoclonal antibody, a single chain monoclonal antibody, a monoclonal antibody fragment that binds the target cell, a chimeric antibody, a chimeric antibody fragment

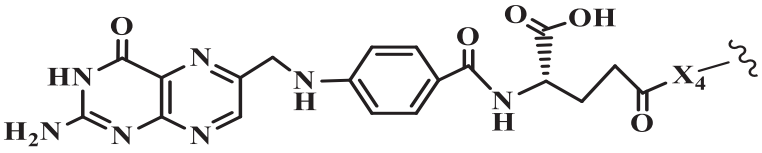
that binds to the target cell, a domain antibody, a domain antibody fragment that binds to the target cell, a resurfaced antibody, a resurfaced single chain antibody, or a resurfaced antibody fragment that binds to the target cell, a humanized antibody or a resurfaced antibody, a humanized single chain antibody, or a humanized antibody fragment that binds to the target cell, anti-idiotypic (anti-Id) antibodies, CDR's, diabody, triabody, tetrabody, miniantibody, a probody, a probody fragment, small immune proteins (SIP), a lymphokine, a hormone, a vitamin, a growth factor, a colony stimulating factor, a nutrient-transport molecule, large molecular weight proteins, fusion proteins, kinase inhibitors, gene-targeting agents, nanoparticles or polymers modified with antibodies or large molecular weight proteins;

(C): a cell-binding ligand or receptor agonist selected from: Folate derivatives; Glutamic acid urea derivatives; Somatostatin and its analogs (selected from the group consisting of octreotide (Sandostatin) and lanreotide (Somatuline)); Aromatic sulfonamides; Pituitary adenylate cyclase activating peptides (PACAP) (PAC1); Vasoactive intestinal peptides (VIP/PACAP) (VPAC1, VPAC2); Melanocyte-stimulating hormones (α-MSH); Cholecystokinins (CCK) /gastrin receptor agonists; Bombesins (selected from the group consisting of Pyr-Gln-Arg-Leu-Gly-Asn-Gln-Trp-Ala-Val-Gly-His-Leu-Met-NH_2)/gastrin-releasing peptide (GRP); Neurotensin receptor ligands (NTR1, NTR2, NTR3); Substance P (NK1 receptor) ligands; Neuropeptide Y (Y1–Y6); Homing Peptides include RGD (Arg-Gly-Asp), NGR (Asn-Gly-Arg), the dimeric and multimeric cyclic RGD peptides (selected from cRGDfV), TAASGVRSMH and LTLRWVGLMS (Chondroitin sulfate proteoglycan NG2 receptor ligands) and F3 peptides; Cell Penetrating Peptides (CPPs); Peptide Hormones, selected from the group consisting of luteinizing hormone-releasing hormone (LHRH) agonists and antagonists, and gonadotropin-releasing hormone (GnRH) agonist, acts by targeting follicle stimulating hormone (FSH) and luteinizing hormone (LH), as well as testosterone production, selected from the group consisting of buserelin (Pyr-His-Trp-Ser-Tyr-D-Ser(OtBu)-Leu-Arg-Pro-NHEt), Gonadorelin (Pyr-His-Trp-Ser-Tyr-Gly-Leu-Arg-Pro-Gly-NH_2), Goserelin (Pyr-His-Trp-Ser-Tyr-D-Ser(OtBu)-Leu-Arg-Pro-AzGly-NH_2), Histrelin (Pyr-His-Trp-Ser-Tyr-D-His(N-benzyl)-Leu-Arg-Pro-NHEt), leuprolide (Pyr-His-Trp-Ser-Tyr-D-Leu-Leu-Arg-Pro-NHEt), Nafarelin (Pyr-His-Trp-Ser-Tyr-2Nal-Leu-Arg-Pro-Gly-NH_2), Triptorelin (Pyr-His-Trp-Ser-Tyr-D-Trp-

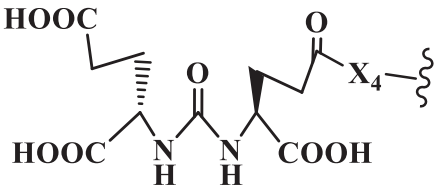
Leu-Arg-Pro-Gly-NH_2), Nafarelin, Deslorelin, Abarelix (Ac-D-2Nal-D-4-chloroPhe-D-3-(3-pyridyl)Ala-Ser-(N-Me)Tyr-D-Asn-Leu-isopropylLys-Pro-DAla-NH_2), Cetrorelix (Ac-D-2Nal-D-4-chloroPhe-D-3-(3-pyridyl)Ala-Ser-Tyr-D-Cit-Leu-Arg-Pro-D-Ala-NH_2), Degarelix (Ac-D-2Nal-D-4-chloroPhe-D-3-(3-pyridyl)Ala-Ser-4-aminoPhe(L-hydroorotyl)-D-4-aminoPhe(carba-moyl)-Leu-isopropylLys-Pro-D-Ala-NH_2), and Ganirelix (Ac-D-2Nal-D-4-chloroPhe-D-3-(3-pyridyl)Ala-Ser-Tyr-D-(N9, N10-diethyl)-homoArg-Leu-(N9, N10-diethyl)-homoArg-Pro-D-Ala-NH_2); Pattern Recognition Receptor (PRRs), selected from the group consisting of Toll-like receptors' (TLRs) ligands, C-type lectins and Nodlike Receptors' (NLRs) ligands; Calcitonin receptor agonists; integrin receptors' and their receptor subtypes' (selected from the group consisting of$\alpha_V\beta_1$, $\alpha_V\beta_3$, $\alpha_V\beta_5$, $\alpha_V\beta_6$, $\alpha_6\beta_4$, $\alpha_7\beta_1$, $\alpha_L\beta_2$, $\alpha_{IIb}\beta_3$) agonists (selected from the group consisting of GRGDSPK, cyclo(RGDfV) (L1) and its derives [cyclo(-N(Me)R-GDfV), cyclo(R-Sar-DfV), cyclo(RG-N(Me)D-fV), cyclo(RGD-N(Me)f-V), cyclo(RGDf-N(Me)V-)(Cilengitide)]; Nanobody (a derivative of VHH (camelid Ig)); Domain antibodies (dAb, a derivative of VH or VL domain); Bispecific T cell Engager (BiTE, a bispecific diabody); Dual Affinity ReTargeting (DART, a bispecific diabody); Tetravalent tandem antibodies (TandAb, a dimerized bispecific diabody); Anticalin (a derivative of Lipocalins); Adnectins (10th FN3 (Fibronectin)); Designed Ankyrin Repeat Proteins (DARPins); Avimers; EGF receptors, or VEGF receptors' agonists;

(D): A small molecule of cell-binding molecule/ligand or a cell receptor agonist selected from the following: LB01 (Folate), LB02 (PMSA ligand), LB03 (PMSA ligand), LB04 (PMSA ligand), LB05 (Somatostatin), LB06 (Somatostatin), LB07 (Octreotide, a Somatostatin analog), LB08 (Lanreotide, a Somatostatin analog), LB09 (Vapreotide (Sanvar) , a Somatostatin analog), LB10 (CAIX ligand), LB11 (CAIX ligand), LB12 (Gastrin releasing peptide receptor (GRPr), MBA), LB13 (luteinizing hormone-releasing hormone (LH-RH) ligand and GnRH), LB14 (luteinizing hormone-releasing hormone (LH-RH) and GnRH ligand), LB15 (GnRH antagonist, Abarelix), LB16 (cobalamin, vitamin B12 analog), LB17 (cobalamin, vitamin B12 analog), LB18 (for $\alpha_v\beta_3$ integrin receptor, cyclic RGD pentapeptide), LB19 (hetero-bivalent peptide ligand for VEGF receptor), LB20 (Neuromedin B), LB21 (bombesin for a G-protein coupled receptor), LB22 (TLR_2 for a Toll-like receptor,), LB23 (for an androgen receptor), LB24 (Cilengitide/cyclo(-RGDfV-) for an α_v

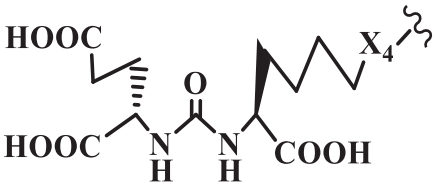
integrin receptor, LB23 (Fludrocortisone), LB25 (Rifabutin analog), LB26 (Rifabutin analog), LB27 (Rifabutin analog), LB28 (Fludrocortisone), LB29 (Dexamethasone), LB30 (fluticasone propionate), LB31 (Beclometasone dipropionate), LB32 (Triamcinolone acetonide), LB33 (Prednisone), LB34 (Prednisolone), LB35 (Methylprednisolone), LB36 (Betamethasone), LB37 (Irinotecan analog), LB38 (Crizotinib analog), LB39 (Bortezomib analog), LB40 (Carfilzomib analog), LB41 (Carfilzomib analog), LB42 (Leuprolide analog), LB43 (Triptorelin analog), LB44 (Clindamycin), LB45 (Liraglutide analog), LB46 (Semaglutide analog), LB47 (Retapamulin analog), LB48 (Indibulin analog), LB49 (Vinblastine analog), LB50 (Lixisenatide analog), LB51 (Osimertinib analog), LB52 (a nucleoside analog), LB53 (Erlotinib analog) or LB54 (Lapatinib analog) which are shown in the following structures:



