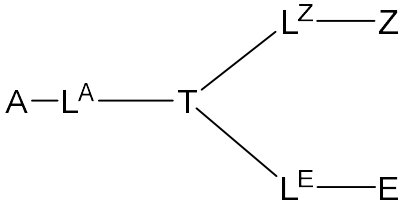
CLAIMS

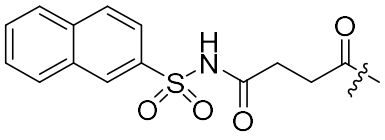
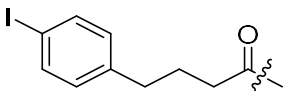
1. A compound of Formula I or a pharmaceutically acceptable salt and/or solvate thereof



(I)

wherein

A is an albumin binding group is selected from


(2-Naph-SO_2NH-Suc),

(4-pIBA),

unsubstituted or substituted C(O)C_{1-26}alkyleneCO_2H, unsubstituted or substituted C(O)C_{2-26}alkenyleneCO_2H, unsubstituted or substituted C(O)C_{1-26}alkyl and unsubstituted or substituted C(O)C_{2-26}alkenyl;

Z is a target binding group;

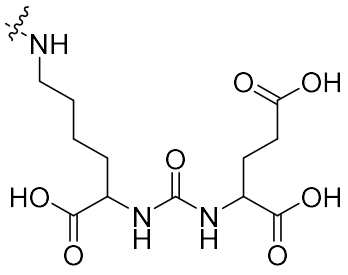
E is a chelating group;

T is a branching group that is at least trivalent;

L^A and L^E are each independently a direct bond, a cleavable linker or a non-cleavable linker, provided at least one of L^A and L^E is a cleavable linker; and

L^Z is a direct bond or a non-cleavable linker.

2. The compound of claim 1, or a pharmaceutically acceptable salt or solvate thereof,

wherein Z is a PSMA binding group

(εKuE).

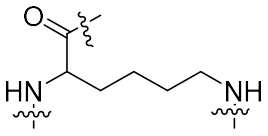
3. The compound of claim 1 or 2, or a pharmaceutically acceptable salt or solvate thereof, wherein the albumin binding group is selected from 4-pIBA, C(O)C_{15}alkyl, C(O)C_{17}alkyl, C(O)C_{16}alkyleneCO_2H, and C(O)C_{18}alkyleneCO_2H.

4. The compound of claim 3, or a pharmaceutically acceptable salt or solvate thereof, wherein the albumin binding group is $C(O)C_{16}$alkyleneCO_2H.

5. The compound of any one of claims 1 to 4, or a pharmaceutically acceptable salt or solvate thereof, wherein the chelating agent is selected from 1,4,7- Triazacyclononane (TACN); 1,4,7-triazacyclononane-triacetic acid (NOTA); 1,4,7-triazacyclononane-N-succinic acid-N',N"-diacetic acid (NOTASA); 1,4,7-triazacyclononane-N-glutamic acid-N',N"-diacetic acid (NODAGA); 1,4,7-triazacyclononane-N,N',N"-tris (methylenephosphonic) acid (NOTP); 1,4,7,10-tetraazacyclododecane ([12]aneN4) (cyclen); 1,4,7,10-tetraazacyclotridecane ([13]aneN4); 1,4,7,11-tetraazacyclotetradecane (iso-cyclam); 1,4,7,10- tetraazacyclododecane-1,4,7,10-tetraacetic acid (DOTA); 2-(1,4,7,10-tetraazacyclododecan-1-yl)acetate (DO1A); 2,2'-(1,4,7,10-tetraazacyclododecane-1,7-diyl) diacetic acid (DO2A); 2,2',2"-(1 ,4,7,10-tetraazacyclododecane-1 ,4,7-triyl) triacetic acid (DO3A); 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetra(methanepnosphonic acid) (DOTP); 1,4,7,10-tetraazacyclododecane-1,7-di(methanephosphoriic acid) (DO2P); 1 ,4,7,10- tetraazacyclododecane-1,4,7-tri(methanephosphonic acid) (DO3P); 1,4,7,10-tetraazacyclo-decane-1 -glutamic acid-4,7,10-triacetic acid (DOTAGA); 1,4,7,10-tetraazacyclodecane-1 -succinic acid-4,7,10-triacetic acid (DOTASA); 1,4,8,11-tetraazacyclotetradecane ([14]aneN4) (cyclam); 1,4,8,12-tetraazacyclopentadecane ([15]aneN4); 1,5,9,13-tetraazacyclohexadecane ([16]aneN4); 1,4-ethano-1,4,8,11-tetraazacyclo-tetradecane (et-cyclam); 1,4,8,11-tetraazacyclotetradecane-1,4,8,1 1-tetraacetic acid (TETA); 2-(1,4,8,11 -tetraazacyclotetradecane- 1-y l) acetic acid (TE1A); 2,2'-(1,4,8,11-tetraazacyclotetradecane-1,8-diyl) diacetic acid (TE2A); 4,11-bis(carboxy methyl)-1,4,8,11-tetraazabicyclo[6.6.2]-hexadecane (CB-TE2A); 3,6,10,13,16,19-hexaazabicyclo[6.6.6]icosane (Sar); 1,4,7,10-tetra-(2-carbamoyl-methyl)-cyclododecane (TCMC); N,N′-bis[(6-carboxy-2-pyridil)methyl]-4,13-diaza-18-crown-6 (macropa), phthalocyanines and derivatives thereof; and porphyrins and derivatives thereof.

6. The compound of claim 5, or a pharmaceutically acceptable salt or solvate thereof, wherein the chelating agent is selected from DOTA and DOTAGA.

7. The compound of any one of claims 1 to 6, or a pharmaceutically acceptable salt or solvate thereof, wherein T is selected from an amino acid residue derived from lysine, ornithine, homo-lysine, 2,3-diaminopropionic acid (DAP), 2,4-diaminobutyric acid (DAB), cysteine, homo-cysteine, or glutamine.

8. The compound of claim 7, or a pharmaceutically acceptable salt or solvate thereof, wherein T is an amino acid residue derived from lysine, , DAP or DAB.

9. The compound of any one of claims 1 to 8, or a pharmaceutically acceptable salt or solvate thereof, wherein each non-cleavable linker independently comprises one or more groups selected from amino acid residues, R^1NC_{1-20}alkyleneNR^2, C(O)C_{1-20}alkyleneC(O), R^1NC_{1-20}alkyleneC(O), and C(O)C_{1-20}alkyleneNR^2, the latter 4 groups being optionally interrupted by one or more of S, O, C(O)NH, NHC(O), NC_{4-6}cycloalkyl, C_{4-6}heterocycloalkyl, and each alkyl and alkylene is optionally substituted with one or more substituents selected from halo, CO_2H, C_{1-6}alkyl, OH, OC_{1-6}alkyl, SH, SC_{1-6}alkyl, NR^3R^4, C_{1-4}alkyleneOH, C_{1-4}alkyleneOC_{1-4}alkyl and C_{1-4}alkyleneNR^3R wherein each R^1, R^2, R^3 and R^4 is independently selected from H and C_{1-4}alkyl.

10. The compound of any one of claims 1 to 9, or a pharmaceutically acceptable salt or solvate thereof, wherein each cleavable linker independently comprises one or more groups selected from one or more amino acid residues, R^5NC_{1-20}alkyleneNR^6, C(O)C_{1-20}alkyleneC(O), R^5NC_{1-20}alkyleneC(O), C(O)C_{1-20}alkyleneNR^6, R^5NC_{1-20}alkyleneO, OC_{1-20}alkyleneNR^6, C(O)C_{1-20}alkyleneO and OC_{1-20}alkyleneC(O) the latter 8 groups being optionally interrupted by one or more of S-S, C(O)O, OC(O), OC(O)O, OC(O)NH, NHC(O)O, SC(O), C(O)S, NC_{1-4}alkylC(O)O, NHOC(O)NH, NC_{1-4}alkylOC(O), S, O, NH, N(C_{1-6}alkyl), C(O), C(O)NH, NHC(O), NHC(O)NH, NHC(S)NH, C(S)NH, NHC(S), C_{4-18}cycloalkyl, C_{4-10}heterocycloalkyl, C_{6-10}aryl and C_{5-10}heteroaryl, and each alkyl and alkylene is optionally substituted with one or more substituents selected from halo, CO_2H, C_{1-6}alkyl, OH, OC_{1-6}alkyl, SH, SC_{1-6}alkyl, NR^7R^7, C_{1-4}alkyleneOH, C_{1-4}alkyleneOC_{1-4}alkyl and C_{1-4}alkyleneNR^7R^8,

wherein R^5, R^6, R^7 and R^8 are independently selected from H and C_{1-4}alkyl,

provided at least two groups connect to form a cleavable moiety, or

provided the one or more groups comprise at least one cleavable moiety; and

the cleavable moiety is selected from S-S, C(O)O, OC(O), OC(O)O, OC(O)NH, NHC(O)O, SC(O), C(O)S, NC_{1-4}alkylC(O)O and an enzymatically cleavable peptide sequence.

11. The compound of any one of claims 1 to 10, or a pharmaceutically acceptable salt or solvate thereof, wherein each cleavable linker independently comprises one or more groups selected from one or more amino acid residues, R^5NC_{1-20}alkyleneNR^6, C(O)C_{1-20}alkyleneC(O), R^5NC_{1-20}alkyleneC(O), C(O)C_{1-20}alkyleneNR^6, R^5NC_{1-20}alkyleneO, OC_{1-}

$_{20}$alkyleneNR^6, C(O)C$_{1-20}$alkyleneO and OC$_{1-20}$alkyleneC(O), the latter 8 groups being optionally interrupted by one or more of S-S, C(O)O, OC(O), S, O, C(O)NH, NHC(O), C$_{4-18}$cycloalkyl, and C$_{4-10}$heterocycloalkyl, and each alkyl and alkylene is optionally substituted with one or more substituents selected from halo, CO_2H, NR^{7}R^7, and C$_{1-4}$alkyleneNR^{7}R^8,

wherein R^5, R^6, R^7 and R^8 are independently selected from H and C$_{1-4}$alkyl,

provided at least two groups connect to form a cleavable moiety, or

provided the one or more groups comprise at least one cleavable moiety, and

the cleavable moiety is selected from S-S, C(O)O, OC(O) and an enzymatically cleavable peptide sequence.

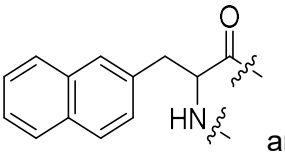
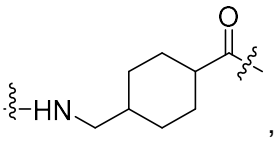
12. The compound of any one of claims 1 to 11, or a pharmaceutically acceptable salt or solvate thereof, wherein the amino acid residue is derived from an naturally occurring amino selected from alanine (Ala), arginine (Arg), asparagine (Asn), aspartic acid (Asp), cysteine (Cys), glutamine (Gln), glutamic acid (Glu), glycine (Gly), histidine (His), isoleucine (Ile), leucine (Leu), Lysine (Lys), methionine (Met), phenylalanine (Phe), proline (Pro), serine (Ser), threonine (Thr), tryptophan (Trp), tyrosine (Tyr), valine (Val), pyrrolysine (Pyl), selenocycleine (Sec) and pyrroline-carboxy-lysine (PCL).

