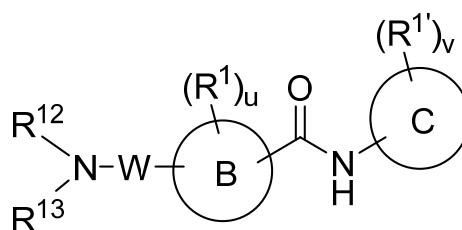


We claim:

1. A compound of the following formula:



Formula 9

or a pharmaceutically acceptable salt or prodrug thereof, wherein

when R^1 and $R^{1'}$ are attached to a carbon they are, independently, hydrogen, halogen, CF_3 , hydroxy, SF_5 , $N(R')S(O)_2R'$, $S(O)_2R'$, $S(O)_2N(R')_2$, C_{1-6} alkoxy, cyano, C_{2-6} alkynyl, C_{3-6} alkoxyalkyl, alkoxycarbonyl, alkoxycarbonylalkyl, C_{1-6} alkyl, C_{1-6} haloalkyl, arylalkoxycarbonyl, carboxy, C_{1-6} haloalkyl, heterocyclalkyl, or C_{1-6} hydroxyalkyl;

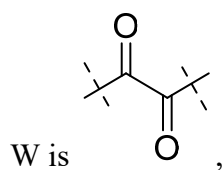
when R^1 and $R^{1'}$ are attached to a nitrogen they are, independently, hydrogen, C_{1-6} alkoxy, C_{3-6} alkoxyalkyl, alkoxycarbonyl, carbonylalkyl, carbonyl aryl, C_{1-6} alkyl, C_{2-6} alkynyl, C_{2-6} alkenyl, heterocyclalkyl, C_{1-6} hydroxyalkyl, or $S(O)_2R'$;

each R' is independently H, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} alkoxy, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{3-6} cycloalkyl, aryl, heteroaryl, alkylaryl, or arylalkyl, or if two R' reside on the same nitrogen atom they can come together to form a C_{3-6} alkyl ring optionally containing a N, O, or S; wherein the R' groups can be substituted with one or more substituents as defined above, for example, C_{1-6} hydroxyalkyl, aminoalkyl, and alkoxyalkyl;

u and v are independently 0, 1, 2, 3, 4 or 5;

C is phenyl;

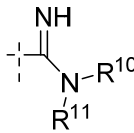
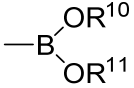
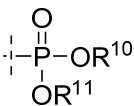
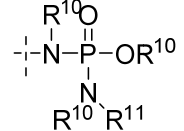
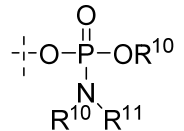
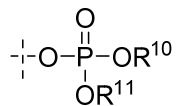
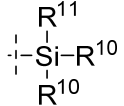
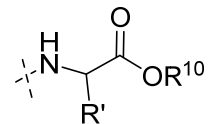
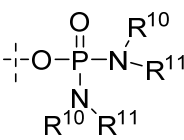
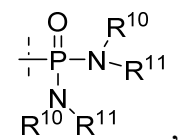
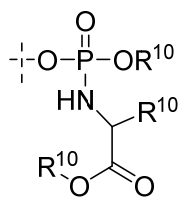
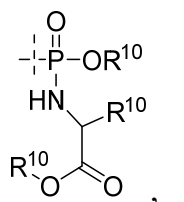
B is pyrrole;



R^{12} is H, C_{1-6} alkyl, C_{3-7} cycloalkyl, C_{1-6} haloalkyl, C_{2-6} alkenyl, or C_{2-6} alkynyl,

$$\left[\text{---} \text{CH}_2 \text{---} \text{CH}_2 \text{---} \text{N}(\text{R}^{10}) \right]_n$$

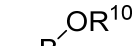
R¹³ is optionally substituted with one or more substituents each independently selected

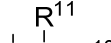
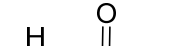
from the group consisting of hydrogen, halogen, CF₃, SF₅, hydroxy, , -NH-C(O)-N(R¹⁰)₂, -N(R¹⁰)₂, -OR¹¹, -C(O)OR¹⁰, -C(O)-N(R¹⁰)₂, -C(O)-NHOH, oxo, , -S-R¹⁰, , , , , , , , , , , N(R¹⁰)S(O)₂R¹⁰, S(O)₂R¹⁰, S(O)₂N(R¹⁰)₂, C(O)R¹⁰, C₁₋₆ alkoxy, C₁₋₆ haloalkoxy, cyano, azido, C₂₋₆ alkynyl, C₃₋₆ alkoxyalkyl, alkoxyacetyl, alkoxyacetylalkyl, C₁₋₆ alkyl, cycloalkyl, arylalkoxyacetyl, carboxyl, haloalkyl, heterocyclylalkyl, C₁₋₆ hydroxyalkyl, aryl, substituted aryl, heteroaryl, or substituted heteroaryl,

$$\begin{array}{c} \text{NH} \\ \parallel \\ \text{---} \text{C} \text{---} \text{N} \text{---} \text{R}^{10} \\ | \\ \text{R}^{11} \end{array}$$

the group consisting of halogen, SF₅, CF₃, hydroxy,

, -NH-C(O)-N(R¹⁰)₂, -N(R¹⁰)₂, -OR¹¹, -C(O)OR¹⁰, -C(O)-N(R¹⁰)₂, -C(O)-NHOH, oxo,

, -S-R¹⁰, ,

, , , , , 

$\begin{array}{c} \text{O} \\ \parallel \\ \text{---P---N---R}^{10} \\ | \\ \text{R}^{10} \text{---N---R}^{11} \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---O---P---OR}^{10} \\ | \\ \text{HN---R}^{10} \\ | \\ \text{R}^{10} \text{---O---C=O} \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---P---OR}^{10} \\ | \\ \text{HN---R}^{10} \\ | \\ \text{R}^{10} \text{---O---C=O} \end{array}$, $\text{N(R}^{10})\text{S(O)}_2\text{R}^{10}$, $\text{S(O)}_2\text{R}^{10}$, $\text{S(O)}_2\text{N(R}^{10})_2$, C(O)R^{10} , $\text{C}_3\text{-C}_7$ cycloalkyl, C_{1-6} alkoxy, cyano, azido, C_{2-6} alkynyl, C_{3-6} alkoxyalkyl, alkoxycarbonyl, alkoxycarbonylalkyl, and C_{1-6} alkyl;

or R^{12} and R^{13} , together with the nitrogen to which they are attached, form a saturated or unsaturated 4 to 7 membered ring optionally substituted with one or more substituents each independently selected from the group consisting of hydrogen, halogen, CF_3 , hydroxy,

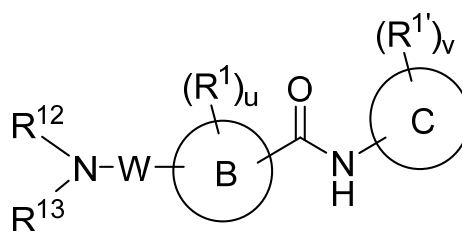
$\begin{array}{c} \text{NH} \\ \parallel \\ \text{---N---R}^{10} \\ | \\ \text{R}^{11} \end{array}$, $\text{---NH---C(O)---N(R}^{10})_2$, $\text{---N(R}^{10})_2$, ---OR^{11} , ---C(O)OR^{10} , $\text{---C(O)---N(R}^{10})_2$, ---C(O)---NHOH ,
 oxo, ---B---OR^{10} , ---B---OR^{11} , ---S---R^{10} , $\begin{array}{c} \text{O} \\ \parallel \\ \text{---P---OR}^{10} \\ | \\ \text{OR}^{11} \end{array}$, $\begin{array}{c} \text{R}^{10} \text{O} \\ \parallel \\ \text{---N---P---OR}^{10} \\ | \quad | \\ \text{R}^{10} \quad \text{R}^{11} \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---O---P---OR}^{10} \\ | \\ \text{N---R}^{11} \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---O---P---OR}^{10} \\ | \\ \text{OR}^{11} \end{array}$, $\begin{array}{c} \text{R}^{11} \\ | \\ \text{---Si---R}^{10} \\ | \\ \text{R}^{10} \end{array}$,

$\begin{array}{c} \text{O} \\ \parallel \\ \text{H---N---C---OR}^{10} \\ | \\ \text{R}^1 \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---O---P---N---R}^{10} \\ | \quad | \\ \text{R}^{10} \quad \text{R}^{11} \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---P---N---R}^{10} \\ | \quad | \\ \text{R}^{10} \quad \text{R}^{11} \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---O---P---OR}^{10} \\ | \\ \text{HN---R}^{10} \\ | \\ \text{R}^{10} \text{---O---C=O} \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---P---OR}^{10} \\ | \\ \text{HN---R}^{10} \\ | \\ \text{R}^{10} \text{---O---C=O} \end{array}$, $\text{N(R}^{10})\text{S(O)}_2\text{R}^{10}$, $\text{S(O)}_2\text{R}^{10}$, $\text{S(O)}_2\text{N(R}^{10})_2$, C(O)R^{10} , C_{1-6} alkoxy, cyano, azido, C_{2-6} alkynyl, C_{3-6} alkoxyalkyl, alkoxycarbonyl, alkoxycarbonylalkyl, C_{1-6} alkyl, arylalkoxycarbonyl, carboxy, C_{1-6} haloalkyl, heterocyclylalkyl, and C_{1-6} hydroxyalkyl;

R^{10} and R^{11} are, independently, H, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, aryl, heteroaryl, alkylaryl, arylalkyl; and

R^{10} and R^{11} groups can optionally be substituted with one or more substituents, which substituents are, independently, halo, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{1-6} hydroxyalkyl, hydroxyl, carboxyl, acyl, aryl, acyloxy, amino, amido, carboxyl derivatives, alkylamino, dialkylamino, arylamino, alkoxy, alkoxyalkyl, aryloxy, nitro, cyano, sulfonic acid, thiol, imine, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, ester, carboxylic acid, amide, phosphonyl, phosphinyl, phosphoryl, phosphine, thioester, thioether, oxime, hydrazine, carbamate, phosphonic acid, phosphoramidate or phosphonate.

2. A compound of the following formula:



Formula 9

or a pharmaceutically acceptable salt thereof, wherein

when R^1 and $R^{1'}$ are attached to a carbon they are, independently, hydrogen, halogen, CF_3 , hydroxy, SF_5 , $N(R')S(O)_2R'$, $S(O)_2R'$, $S(O)_2N(R')_2$, C_{1-6} alkoxy, cyano, C_{2-6} alkynyl, C_{3-6} alkoxyalkyl, alkoxycarbonyl, alkoxycarbonylalkyl, C_{1-6} alkyl, C_{1-6} haloalkyl, arylalkoxycarbonyl, carboxy, C_{1-6} haloalkyl, heterocyclalkyl, or C_{1-6} hydroxyalkyl;

when R^1 is attached to a nitrogen, it is hydrogen, C_{1-6} alkoxy, C_{3-6} alkoxyalkyl, alkoxycarbonyl, carbonylalkyl, carbonyl aryl, C_{2-6} alkynyl, C_{2-6} alkenyl, heterocyclalkyl, C_{1-6} hydroxyalkyl, or $S(O)_2R'$;

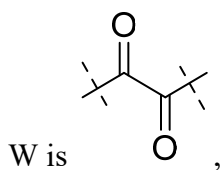
when $R^{1'}$ is attached to a nitrogen, it is hydrogen, C_{1-6} alkoxy, C_{3-6} alkoxyalkyl, alkoxycarbonyl, carbonylalkyl, carbonyl aryl, C_{1-6} alkyl, C_{2-6} alkynyl, C_{2-6} alkenyl, heterocyclalkyl, C_{1-6} hydroxyalkyl, or $S(O)_2R'$;

each R' is independently H, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} alkoxy, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{3-6} cycloalkyl, aryl, heteroaryl, alkylaryl, or arylalkyl, or if two R' reside on the same nitrogen atom they can come together to form a C_{3-6} alkyl ring optionally containing a N, O, or S; wherein the R' groups can be substituted with one or more substituents as defined above, for example, C_{1-6} hydroxyalkyl, aminoalkyl, and alkoxyalkyl;

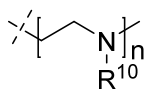
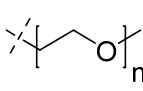
u and v are independently 0, 1, 2, 3, 4 or 5;

C is phenyl;

B is pyrrole;

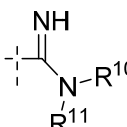
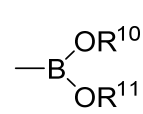
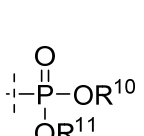
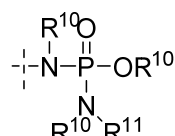
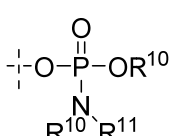
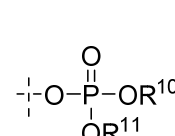
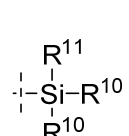
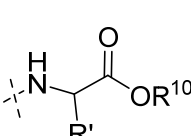
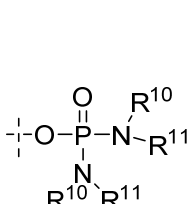
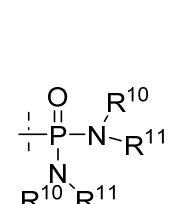
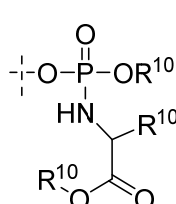
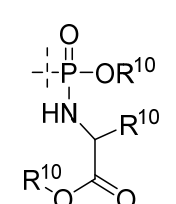


R^{12} is H, C_{1-6} alkyl, C_{3-7} cycloalkyl, C_{1-6} haloalkyl, C_{2-6} alkenyl, or C_{2-6} alkynyl,