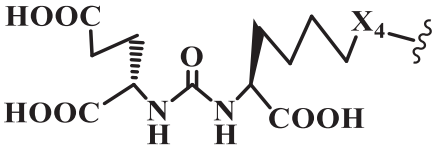
LB01 (Folate conjugate),



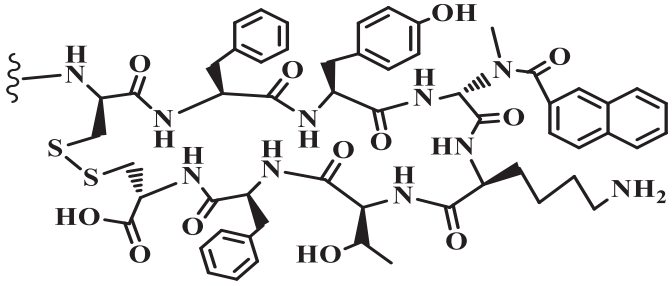
LB02 (PMSA ligand conjugate),



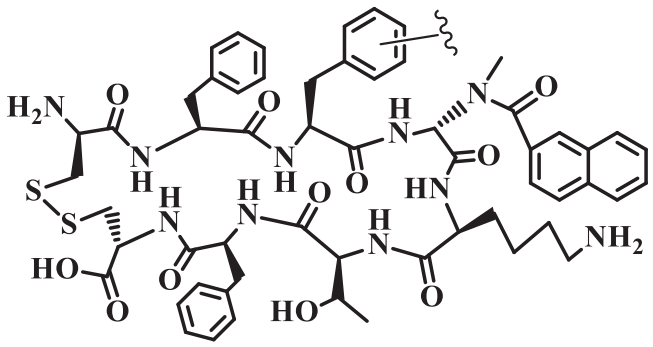
LB03 (PMSA ligand conjugate),



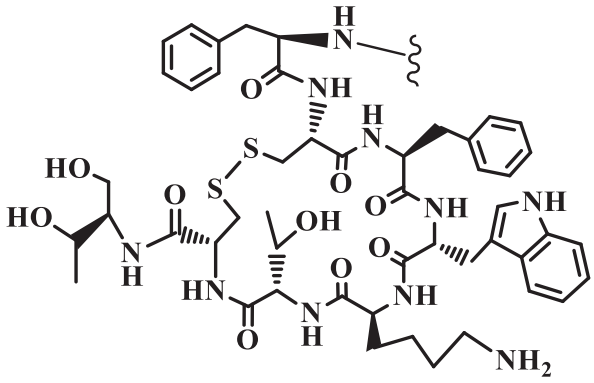
LB04 (PMSA ligand),



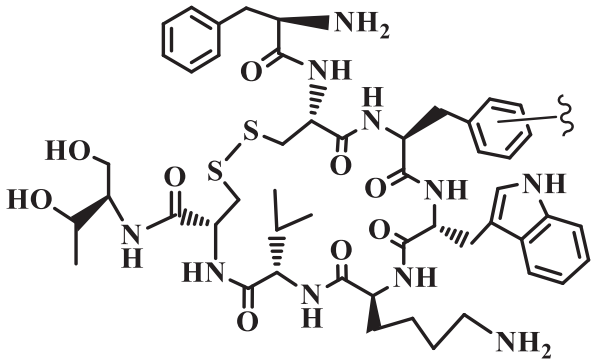
LB05 (Somatostatin),



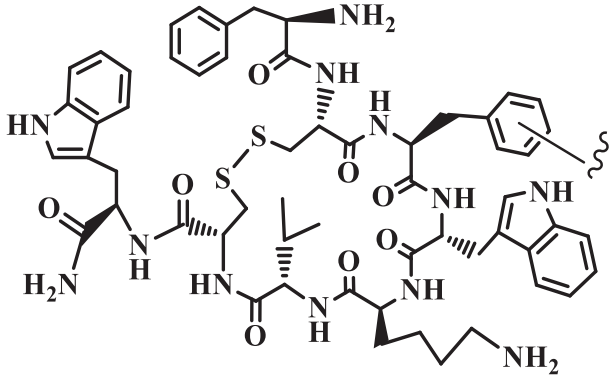
LB06 (Somatostatin),



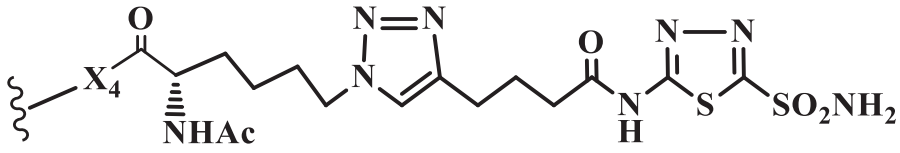
LB07 (Octreotide, a Somatostatin analog),



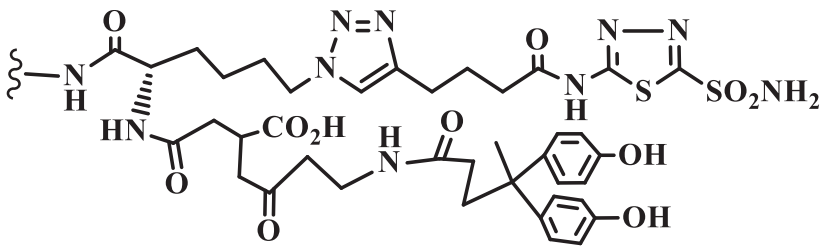
LB08 (Lanreotide, a Somatostatin analog),



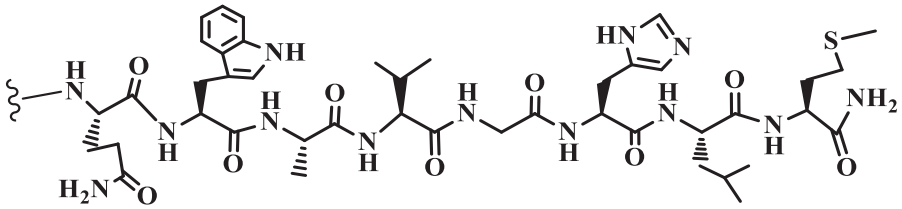
LB09 (Vapreotide (Sanvar), a Somatostatin analog),



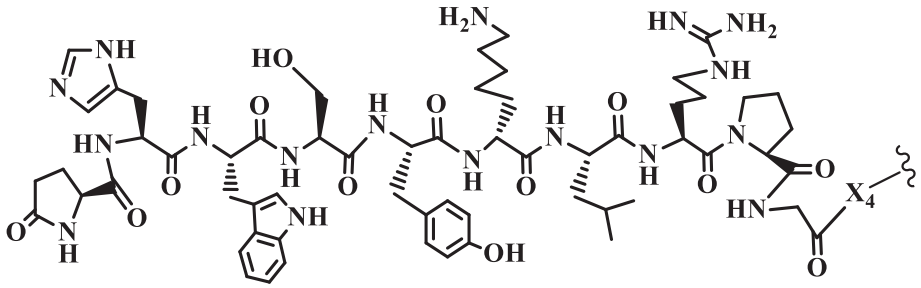
LB10 (CAIX ligand),



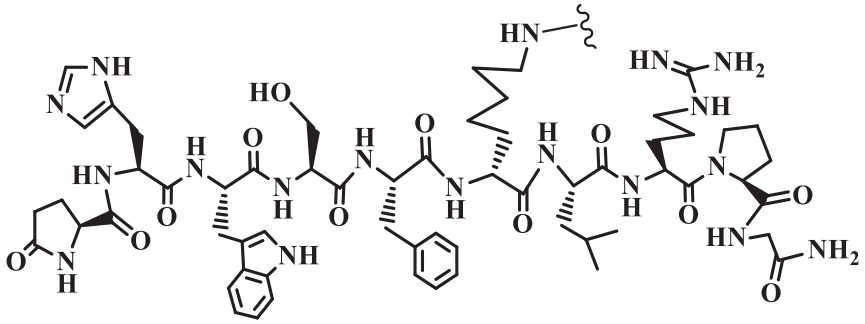
LB11 (CAIX ligand),



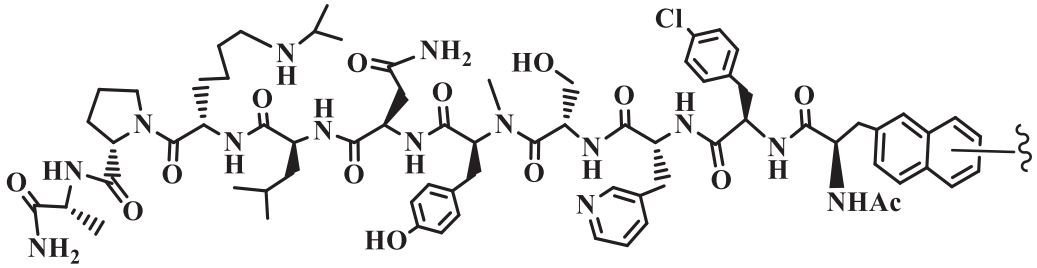
LB12 (Gastrin releasing peptide receptor (GRPr), MBA),



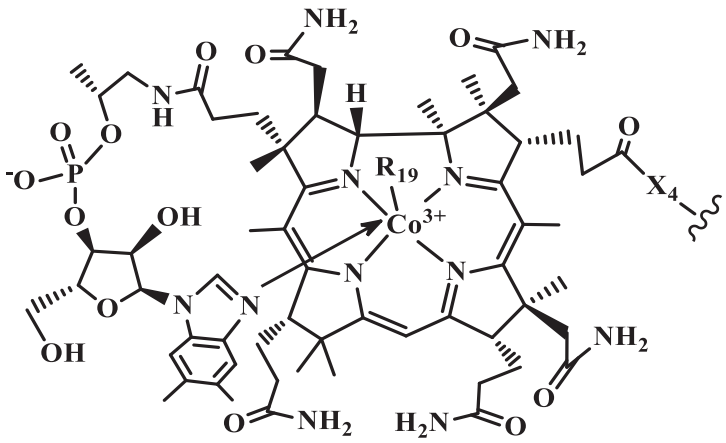
LB13 (luteinizing hormone-releasing hormone (LH-RH) ligand and GnRH),



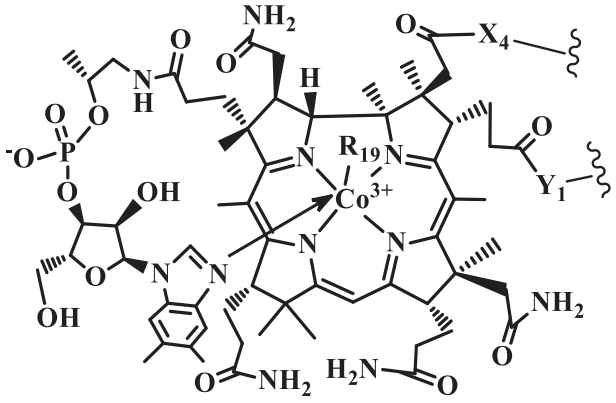
LB14 (luteinizing hormone-releasing hormone (LH-RH) and GnRH ligand),



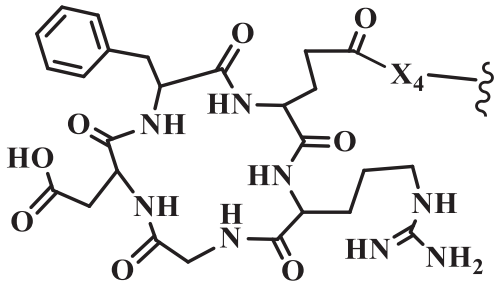
LB15 (GnRH antagonist, Abarelix),



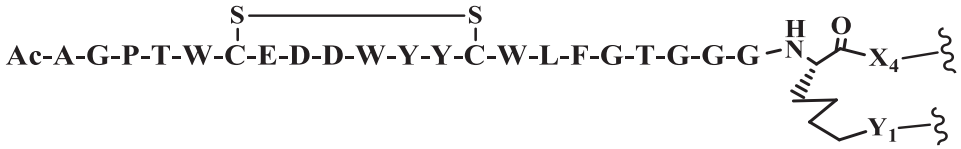
R_{19} is 5'deoxyadenosyl, Me, OH, CN; LB16 (cobalamin, vitamin B12 analog),



R_{19} is 5'deoxyadenosyl, Me, OH, CN; LB17 (cobalamin, vitamin B12 analog),



LB18 (for $\alpha_v\beta_3$ integrin receptor, cyclic RGD pentapeptide),



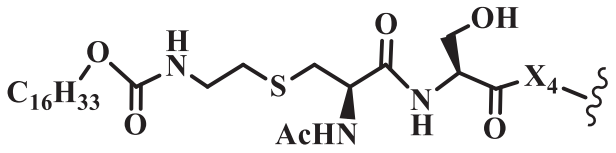
LB19 (hetero-bivalent peptide ligand conjugate for VEGF receptor),



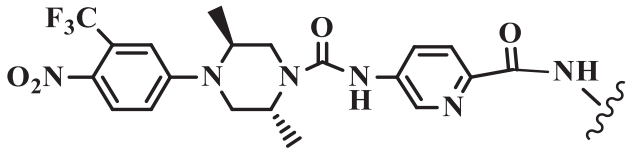
LB20 (Neuromedin B),



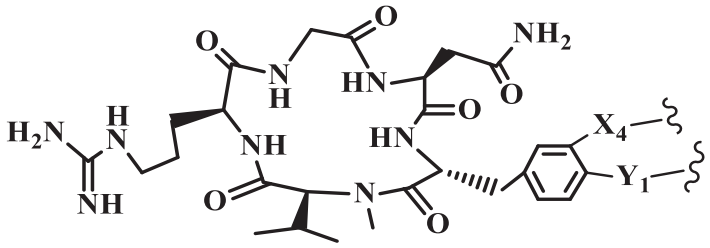
LB21 (bombesin conjugate for a G-protein coupled receptor),



