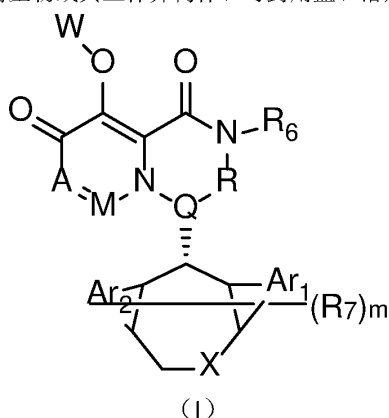


权利要求书

1、一种式(I)所示的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，



5

其中：

(1) A选自N或CR₁，R₁选自氢、氰基、羟基、卤素、羧基、酯基、酰胺基、磺酰胺基；或者，R₁选自未取代或取代的下列基团：C₁₋₆烷基、C₁₋₆烷氧基、C₁₋₆烷胺基、C₁₋₆烷硫基、肼酰基、C₁₋₆烷基羰基、C₁₋₆烷基氨基羰基、C₁₋₆烷基羰基氨基、C₁₋₆烷基氧基羰基、C₁₋₆烷基亚硫酰基、C₁₋₆烷基氨基羰基氨基、C₃₋₆环烷基、C₃₋₆环烷氧基、C₃₋₆环烷胺基、C₃₋₆环烷硫基、C₃₋₆环烷羰基、C₃₋₆环烷氨基羰基、C₃₋₆环烷羰基氨基、C₃₋₆环烷氨基羰基氨基、C₄₋₈杂环烷基、C₄₋₈杂环烷氧基、C₄₋₈杂环烷胺基、C₄₋₈杂环烷硫基、C₄₋₈杂环烷基羰基、C₄₋₈杂环烷基氨基羰基、C₅₋₁₀芳基、C₅₋₁₀芳氧基、C₅₋₁₀芳氧基烷基、C₅₋₁₀芳胺基、C₅₋₁₀芳硫基、C₅₋₁₀芳羰基、C₁₋₆烷基磺基、C₁₋₆烷基磺酰基氨基、C₃₋₆环烷磺基、C₃₋₆环烷基磺酰基氨基、C₅₋₁₀芳磺基、C₅₋₁₀芳基磺酰基氨基、氨基草酰基氨基、氨基草酰基、C₅₋₁₀芳胺基羰基或C₅₋₁₀芳胺基羰基氨基；

(2) M选自N或CR₂，R₂选自氢、氰基、羟基、卤素、羧基、酯基、酰胺基、磺酰胺基；或者，R₂选自未取代或取代的下列基团：C₁₋₆烷基、C₁₋₆烷氧基、C₁₋₆烷胺基、C₁₋₆烷硫基、肼酰基、C₁₋₆烷基羰基、C₁₋₆烷基氨基羰基、C₁₋₆烷基羰基氨基、C₁₋₆烷基氧基羰基、C₁₋₆烷基亚硫酰基、C₁₋₆烷基氨基羰基氨基、C₃₋₆环烷基、C₃₋₆环烷氧基、C₃₋₆环烷胺基、C₃₋₆环烷硫基、C₃₋₆环烷羰基、C₃₋₆环烷氨基羰基、C₃₋₆环烷羰基氨基、C₃₋₆环烷氨基羰基氨基、C₄₋₈杂环烷基、C₄₋₈杂环烷氧基、C₄₋₈杂环烷胺基、C₄₋₈杂环烷硫基、C₄₋₈杂环烷基羰基、C₄₋₈杂环烷基氨基羰基、C₅₋₁₀芳基、C₅₋₁₀芳氧基、C₅₋₁₀芳氧基烷基、C₅₋₁₀芳胺基、C₅₋₁₀芳硫基、C₅₋₁₀芳羰基、C₁₋₆烷基磺基、C₁₋₆烷基磺酰基氨基、C₃₋₆环烷磺基、C₃₋₆环烷基磺酰基氨基、C₅₋₁₀芳磺基、C₅₋₁₀芳基磺酰基氨基、氨基草酰基氨基、氨基草酰基、C₅₋₁₀芳胺基羰基或C₅₋₁₀芳胺基羰基氨基；或者，R₁和R₂连接并和与它们相连的碳一起形成第一环或R₂和R₇连接并和与它们相连的碳一起形成第二环；