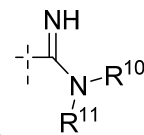
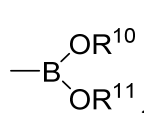
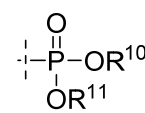
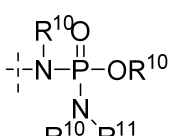
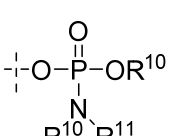
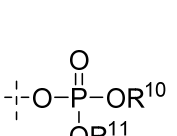
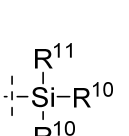
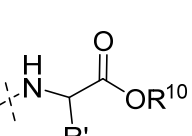
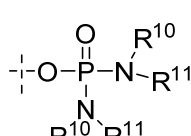
R^{13} is C_{7-20} alkyl, C_{7-20} alkenyl, C_{7-20} alkynyl,  or ,

n is 1, 2, 3, 4, 5, 6, 7 or 8,

R^{13} is optionally substituted with one or more substituents each independently selected

from the group consisting of hydrogen, halogen, CF_3 , SF_5 , hydroxy, , $-NH-C(O)-$, $N(R^{10})_2$, $-N(R^{10})_2$, $-OR^{11}$, $-C(O)OR^{10}$, $-C(O)-N(R^{10})_2$, $-C(O)-NHOH$, oxo, , $-S-R^{10}$, , , , , , , , , , , $N(R^{10})S(O)_2R^{10}$, $S(O)_2R^{10}$, $S(O)_2N(R^{10})_2$, $C(O)R^{10}$, C_{1-6} alkoxy, C_{1-6} haloalkoxy, cyano, azido, C_{2-6} alkynyl, C_{3-6} alkoxyalkyl, alkoxyalkyl, alkoxyalkyl, C_{1-6} alkyl, cycloalkyl, arylalkoxycarbonyl, carboxyl, haloalkyl, heterocyclylalkyl, C_{1-6} hydroxyalkyl, aryl, substituted aryl, heteroaryl, or substituted heteroaryl,

where substituents on the substituted aryl and substituted heteroaryl are selected from

the group consisting of halogen, SF_5 , CF_3 , hydroxy, , $-NH-C(O)-N(R^{10})_2$, $-N(R^{10})_2$, $-OR^{11}$, $-C(O)OR^{10}$, $-C(O)-N(R^{10})_2$, $-C(O)-NHOH$, oxo, , $-S-R^{10}$, , , , , , , ,

$\begin{array}{c} \text{O} \\ \parallel \\ \text{---P---N---R}^{10} \\ | \\ \text{R}^{10} \text{R}^{11} \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---O---P---OR}^{10} \\ | \\ \text{HN---R}^{10} \\ | \\ \text{R}^{10} \text{O---C=O} \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---P---OR}^{10} \\ | \\ \text{HN---R}^{10} \\ | \\ \text{R}^{10} \text{O---C=O} \end{array}$, $\text{N(R}^{10})\text{S(O)}_2\text{R}^{10}$, $\text{S(O)}_2\text{R}^{10}$, $\text{S(O)}_2\text{N(R}^{10})_2$, C(O)R^{10} , $\text{C}_3\text{-C}_7$ cycloalkyl, C_{1-6} alkoxy, cyano, azido, C_{2-6} alkynyl, C_{3-6} alkoxyalkyl, alkoxycarbonyl, alkoxycarbonylalkyl, and C_{1-6} alkyl;

or R^{12} and R^{13} , together with the nitrogen to which they are attached, form a saturated or unsaturated 4 to 7 membered ring optionally substituted with one or more substituents each independently selected from the group consisting of hydrogen, halogen, CF_3 , hydroxy,

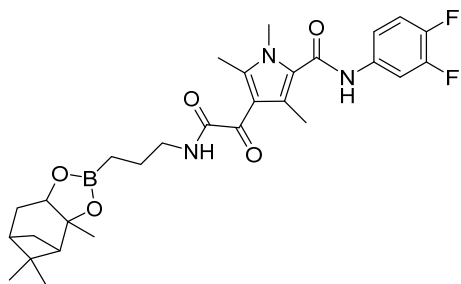
$\begin{array}{c} \text{NH} \\ \parallel \\ \text{---N---R}^{10} \\ | \\ \text{R}^{11} \end{array}$, $\text{---NH---C(O)---N(R}^{10})_2$, $\text{---N(R}^{10})_2$, ---OR^{11} , ---C(O)OR^{10} , $\text{---C(O)---N(R}^{10})_2$, ---C(O)---NHOH ,
 oxo, ---B---OR^{10} , ---B---OR^{11} , ---S---R^{10} , $\begin{array}{c} \text{O} \\ \parallel \\ \text{---P---OR}^{10} \\ | \\ \text{OR}^{11} \end{array}$, $\begin{array}{c} \text{R}^{10} \text{O} \\ \parallel \\ \text{---N---P---OR}^{10} \\ | \quad | \\ \text{R}^{10} \quad \text{R}^{11} \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---O---P---OR}^{10} \\ | \\ \text{N---R}^{11} \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---O---P---OR}^{10} \\ | \\ \text{OR}^{11} \end{array}$, $\begin{array}{c} \text{R}^{11} \\ | \\ \text{---Si---R}^{10} \\ | \\ \text{R}^{10} \end{array}$,

$\begin{array}{c} \text{O} \\ \parallel \\ \text{H---N---C---OR}^{10} \\ | \\ \text{R}' \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---O---P---N---R}^{10} \\ | \quad | \\ \text{R}^{10} \quad \text{R}^{11} \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---P---N---R}^{10} \\ | \quad | \\ \text{R}^{10} \quad \text{R}^{11} \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---O---P---OR}^{10} \\ | \\ \text{HN---R}^{10} \\ | \\ \text{R}^{10} \text{O---C=O} \end{array}$, $\begin{array}{c} \text{O} \\ \parallel \\ \text{---P---OR}^{10} \\ | \\ \text{HN---R}^{10} \\ | \\ \text{R}^{10} \text{O---C=O} \end{array}$, $\text{N(R}^{10})\text{S(O)}_2\text{R}^{10}$, $\text{S(O)}_2\text{R}^{10}$, $\text{S(O)}_2\text{N(R}^{10})_2$, C(O)R^{10} , C_{1-6} alkoxy, cyano, azido, C_{2-6} alkynyl, C_{3-6} alkoxyalkyl, alkoxycarbonyl, alkoxycarbonylalkyl, C_{1-6} alkyl, arylalkoxycarbonyl, carboxy, C_{1-6} haloalkyl, heterocyclylalkyl, and C_{1-6} hydroxyalkyl;

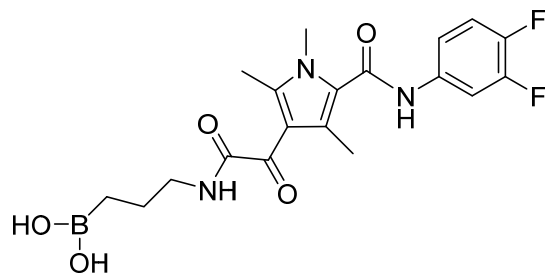
R^{10} and R^{11} are, independently, H, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, aryl, heteroaryl, alkylaryl, arylalkyl; and

R^{10} and R^{11} groups can optionally be substituted with one or more substituents, which substituents are, independently, halo, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{1-6} hydroxyalkyl, hydroxyl, carboxyl, acyl, aryl, acyloxy, amino, amido, carboxyl derivatives, alkylamino, dialkylamino, arylamino, alkoxy, alkoxyalkyl, aryloxy, nitro, cyano, sulfonic acid, thiol, imine, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, ester, carboxylic acid, amide, phosphonyl, phosphinyl, phosphoryl, phosphine, thioester, thioether, oxime, hydrazine, carbamate, phosphonic acid, phosphoramidate or phosphonate.

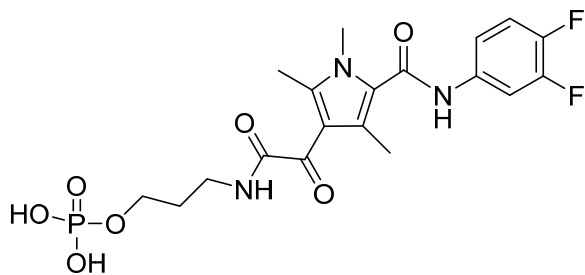
3. A compound selected from the group consisting of



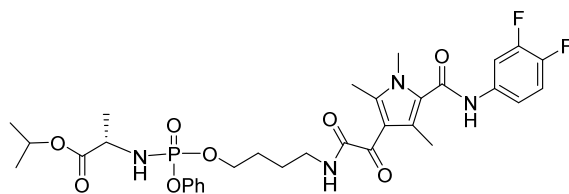
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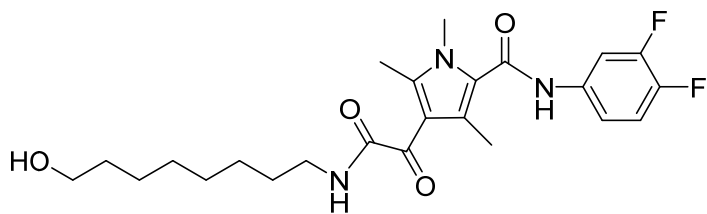
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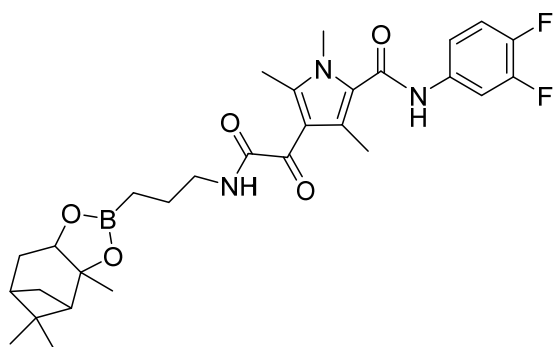
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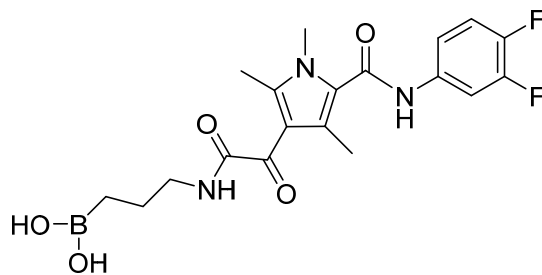
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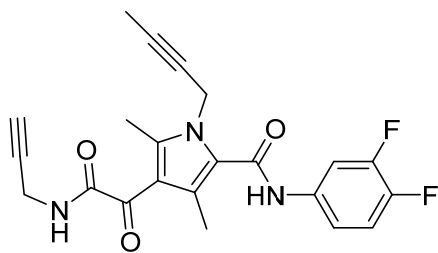
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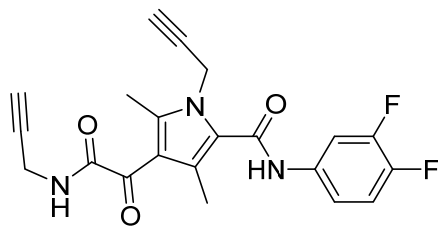
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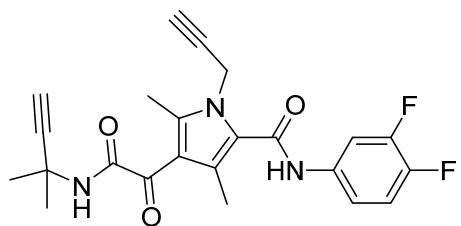
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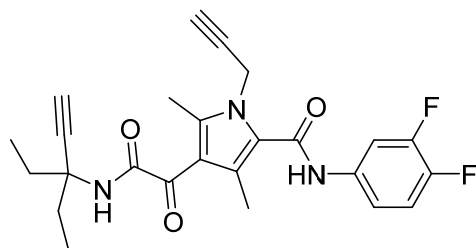
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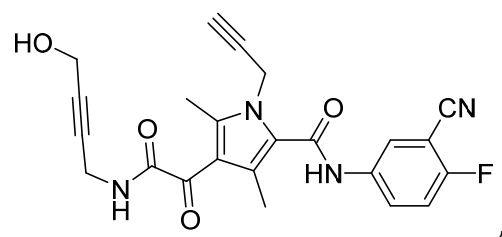
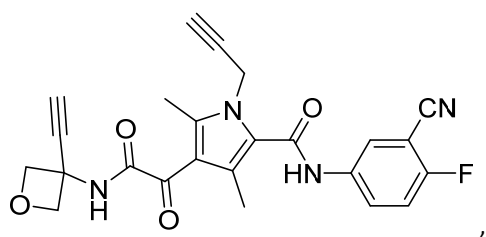
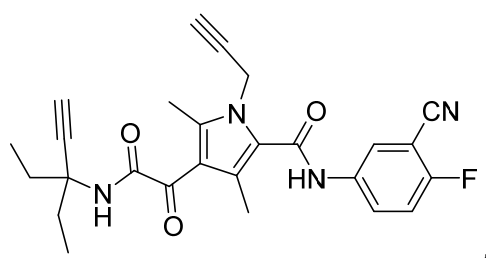
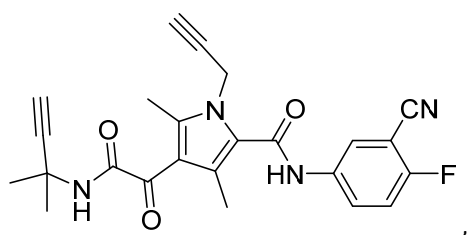
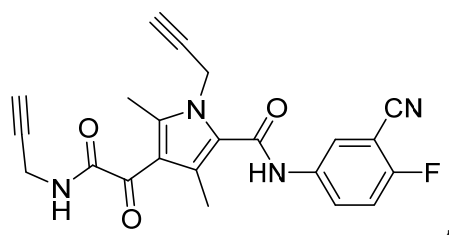
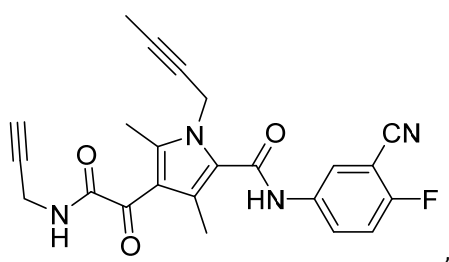
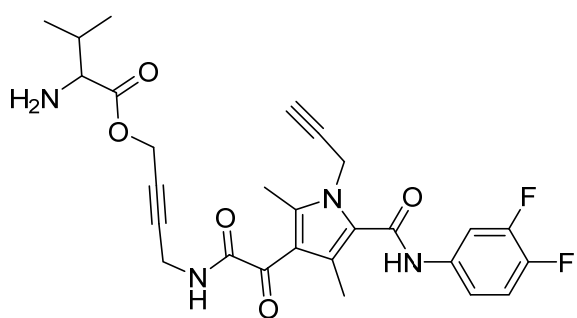
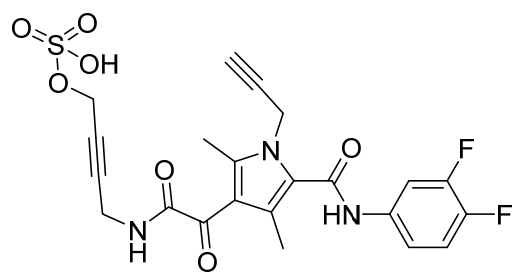
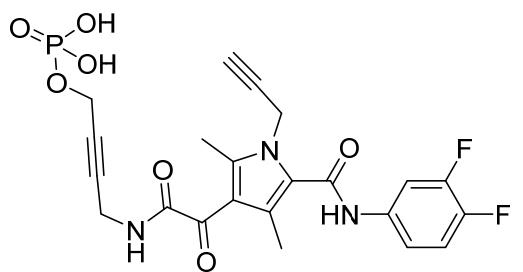
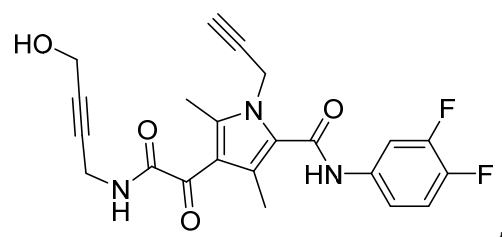
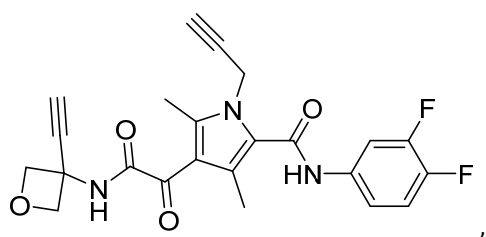
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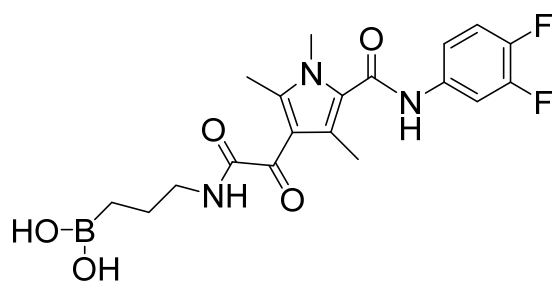
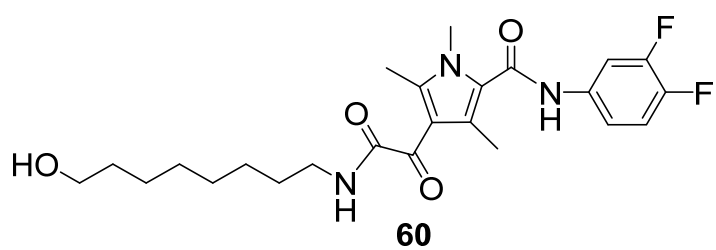
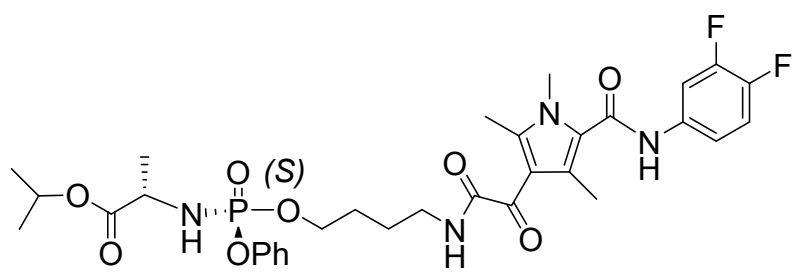
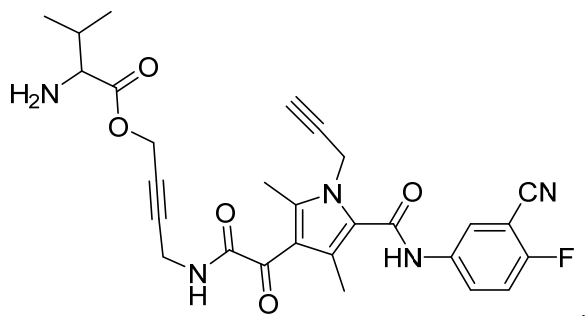
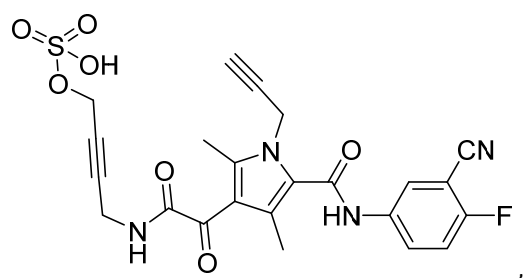
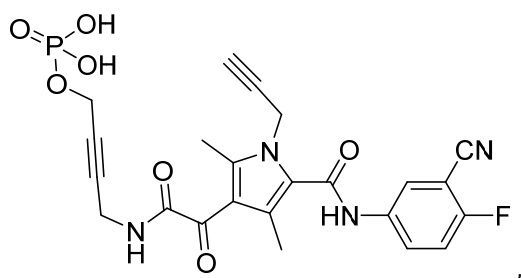