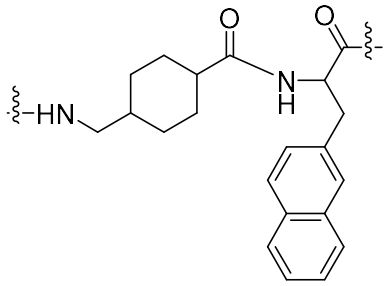
13. The compound of claim 12, or a pharmaceutically acceptable salt or solvate thereof, wherein the amino acid residue derived from Glu is connected through the α-amino and the α-carboxy, or the α-amino and the γ-carboxy and

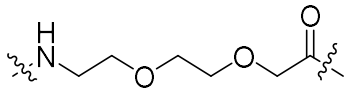
the amino acid residue derived from Lys is connected through α-amino and the α-carboxy, or the α-amino and the ε-amino.

14. The compound of any one of claims 1 to 13, or a pharmaceutically acceptable salt or solvate thereof, wherein L^A is a cleavable linker and L^E is a direct bond or a non-cleavable linker.

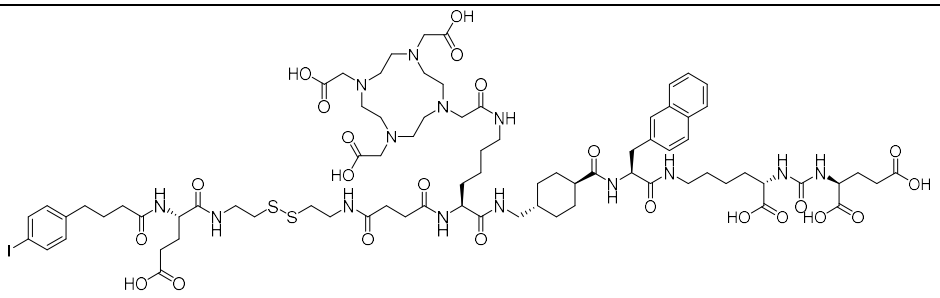
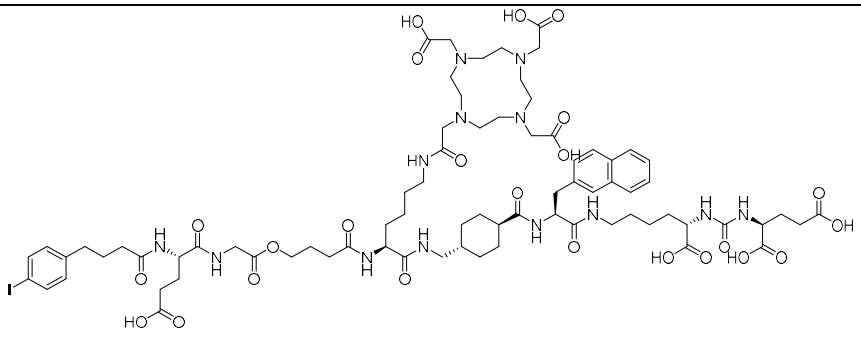
15. The compound of any one of claims 1 to 13, or a pharmaceutically acceptable salt or solvate thereof, wherein L^E is a direct bond.

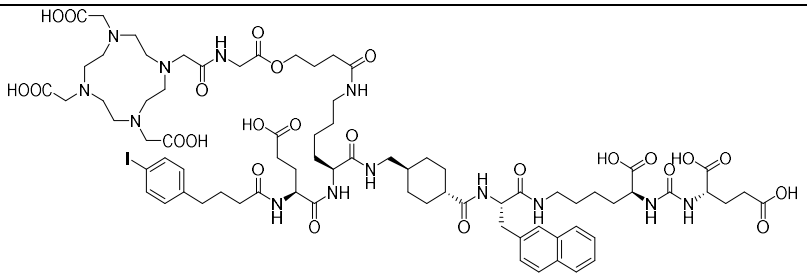
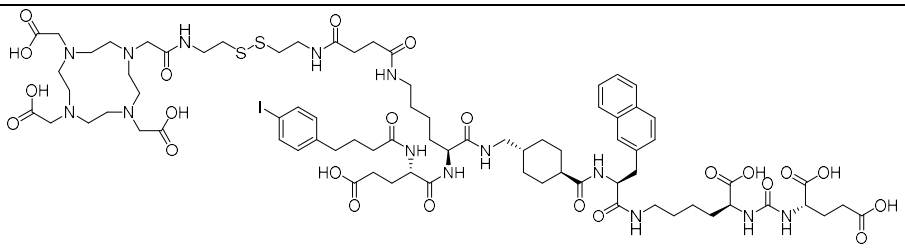
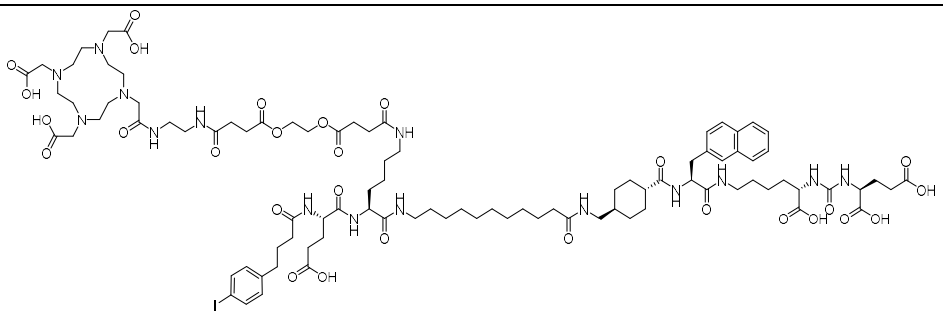
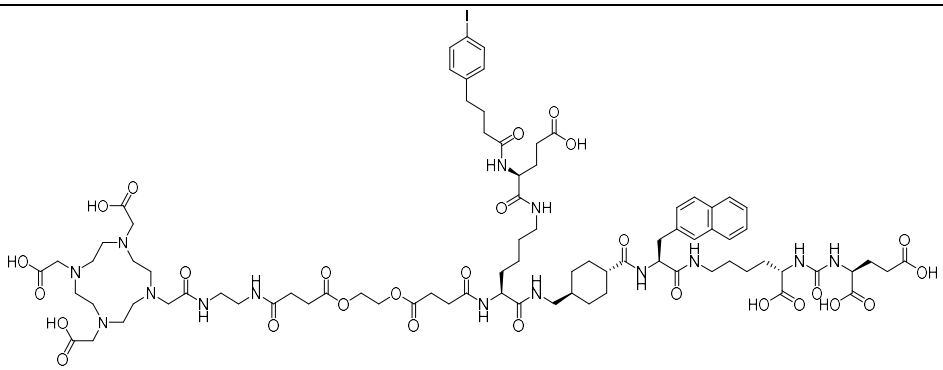
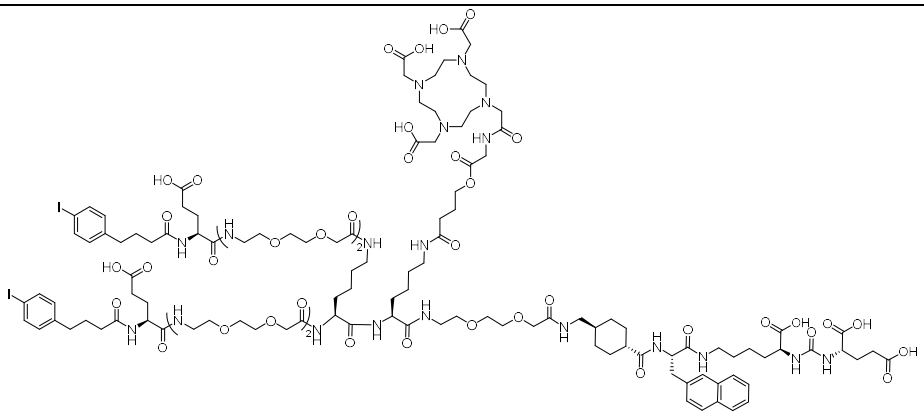
16. The compound of any one of claims 1 to 15, or a pharmaceutically acceptable salt or solvate thereof, wherein L^Z is a non-cleavable linker comprising one or more groups selected from  and , and

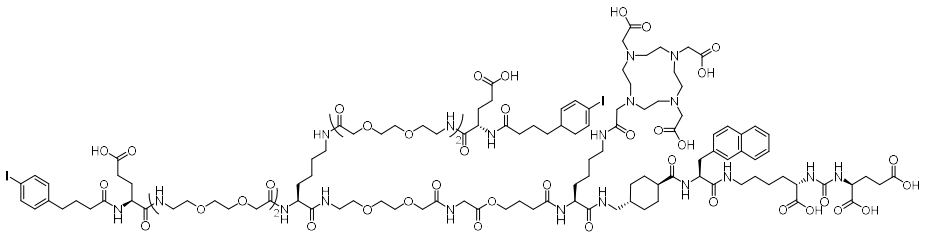
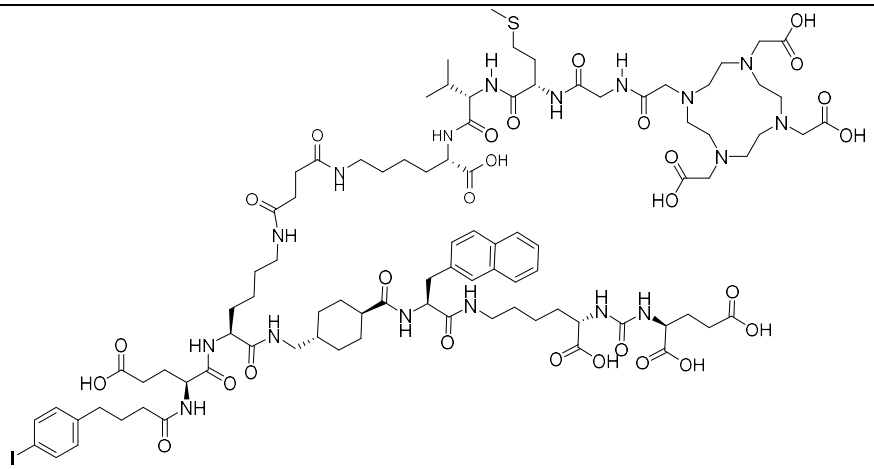
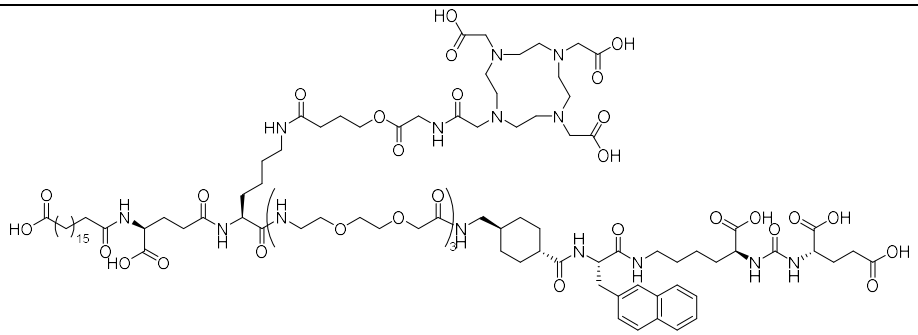
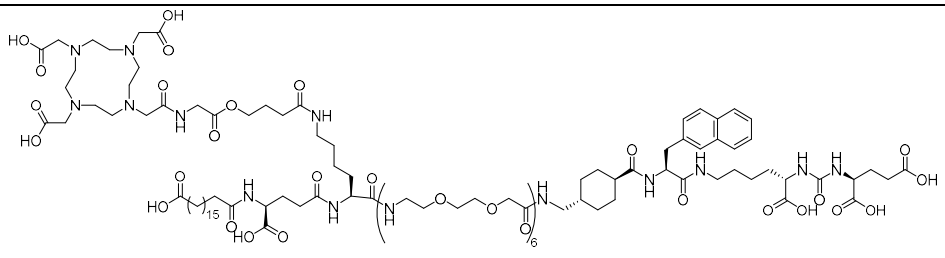
L^Z is or comprises  .