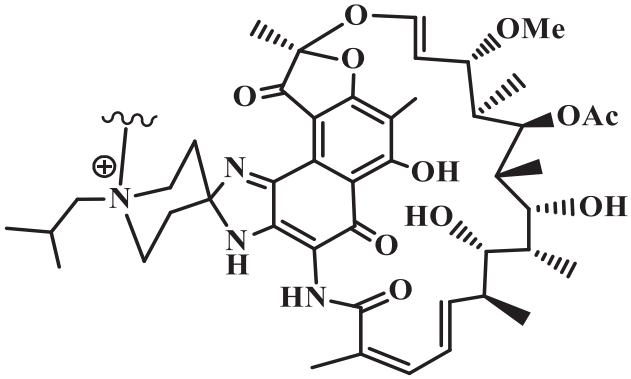
LB22 (TLR_2 conjugate for a Toll-like receptor),



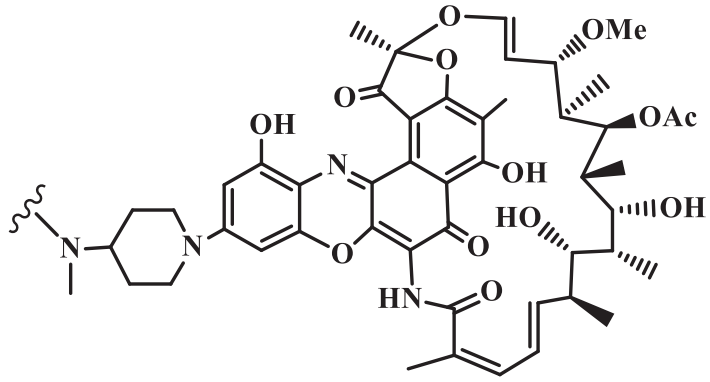
LB23 (an androgen receptor),



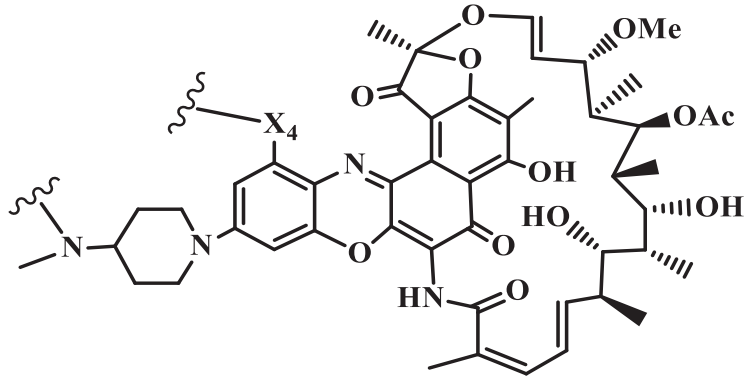
LB24 (Cilengitide/cyclo(-RGDfV-) conjugate for an α_v integrin receptor)



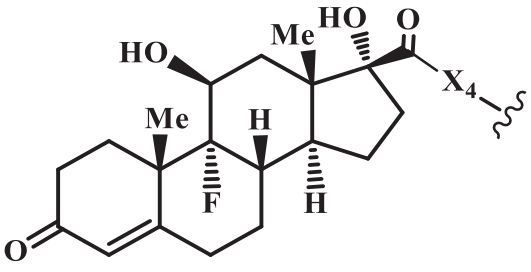
LB25 (Rifabutin analog),



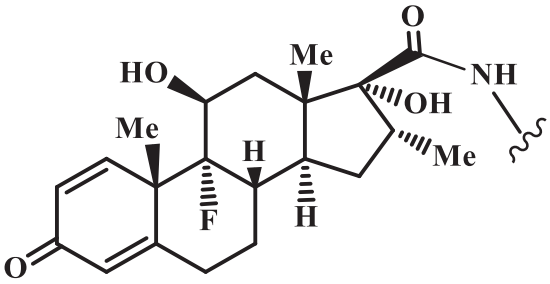
LB26 (Rifabutin analog),



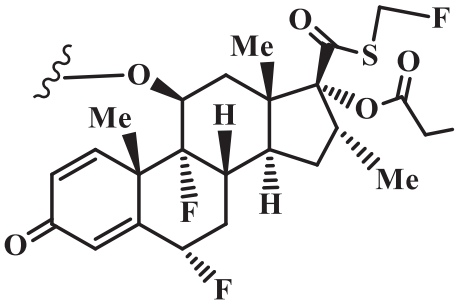
LB27 (Rifabutin analog),



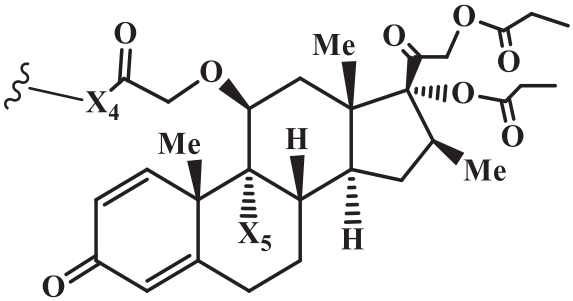
LB28 (Fludrocortisone),



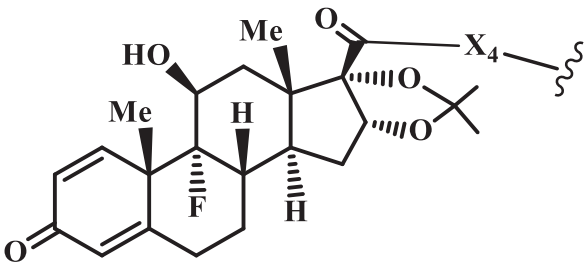
LB29 (Dexamethasone),



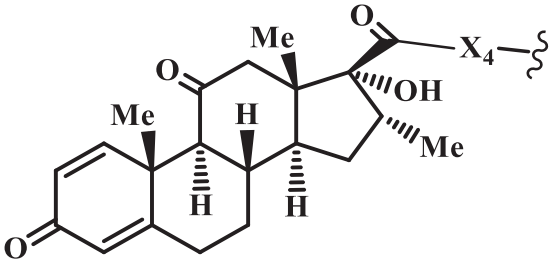
LB30 (fluticasone propionate),



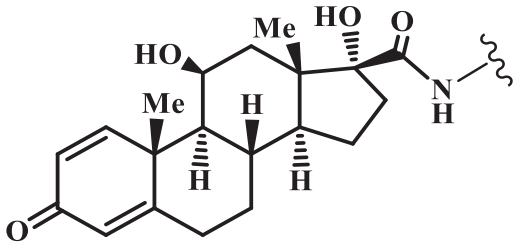
LB31 (Beclometasone dipropionate),



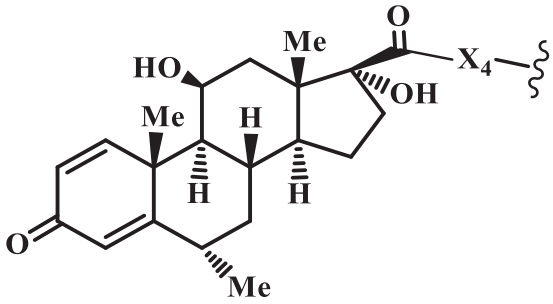
LB32 (Triamcinolone acetonide),



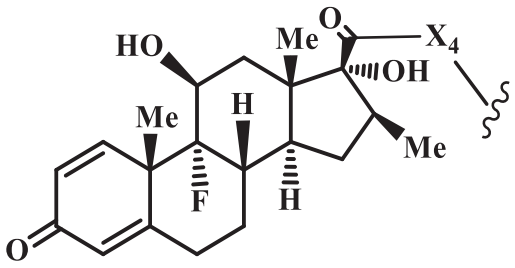
LB33 (Prednisone),



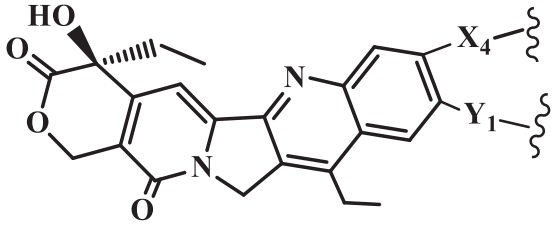
LB34 (Prednisolone),



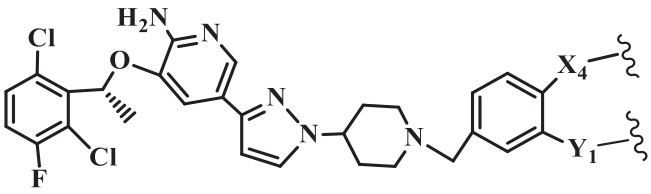
LB35 (Methylprednisolone),



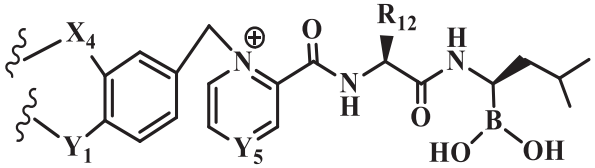
LB36 (Betamethasone),



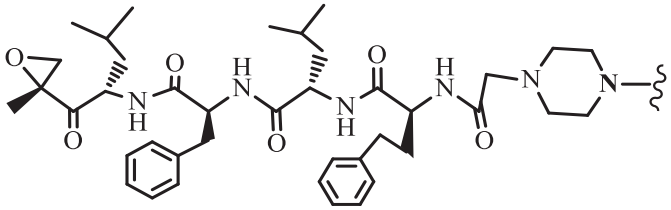
LB37 (Irinotecan analog),



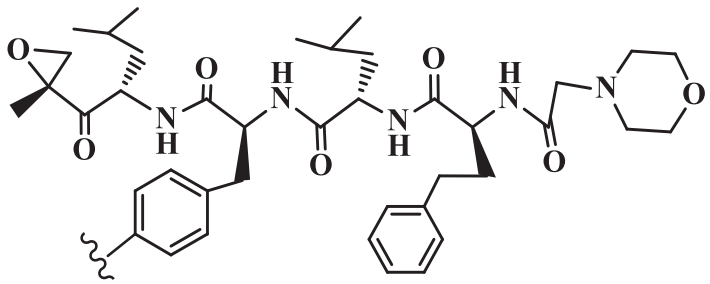
LB38 (Crizotinib analog**),**



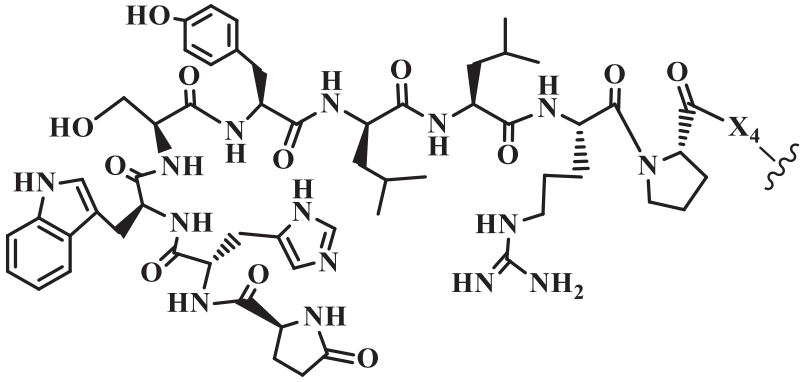
LB39 (Bortezomib analog), wherein Y_5, is N, CH, C(Cl), $C(CH_3)$, or $C(COOR_1)$; R_{12} is H, C_1-C_6 Alkyl, C_3-C_8 Ar;