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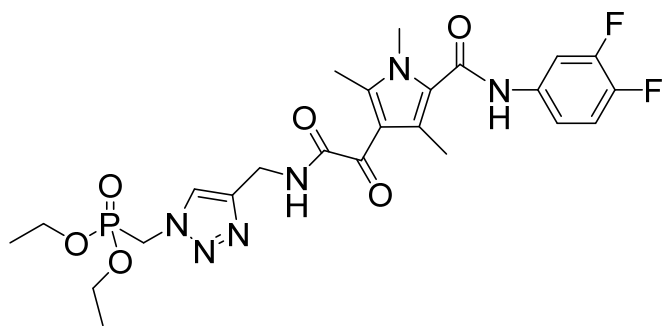


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, and



or an enantiomer, diastereoisomer, tautomer, pharmaceutically acceptable salt thereof.

4. A pharmaceutical composition comprising a compound of any one of Claims 1 to 3, and a pharmaceutically-acceptable carrier.

5. The pharmaceutical composition of Claim 4, wherein the composition is a transdermal composition or a nanoparticulate composition.

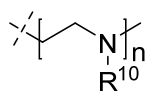
6. The pharmaceutical composition of Claim 4, further comprising a second antiviral agent; preferably the second antiviral agent is selected from the group consisting of a polymerase inhibitors, viral entry inhibitor, a viral maturation inhibitor, a literature described capsid assembly modulator, an IMPDH inhibitor, a protease inhibitor, an immune-based therapeutic agents, a reverse transcriptase inhibitor, a TLR-agonist, siRNA, shRNA, Talens, Crisper/Cas9, mir (microRNA), an agent of distinct or unknown mechanism, and combinations thereof.

7. Use of a compound of any one of Claims 1 to 3 in the manufacture of a medicament for treating or preventing an HBV infection.

8. The use of Claim 7, wherein the medicament is to be administered with another anti-HBV agent.

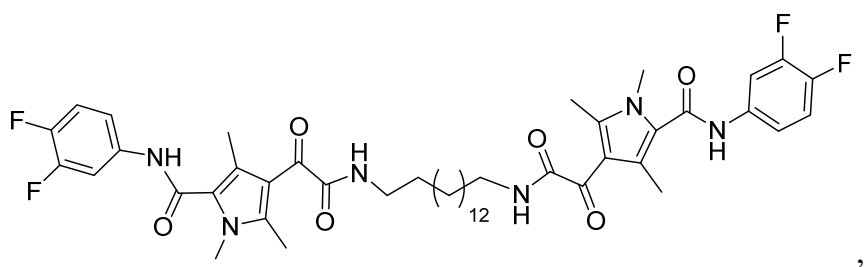
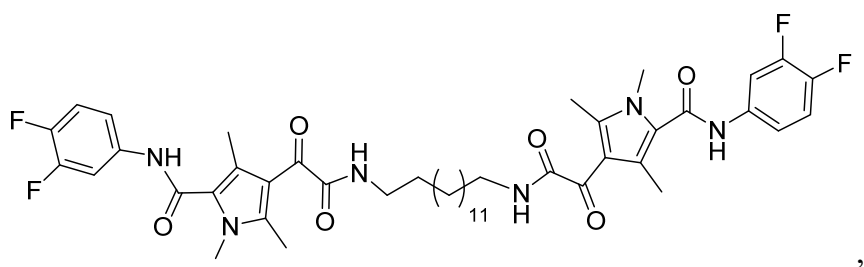
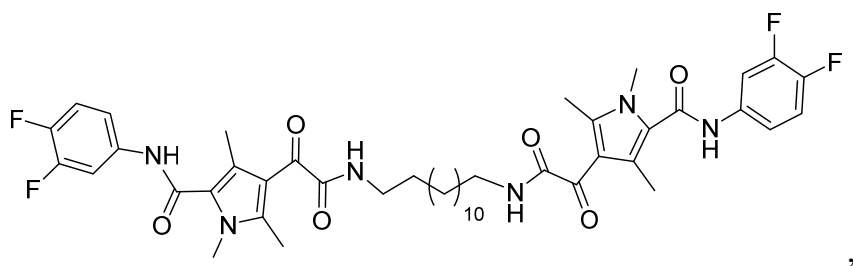
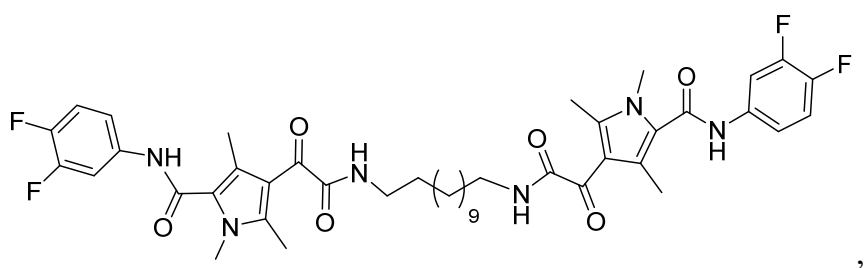
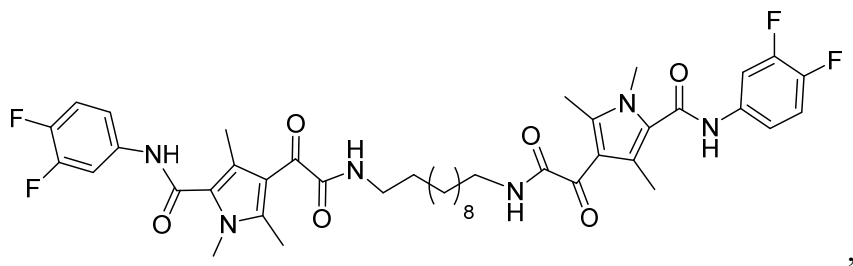
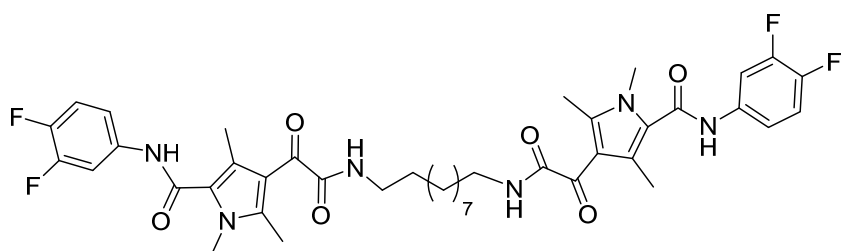
9. The compound of any one of Claims 1 to 3 for use in therapy.

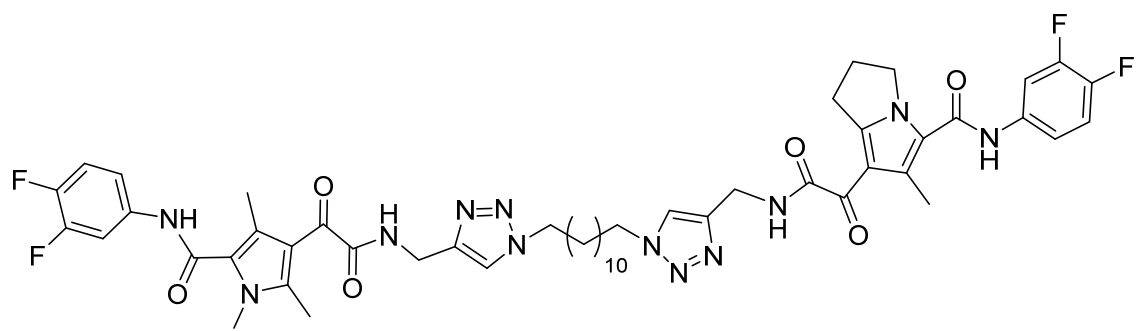
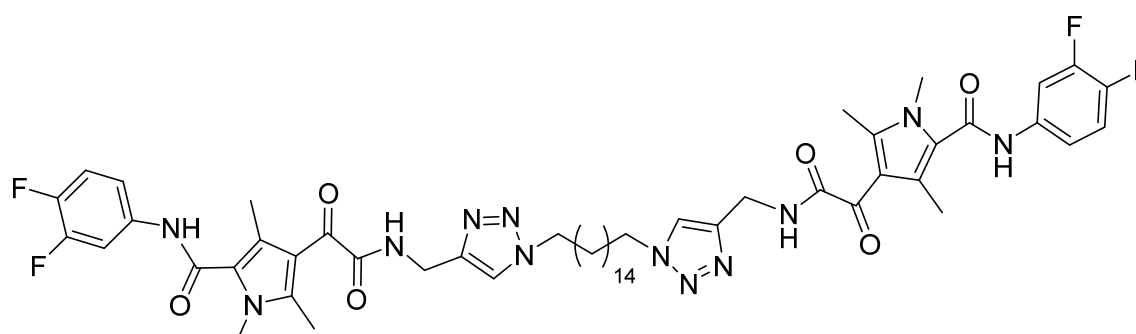
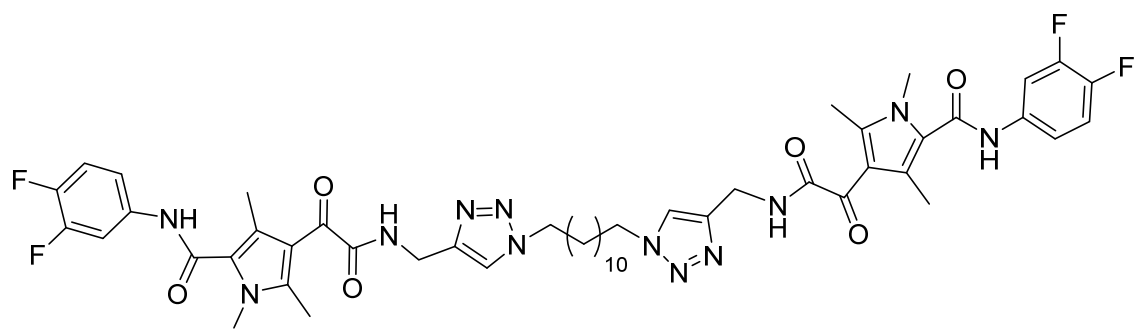
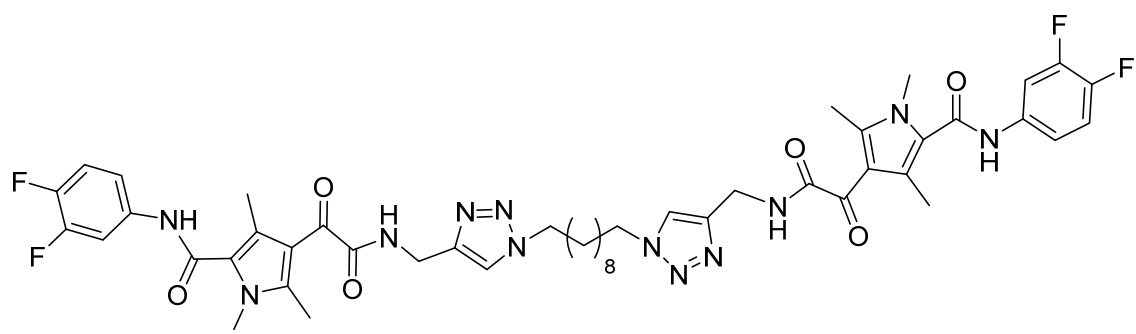
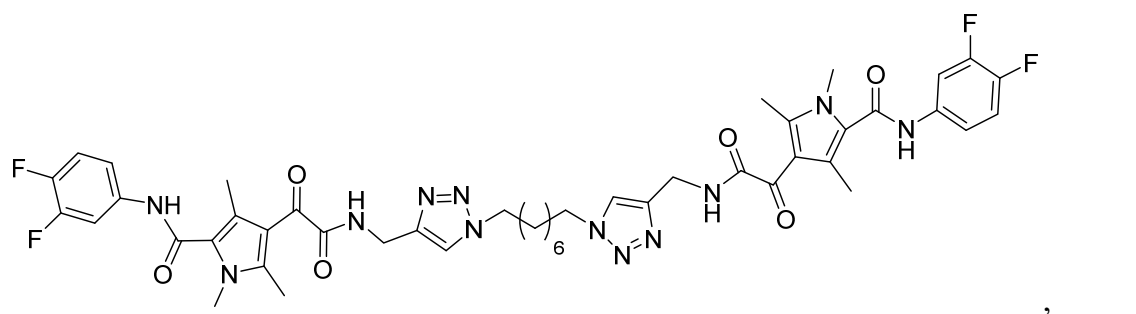
10. The compound of Claim 1 or 2, wherein R^{13} is C_{7-20} alkenyl, C_{7-20} alkynyl or