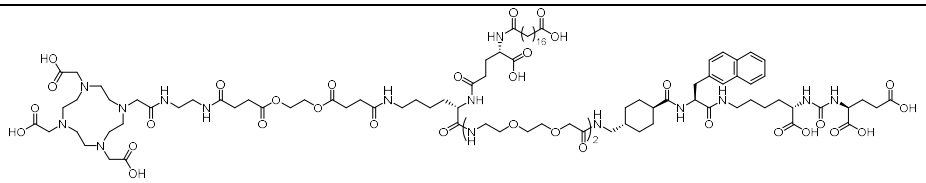
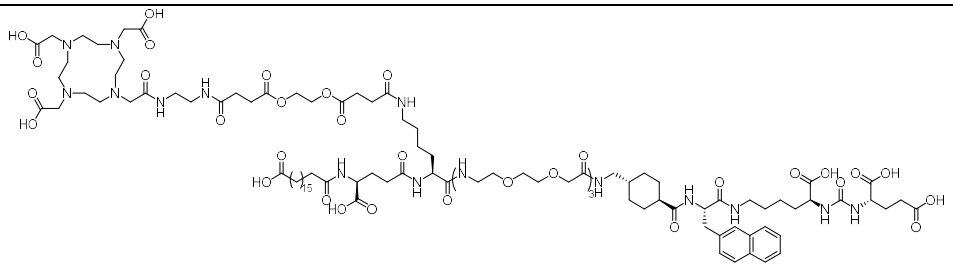
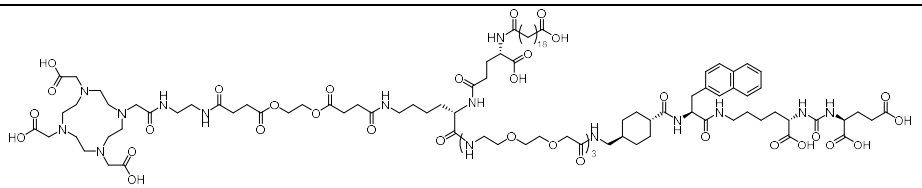
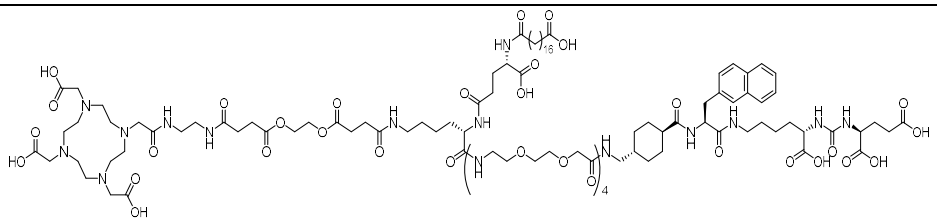
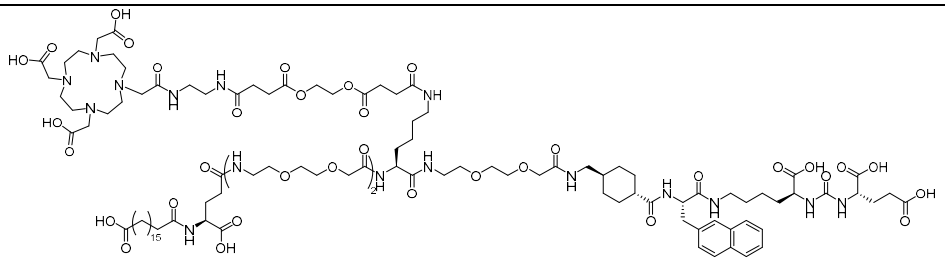
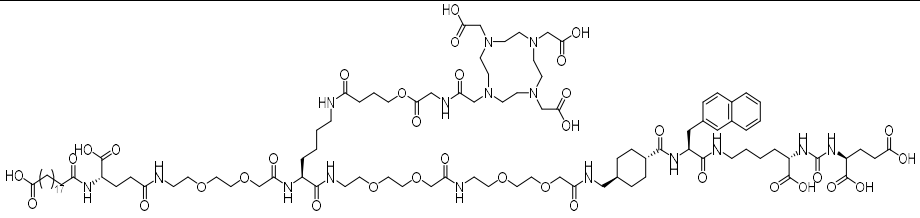
17. The compound of claim 16, or a pharmaceutically acceptable salt or solvate thereof, wherein L^Z further comprises one or more groups selected from  (OEG), $R^1NC_{1\text{-}20}alkyleneNR^2$, $C(O)C_{1\text{-}20}alkyleneC(O)$, $R^1NC_{1\text{-}20}alkyleneC(O)$, and $C(O)C_{1\text{-}20}alkyleneNR^2$, wherein each R^1 and R^2 is independently selected from H and $C_{1\text{-}2}$alkyl.

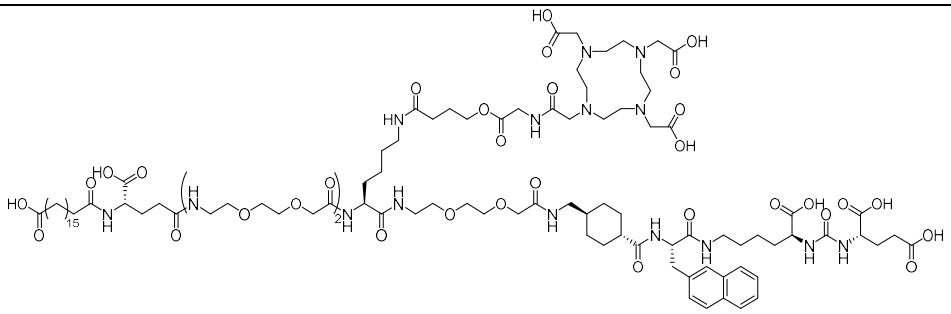
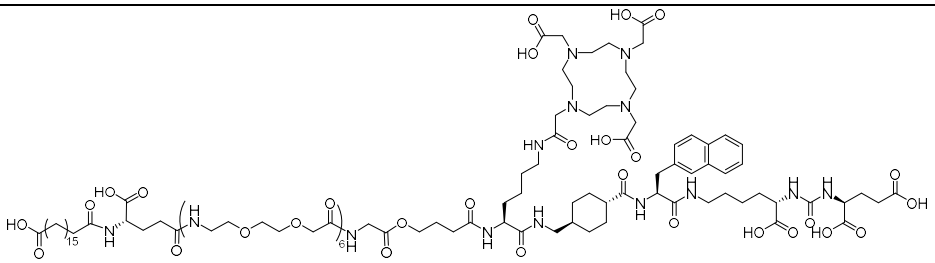
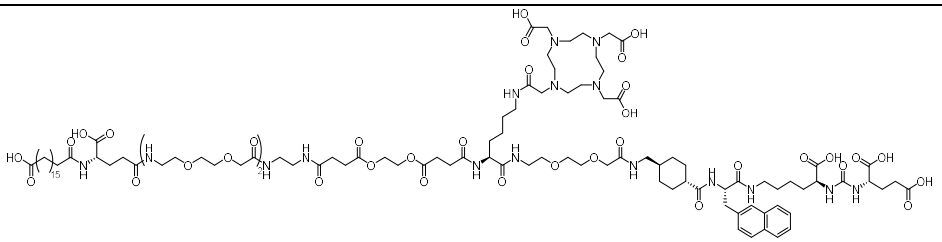
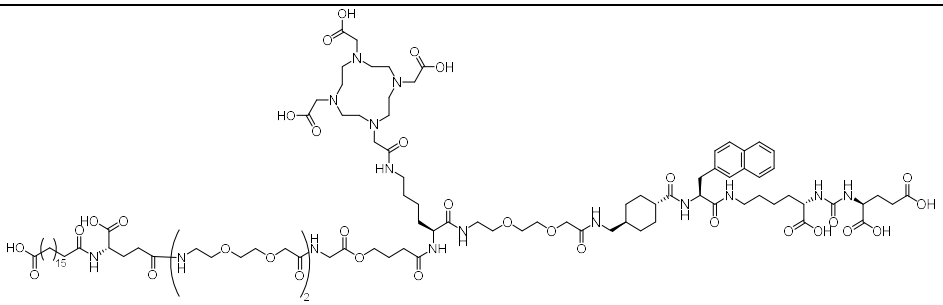
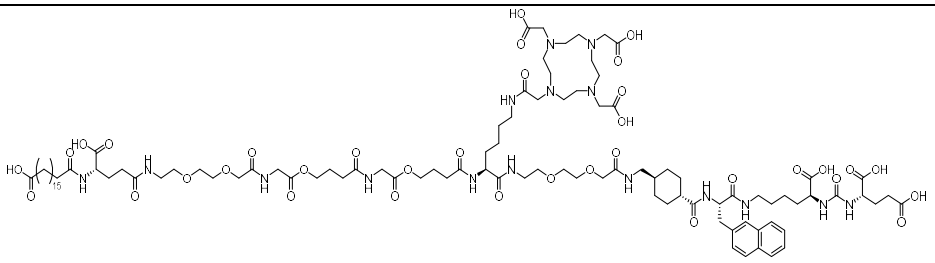
18. The compound of claim 1, wherein the compound of Formula I is selected from the following list of compounds:

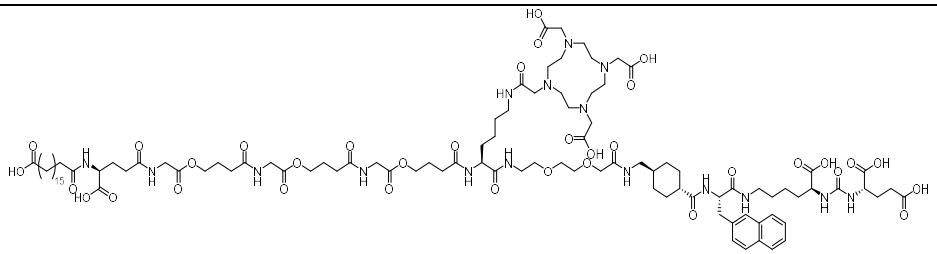
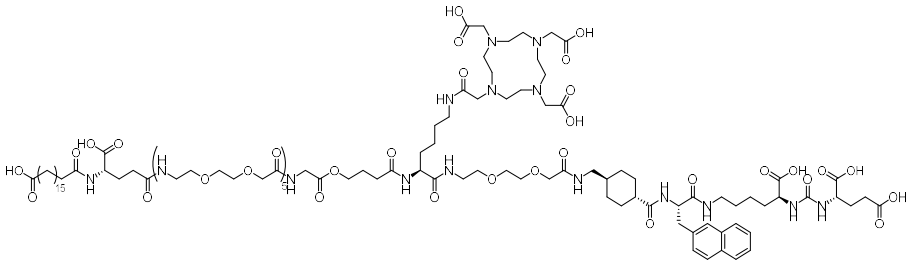
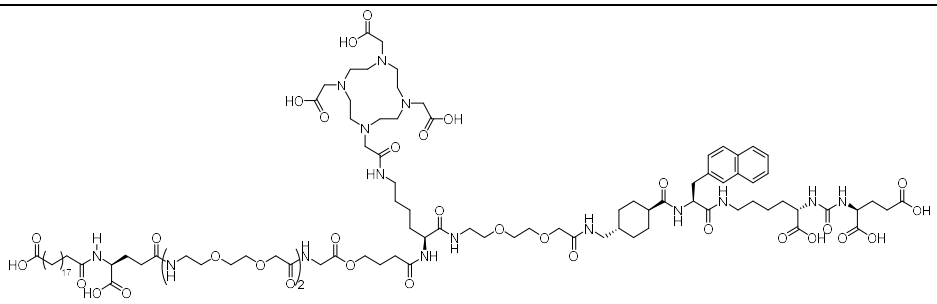
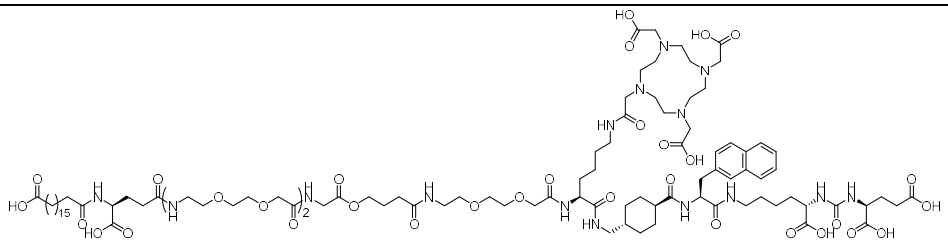
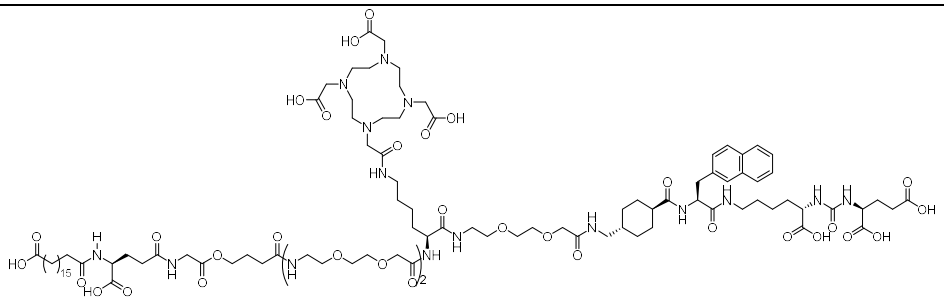
I.D	Compound Name	Structure
I-1	4pIBA-Glu-SSL1-Lys(DOTA)-Trx-2Nal-eKuE	
I-2	4pIBA-Glu-ESL1-Lys(DOTA)-Trx-2Nal-eKuE	

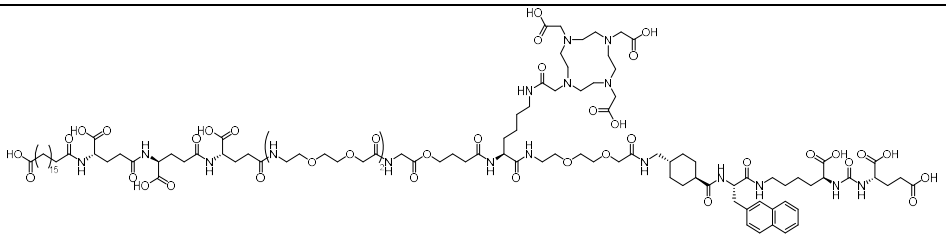
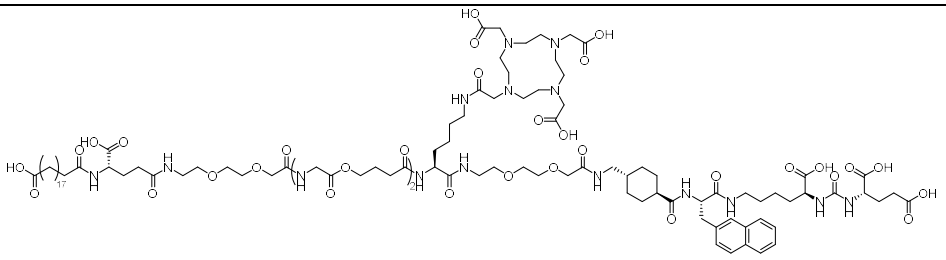
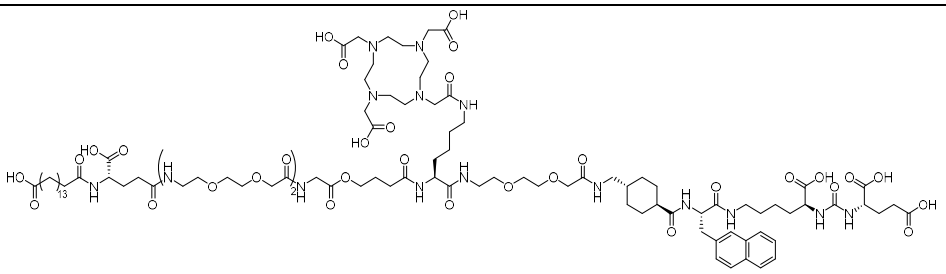
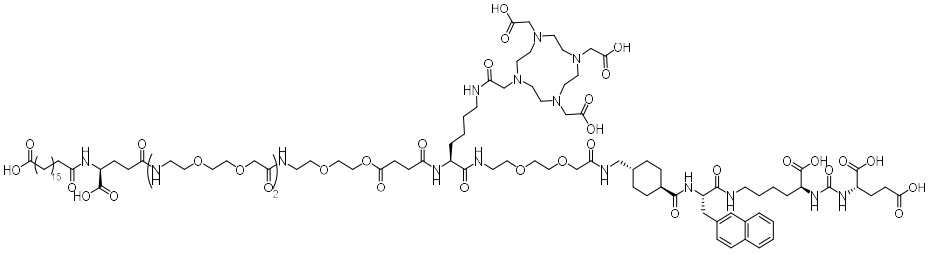
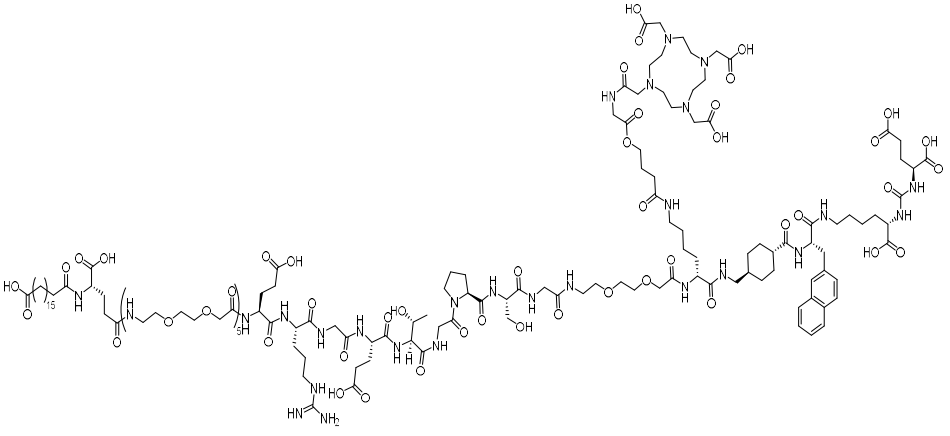
I-3	4pIBA-Glu-Lys(-ESL1-DOTA)-Trx-2Nal-eKuE	
I-4	4pIBA-Glu-Lys(-SSL1-DOTA)-Trx-2Nal-eKuE	
I-5	4pIBA-Glu-Lys(-ESL2-DOTA)-Aun-Trx-2Nal-eKuE	
I-6	DOTA-ESL2-Lys(-Glu-4pIBA)-Trx-2Nal-eKuE	
I-7	4pIBA-Glu-OEG-OEG-Lys(-OEG-OEG-Glu-4pIBA)-Lys(-ESL1-DOTA)-OEG-Trx-2Nal-eKuE	

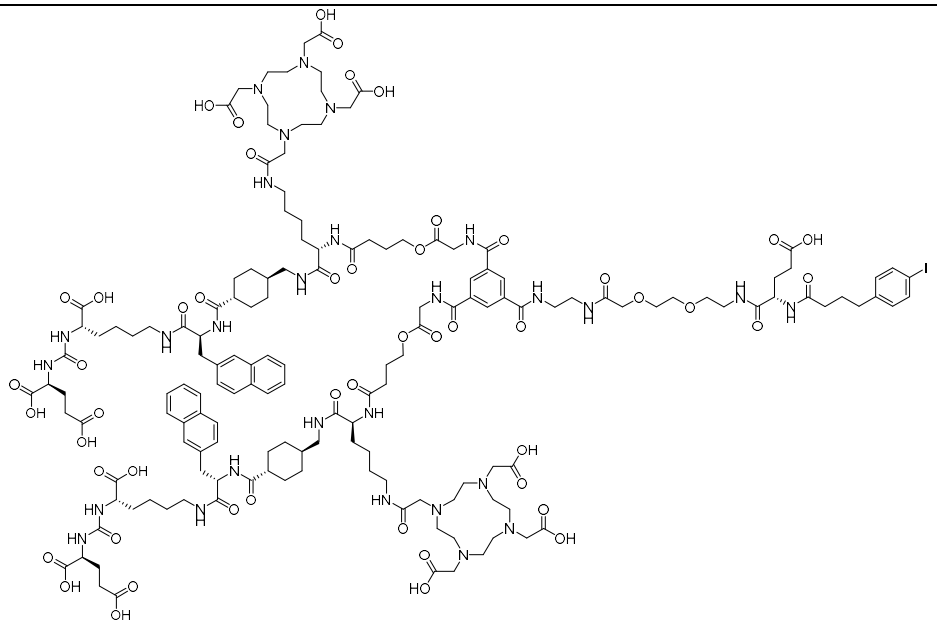
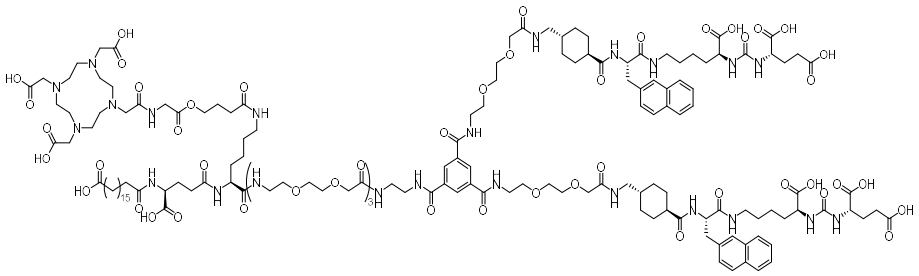
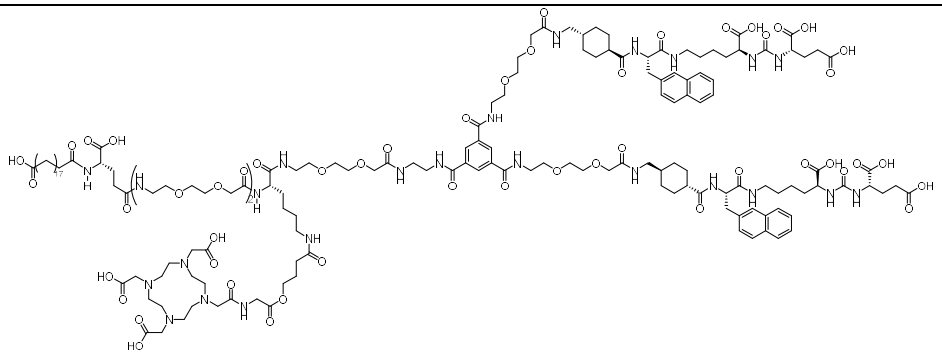
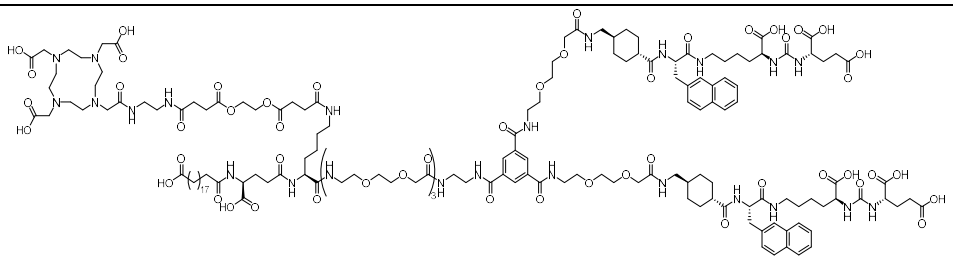
I-8	4pIBA-Glu-OEG-OEG-Lys(-OEG-OEG-Glu-4pIBA)-OEG-ESL1-Lys(DOTA)-Trx-2Nal-eKuE	
I-9	4pIBA-Glu-Lys[-Suc-eLys-Val-Met-Gly-DOTA]-Trx-2Nal-eKuE	
I-10	HO-C18-gGlu-Lys(-ESL1-DOTA)-OEG-OEG-OEG-Trx-2Nal-eKuE	
I-11	HO-C18-gGlu-Lys(-ESL1-DOTA)-OEG-OEG-OEG-OEG-OEG-OEG-Trx-2Nal-eKuE	