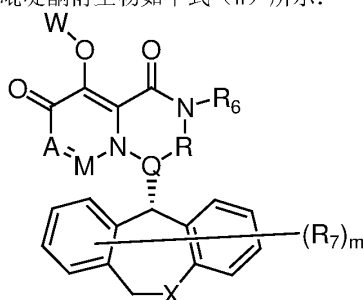
(3) Q选自N或CR₃，R₃选自氢、氰基、羧基、酯基、酰胺基；或者，R₃选自未取代或取代的下列基团：C₁₋₆烷基、C₃₋₆环烷基、C₄₋₈杂环烷基、C₅₋₁₀芳基、C₃₋₆环烷基硫基、螺环、桥环、C₃₋₆环烷基硫基、C₁₋₆烷基、C₃₋₆环烷基C₁₋₆烷基硫基C₁₋₆烷基、C₃₋₆环烷基C₁₋₆烷基硫基环烷基、C₃₋₆环烷基氧基环烷基、环酰胺基C₁₋₆烷基、环酰胺基环烷基、环磺基C₁₋₆烷基、环磺基环烷基；或者，R₃和R₄连接并和与它们相连的碳一起形成第三环；

(4) R选自NH、羰基或CR₄R₅，R₄、R₅独立选自氢、氰基、羧基、酯基、酰胺基；或者，R₄、R₅独立选自未取代或取代的下列基团：C₁₋₆烷基、C₁₋₆烷氧基、C₁₋₆烷胺基、C₁₋₆烷硫基、C₁₋₆烷基羰基、C₁₋₆烷基氨基羰基、C₁₋₆烷基羰基氨基、C₁₋₆烷基氧基羰基、C₁₋₆烷基胺酰基、C₃₋₆环烷基、C₃₋₆环烷氧基、C₃₋₆环烷胺基、C₃₋₆环烷硫基、C₃₋₆环烷羰基、C₃₋₆环烷氨基羰基、C₃₋₆环烷氨基羰基氨基、C₃₋₆环烷羰基氨基、C₄₋₈杂环烷基、C₄₋₈杂环烷氧基、C₄₋₈杂环烷胺基、C₄₋₈杂环烷硫基、C₄₋₈杂环烷基羰基、C₄₋₈杂环烷基氨基羰基、C₅₋₁₀芳基、C₅₋₁₀芳氧基、C₅₋₁₀芳氧基C₁₋₆烷基、C₅₋₁₀芳胺基、C₅₋₁₀芳硫基、C₅₋₁₀芳羰基、C₅₋₁₀芳胺基羰基或C₅₋₁₀芳胺基羰基氨基；或者，R₄和R₅连接并和与它们相连的碳一起形成第四环；

(5) R₆选自氢及未取代或取代的下列基团：C₁₋₆烷基、C₁₋₆烷氧基、C₁₋₆烷胺基、C₁₋₆烷硫基、肼酰基、C₁₋₆烷基羰基、C₁₋₆烷基氨基羰基、C₁₋₆烷基羰基氨基、C₁₋₆烷基氧基羰基、C₁₋₆烷基亚硫酰基、C₁₋₆烷基氨基羰基氨基、C₃₋₆环烷基、C₃₋₆环烷氧基、C₃₋₆环烷胺基、C₃₋₆环烷硫基、C₃₋₆环烷羰基、C₃₋₆环