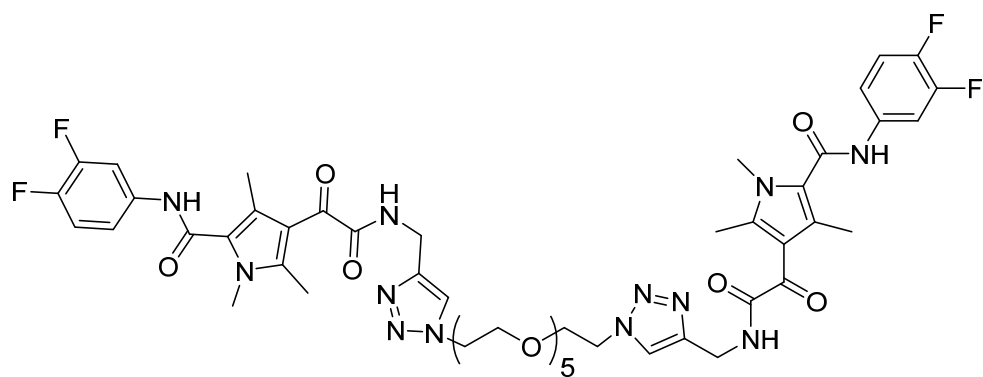


11. The compound of Claim 1 or 2, wherein R^{13} is C_{7-20} alkynyl.

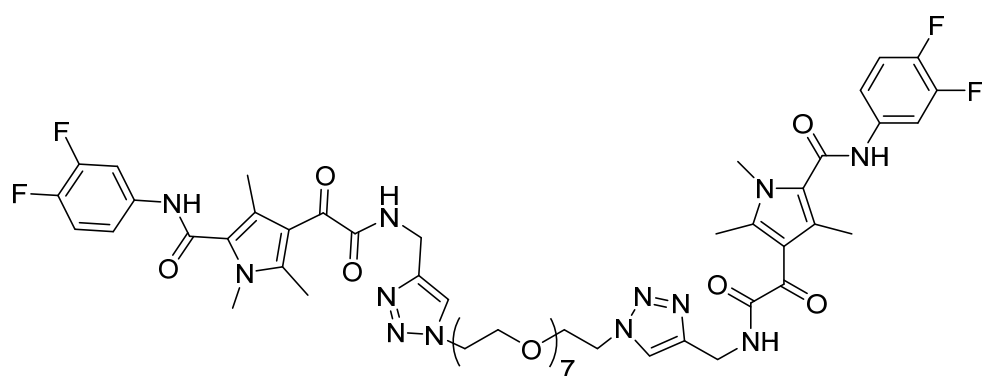
12. A compound selected from the group consisting of:



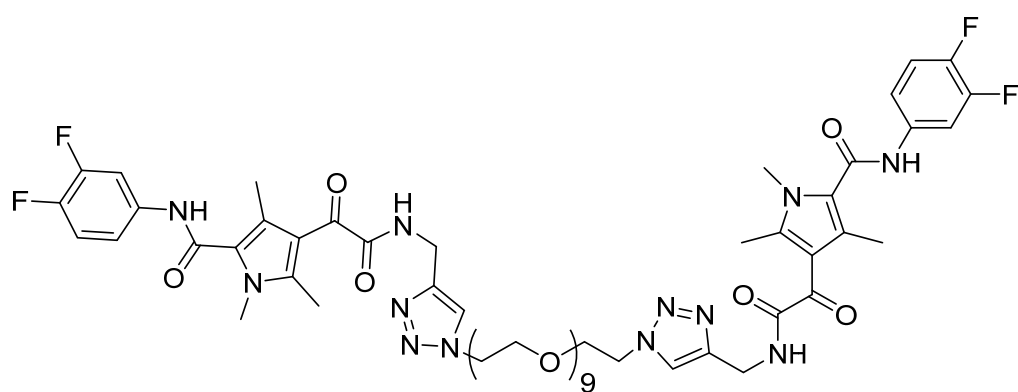




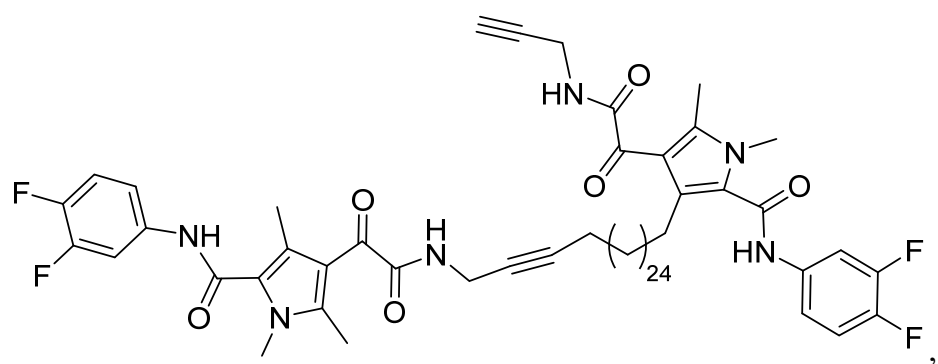
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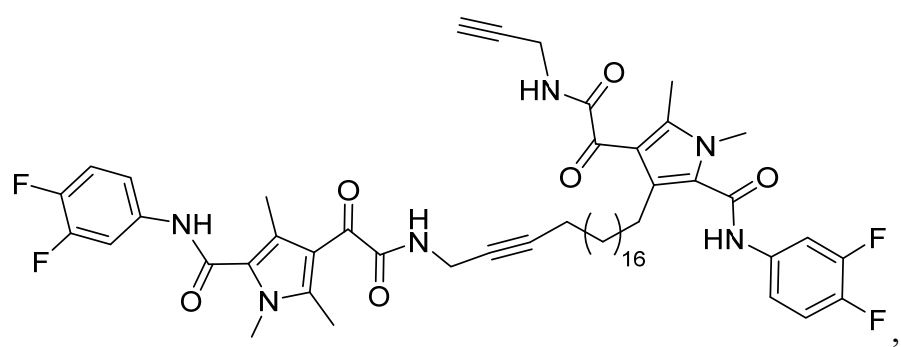
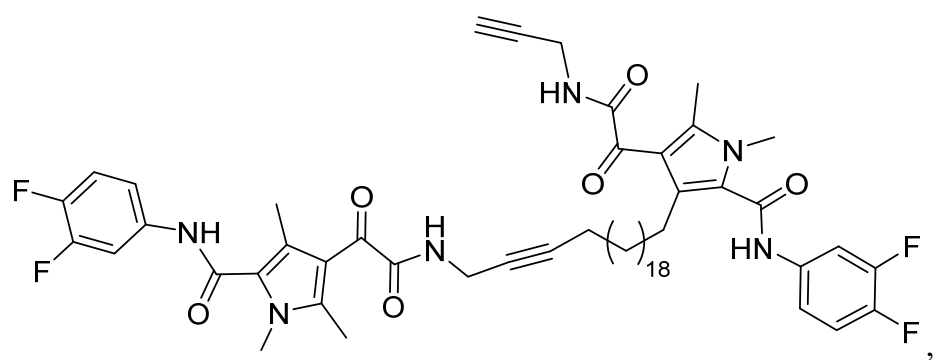
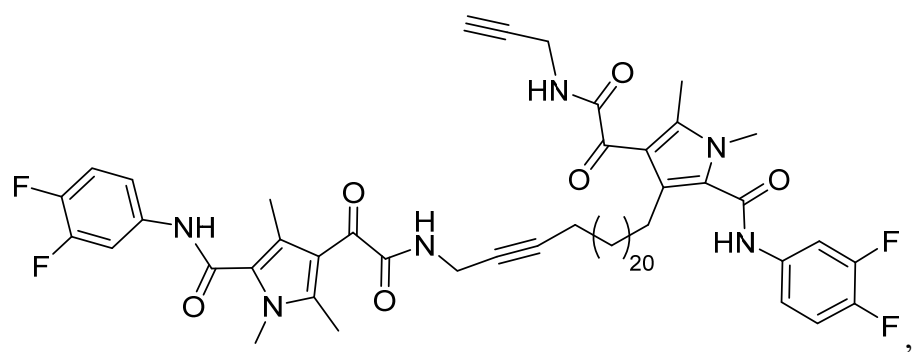
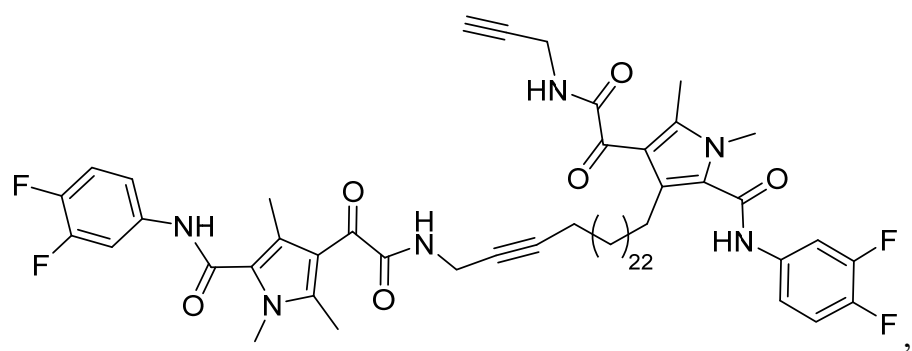
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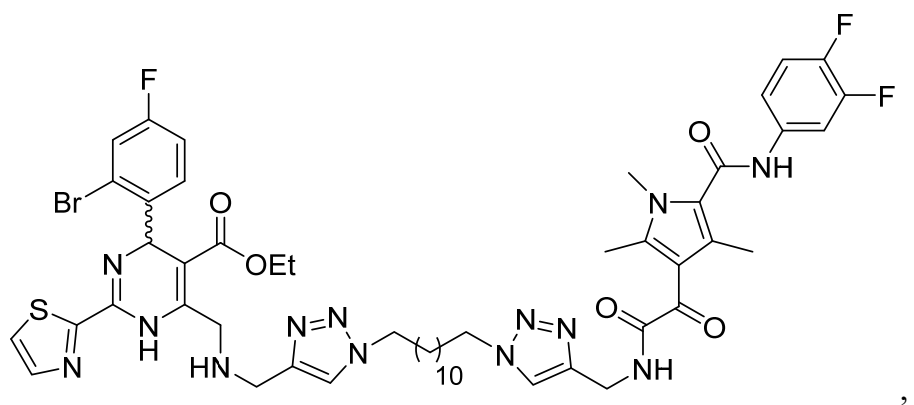
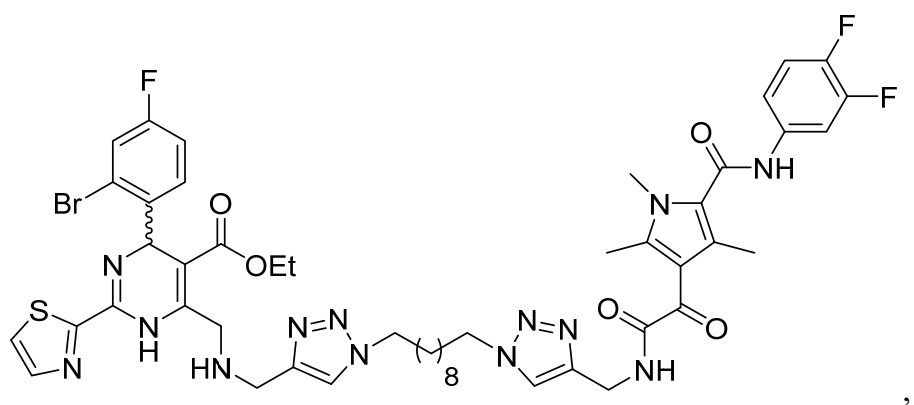
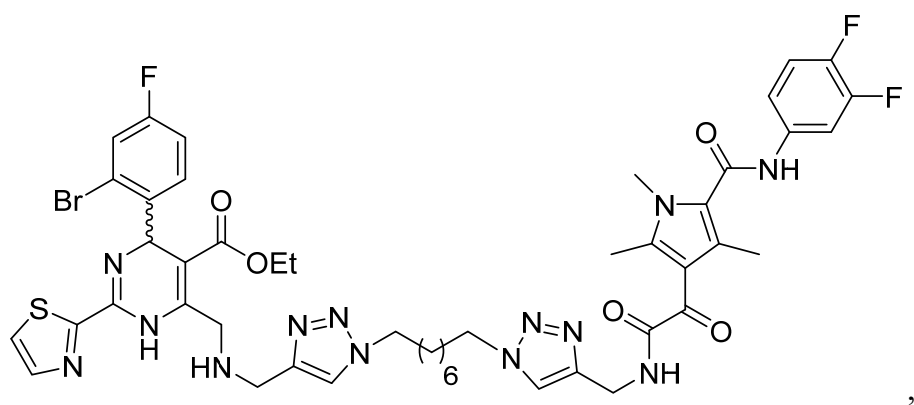
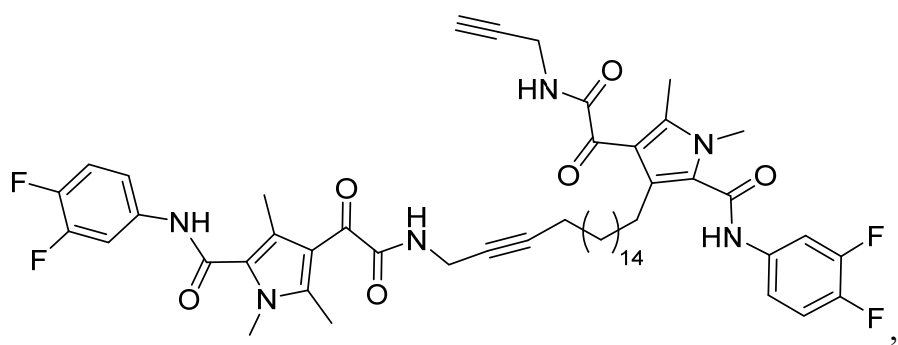