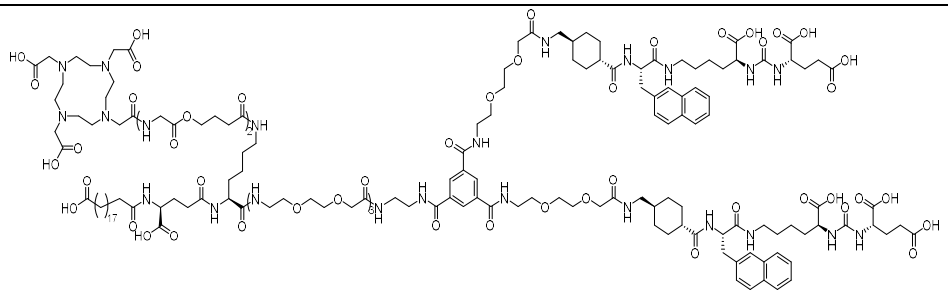
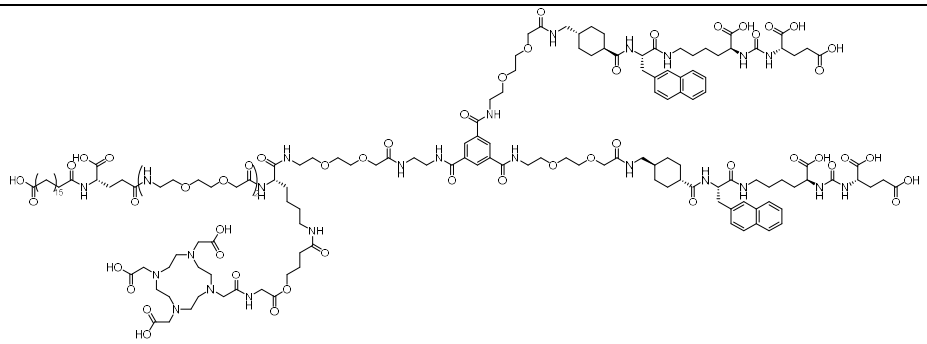
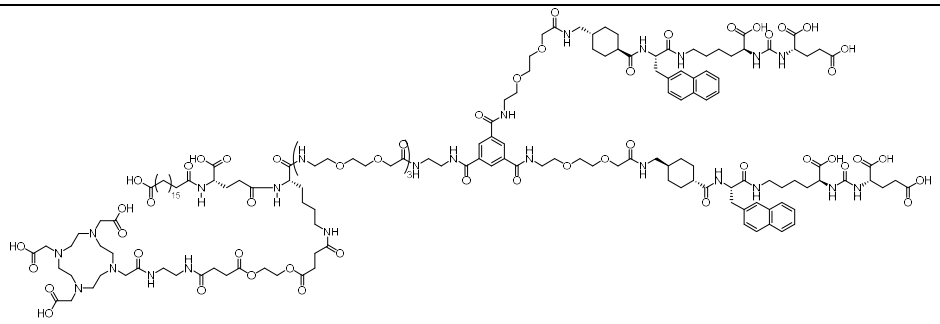
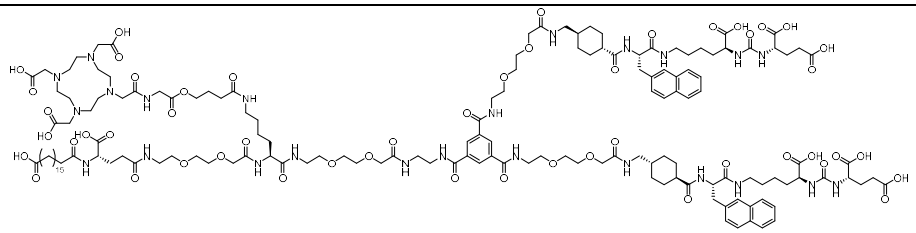
I-12	HO-C18-gGlu-Lys(-ESL2-DOTA)-OEG-OEG-Trx-2Nal-eKuE	
I-13	HO-C18-gGlu-Lys(-ESL2-DOTA)-OEG-OEG-OEG-Trx-2Nal-eKuE	
I-14	HO-C20-gGlu-Lys(-ESL2-DOTA)-OEG-OEG-OEG-Trx-2Nal-eKuE	
I-15	HO-C18-gGlu-Lys(-ESL2-DOTA)-OEG-OEG-OEG-OEG-Trx-2Nal-eKuE	
I-16	HO-C18-gGlu-OEG-OEG-Lys(-ESL2-DOTA)-OEG-Trx-2Nal-eKuE	
I-17	HO-C20-gGlu-OEG-Lys(-ESL1-DOTA)-OEG-OEG-	

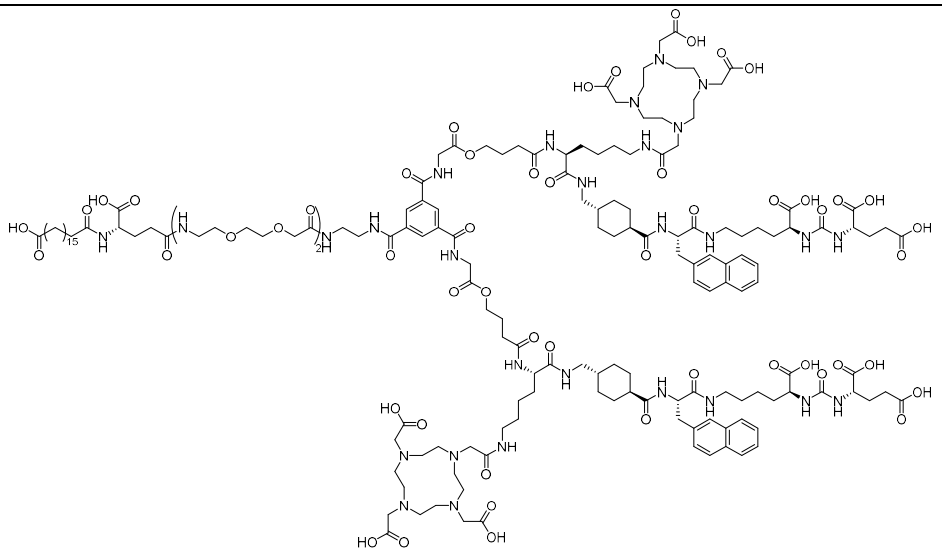
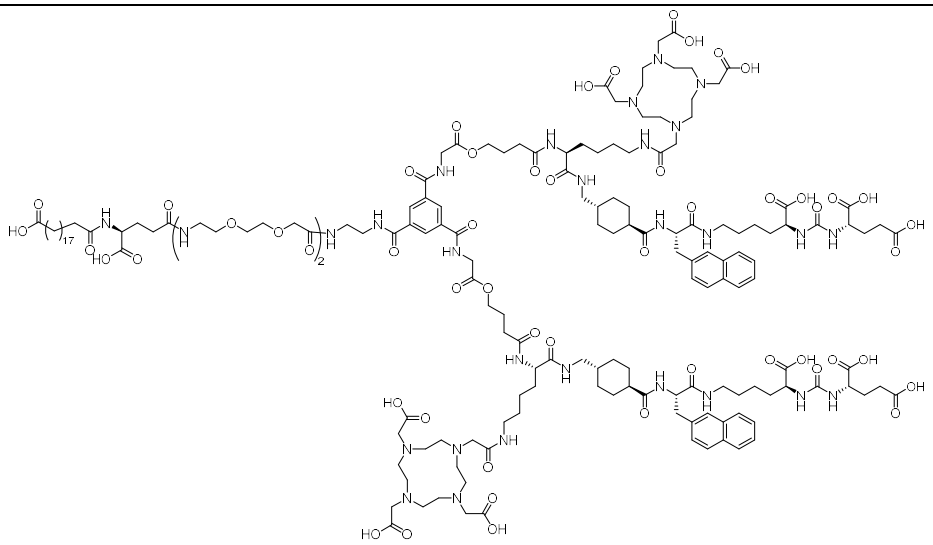
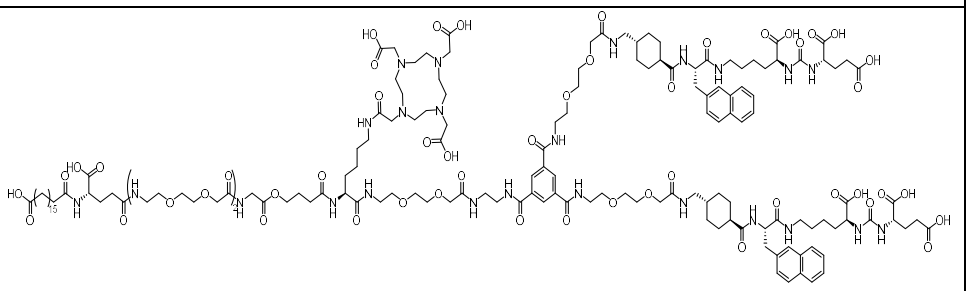
	Trx-2Nal-eKuE	
I-18	HO-C18-gGlu-OEG-OEG-Lys(-ESL1-DOTA)-OEG-Trx-2Nal-eKuE	
I-19	HO-C18-gGlu-OEG-OEG-OEG-OEG-OEG-ESL1-Lys(DOTA)-Trx-2Nal-eKuE	
I-20	HO-C18-gGlu-OEG-OEG-ESL2-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-21	HO-C18-gGlu-OEG-OEG-ESL1-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-22	HO-C18-gGlu-OEG-ESL1-ESL1-Lys(DOTA)-OEG-Trx-2Nal-eKuE	