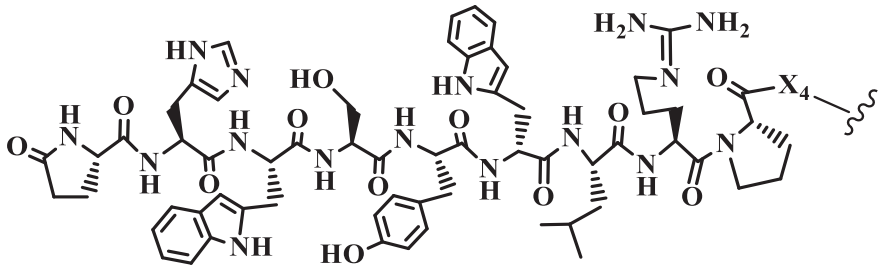
LB40 (Carfilzomib analog),



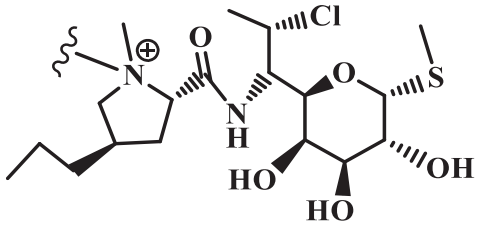
LB41 (Carfilzomib analog),



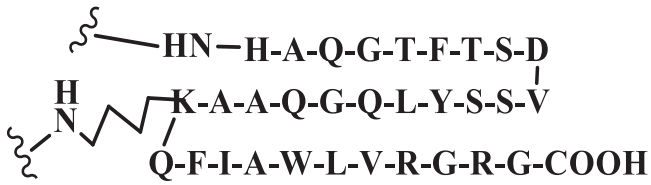
LB42 (Leuprolide analog),



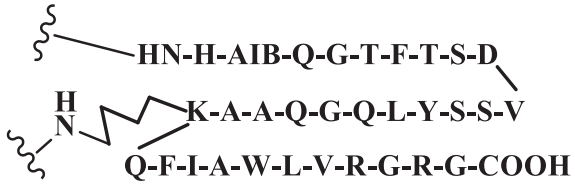
LB43 (Triptorelin analog),



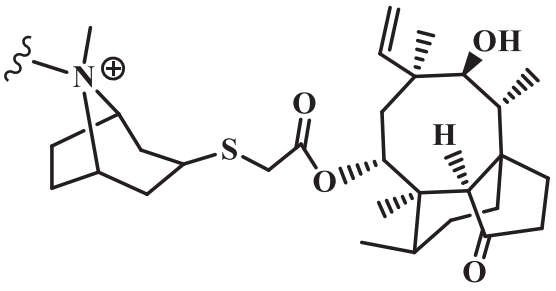
LB44 (Clindamycin),



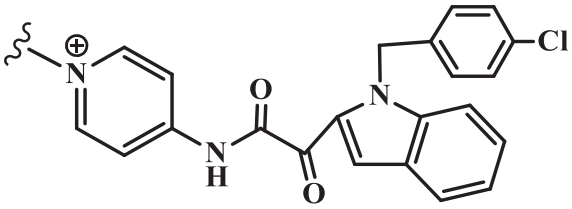
LB45 (Liraglutide analog),



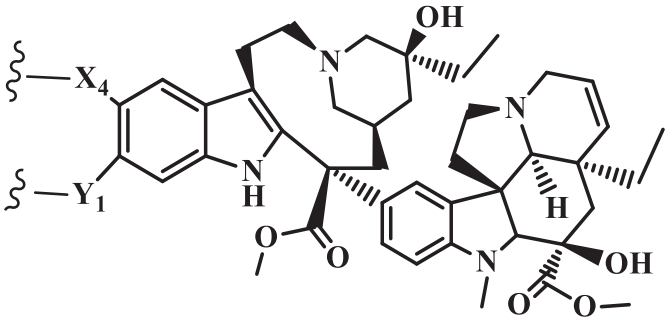
LB46 (Semaglutide analog),



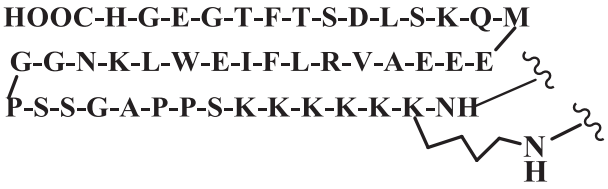
LB47 (Retapamulin analog),



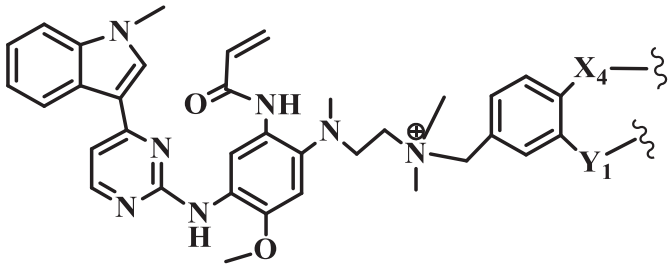
LB48 (Indibulin analog),



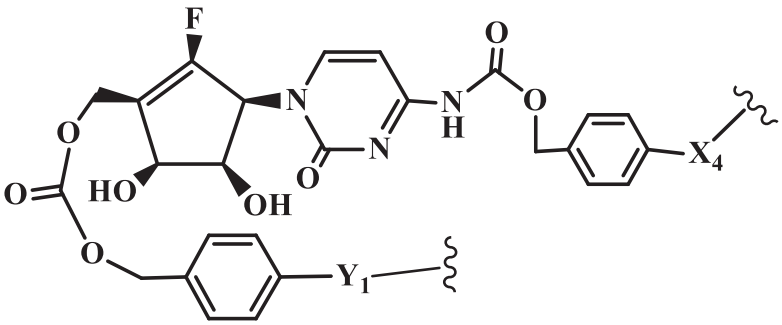
LB49 (Vinblastine analog),



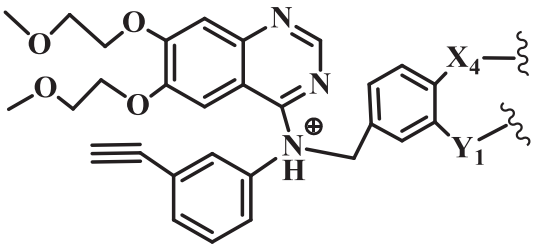
LB50 (Lixisenatide analog),



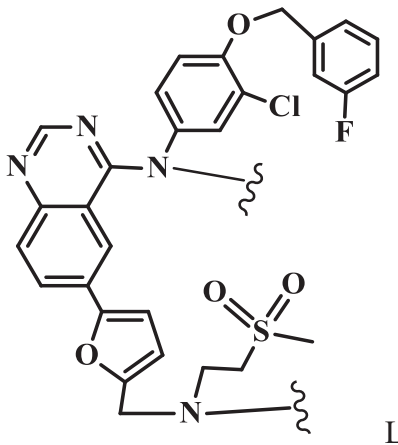
LB51 (Osimertinib analog),



LB52 (a nucleoside analog),



LB53 (Erlotinib analog),



LB54 (Lapatinib analog);

(E): one, two or more DNA, RNA, mRNA, small interfering RNA (siRNA), microRNA (miRNA), and PIWI interacting RNAs (piRNA):