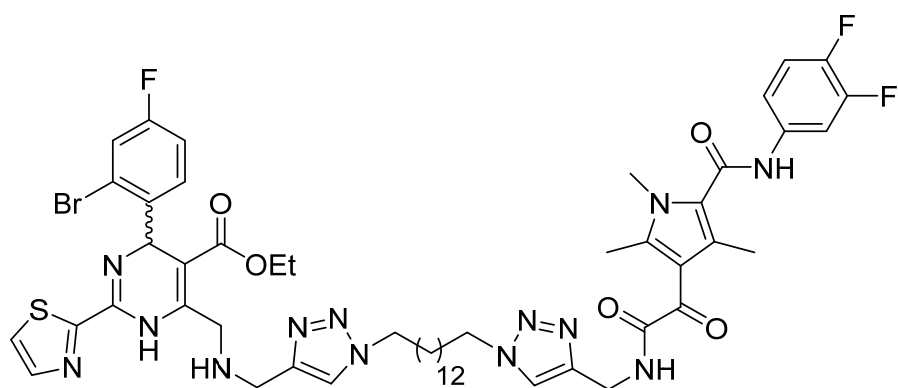
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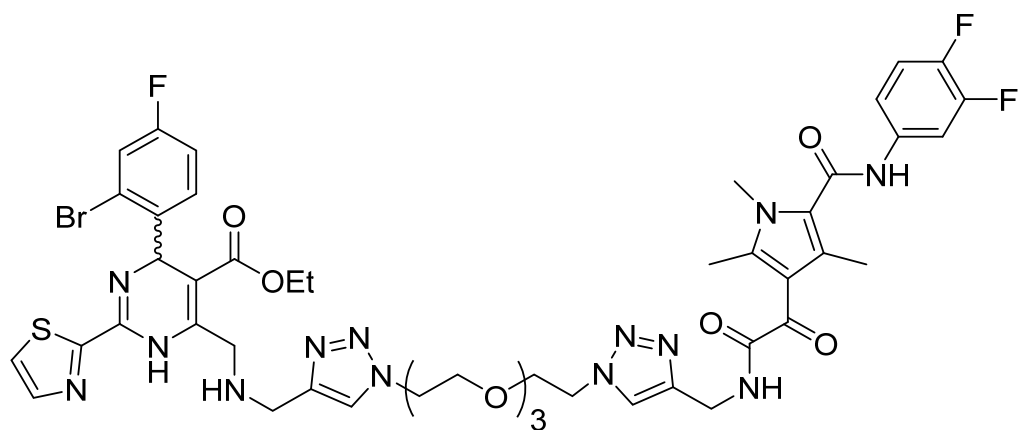
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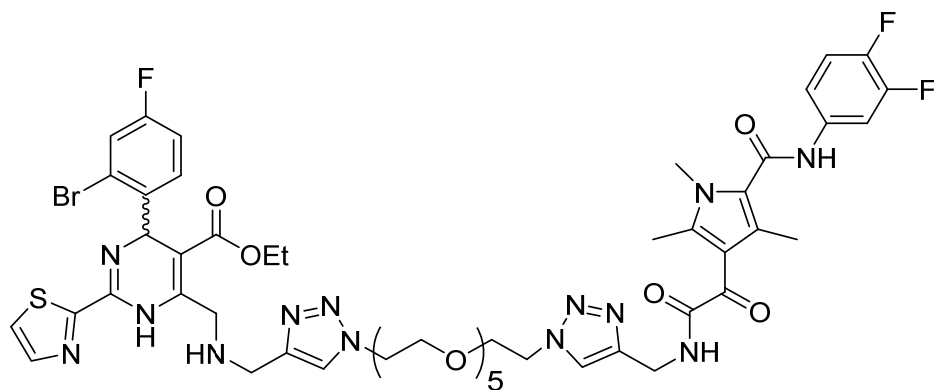




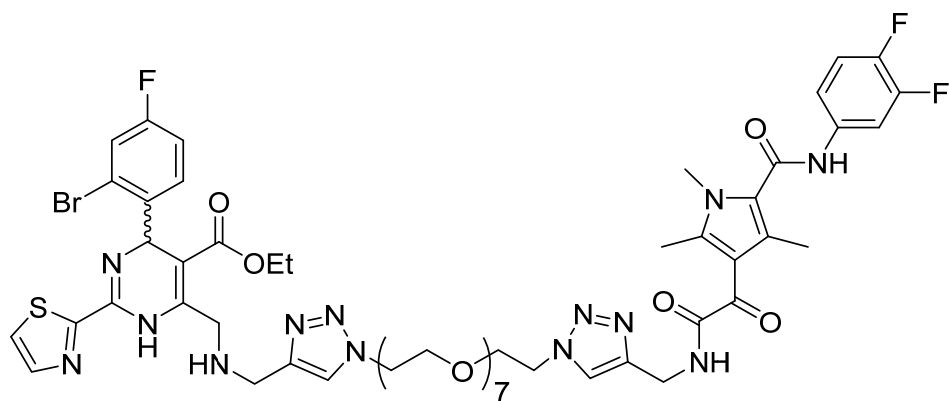
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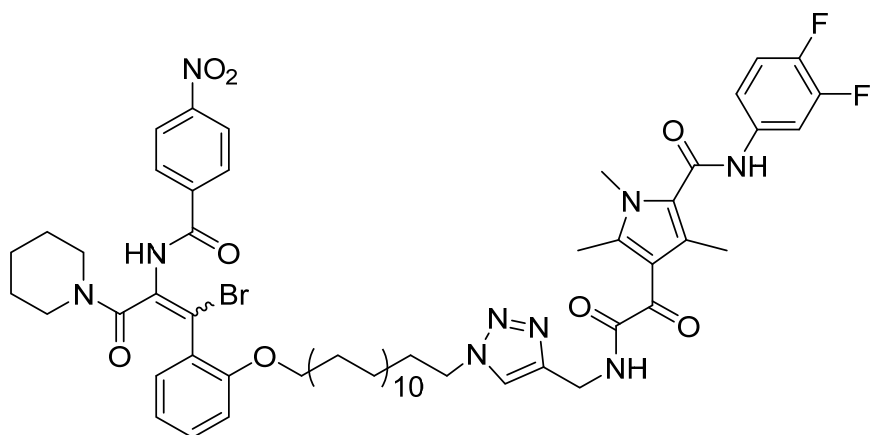
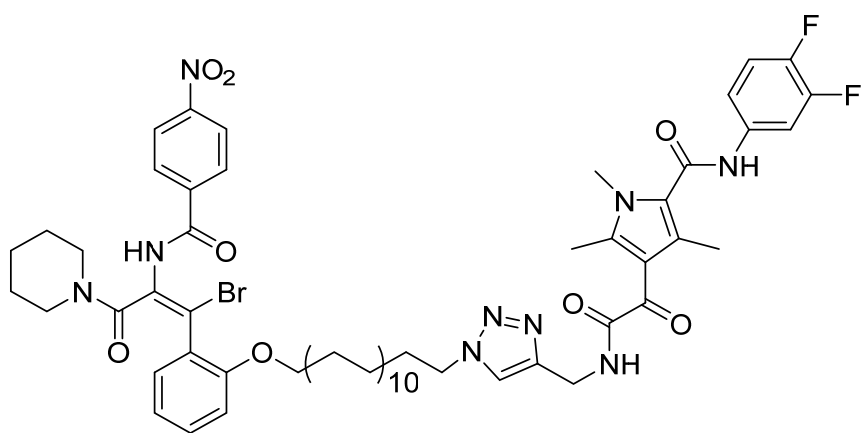
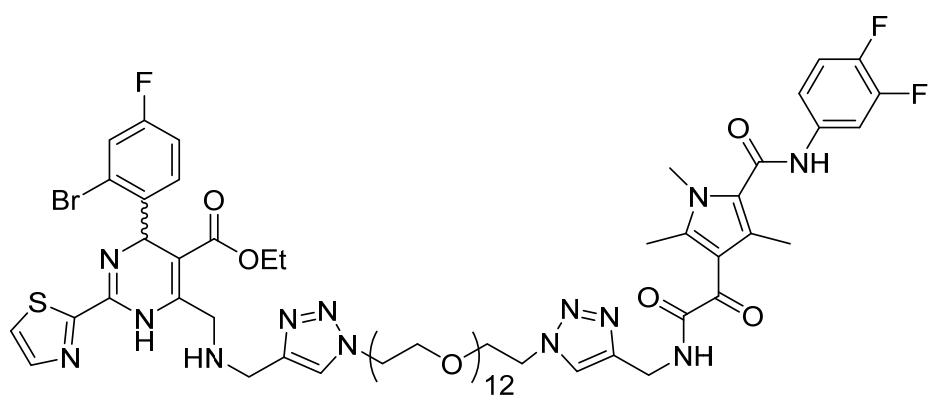
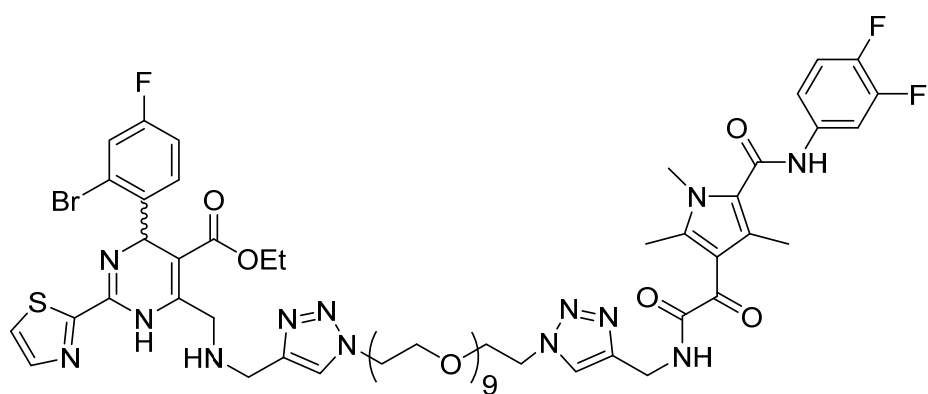
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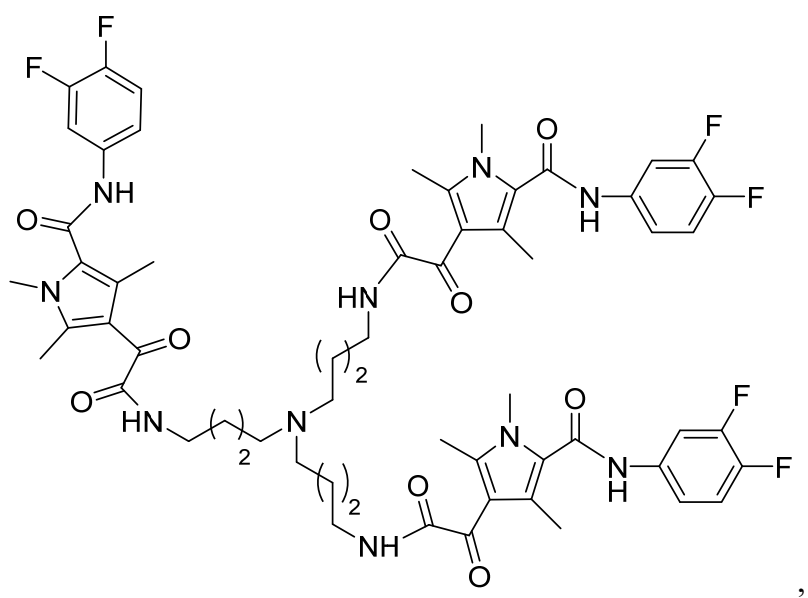
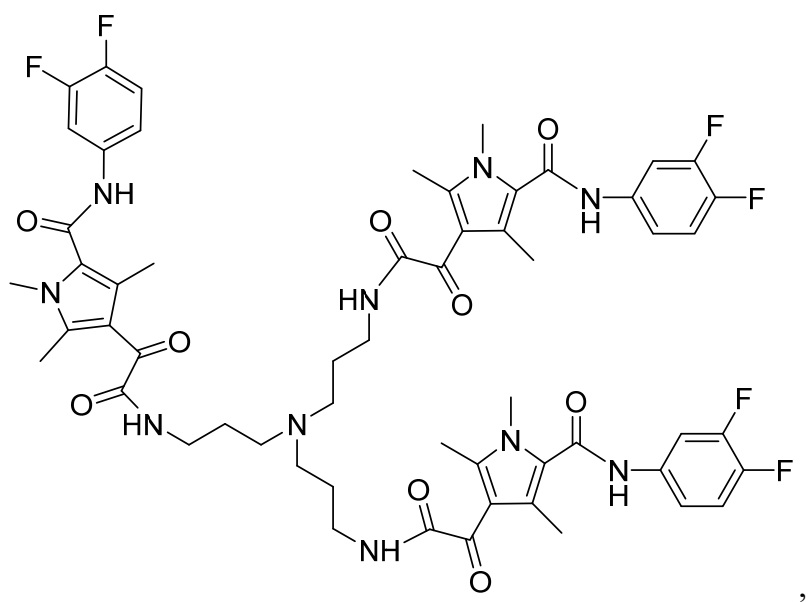