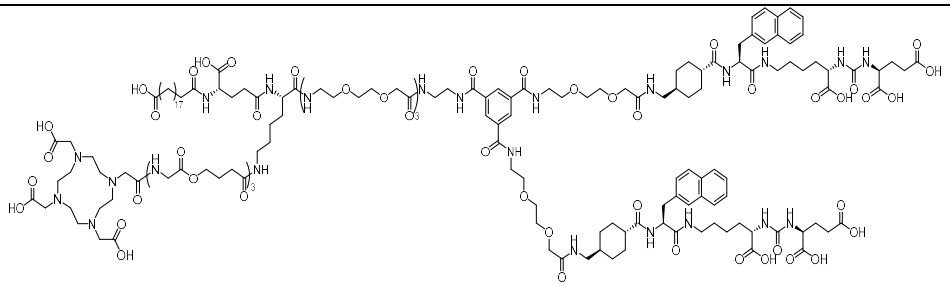
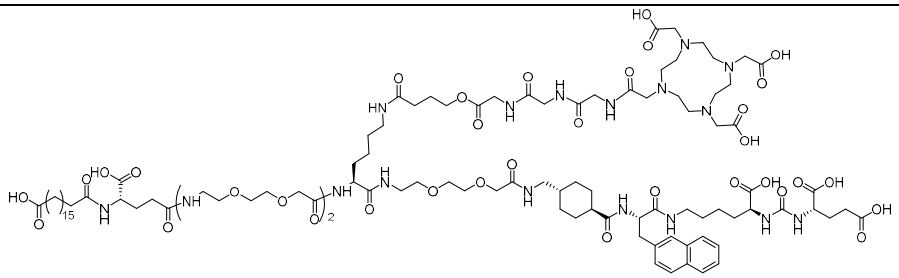
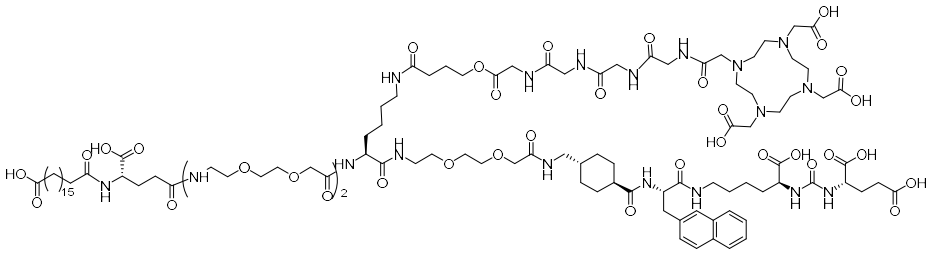
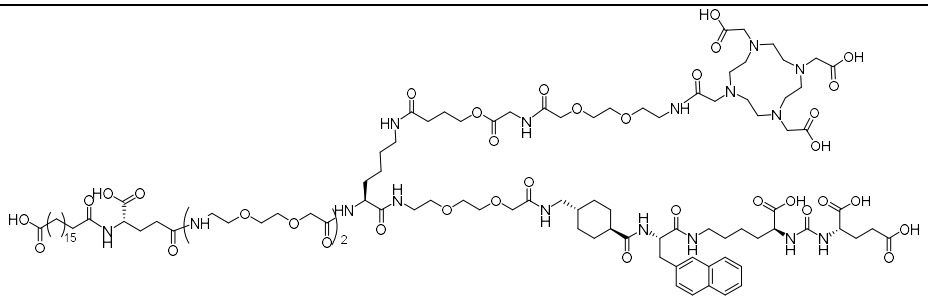
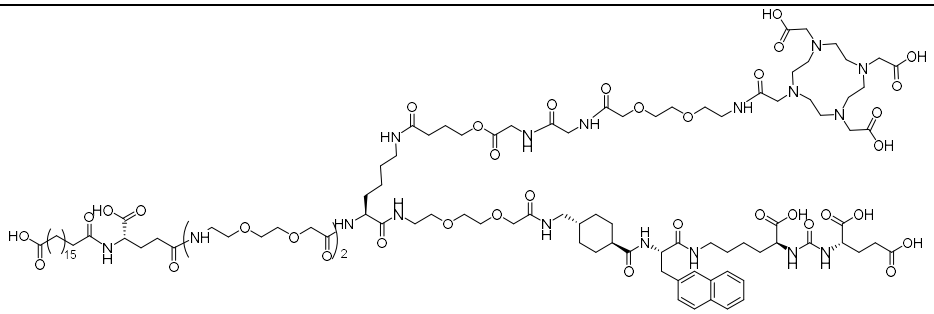
I-23	HO-C18-gGlu-ESL1-ESL1-ESL1-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-24	HO-C18-gGlu-OEG-OEG-OEG-OEG-ESL1-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-25	HO-C20-gGlu-OEG-OEG-ESL1-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-26	HO-C18-gGlu-OEG-OEG-ESL1-OEG-Lys(DOTA)-Trx-2Nal-eKuE	
I-27	HO-C18-gGlu-ESL1-OEG-OEG-Lys(DOTA)-OEG-Trx-2Nal-eKuE	

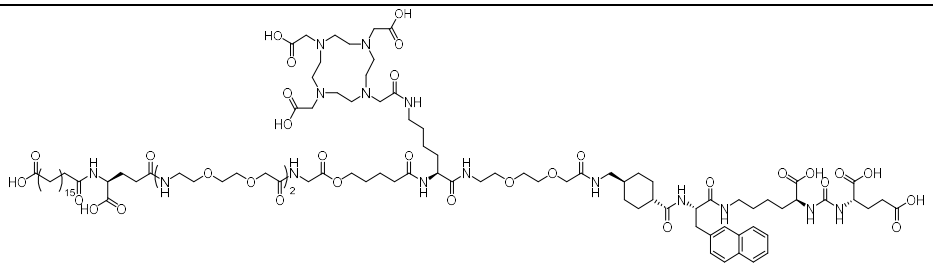
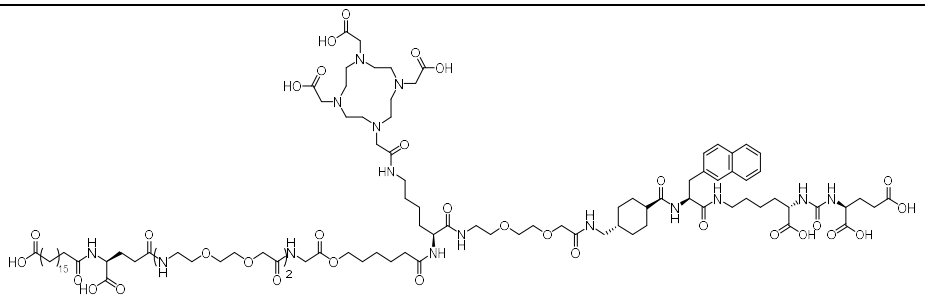
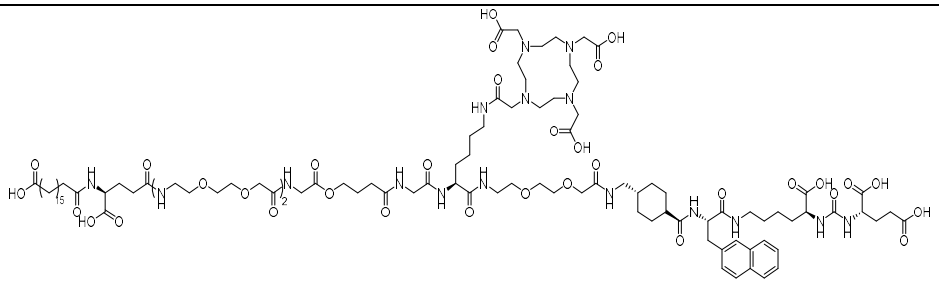
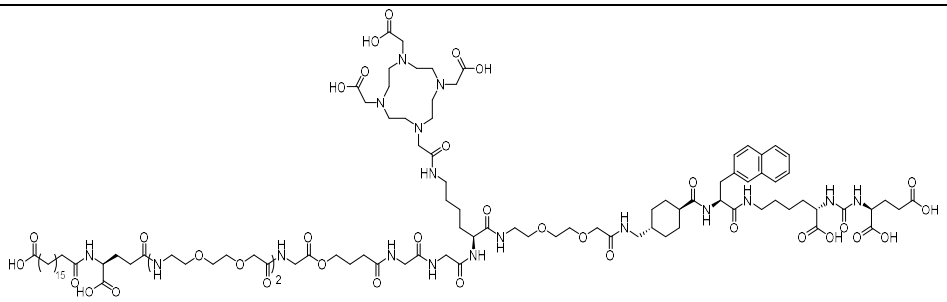
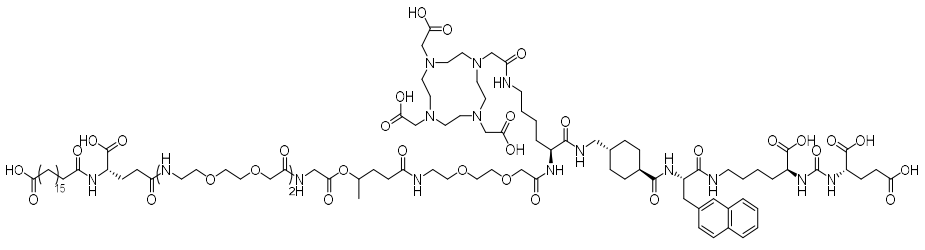
I-28	HO-C18-gGlu-gGlu-gGlu-OEG-OEG-ESL1-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-29	HO-C20-gGlu-OEG-ESL1-ESL1-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-30	HO-C16-gGlu-OEG-OEG-ESL1-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-31	HO-C18-gGlu-OEG-OEG-ESL3-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-32	(HO-C18)-gGlu-OEG-OEG-OEG-OEG-Glu-Arg-Gly-Glu-Thr-Gly-Pro-Ser-Gly-OEG-Lys(-ESL1-DOTA)-Trx-2Nal-eKuE	