, SI01,

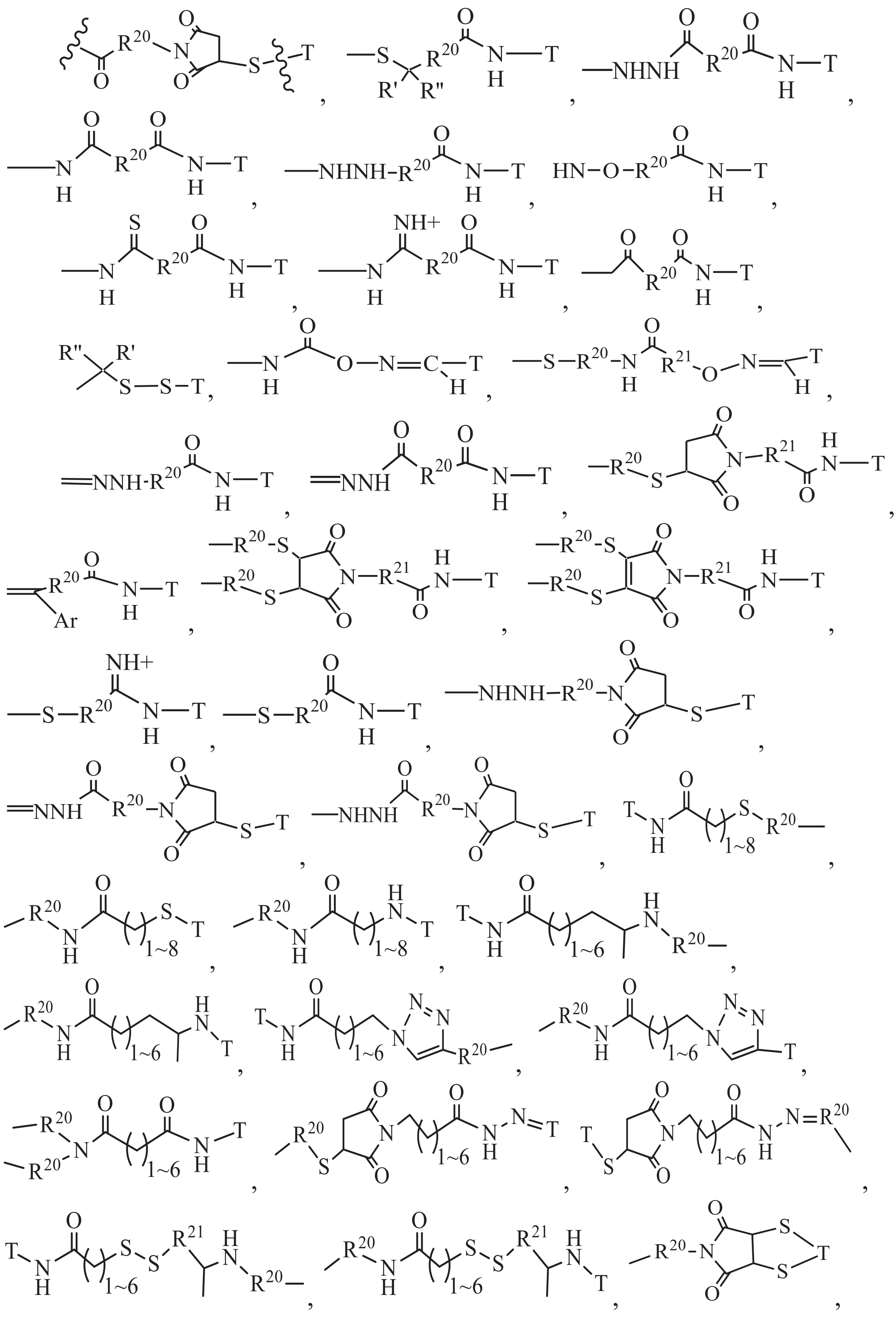


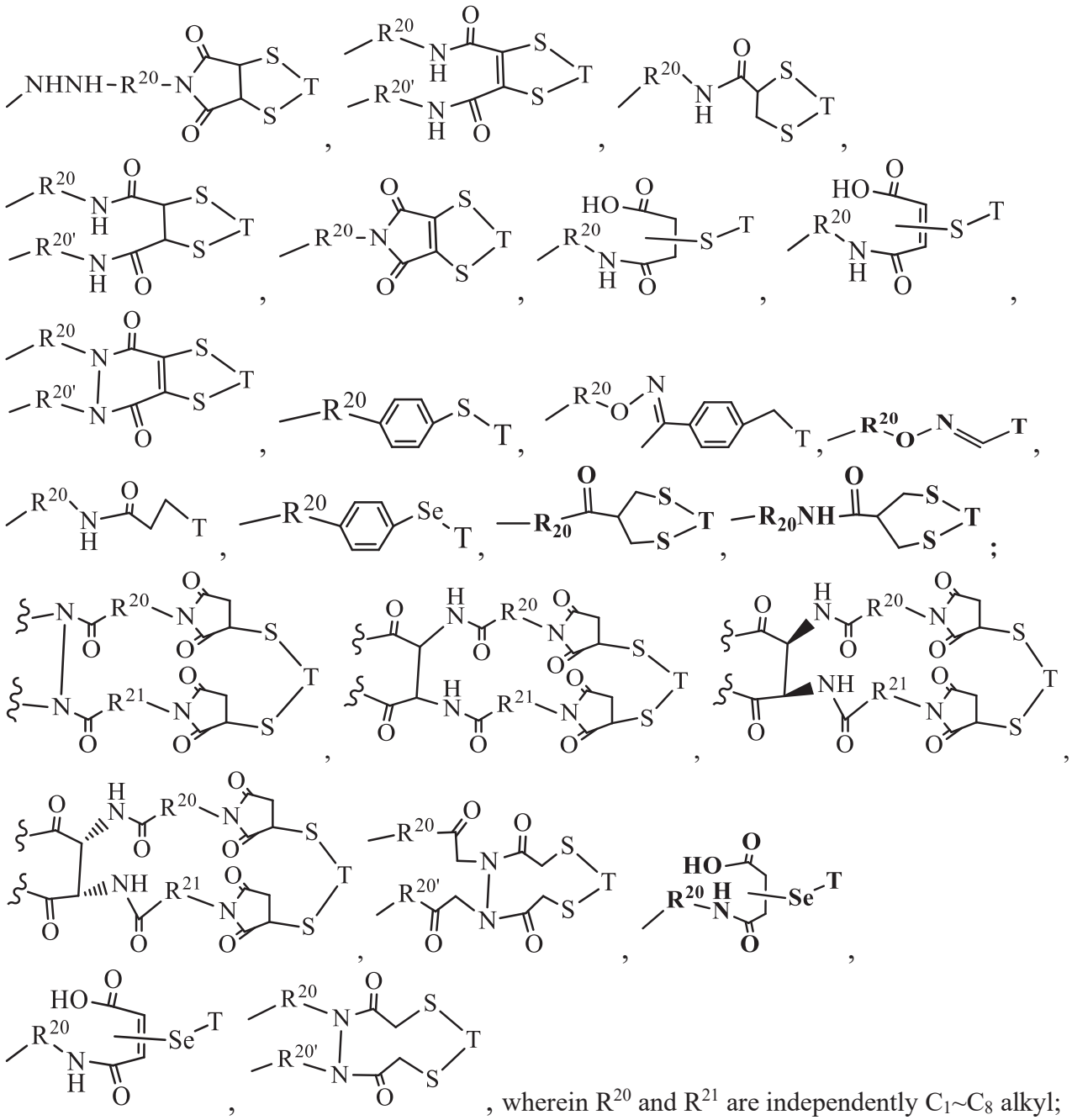
, SI02;

(F): An immunotoxin: Diphtheria toxin (DT), Cholera toxin (CT), Trichosanthin (TCS), Dianthin, Pseudomonas exotoxin A (ETA′), Erythrogenic toxins, Diphtheria toxin, AB toxins, Type III exotoxins;

wherein "〰" is the site to link the side chain linker of the present patent;  is single or double strands of DNA, RNA, mRNA, siRNA, miRNA, or piRNA; X_4,and Y_1 are independently O, NH, NHNH, NR_1, S, C(O)O, C(O)NH, OC(O)NH, OC(O)O, NHC(O)NH, NHC(O)S, $OC(O)N(R_1)$, $N(R_1)C(O)N(R_1)$, CH_2, C(O)NHNHC(O) and C(O)NR_1; X_1 is H, CH_2, OH, O, C(O), C(O)NH, $C(O)N(R_1)$, R_1, NHR_1, NR_1, $C(O)R_1$ or C(O)O; X_5 is H, CH_3, F, or Cl; M_1 and M_2 are independently H, Na, K, Ca, Mg, NH_4, $N(R_{12}R_{12'}R_{13}R_{13'})$; R_{12}, $R_{12'}$, R_{13} and $R_{13'}$ are defined in Claim 1.

~~9~~12. The compound according to Claim **1, ~~2~~** or **~~8~~11**, when cell-binding molecule, T or mAb, linking to V_1 and/or V_2, of Formula (I), (II) or (III), or when cell-binding molecule, T directly linking to L_1 and/or L_2 of Formula (I), (II) or (III), wherein V_1, and/or V_2, are absent, the conjugate compound having one or more of the following the linkage structures:





, wherein R^{20} and R^{21} are independently C_1~C_8 alkyl; C_2~C_8 heteroalkyl, or heterocyclic; C_3~C_8 aryl, Ar-alkyl, cycloalkyl, alkylcycloalkyl, heterocycloalkyl, heteroalkylcycloalkyl, carbocyclic, or alkylcarbonyl; or C_2-C_{100} polyethylene glycol having formula of $(CH_2CH_2O)_p$.

10~~3~~. The compound according to claim **1~~, 2, 6~~9,** or **8~~11~~,** wherein cell binding agent/molecule is capable of targeting against a tumor cell, a virus infected cell, a microorganism infected cell, a parasite infected cell, an autoimmune disease cell, an activated tumor cells, a myeloid cell, an activated T-cell, an affecting B cell, or a melanocyte, or any cells expressing any one of the following antigens or receptors: CD1, CD1a, CD1b, CD1c, CD1d, CD1e， CD2, CD3, CD3d, CD3e,

CD3g, CD4，CD5，CD6，CD7，CD8，CD8a, CD8b, CD9，CD10，CD11a，CD11b，CD11c，CD11d，CD12w，CD14，CD15，CD16，CD16a, CD16b, CDw17，CD18，CD19, CD20, CD21, CD22，CD23，CD24，CD25，CD26，CD27，CD28，CD29，CD30, CD31，CD32，CD32a, CD32b, CD33, CD34，CD35，CD36，CD37，CD38, CD39, CD40, CD41，CD42，CD42a, CD42b, CD42c, CD42d, CD43，CD44，CD45，CD46，CD47，CD48，CD49b，CD49c，CD49c，CD49d, CD49f, CD50, CD51, CD52, CD53，CD54，CD55，CD56, CD57, CD58，CD59，CD60, CD60a, CD60b, CD60c, CD61，CD62E，CD62L，CD62P，CD63，CD64, CD65, CD65s, CD66, CD66a, CD66b, CD66c, CD66d, CD66e, CD66f, CD67, CD68，CD69，CD70, CD71，CD72，CD73, CD74, CD75, CD75s, CD76, CD77, CD78, CD79，CD79a，CD79b，CD80, CD81，CD82，CD83，CD84, CD85, CD85a, CD85b, CD85c, CD85d, CD85e, CD85f, CD85g, CD85g, CD85i, CD85j, CD85k, CD85m, CD86，CD87，CD88，CD89，CD90，CD91，CD92, CD93, CD94, CD95，CD96，CD97, CD98, CD99, CD100，CD101, CD102, CD103, CD104，CD105，CD106，CD107, CD107a, CD107b, CD108, CD109，CD110, CD111，CD112, CD113, CD114, CD115，CD116，CD117, CD118, CD119, CD120，CD120a, CD120b, CD121，CD121a, CD121b, CD122，CD123, CD123a，CD124, CD125, CD126, CD127, CD128, CD129, CD130, CD131，CD132, CD133，CD134，CD135，CD136, CD137, CD138, CD139，CD140，CD140a, CD140b, CD141，CD142，CD143，CD144，CD145，CDw145, CD146, CD147，CD148，CD149, CD150，CD151，CD152，CD153, CD154, CD155，CD156，CD156a, CD156b, CD156c, CD156d, CD157, CD158，CD158a，CD158b1，CD158b2，CD158c，CD158d，CD158e1，CD158e2，CD158f2，CD158g，CD158h，CD158i，CD158j，CD158k，CD159，CD159a，CD159b，CD159c，CD160, CD161，CD162, CD163，CD164，CD165, CD166，CD167, CD167a, CD167b, CD168，CD169，CD170，CD171，CD172, CD172a, CD172b, CD172g, CD173，CD174，CD175, CD175s, CD176，CD177, CD178，CD179，CD179a，CD179b，CD180，CD181，CD182, CD183，CD184，CD185, CD186，CDw186，CD187, CD188，CD189，CD190，CD191，CD192, CD193，CD194，CD195，CD196，CD197, CD198，CD199，CDw198，CDw199，CD200，CD201，CD202, CD202（a，b），CD203，CD203c，CD204，CD205, CD206，CD207, CD208，CD209，CD210，CDw210a，CDw210b，CD211，CD212, CD213，CD213a1，CD213a2，CD214，CD215，

CD216，CD217, CD218，CD218a，CD218，~~CD21b9~~ CD219b，CD220，CD221，CD222，CD223，CD224，CD225, CD226，CD227, CD228，CD229，CD230，CD231，CD232，CD233，CD234，CD235, CD235a，CD235b，CD236，CD237, CD238，CD239，CD240，CD240ce，CD240d，CD241，CD242, CD243，CD244，CD245, CD246，CD247, CD248，CD249，CD250，CD251，CD252, CD253，CD254，CD255, CD256，CD257, CD258，CD259，CD260，CD261，CD262, CD263，CD264，CD265, CD266，CD267, CD268，CD269，CD270，CD271，CD272, CD273，CD274，CD275, CD276，CD277, CD278，CD279，CD281，CD282, CD283，CD284，CD285, CD286，CD287, CD288，CD289，CD290，CD291，CD292, CD293，CD294，CD295, CD296，CD297, CD298，CD299，CD300，CD300a，CD300b，CD300c，CD301，CD302, CD303，CD304，CD305, CD306，CD307, CD307a, CD307b, CD307c, CD307d, CD307e, CD307f, CD308，CD309，CD310，CD311，CD312, CD313，CD314，CD315, CD316，CD317, CD318，CD319，CD320，CD321，CD322, CD323，CD324，CD325, CD326，CD327, CD328，CD329，CD330，CD331，CD332, CD333，CD334，CD335, CD336，CD337, CD338，CD339，CD340，CD341，CD342, CD343，CD344，CD345, CD346，CD347, CD348，CD349，CD350，CD351，CD352, CD353，CD354，CD355, CD356，CD357, CD358，CD359，CD360，CD361，CD362, CD363，CD364，CD365, CD366，CD367, CD368，CD369，CD370，CD371，CD372, CD373，CD374，CD375, CD376，CD377, CD378，CD379，CD381，CD382, CD383, CD384，CD385, CD386, CD387, CD388，CD389, CRIPTO, CRIPTO, CR, CR1, CRGF, CRIPTO, CXCR5, LY64, TDGF1, 4-1BB，APO2，ASLG659，BMPR1B, 4-1BB, 5AC, 5T4 (Trophoblastic glycoprotein, TPBG, 5T4, Wnt-Activated Inhibitory Factor 1 or WAIF1), Adenocarcinoma antigen, AGS-5, AGS-22M6, Activin receptor-like kinase 1, AFP, AKAP-4, ALK, Alpha integrin, Alpha v beta6, Amino-peptidase N, Amyloid beta, Androgen receptor, Angiopoietin 2, Angiopoietin 3, Annexin A1, Anthrax toxin protective antigen, Anti-transferrin receptor, AOC3 (VAP-1), B7-H3, Bacillus anthracis anthrax, BAFF (B-cell activating factor), BCMA, B-lymphoma cell, bcr-abl, Bombesin, BORIS, C5, C242 antigen, CA125 (carbohydrate antigen 125, MUC16), CA-IX (or CAIX, carbonic anhydrase 9), CALLA, CanAg, Canis lupus familiaris IL31, Carbonic anhydrase IX, Cardiac myosin, CCL11(C-C motif chemokine 11), CCR4 (C-C chemokine