- 烷氨基羰基、C₃₋₆环烷羰基氨基、C₃₋₆环烷氨基羰基氨基、C₄₋₈杂环烷基、C₄₋₈杂环烷氧基、C₄₋₈杂环烷胺基、C₄₋₈杂环烷硫基、C₄₋₈杂环烷基羰基、C₄₋₈杂环烷基氨基羰基、C₅₋₁₀芳基、C₅₋₁₀芳氧基、C₅₋₁₀芳氧基烷基、C₅₋₁₀芳胺基、C₅₋₁₀芳硫基、C₅₋₁₀芳羰基、C₁₋₆烷基羰基、C₁₋₆烷基磺酰基氨基、C₃₋₆环烷磺基、C₃₋₆环烷基磺酰基氨基、C₅₋₁₀芳磺基、C₅₋₁₀芳基磺酰基氨基、氨基草酰基氨基、氨基草酰基、C₅₋₁₀芳胺基羰基或C₅₋₁₀芳胺基羰基氨基；或者，R₆为第五环；或者，R₆和R连接并和与它们均相连的氮一起形成第六环，所述第六环是单环、螺环、并环、桥环或多环，且所述第六环除含有与所述R、R₆均连接的氮外，还可选的含有选自杂原子、C=O、S=O或-SO₂中的1个、2个、3个或更多个；
- (6) m为0、1、2、3、4或5，R₇独立选自氢、羟基、氰基、卤素、羧基、酯基、磺酰胺基、酰胺基；或者，R₇选自未取代或取代的下列基团：C₁₋₆烷基、C₁₋₆烷氧基、C₁₋₆烷胺基、C₁₋₆烷硫基、肼酰基、C₁₋₆烷基羰基、C₁₋₆烷基氨基羰基、C₁₋₆烷基羰基氨基、C₁₋₆烷基氧基羰基、C₁₋₆烷基亚硫酰基、C₁₋₆烷基氨基羰基氨基、C₃₋₆环烷基、C₃₋₆环烷氧基、C₃₋₆环烷胺基、C₃₋₆环烷硫基、C₃₋₆环烷羰基、C₃₋₆环烷氨基羰基、C₃₋₆环烷羰基氨基、C₃₋₆环烷氨基羰基氨基、C₄₋₈杂环烷基、C₄₋₈杂环烷氧基、C₄₋₈杂环烷胺基、C₄₋₈杂环烷硫基、C₄₋₈杂环烷基羰基、C₄₋₈杂环烷基氨基羰基、C₅₋₁₀芳基、C₅₋₁₀芳氧基、C₅₋₁₀芳氧基烷基、C₅₋₁₀芳胺基、C₅₋₁₀芳硫基、C₅₋₁₀芳羰基、C₁₋₆烷基羰基、C₁₋₆烷基磺酰基氨基、C₃₋₆环烷磺基、C₃₋₆环烷基磺酰基氨基、C₅₋₁₀芳磺基、C₅₋₁₀芳基磺酰基氨基、氨基草酰基氨基、氨基草酰基、C₅₋₁₀芳胺基羰基或C₅₋₁₀芳胺基羰基氨基，或者，m为2、3、4或5，一对或多对相邻的两个R₇连接并和与它们相连的碳一起形成第七环；或者，R₂和R₇连接并和与它们相连的碳一起形成所述的第二环；
- (7) X选自Y(CH₂)_n、-CH(OCH₃)、-CH(SCH₃)、N、O或S，Y为化学单键、NH、O或S，n为0、1、2或3；
- (8) W为氢或依靠化学方法和/或在体内酶的作用下代谢为原药的基团；
- (9) Ar1和Ar2独立的选自苯环，含有1个、2个、3个或更多个杂原子的芳杂环。
- (10) 所述第一环、第二环、第三环、第四环、第五环、第七环独立地为未被间断或被选自杂原子、C=O、S=O、SO₂中的1个、2个、3个或更多个所间断且未取代或取代的碳环，且所述第一环、第二环、第三环、第四环、第五环和第七环独立地为单环、螺环、并环、桥环或多环。

2、根据权利要求1所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于，所述Ar1和Ar2均为苯环，吡啶酮衍生物如下式(II)所示：



(II)；

或者，所述Ar1和Ar2中的至少一个为芳杂环。

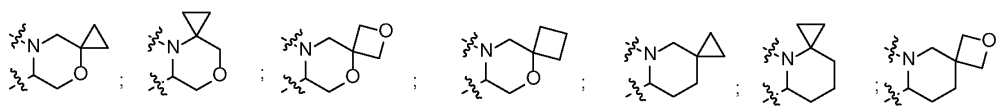
3、根据权利要求1所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于，所述的杂环或芳杂环中杂原子独立地选自N、O、S。

4、根据权利要求1所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于，A为CR₁，M为CR₂，R₁和R₂连接并和与它们相连的碳一起形成所述第一环；和/或，Q为CR₃，R为CR₄R₅，R₃和R₄连接并和与它们相连的碳一起形成所述第二环；和/或，R为CR₄R₅，R₄和R₆连接并和与它们相连的氮和碳一起形成所述第六环。