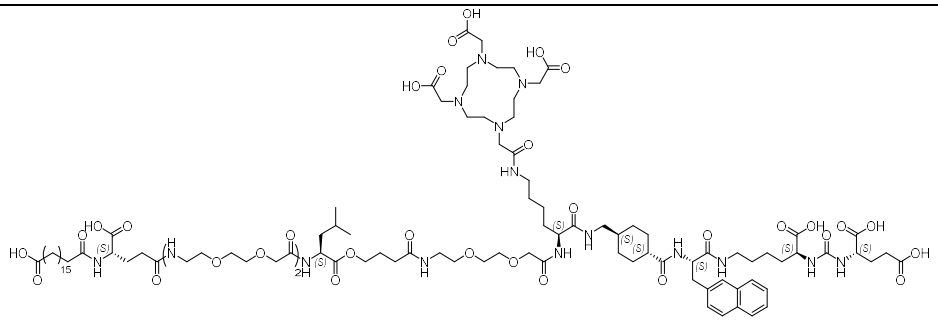
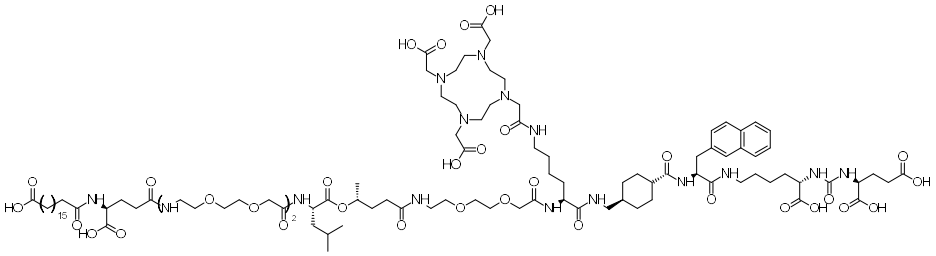
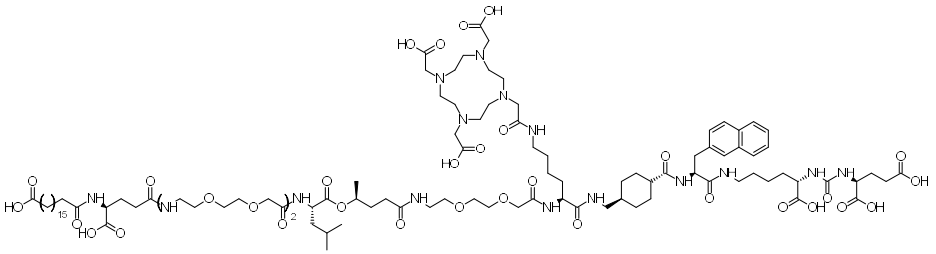
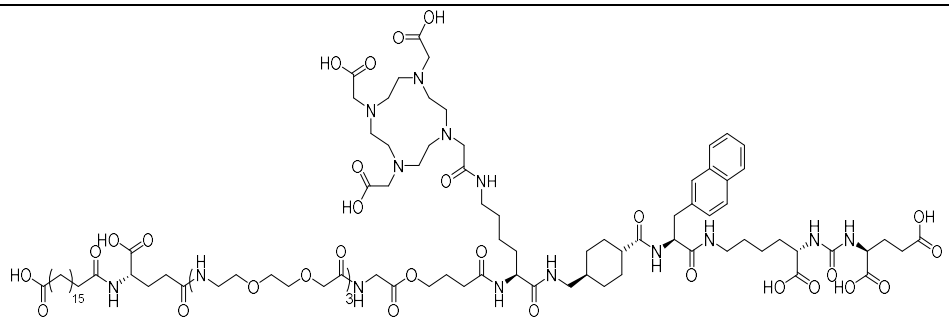
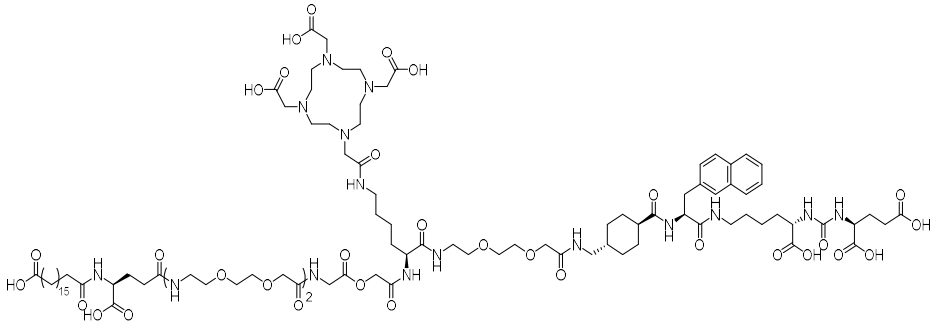
I-33	4pIBA-Glu-OEG-NH2CH2CH2NH-TMA[-ESL1-Lys(DOTA)-Trx-2Nal-eKuE]2	
I-34	HO-C18-gGlu-Lys(-ESL1-DOTA)-OEG-OEG-OEG-NH2CH2CH2NH-TMA(-OEG-Trx-2Nal-eKuE)2	
I-35	HO-C20-gGlu-OEG-OEG-Lys(-ESL1-DOTA)-OEG-NH2CH2CH2NH-TMA(-OEG-Trx-2Nal-eKuE)2	
I-36	HO-C20-gGlu-Lys(-ESL2-DOTA)-OEG-OEG-OEG-NH2CH2CH	

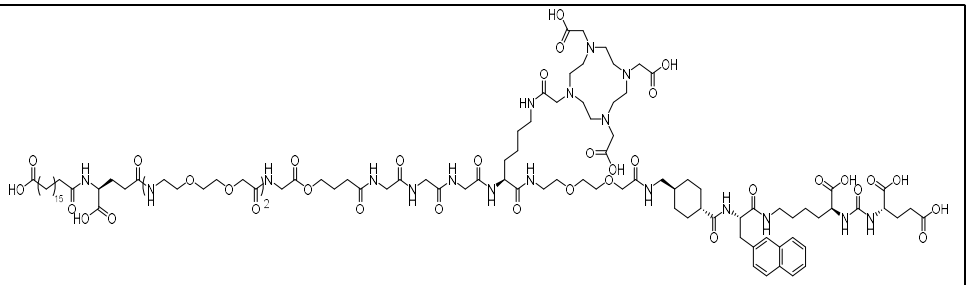
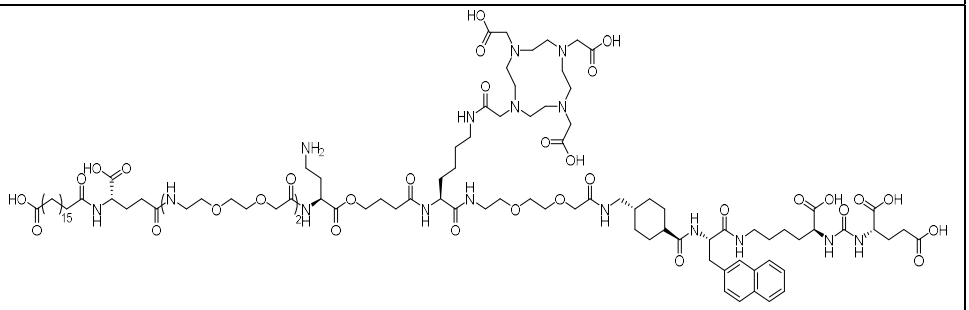
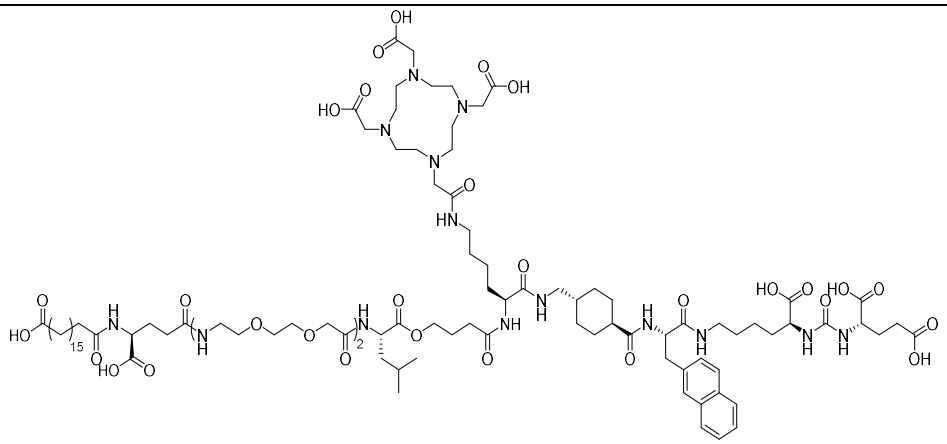
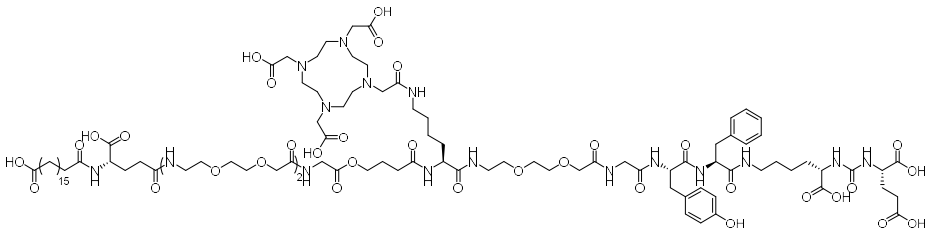
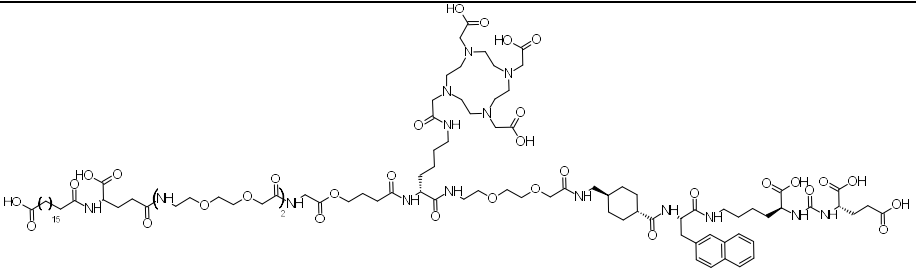
	2NH-TMA(-OEG-Trx-2Nal-eKuE)2	
I-37	HO-C20-gGlu-Lys(-ESL1-ESL1-DOTA)-OEG-OEG-OEG-NH2CH2CH2NH-TMA(-OEG-Trx-2Nal-eKuE)2	
I-38	HO-C18-gGlu-OEG-OEG-Lys(-ESL1-DOTA)-OEG-NH2CH2CH2NH-TMA(-OEG-Trx-2Nal-eKuE)2	
I-39	HO-C18-gGlu-Lys(-ESL2-DOTA)-OEG-OEG-OEG-NH2CH2CH2NH-TMA(-OEG-Trx-2Nal-eKuE)2	
I-40	HO-C18-gGlu-OEG-Lys(-ESL1-DOTA)-OEG-NH2CH2CH2NH-TMA(-OEG-Trx-2Nal-eKuE)2	