receptor type 4), CCR5, CD3E (epsilon), CEA (Carcinoembryonic antigen), CEACAM3, CEACAM5 (carcino-embryonic antigen), CFD (Factor D), Ch4D5, Cholecystokinin 2 (CCK2R), CLDN18 (Claudin-18), Clumping factor A, cMet, CRIPTO, FCSF1R (Colony stimulating factor 1 receptor), CSF2 (colony stimulating factor 2, Granulocyte-macrophage colony-stimulating factor (GM-CSF)), CSP4, CTLA4 (cytotoxic T-lymphocyte-associated protein 4), CTAA16.88 tumor antigen, CXCR4, C-X-C chemokine receptor type 4, cyclic ADP ribose hydrolase, Cyclin B1, CYP1B1, Cytomegalovirus, Cytomegalovirus glycoprotein B, Dabigatran, DLL3 (delta-like-ligand 3), DLL4 (delta-like-ligand 4), DPP4 (Dipeptidyl-peptidase 4), DR5 (Death receptor 5), E. coli shiga toxin type-1, E. coli shiga toxin type-2, ED-B, EGFL7 (EGF-like domain-containing protein 7), EGFR, EGFRII, EGFRvIII, Endoglin, Endothelin B receptor, Endotoxin, EpCAM (epithelial cell adhesion molecule), EphA2, Episialin, ERBB2 (Epidermal Growth Factor Receptor 2), ERBB3, ERG (TMPRSS2 ETS fusion gene), Escherichia coli, ETV6-AML, FAP (Fibroblast activation protein alpha), FCGR1, alpha-Fetoprotein, Fibrin II, beta chain, Fibronectin extra domain-B, FOLR (folate receptor), Folate receptor alpha, Folate hydrolase, Fos-related antigen 1F protein of respiratory syncytial virus, Frizzled receptor, Fucosyl GM1, GD2 ganglioside, G-28 (a cell surface antigen glyvolipid), GD3 idiotype, GloboH, Glypican 3, N-glycolylneuraminic acid, GM3, GMCSF receptor α-chain, Growth differentiation factor 8, GP100, GPNMB (Trans-membrane glycoprotein NMB), GUCY2C (Guanylate cyclase 2C, guanylyl cyclase C(GC-C), intestinal Guanylate cyclase, Guanylate cyclase-C receptor, Heat-stable enterotoxin receptor (hSTAR)), Heat shock proteins, Hemagglutinin, Hepatitis B surface antigen, Hepatitis B virus, HER1 (human epidermal growth factor receptor 1), HER2, HER2/neu, HER3 (ERBB-3), IgG4, HGF/SF (Hepatocyte growth factor/scatter factor), HHGFR, HIV-1, Histone complex, HLA-DR (human leukocyte antigen), HLA-DR10, HLA-DRB , HMWMAA, Human chorionic gonadotropin, HNGF, Human scatter factor receptor kinase, HPV E6/E7, Hsp90, hTERT, ICAM-1 (Intercellular Adhesion Molecule 1), Idiotype, IGF1R (IGF-1, insulin-like growth factor 1 receptor), IGHE, IFN-γ, Influenza hemagglutinin, IgE, IgE Fc region, IGHE, interleukins (comprising IL-1, IL-2, IL-3, IL-4, IL-5, IL-6, IL-6R, IL-7, IL-8, IL-9, IL-10, IL-11, IL-12, IL-13, IL-15, IL-17, IL-17A, IL-18, IL-19, IL-20, IL-21, IL-22, IL-23, IL-27, or IL-28), IL31RA, ILGF2 (Insulin-like growth factor 2), Integrins (α4, $\alpha_{IIb}\beta_3$, αvβ3, $\alpha_4\beta_7$, α5β1, α6β4,

α7β7, αIIβ3, α5β5, αvβ5), Interferon gamma-induced protein, ITGA2, ITGB2, KIR2D, Kappa Ig, LCK, Le, Legumain, Lewis-Y antigen, LFA-1 (Lymphocyte function-associated antigen 1, CD11a), LHRH, LINGO-1, Lipoteichoic acid, LIV1A, LMP2, LTA, MAD-CT-1, MAD-CT-2, MAGE-1, MAGE-2, MAGE-3, MAGE A1, MAGE A3, MAGE 4, MART1, MCP-1, MIF (Macrophage migration inhibitory factor, or glycosylation-inhibiting factor (GIF)), MS4A1 (membrane-spanning 4-domains subfamily A member 1), MSLN (mesothelin), MUC1(Mucin 1, cell surface associated (MUC1) or polymorphic epithelial mucin (PEM)), MUC1-KLH, MUC16 (CA125), MCP1(monocyte chemotactic protein 1), MelanA/MART1, ML-IAP, MPG, MS4A1 (membrane-spanning 4-domains subfamily A), MYCN, Myelin-associated glycoprotein, Myostatin, NA17, NARP-1, NCA-90 (granulocyte antigen), Nectin-4 (ASG-22ME), NGF, Neural apoptosis-regulated proteinase 1, NOGO-A, Notch receptor, Nucleolin, Neu oncogene product, NY-BR-1, NY-ESO-1, OX-40, Ox-LDL (Oxidized low-density lipoprotein), OY-TES1, P21, p53 nonmutant, P97, Page4, PAP, Paratope of anti-(N-glycolylneuraminic acid), PAX3, PAX5, PCSK9, PDCD1 (PD-1, Programmed cell death protein 1), PDGF-Rα (Alpha-type platelet-derived growth factor receptor), PDGFR-β, PDL-1, PLAC1, PLAP-like testicular alkaline phosphatase, Platelet-derived growth factor receptor beta, Phosphate-sodium co-transporter, PMEL 17, Polysialic acid, Proteinase3 (PR1), Prostatic carcinoma, PS (Phosphatidylserine), Prostatic carcinoma cells, Pseudomonas aeruginosa, PSMA, PSA, PSCA, Rabies virus glycoprotein, RHD (Rh polypeptide 1 (RhPI)), Rhesus factor, RANKL, RhoC, Ras mutant, RGS5, ROBO4, Respiratory syncytial virus, RON, ROR1, Sarcoma translocation breakpoints, SART3, Sclerostin, SLAMF7 (SLAM family member 7), Selectin P, SDC1 (Syndecan 1), sLe(a), Somatomedin C, SIP (Sphingosine-1-phosphate), Somatostatin, Sperm protein 17, SSX2, STEAP1 (six-transmembrane epithelial antigen of the prostate 1), STEAP2, STn, TAG-72 (tumor associated glycoprotein 72), Survivin, T-cell receptor, T cell transmembrane protein, TEM1 (Tumor endothelial marker 1), TENB2, Tenascin C (TN-C), TGF-α, TGF-β (Transforming growth factor beta), TGF-β1, TGF-β2 (Transforming growth factor-beta 2), Tie (CD202b), Tie2, TIM-1 (CDX-014), Tn, TNF, TNF-α, TNFRSF8, TNFRSF10B (tumor necrosis factor receptor superfamily member 10B), TNFRSF-13B (tumor necrosis factor receptor superfamily member 13B), TPBG (trophoblast glycoprotein), TRAIL-R1 (Tumor necrosis apoptosis Inducing ligand Receptor 1), TRAILR2

(Death receptor 5 (DR5)), tumor-associated calcium signal transducer 2, tumor specific glycosylation of MUC1, TWEAK receptor, TYRP1(glycoprotein 75), TRP-2 (Trop2), Tyrosinase, VCAM-1, VEGF, VEGF-A, VEGF-2, VEGFR-1, VEGFR2, or vimentin, WT1, XAGE 1, or cells expressing any insulin growth factor receptors, or any epidermal growth factor receptors.

114. The compound~~tumor cell~~ according to claim **103**, wherein the tumor cell is selected from the group consisting of lymphoma cells, myeloma cells, renal cells, breast cancer cells, prostate cancer cells, ovarian cancer cells, colorectal cancer cells, gastric cancer cells, squamous cancer cells, small-cell lung cancer cells, none small-cell lung cancer cells, testicular cancer cells, malignant cells, or any cells that grow and divide at an unregulated, quickened pace to cause cancers.

125. A pharmaceutical composition comprising a therapeutically effective amount of the conjugate compounds of any one of claim **1, 2,** or **69,** and a pharmaceutically acceptable salt, carrier, diluent, or excipient therefore, or a combination of the conjugates thereof, for the treatment or prevention of a cancer, or an autoimmune disease, or an infectious disease.

136. The pharmaceutical composition either in in the liquid formula or in the formulated lyophilized solid/powder according to Claim **125**, comprising by weight of: 0.01%-99% of one or more conjugates of any one of claim **1, 2,** or **69**; 0.0%-20.0% of one or more polyols; 0.0%-2.0% of one or more surfactants; 0.0% -5.0% of one or more preservatives; 0.0% -30% of one or more amino acids; 0.0% -5.0% of one or more antioxidants; 0.0% -0.3% of one or more metal chelating agents; 0.0% -30.0% of one or more buffer salts for adjusting pH of the formulation to pH 4.5 to 7.5; and 0.0% -30.0% of one or more of isotonic agent for adjusting osmotic pressure between about 250 to 350 mOsm when reconstituted for administration to a patient;

wherein the polyol is selected from fructose, mannose, maltose, lactose, arabinose, xylose, ribose, rhamnose, galactose, glucose, sucrose, trehalose, sorbose, melezitose, raffinose, mannitol, xylitol, erythritol, maltitol, lactitol, erythritol, threitol, sorbitol, glycerol, or L-gluconate and its metallic salts);

wherein the surfactant is selected from polysorbate 20, polysorbate 40, polysorbate 65, polysorbate 80, polysorbate 81, or polysorbate 85, poloxamer, poly(ethylene oxide)-poly(propylene oxide), polyethylene-polypropylene, Triton; sodium dodecyl sulfate (SDS), sodium laurel sulfate;

sodium octyl glycoside; lauryl-, myristyl-, linoleyl-, or stearyl-sulfobetaine; lauryl-, myristyl-, linoleyl- or stearyl-sarcosine; linoleyl-, myristyl-, or cetyl-betaine; lauroamidopropyl-, cocamidopropyl-, linoleamidopropyl-, myristamidopropyl-, palmidopropyl-, or isostearamidopropyl-betaine (lauroamidopropyl); myristamidopropyl-, palmidopropyl-, or isostearamidopropyl-dimethylamine; sodium methyl cocoyl-, or disodium methyl oleyl-taurate; dodecyl betaine, dodecyl dimethylamine oxide, cocamidopropyl betaine and coco ampho glycinate; or isostearyl ethylimidonium ethosulfate; polyethyl glycol, polypropyl glycol, and copolymers of ethylene and propylene glycol;

wherein the preservative is selected from benzyl alcohol, octadecyldimethylbenzyl ammonium chloride, hexamethonium chloride, benzalkonium chloride, benzethonium chloride, phenol, butyl and benzyl alcohol, alkyl parabens such as methyl or propyl paraben, catechol, resorcinol, cyclohexanol, 3-pentanol, or m-cresol;

wherein the amino acid is selected from arginine, cystine, glycine, lysine, histidine, ornithine, isoleucine, leucine, alanine, glycine glutamic acid or aspartic acid;

wherein the antioxidant is selected from ascorbic acid, glutathione, cystine or and methionine;

wherein the chelating agent is selected from EDTA or EGTA;

wherein the buffer salt is selected from sodium, potassium, ammonium, or trihydroxyethylamino salts of citric acid, ascorbic acid, gluconic acid, carbonic acid, tartaric acid, succinic acid, acetic acid or phthalic acid; Tris or tromethamine hydrochloride, phosphate or sulfate; arginine, glycine, glycylglycine, or histidine with anionic acetate, chloride, phosphate, sulfate, or succinate salts;

wherein the tonicity agent is selected from mannitol, sorbitol, sodium acetate, potassium chloride, sodium phosphate, potassium phosphate, trisodium citrate, or sodium chloride.