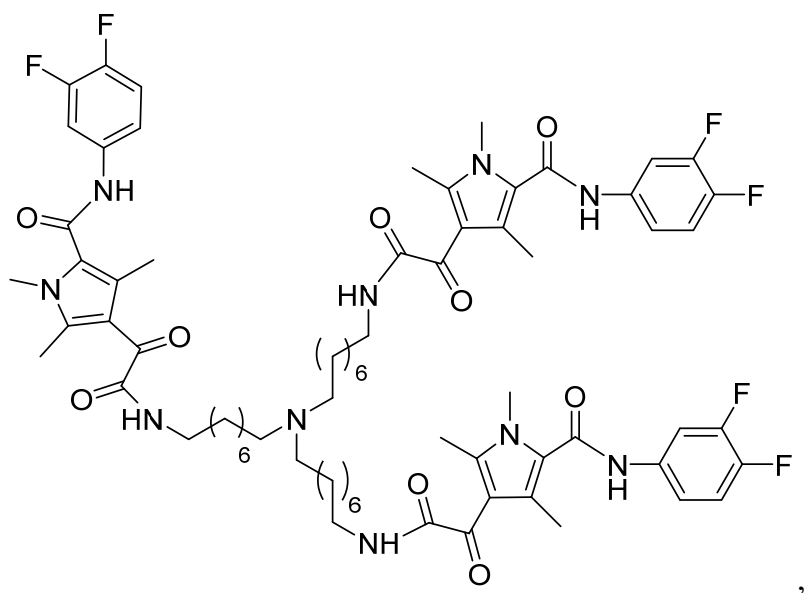
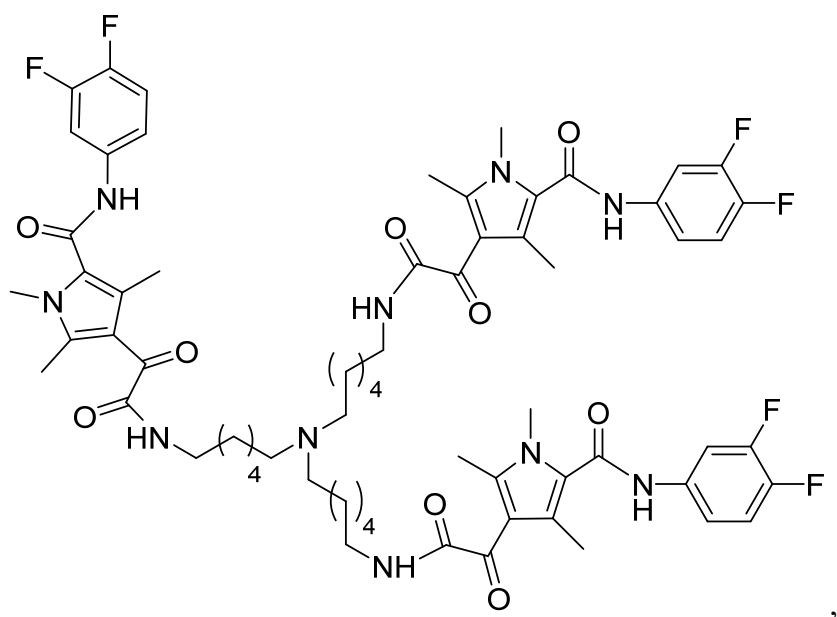
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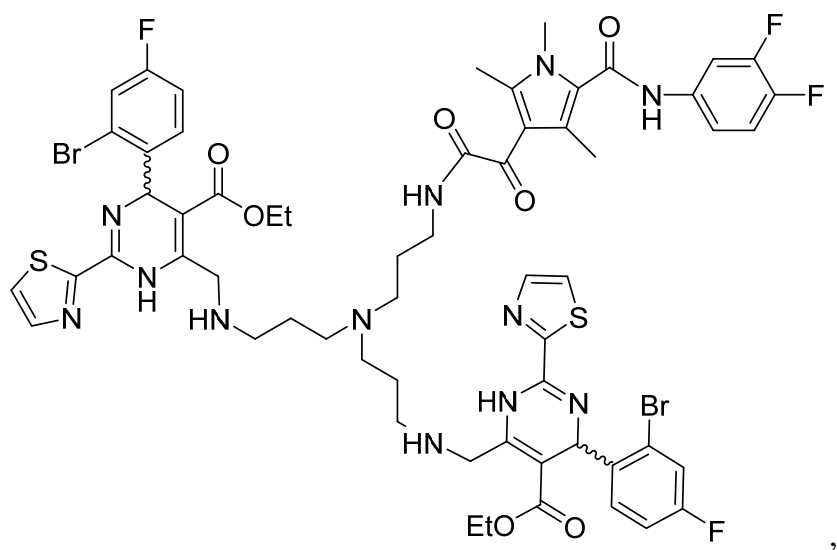
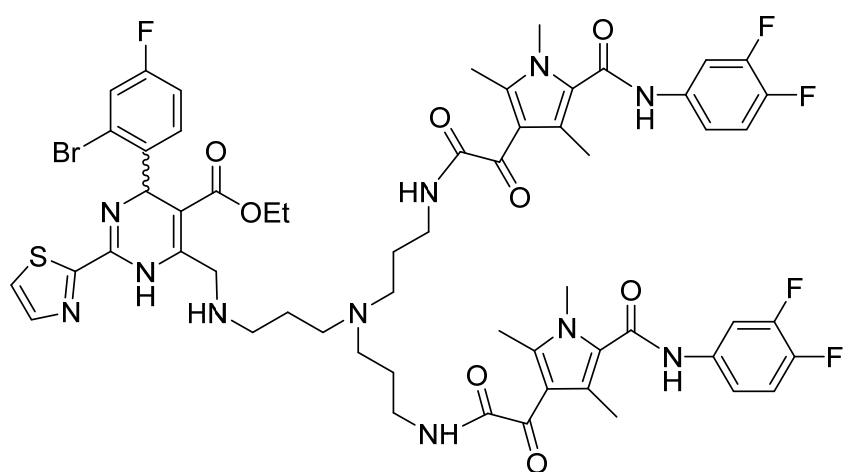
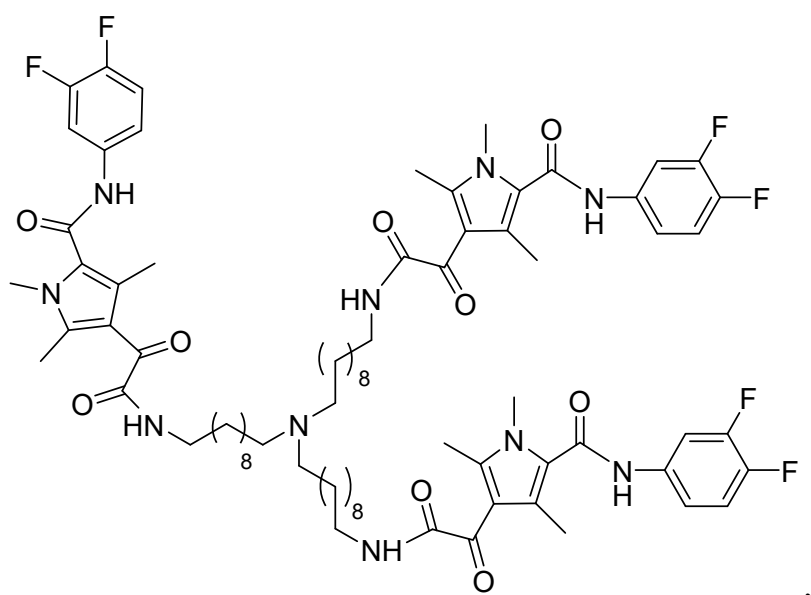


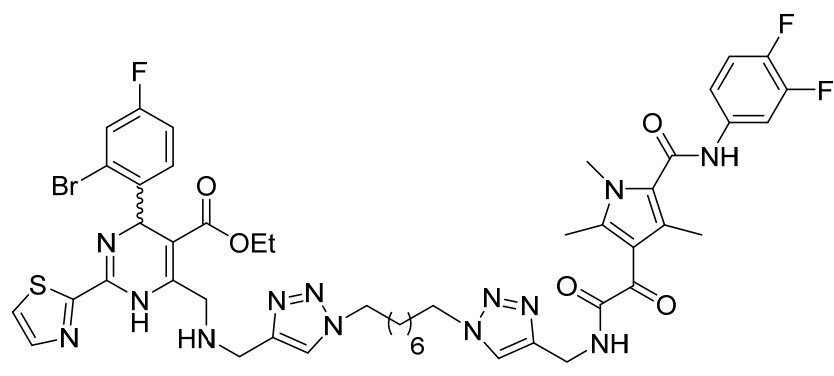
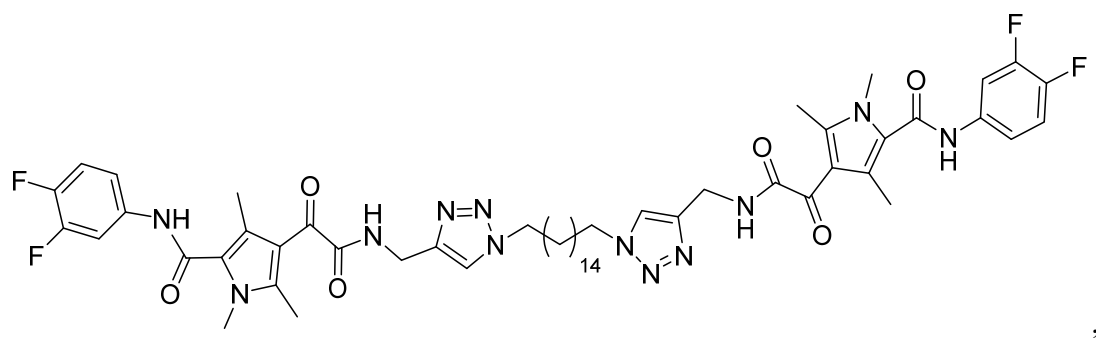
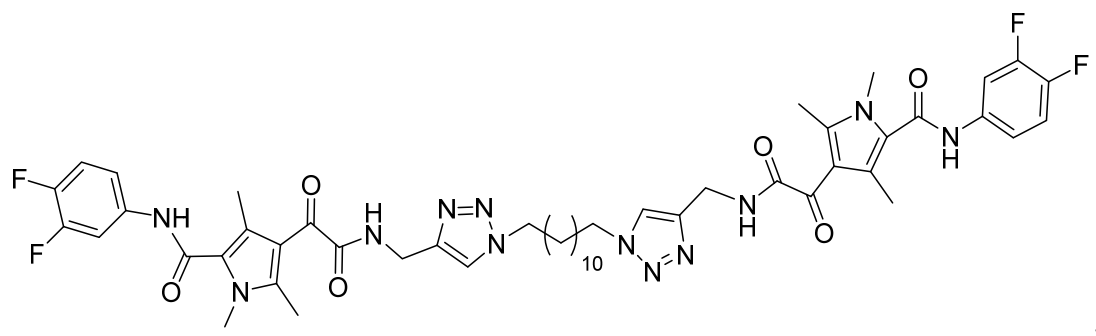
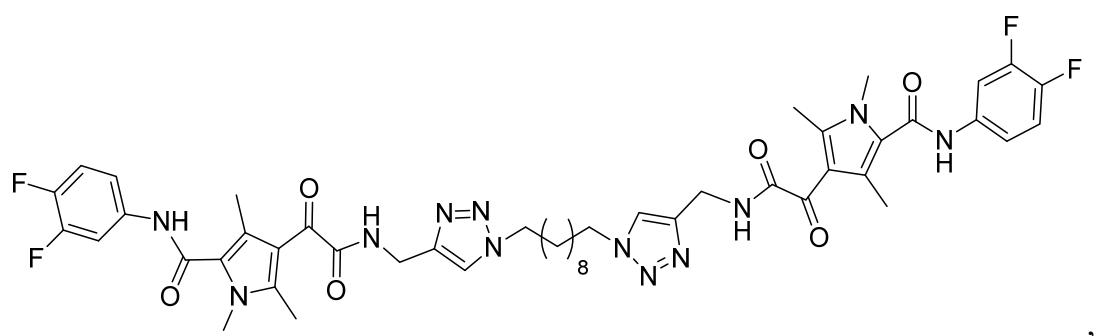
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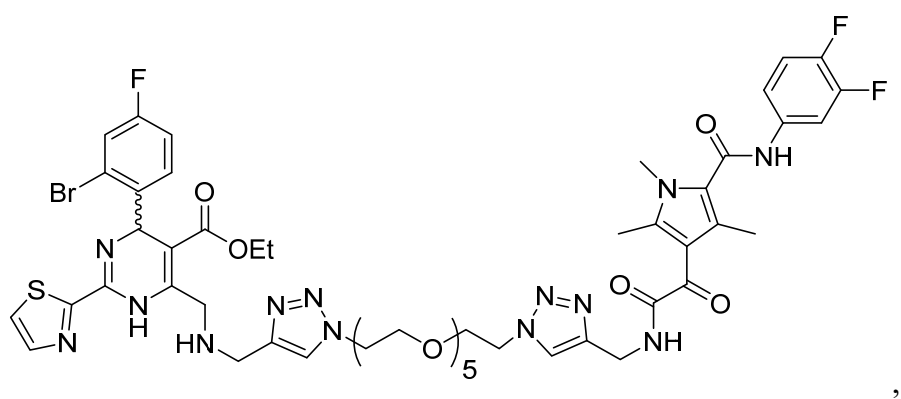
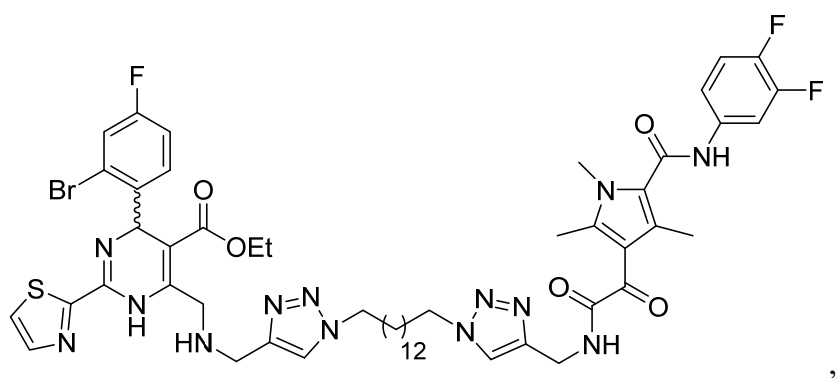
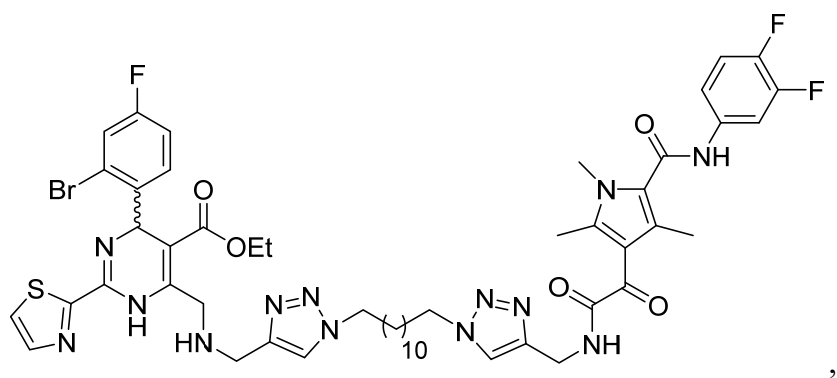
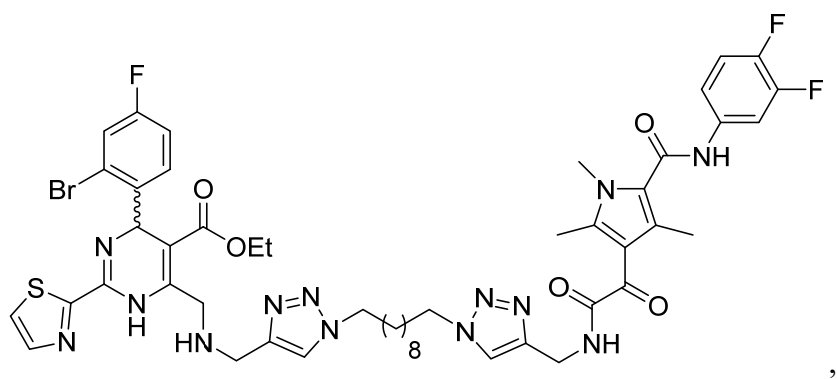