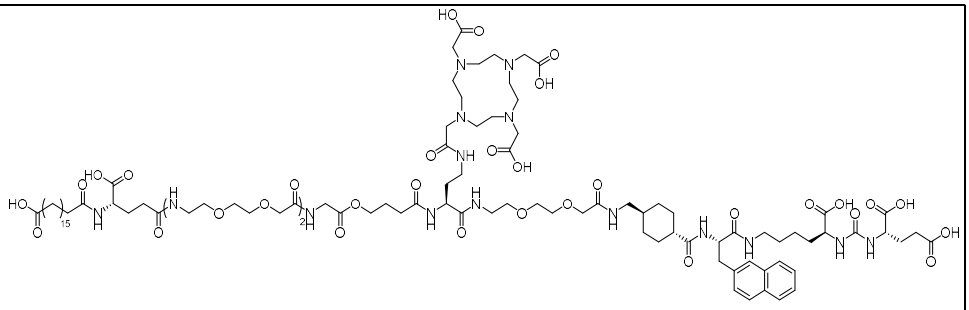
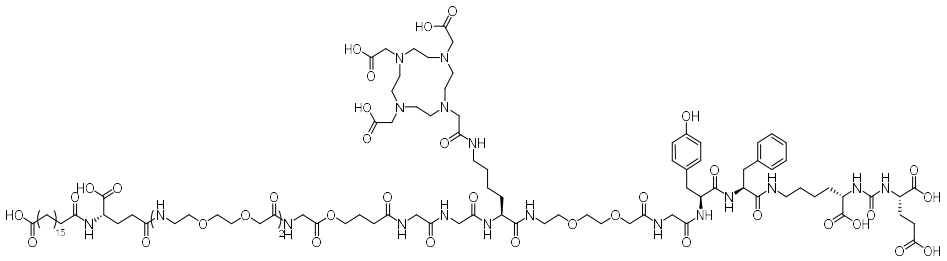
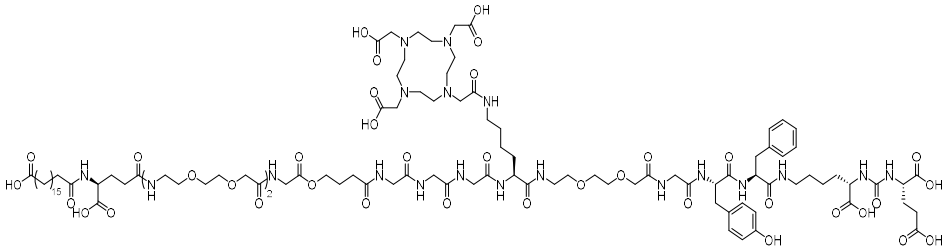
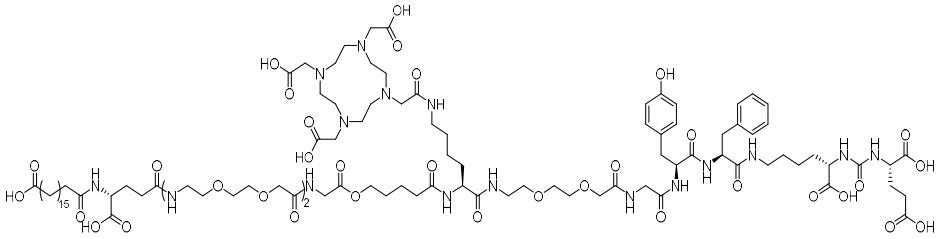
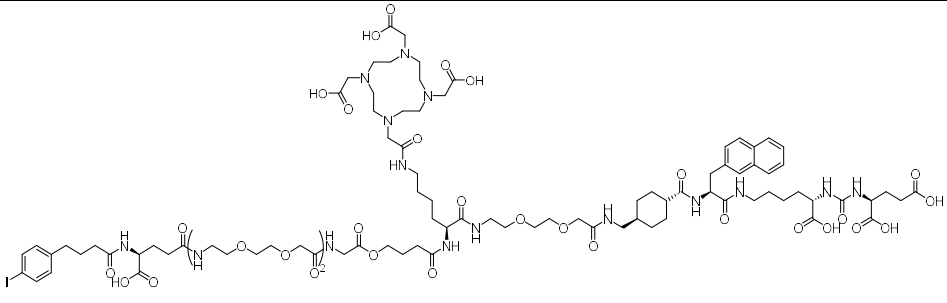
I-41	HO-C18-gGlu-OEG-OEG-NH2CH2CH2NH-TMA[-ESL1-Lys(DOTA)-Trx-2Nal-eKuE]2	
I-42	HO-C20-gGlu-OEG-OEG-NH2CH2CH2NH-TMA[-ESL1-Lys(DOTA)-Trx-2Nal-eKuE]2	
I-43	[HO-C18-gGlu-OEG-OEG-ESL1-Lys(DOTA)-OEG-NH2CH2CH2NH-]-TMA-(-OEG-Trx-2Nal-eKuE)2	

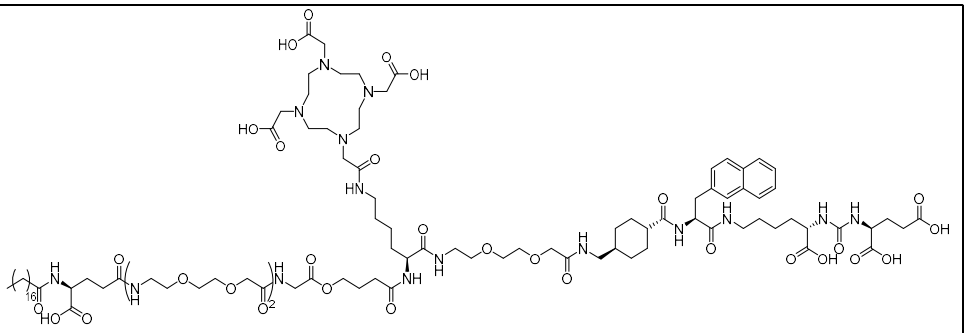
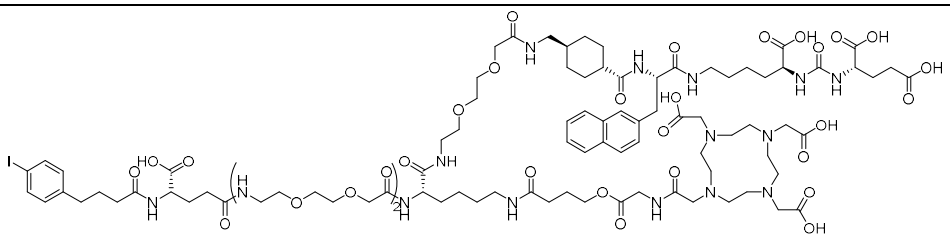
I-44	[HO-C20-gGlu-Lys(-ESL1-ESL1-ESL1-DOTA)-OEG-OEG-OEG-NH2CH2CH2NH-]-TMA-(-OEG-Trx-2Nal-eKuE)2	
I-45	HO-C18-gGlu-OEG-OEG-Lys(-ESL1-Gly-Gly-DOTA)-OEG-Trx-2Nal-eKuE	
I-46	HO-C18-gGlu-OEG-OEG-Lys(-ESL1-Gly-Gly-Gly-DOTA)-OEG-Trx-2Nal-eKuE	
I-47	HO-C18-gGlu-OEG-OEG-Lys(-ESL1-OEG-DOTA)-OEG-Trx-2Nal-eKuE	
I-48	HO-C18-gGlu-OEG-OEG-Lys(-ESL1-Gly-OEG-DOTA)-OEG-Trx-2Nal-eKuE	

I-49	HO-C18-gGlu-OEG-OEG-Gly-5hPA-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-50	HO-C18-gGlu-OEG-OEG-Gly-6hHA-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-51	HO-C18-gGlu-OEG-OEG-ESL1-Gly-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-52	HO-C18-gGlu-OEG-OEG-ESL1-Gly-Gly-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-53	HO-C18-gGlu-OEG-OEG-Gly-4hPA-OEG-Lys(DOTA)-Trx-2Nal-eKuE	

I-54	HO-C18-gGlu-OEG-OEG-Leu-4hBA-OEG-Lys(DOTA)-Trx-2Nal-eKuE	
I-55 (a)	(R)-HO-C18-gGlu-OEG-OEG-Leu-4hPA-OEG-Lys(DOTA)-Trx-2Nal-eKuE	
I-55 (b)	(S)-HO-C18-gGlu-OEG-OEG-Leu-4hPA-OEG-Lys(DOTA)-Trx-2Nal-eKuE	
I-56	HO-C18-gGlu-OEG-OEG-OEG-ESL1-Lys(DOTA)-Trx-2Nal-eKuE	
I-57	HO-C18-gGlu-OEG-OEG-Gly-OCH2CO-Lys(DOTA)-OEG-Trx-2Nal-eKuE	

I-58	HO-C18-gGlu-OEG-OEG-ESL1-Gly-Gly-Gly-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-59	HO-C18-gGlu-OEG-OEG-Dab-4hBA-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-60	HO-C18-gGlu-OEG-OEG-Leu-4hBA-Lys(DOTA)-Trx-2Nal-eKuE	
I-61	HO-C18-gGlu-OEG-OEG-ESL1-Lys(DOTA)-OEG-Gly-Tyr-Phe-eKuE	
I-62	HO-C18-gGlu-OEG-OEG-ESL1-k(DOTA)-OEG-Trx-2Nal-eKuE	

I-63	HO-C18-gGlu-OEG-OEG-ESL1-Dab(DOTA)-OEG-Trx-2Nal-eKuE	
I-64	HO-C18-gGlu-OEG-OEG-ESL1-Gly-Gly-Lys(DOTA)-OEG-Gly-Tyr-Phe-eKuE	
I-65	HO-C18-gGlu-OEG-OEG-ESL1-Gly-Gly-Gly-Lys(DOTA)-OEG-Gly-Tyr-Phe-eKuE	
I-66	HO-C18-gGlu-OEG-OEG-Gly-5hPA-Lys(DOTA)-OEG-Gly-Tyr-Phe-eKuE	
I-67	4pIBA-gGlu-OEG-OEG-ESL1-Lys(DOTA)-OEG-Trx-2Nal-eKuE	
I-68	C18-gGlu-OEG-OEG-ESL1-Lys(DOTA)-	

	OEG-Trx-2Nal-eKuE	 and
I-69	4pIBA-gGlu-OEG-OEG-Lys(-ESL1-DOTA)-OEG-Trx-2Nal-eKuE	

or a pharmaceutically acceptable salt and/or solvate thereof.

19. A radionuclide complex or a pharmaceutically acceptable salt and/or solvate thereof, comprising a compound of any one of claims 1 to 18 or a pharmaceutically acceptable salt and/or solvate thereof, and one or more radionuclides.

20. The radionuclide complex of claim 19, wherein the one or more radionuclides are selected from ^{14}C , ^{15}N , ^{18}F , ^{75}Br , ^{76}Br , ^{77}Br, ^{123}I , ^{124}I , ^{125}I , ^{131}I , ^{35}S, ^{99}Tc, ^{99m}Tc, ^{188}Re, ^{186}Re, ^{153}Sm, ^{67}Ga, ^{68}Ga, ^{111}In, ^{59}Fe, ^{63}Zn, ^{52}Fe, ^{45}Ti, ^{60}Cu, ^{61}Cu, ^{67}Cu, ^{64}Cu, ^{62}Cu, ^{82}Rb, ^{195m}Pt, ^{191m}Pt, ^{193m}Pt, ^{117m}Sn, ^{89}Zr, ^{177}Lu, ^{18}F, ^{123}I, ^{188}Re, ^{186}Re, ^{153}Sm, ^{66}Ho, ^{86}Y , ^{87}Y , ^{90}Y, ^{89}Sr, ^{111}In, ^{153}Gd, ^{225}Ac, ^{212}Bi, ^{213}Bi, ^{211}At, ^{198}Au, ^{199}Au, ^{193m}Pt, ^{197}Pt, ^{103}Pd, ^{109}Pd, ^{105}Rh, ^{103m}Rh, ^{223}Ra, ^{224}Ra, ^{97}Ru, ^{227}Th, ^{229}Th, ^{32}P, ^{161}Tb, ^{33}P, ^{149}Tb, ^{125}I, ^{203}Pb, ^{212}Pb, ^{201}Tl, ^{119}Sb, ^{58m}Co, ^{55}Co, ^{47}Sc, ^{149}Pm and ^{161}Ho.