14~~7~~. The pharmaceutical composition according to Claim 12~~5~~ or 13~~6~~**,** is packed in a vial, bottle, pre-filled syringe, or pre-filled auto-injector syringe, in a form of a liquid or lyophilized solid.

~~**18.** The conjugate of Claim 1, 2, 9, or in the form of the pharmaceutical composition of Claim 15 or 16, having in vitro, in vivo or ex vivo cell killing activity.~~

15~~9~~. A pharmaceutical composition comprising the pharmaceutical composition according to Claim 12~~5~~ or 13~~6~~, and~~administered concurrently with~~ a chemotherapeutic agent, a radiation

therapy, an immunotherapy agent, an autoimmune disorder agent, an anti-infectious agents or the other conjugates for ~~synergistically~~ treatment or prevention of a cancer, or an autoimmune disease, or an infectious disease to be administered concurrently with the pharmaceutical composition according to claim 12 or 13.

16~~20~~. The pharmaceutical composition~~chemotherapeutic agent~~ according to Claim 15~~9~~, wherein the chemotherapeutic agent is selected from any one or more of:

(1). a). an alkylating agent: selected from nitrogen mustards: chlorambucil, chlornaphazine, cyclophosphamide, dacarbazine, estramustine, ifosfamide, mechlorethamine, mechlorethamine oxide hydrochloride, mannomustine, mitobronitol, melphalan, mitolactol, pipobroman, novembichin, phenesterine, prednimustine, thiotepa, trofosfamide, uracil mustard; CC-1065 and adozelesin, carzelesin, bizelesin or their synthetic analogues; duocarmycin and its synthetic analogues, KW-2189, CBI-TMI, or CBI dimers; benzodiazepine dimers or pyrrolobenzodiazepine (PBD) dimers, tomaymycin dimers, indolinobenzodiazepine dimers, imidazobenzothiadiazepine dimers, or oxazolidinobenzodiazepine dimers; Nitrosoureas: comprising carmustine, lomustine, chlorozotocin, fotemustine, nimustine, ranimustine; Alkylsulphonates: including busulfan, treosulfan, improsulfan and piposulfan); Triazenes or dacarbazine; Platinum containing compounds: comprising carboplatin, cisplatin, and oxaliplatin; aziridines, benzodopa, carboquone, meturedopa, or uredopa; ethylenimines and methylamelamines including altretamine, triethylenemelamine, trietylenephosphoramide, triethylenethiophosphoramide and trimethylolomelamine];

b). A plant alkaloid: selected from the group consisting of Vinca alkaloids: including vincristine, vinblastine, vindesine, vinorelbine, and navelbin; Taxoids: comprising paclitaxel, docetaxol and their analogs, Maytansinoids including DM1, DM2, DM3, DM4, DM5, DM6, DM7, maytansine, ansamitocins and their analogs, cryptophycins (including the group of cryptophycin 1 and cryptophycin 8); epothilones, eleutherobin, discodermolide, bryostatins, dolostatins, auristatins, tubulysins, cephalostatins; pancratistatin; a sarcodictyin; spongistatin;

c). A DNA Topoisomerase Inhibitor: selected from the groups of Epipodophyllins: comprising 9-aminocamptothecin, camptothecin, crisnatol, daunomycin, etoposide, etoposide phosphate,

irinotecan, mitoxantrone, novantrone, retinoic acids (or retinols), teniposide, topotecan, 9-nitro-camptothecin or RFS 2000; and mitomycins and their analogs;

d). An antimetabolite: selected from the group consisting of {[Anti-folate: (DHFR inhibitors: comprising methotrexate, trimetrexate, denopterin, pteropterin, aminopterin (4-aminopteroic acid) or folic acid analogues); IMP dehydrogenase Inhibitors: (including mycophenolic acid, tiazofurin, ribavirin, EICAR); Ribonucleotide reductase Inhibitors: (including hydroxyurea, deferoxamine)]; [Pyrimidine analogs: Uracil analogs: (including ancitabine, azacitidine, 6-azauridine, capecitabine, carmofur, cytarabine, dideoxyuridine, doxifluridine, enocitabine, 5-Fluorouracil, floxuridine, rat-itrexed); Cytosine analogs: (including cytarabine, cytosine arabinoside, fludarabine); Purine ana-logs: (including azathioprine, fludarabine, mercaptopurine, thiamiprine, thioguanine)]; folic acid re-plenisher, frolinic acid};

e). A hormonal therapy: selected from Receptor antagonists: [Anti-estrogen: (including meges-trol, raloxifene, tamoxifen); LHRH agonists: (including goscrclin, leuprolide acetate); Anti-andro-gens: (including bicalutamide, flutamide, calusterone, dromostanolone propionate, epitiostanol, goserelin, leuprolide, mepitiostane, nilutamide, testolactone, trilostane and other androgens inhibi-tors)]; Retinoids/Deltoids: [Vitamin D3 analogs: (including CB 1093, EB 1089 KH 1060, cholecal-ciferol, ergocalciferol); Photodynamic therapies: (including verteporfin, phthalocyanine, photosensi-tizer Pc4, demethoxyhypocrellin A); Cytokines: (comprising Interferon-alpha, Interferon-gamma, tumor necrosis factor (TNFs), human proteins containing a TNF domain)]};

f). A kinase inhibitor, selected from the group consisting of BIBW 2992 (anti-EGFR/Erb2), imatinib, gefitinib, pegaptanib, sorafenib, dasatinib, sunitinib, erlotinib, nilotinib, lapatinib, axitinib, pazopanib, vandetanib, E7080 (anti-VEGFR2), mubritinib, ponatinib, bafetinib, bosutinib, cabozan-tinib, vismodegib, iniparib, ruxolitinib, CYT387, axitinib, tivozanib, sorafenib, bevacizumab, cetux-imab, Trastuzumab, Ranibizumab, Panitumumab, ispinesib;

g). A poly (ADP-ribose) polymerase (PARP) inhibitors selected from the group of olaparib, ni-raparib, iniparib, talazoparib, veliparib, CEP 9722 (Cephalon's), E7016 (Eisai's), BGB-290 (BeiGene's), or 3-aminobenzamide,

h). An antibiotic, selected from the group consisting of an enediyne antibiotic (selected from the group of calicheamicin, calicheamicin γ1, δ1, α1 or β1; dynemicin, including dynemicin A and deoxydynemicin; esperamicin, kedarcidin, C-1027, maduropeptin, or neocarzinostatin chromophore and related chromoprotein enediyne antibiotic chromomophores), aclacinomycins, actinomycin, authramycin, azaserine, bleomycins, cactinomycin, carabicin, carminomycin, carzinophilin; chromomycins, dactinomycin, daunorubicin, detorubicin, 6-diazo-5-oxo-L-norleucine, doxorubicin, morpholino-doxorubicin, cyanomorpholino-doxorubicin, 2-pyrrolino-doxorubicin and deoxydoxorubicin, epirubicin, eribulin, esorubicin, idarubicin, marcellomycin, nitomycins, mycophenolic acid, nogalamycin, olivomycins, peplomycin, potfiromycin, puromycin, quelamycin, rodorubicin, streptonigrin, streptozocin, tubercidin, ubenimex, zinostatin, zorubicin;

i). A polyketide (acetogenin), bullatacin and bullatacinone; gemcitabine, epoxomicins and-carfilzomib, bortezomib, thalidomide, lenalidomide, pomalidomide, tosedostat, zybrestat, PLX4032, STA-9090, Stimuvax, allovectin-7, Xegeva, Provenge, Yervoy, Isoprenylation inhibitors and Lovastatin, Dopaminergic neurotoxins and1-methyl-4-phenylpyridinium ion, Cell cycle inhibitors (including staurosporine), Actinomycins (including Actinomycin D, dactinomycin), amanitins, Bleomycins (including bleomycin A2, bleomycin B2, peplomycin), Anthracyclines (including daunorubicin, doxorubicin (adriamycin), idarubicin, epirubicin, pirarubicin, zorubicin, mtoxantrone, MDR inhibitors or verapamil, Ca^{2+}ATPase inhibitors or thapsigargin, Histone deacetylase inhibitors ((including Vorinostat, Romidepsin, Panobinostat, Valproic acid, Mocetinostat (MGCD0103), Belinostat, PCI-24781, Entinostat, SB939, Resminostat, Givinostat, AR-42, CUDC-101, sulforaphane, Trichostatin A); Thapsigargin, Celecoxib, glitazones, epigallocatechin gallate, Disulfiram, Salinosporamide A.; Anti-adrenals, selected from the group of aminoglutethimide, mitotane, trilostane; aceglatone; aldophosphamide glycoside; aminolevulinic acid; amsacrine; arabinoside, bestrabucil; bisantrene; edatraxate; defofamine; demecolcine; diaziquone; eflornithine (DFMO), elfomithine; elliptinium acetate, etoglucid; gallium nitrate; gacytosine, hydroxyurea; ibandronate, lentinan; lonidamine; mitoguazone; mitoxantrone; mopidamol; nitracrine; pentostatin; phenamet; pirarubicin; podophyllinic acid; 2-ethylhydrazide; procarbazine; PSK®; razoxane; rhizoxin; sizofiran; spirogermanium;

tenuazonic acid; triaziquone; 2, 2',2''-trichlorotriethylamine; trichothecenes (including the group of T-2 toxin, verrucarin A, roridin A and anguidine); urethane, siRNA, antisense drugs;

(2). An anti-autoimmune disease agent: cyclosporine, cyclosporine A, aminocaproic acid, azathioprine, bromocriptine, chlorambucil, chloroquine, cyclophosphamide, corticosteroids (including the group consisting of amcinonide**,** betamethasone, budesonide**,** hydrocortisone, flunisolide, fluticasone propionate, fluocortolone danazol, dexamethasone, Triamcinolone acetonide, beclometasone dipropionate), DHEA, enanercept, hydroxychloroquine, infliximab, meloxicam, methotrexate, mofetil, mycophenylate, prednisone, sirolimus, tacrolimus~~.~~;