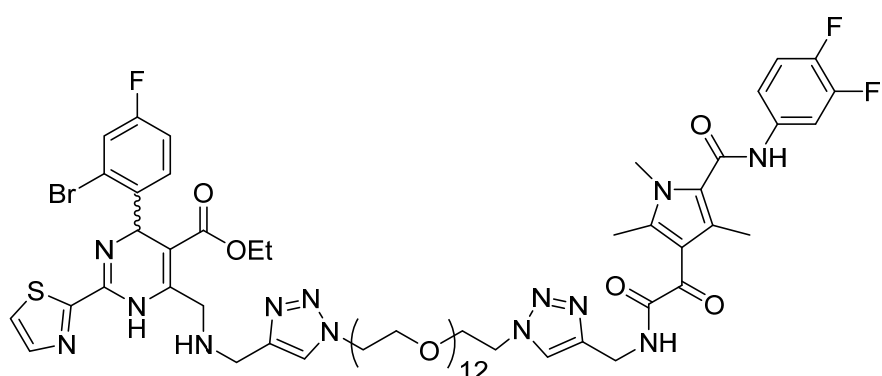
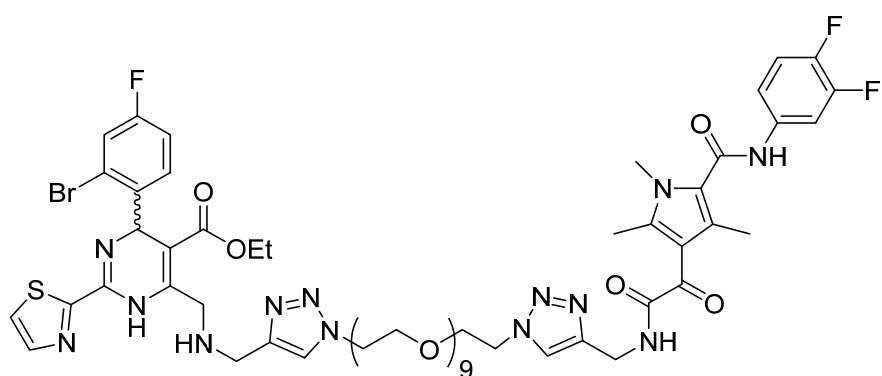
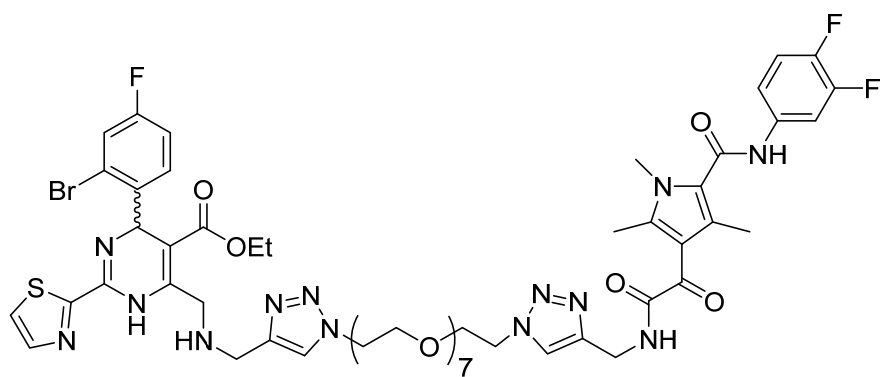


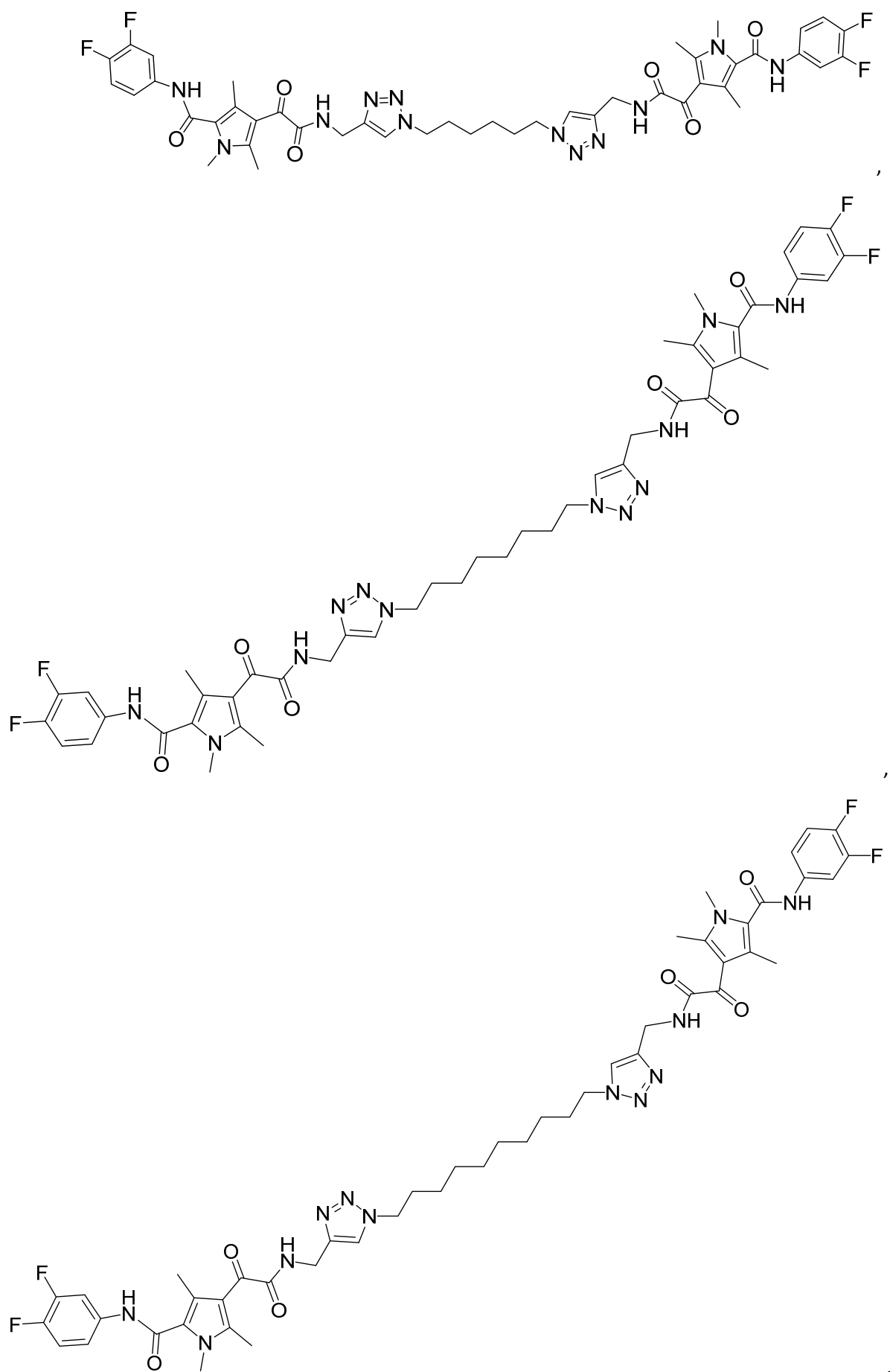


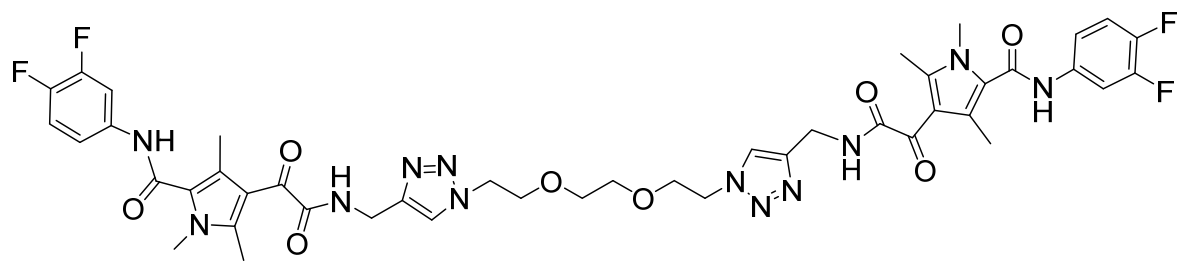
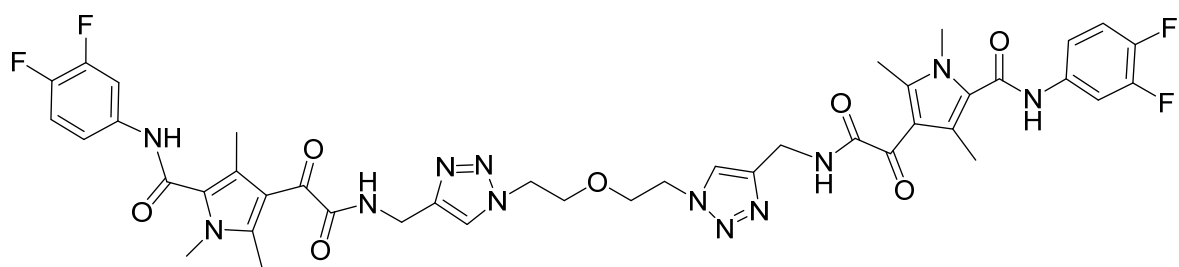
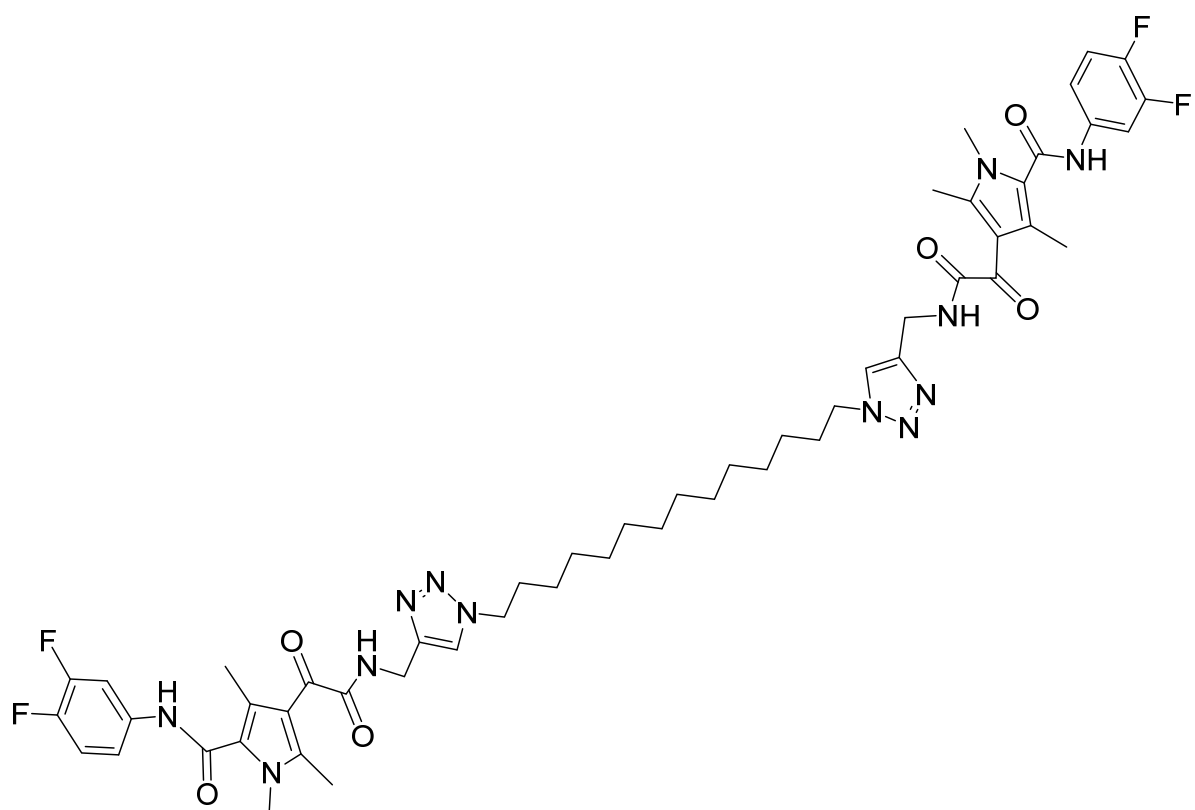