(3). An anti-infectious disease agents comprising:

a). Aminoglycosides: amikacin, astromicin, gentamicin (netilmicin, sisomicin, isepamicin), hygromycin B, kanamycin (amikacin, arbekacin, bekanamycin, dibekacin, tobramycin), neomycin (framycetin, paromomycin, ribostamycin), netilmicin, spectinomycin, streptomycin, tobramycin, verdamicin;

b). Amphenicols: azidamfenicol, chloramphenicol, florfenicol, thiamphenicol;

c). Ansamycins: geldanamycin, herbimycin;

d). Carbapenems: biapenem, doripenem, ertapenem, imipenem, cilastatin, meropenem**,** panipenem;

e). Cephems: carbacephem (loracarbef), cefacetrile, cefaclor, cefradine, cefadroxil, cefalonium, cefaloridine, cefalotin or cefalothin, cefalexin, cefaloglycin, cefamandole, cefapirin, cefatrizine, cefazaflur, cefazedone, cefazolin, cefbuperazone, cefcapene, cefdaloxime, cefepime, cefminox, cefoxitin, cefprozil, cefroxadine, ceftezole, cefuroxime, cefixime, cefdinir, cefditoren, cefepime, cefetamet, cefmenoxime, cefodizime, cefonicid, cefoperazone, ceforanide, cefotaxime, cefotiam, cefozopran, cephalexin, cefpimizole, cefpiramide, cefpirome, cefpodoxime, cefprozil, cefquinome, cefsulodin, ceftazidime, cefteram, ceftibuten, ceftiolene, ceftizoxime, ceftobiprole, ceftriaxone, cefuroxime, cefuzonam, cephamycin (including cefoxitin, cefotetan, cefmetazole), oxacephem (flomoxef, latamoxef);

f). Glycopeptides: bleomycin, vancomycin (including oritavancin, telavancin), teicoplanin (dalbavancin), ramoplanin;

g). Glycylcyclines: tigecycline;

h). β-Lactamase inhibitors: penam (sulbactam, tazobactam), clavam (clavulanic acid);

i). Lincosamides: clindamycin, lincomycin;

j). Lipopeptides: daptomycin, A54145, calcium-dependent antibiotics (CDA);

k). Macrolides: azithromycin, cethromycin, clarithromycin, dirithromycin, erythromycin, flurithromycin, josamycin, ketolide (telithromycin, cethromycin), midecamycin, miocamycin, oleandomycin, rifamycins (rifampicin, rifampin, rifabutin, rifapentine), rokitamycin, roxithromycin, spectinomycin, spiramycin, tacrolimus (FK506), troleandomycin, telithromycin;

l). Monobactams: aztreonam, tigemonam;

m). Oxazolidinones: linezolid;

n). Penicillins: amoxicillin, ampicillin, pivampicillin, hetacillin, bacampicillin, metampicillin, talampicillin, azidocillin, azlocillin, benzylpenicillin, benzathine benzylpenicillin, benzathine phenoxymethylpenicillin, clometocillin, procaine benzylpenicillin, carbenicillin (carindacillin), cloxacillin, dicloxacillin, epicillin, flucloxacillin, mecillinam (pivmecillinam), mezlocillin, meticillin, nafcillin, oxacillin, penamecillin, penicillin, pheneticillin, phenoxymethylpenicillin, piperacillin, propicillin, sulbenicillin, temocillin, ticarcillin;

o). Polypeptides: bacitracin, colistin, polymyxin B;

p). Quinolones: alatrofloxacin, balofloxacin, ciprofloxacin, clinafloxacin, danofloxacin, difloxacin, enoxacin, enrofloxacin, floxin, garenoxacin, gatifloxacin, gemifloxacin, grepafloxacin, kano trovafloxacin, levofloxacin, lomefloxacin, marbofloxacin, moxifloxacin, nadifloxacin, norfloxacin, orbifloxacin, ofloxacin, pefloxacin, trovafloxacin, grepafloxacin, sitafloxacin, sparfloxacin, temafloxacin, tosufloxacin, trovafloxacin;

q). Streptogramins: pristinamycin, quinupristin/dalfopristin;

r). Sulfonamides: mafenide, prontosil, sulfacetamide, sulfamethizole, sulfanilimide, sulfasalazine, sulfisoxazole, trimethoprim, trimethoprim-sulfamethoxazole (co-trimoxazole);

s). Steroid antibacterials: selected from fusidic acid;

t). Tetracyclines: doxycycline, chlortetracycline, clomocycline, demeclocycline, lymecycline, meclocycline, metacycline, minocycline, oxytetracycline, penimepicycline, rolitetracycline, tetracycline, glycylcyclines (including tigecycline);

u). Other antibiotics: selected from the group consisting of annonacin, arsphenamine, bactoprenol inhibitors (Bacitracin), DADAL/AR inhibitors (cycloserine), dictyostatin, discodermolide, eleutherobin, epothilone, ethambutol, etoposide, faropenem, fusidic acid, furazolidone, isoniazid, laulimalide, metronidazole, mupirocin, mycolactone, NAM synthesis inhibitors (fosfomycin), nitrofurantoin, paclitaxel, platensimycin, pyrazinamide, quinupristin/dalfopristin, rifampicin (rifampin), tazobactam tinidazole, uvaricin;

(4). Anti-viral drugs comprising:

a). Entry/fusion inhibitors: aplaviroc, maraviroc, vicriviroc, *gp41* (enfuvirtide**),** PRO 140**,** CD4 (ibalizumab);

b). Integrase inhibitors: raltegravir, elvitegravir, globoidnan A;

c). Maturation inhibitors: bevirimat, vivecon;

d). Neuraminidase inhibitors**:** oseltamivir, zanamivir, peramivir;

e). Nucleosides & nucleotides: abacavir, aciclovir, adefovir, amdoxovir, apricitabine, brivudine, cidofovir, clevudine, dexelvucitabine, didanosine (ddI), elvucitabine, emtricitabine (FTC), entecavir, famciclovir, fluorouracil (5-FU), 3'-fluoro-substituted 2', 3'-dideoxynucleoside analogues (including the group consisting of3'-fluoro-2',3'-dideoxythymidine (FLT) and 3'-fluoro-2',3'-dideoxyguanosine (FLG), fomivirsen, ganciclovir**,** idoxuridine, lamivudine (3TC), l-nucleosides (including the group consisting of *β*-l-thymidine and *β*-l-2'-deoxycytidine), penciclovir, racivir, ribavirin, stampidine, stavudine (d4T), taribavirin (viramidine), telbivudine, tenofovir, trifluridine valaciclovir, valganciclovir, zalcitabine (ddC), zidovudine (AZT);

f). Non-nucleosides: amantadine, ateviridine, capravirine, diarylpyrimidines (etravirine, rilpivirine)**,** delavirdine, docosanol, emivirine, efavirenz, foscarnet (phosphonoformic acid), imiquimod, interferon alfa, loviride, lodenosine, methisazone, nevirapine, NOV-205, peginterferon alfa, podophyllotoxin, rifampicin, rimantadine, resiquimod (R-848), tromantadine;

g). Protease inhibitors: amprenavir**,** atazanavir**,** boceprevir, darunavir, fosamprenavir**,** indinavir, lopinavir**,** nelfinavir, pleconaril, ritonavir**,** saquinavir**,** telaprevir (VX-950), tipranavir;

h). Other types of anti-virus drugs: abzyme**,** arbidol, calanolide a, ceragenin, cyanovirin-n, diarylpyrimidines, epigallocatechin gallate (EGCG)**,** foscarnet**,** griffithsin, taribavirin (viramidine), hydroxyurea, KP-1461, miltefosine, pleconaril, portmanteau inhibitors, ribavirin, seliciclib;~~.~~

(5). The pharmaceutically acceptable salts, acids, derivatives, hydrate or hydrated salt; or a crystalline structure; or an optical isomer, racemate, diastereomer or enantiomer of any of the above drugs.

~~2~~17. The pharmaceutical compositions~~ynergistic agents~~ according to claim 15~~9~~ wherein the agents are selected from one or several of the following drugs: Abatacept, abemaciclib, Abiraterone acetate, Abraxane, Acetaminophen/hydrocodone, Acalabrutinib, aducanumab, Adalimumab, ADXS31-142, ADXS-HER2, afatinib dimaleate, aldesleukin, alectinib, alemtuzumab, Alitretinoin, ado-trastuzumab emtansine, Amphetamine/ dextroamphetamine, anastrozole, Aripiprazole, anthracyclines, Aripiprazole, Atazanavir, Atezolizumab, Atorvastatin, Avelumab, Axicabtagene ciloleucel, axitinib, belinostat, BCG Live, Bevacizumab, bexarotene, blinatumomab, Bortezomib, bosutinib, brentuximab vedotin, brigatinib, Budesonide, Budesonide/ formoterol, Buprenorphine, Cabazitaxel, Cabozantinib, capmatinib, Capecitabine, carfilzomib, chimeric antigen receptor-engineered T (CAR-T) cells, Celecoxib, ceritinib, Cetuximab, Chidamide, Ciclosporin, Cinacalcet, crizotinib, Cobimetinib, Cosentyx, crizotinib, CTL019, Dabigatran, dabrafenib, dacarbazine, daclizumab, dacomotinib, daptomycin, Daratumumab, Darbepoetin alfa, Darunavir, dasatinib, denileukin diftitox, Denosumab, Depakote, Dexlansoprazole, Dexmethylphenidate, Dexamethasone, DigniCap Cooling System, Dinutuximab, Doxycycline, Duloxetine, Duvelisib, durvalumab, elotuzumab, Emtricibine/Rilpivirine/Tenofovir, disoproxil fumarate, Emtricitbine/tenofovir/efavirenz, Enoxaparin, ensartinib, Enzalutamide, Epoetin alfa, erlotinib, Esomeprazole, Eszopiclone, Etanercept, Everolimus, exemestane, everolimus, exenatide ER, Ezetimibe, Ezetimibe/simvastatin, Fenofibrate, Filgrastim, fingolimod, Fluticasone propionate, Fluticasone/salmeterol, fulvestrant, gazyva, gefitinib, Glatiramer, Goserelin acetate, Icotinib, Imatinib, Ibritumomab tiuxetan, ibrutinib, idelalisib, ifosfamide, Infliximab, imiquimod, ImmuCyst, Immuno BCG, iniparib, Insulin aspart,

Insulin detemir, Insulin glargine, Insulin lispro, Interferon alfa, Interferon alfa-1b, Interferon alfa-2a, Interferon alfa-2b, Interferon beta, Interferon beta 1a, Interferon beta 1b, Interferon gamma-1a, lapatinib, Ipilimumab, Ipratropium bromide/ salbutamol, Ixazomib, Kanuma, Lanreotide acetate, lenalidomide, lenaliomide, lenvatinib mesylate, letrozole, Levothyroxine, Levothyroxine, Lidocaine, Linezolid, Liraglutide, Lisdexamfetamine, LN-144, lorlatinib, Memantine, Methylphenidate, Metoprolol, Mekinist, mericitabine/ Rilpivirine/Tenofovir, Modafinil, Mometasone, Mycidac-C, Necitumumab, neratinib, Nilotinib, niraparib, Nivolumab, ofatumumab, obinutuzumab, olaparib, Olmesartan, Olmesartan/ hydrochlorothiazide, Omalizumab, Omega-3 fatty acid ethyl esters, Oncorine, Oseltamivir, Osimertinib, Oxycodone, palbociclib, Palivizumab, panitumumab, panobinostat, pazopanib, pembrolizumab, PD-1 antibody, PD-L1 antibody, Pemetrexed, pertuzumab, Pneumococcal conjugate vaccine, pomalidomide, Pregabalin, ProscaVax, Propranolol, Quetiapine, Rabeprazole, radium 223 chloride, Raloxifene, Raltegravir, ramucirumab, Ranibizumab, regorafenib, ribociclib, Rituximab, Rivaroxaban, romidepsin, Rosuvastatin, ruxolitinib phosphate, Salbutamol, savolitinib, semaglutide, Sevelamer, Sildenafil, siltuximab, Sipuleucel-T, Sitagliptin, Sitagliptin/metformin, Solifenacin, solanezumab, Sonidegib, Sorafenib, Sunitinib, tacrolimus, tacrimus, Tadalafil, tamoxifen, Tafinlar, Talimogene laherparepvec, talazoparib, Telaprevir, talazoparib, Temozolomide, temsirolimus, Tenofovir/ emtricitabine, tenofovir disoproxil fumarate, Testosterone gel, Thalidomide, TICE BCG, Tiotropium bromide, Tisagenlecleucel, toremifene, trametinib, Trastuzumab, Trabectedin (ecteinascidin 743), trametinib, tremelimumab, Trifluridine/tipiracil, Tretinoin, Uro-BCG, Ustekinumab, Valsartan, veliparib, vandetanib, vemurafenib, venetoclax, vorinostat, ziv-aflibercept, Zostavax, and their analogs, derivatives, pharmaceutically acceptable salts, carriers, diluents, or excipients thereof, or a combination above thereof.