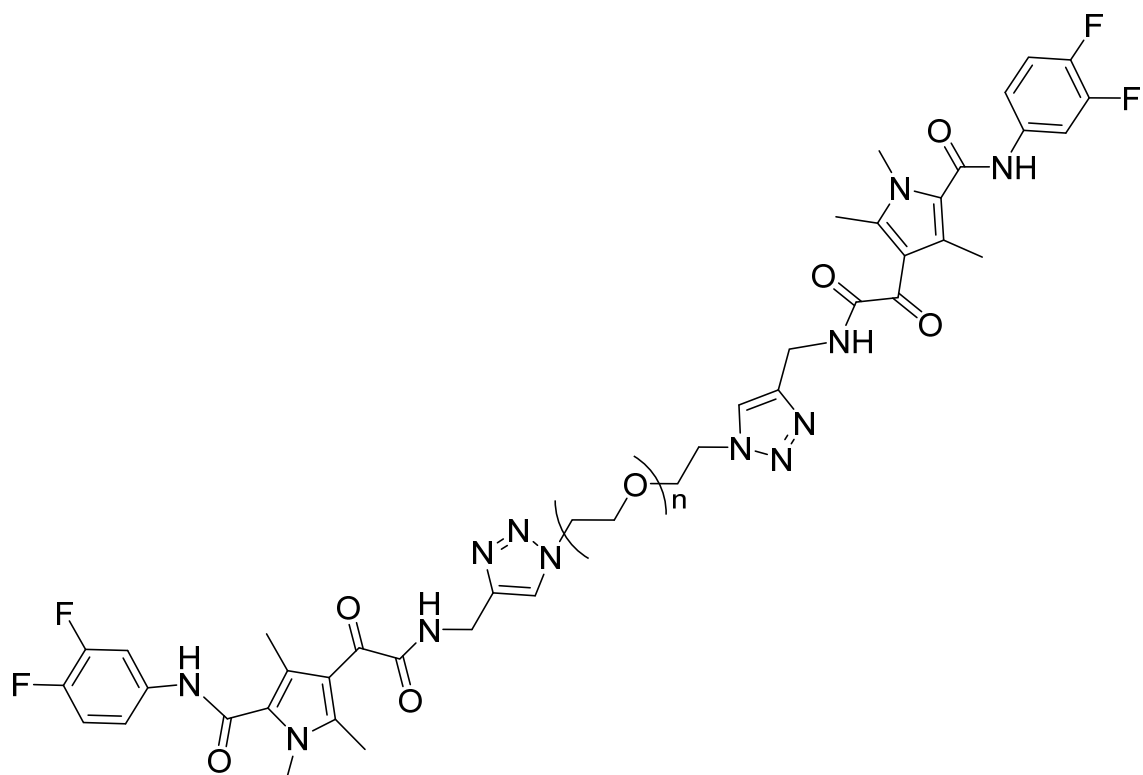
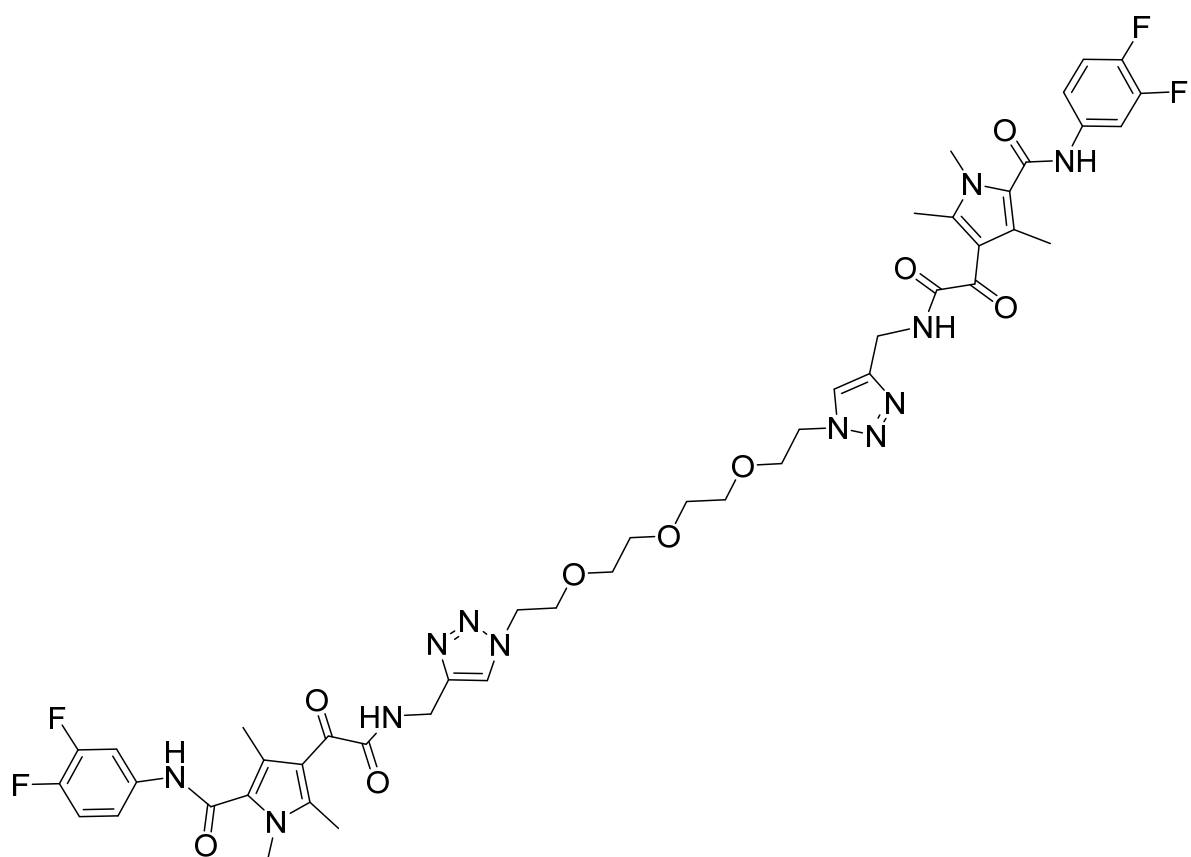


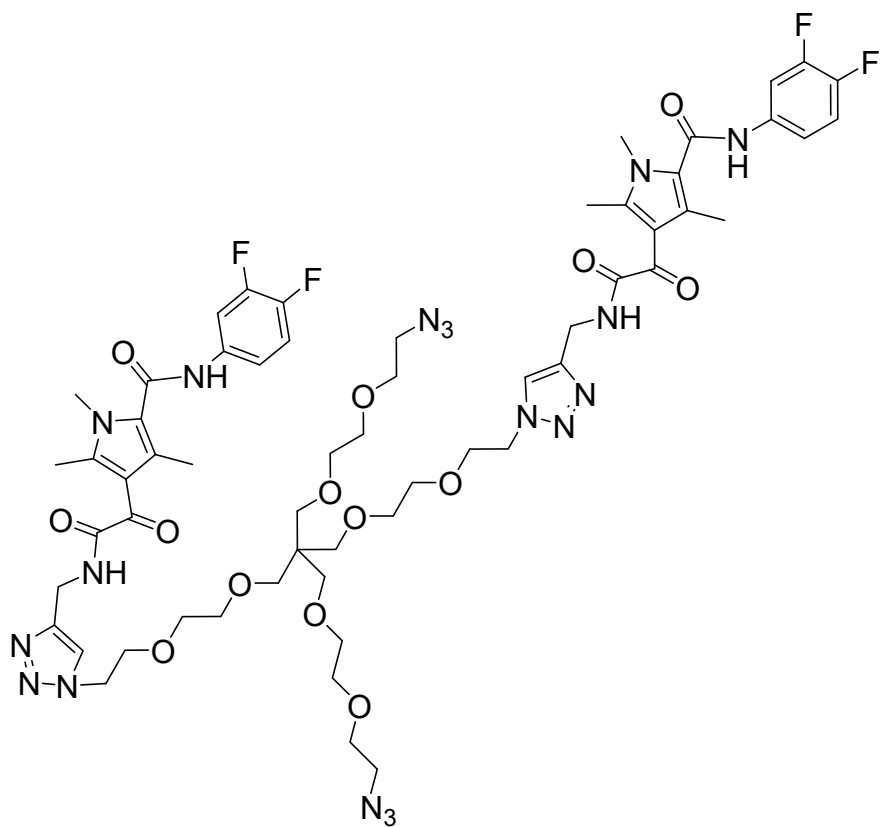
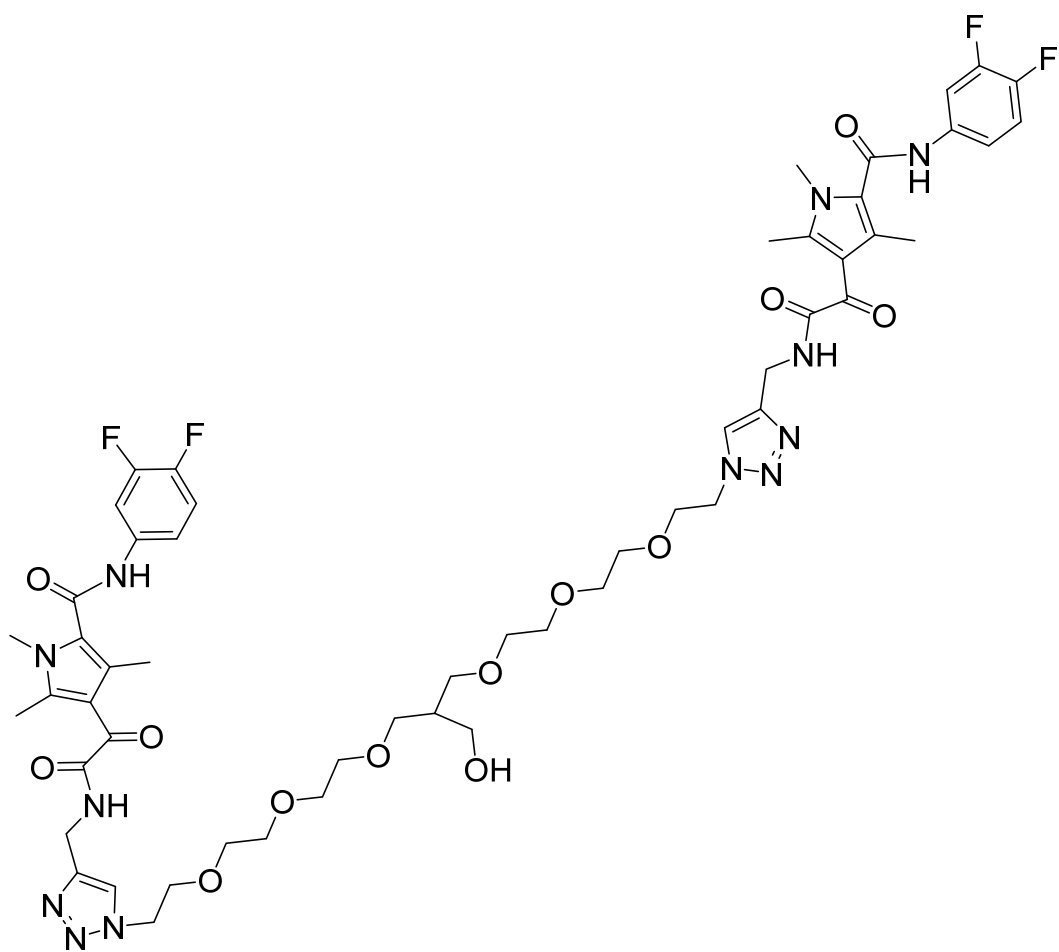




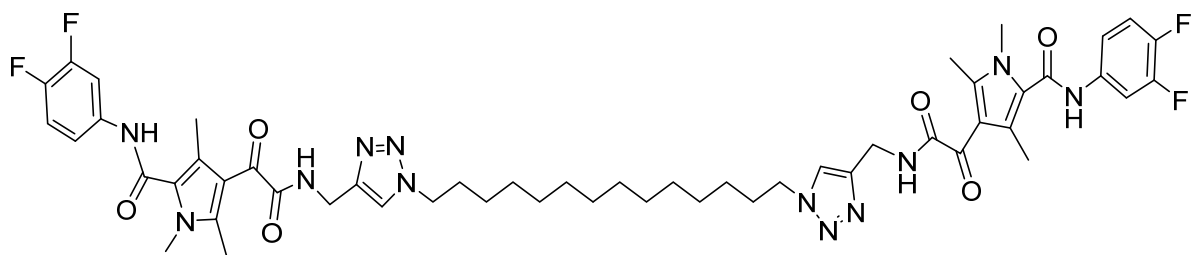
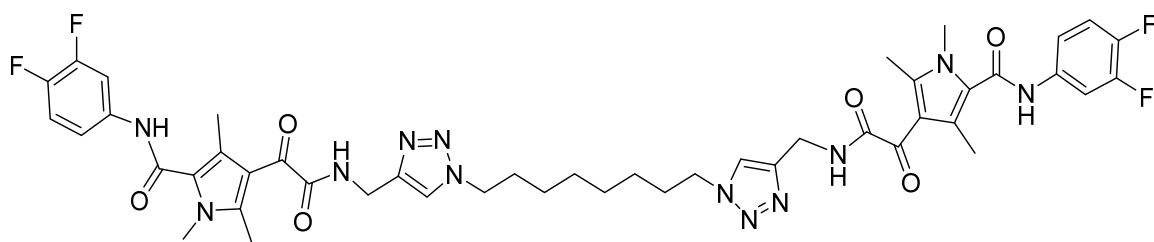












and