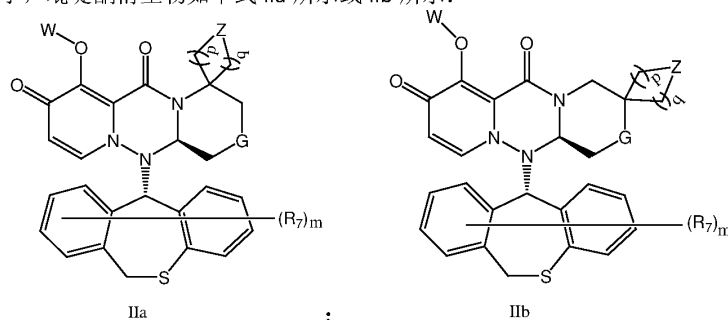
5、根据权利要求1所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于，所述的W选自下列基团：

(a)-C(=O)-R₈；(b)-C(=O)-(CH₂)_k-R₈，k选自0-3；(c)-C(=O)-O-(CH₂)_k-R₈，k选自0-3；(d)-CH₂-O-R₈；(e)-CH₂-O-C(=O)-R₈；(f)-CH₂-O-C(=O)-O-R₈；(g)-CH(CH₃)-O-C(=O)-R₈；(h)-CH(CH₃)-O-C(=O)-O-(CH₂)_k-R₈，k选自0-3；(i)-CH₂-O-P(=O)(OH)₂；(j)-CH₂-O-P(=O)(OPh)(NHR₈)；(k)-CH₂-O-P(=O)(OCH₂OC(=O)OR₈)₂；所述R₈为未取代的或取代的下列基团：C₁₋₆烷基、C₁₋₆烷氧基、C₁₋₆烷胺基、C₁₋₆烷硫基、肼酰基、C₁₋₆烷基羰基、C₁₋₆烷基氨基羰基、C₁₋₆烷基羰基氨基、C₁₋₆烷基氧基羰基、

- C_{1-6} 烃基亚硫酸基、 C_{1-6} 烃基氨基羰基氨基、 C_{3-6} 环烷基、 C_{3-6} 环烷氧基、 C_{3-6} 环烷基氨基、 C_{3-6} 环烷基羰基、 C_{3-6} 环烷基氨基羰基、 C_{3-6} 环烷基氨基羰基氨基、 C_{4-8} 杂环烷基、 C_{4-8} 杂环烷氧基、 C_{4-8} 杂环烷基氨基、 C_{4-8} 杂环烷基羰基、 C_{4-8} 杂环烷基氨基羰基、 C_{5-10} 芳基、 C_{5-10} 芳氧基、 C_{5-10} 芳氧基烃基、 C_{5-10} 芳胺基、 C_{5-10} 芳硫基、 C_{5-10} 芳羰基、 C_{1-6} 烃基磺基、 C_{1-6} 烃基磺酰基氨基、 C_{3-6} 环烷磺基、 C_{3-6} 环烷基磺酰基氨基、 C_{5-10} 芳磺基、 C_{5-10} 芳基磺酰基氨基、氨基草酰基氨基、氨基草酰基、 C_{5-10} 芳胺基羰基或 C_{5-10} 芳胺基羰基氨基。
- 5 6、根据权利要求1至5中任一项权利要求所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于，当所述第六环为螺环时，该螺环的共有碳原子、该螺环与母环共有的氮原子二者是相邻的或二者之间仅间隔一个原子。
- 10 7、根据权利要求1至6中任一项所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于，当所述第六环为螺环时，所述螺环中与母环共有氮原子的环在与该氮原子相对的位置为氧原子或氮原子或碳原子。
- 8、根据权利要求1至7中任一项所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于，当所述第六环为螺环时，所述螺环中与母环共有氮原子的环为5、6、7或8元环，另一环为未取代或选自卤素、 C_{1-3} 的烃基、 C_{1-3} 的卤代烃基的取代基取代的3、4、5或6元碳环或氧杂环或硫杂环。
- 15 9、根据权利要求8所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于，当所述另一环上具有取代基时，取代基选自甲基、氟、氯、溴、一氟甲基、二氟甲基、三氟甲基、羟甲基、甲氧基甲基、甲氧基乙基、氯代甲基。
- 20 10、根据权利要求1至9中任一项所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于，式(I)中，所述第六环选自如下基团：



- 11、根据权利要求1至9中任一项所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于，吡啶酮衍生物如下式IIa所示或IIb所示：



式IIa和IIb中，

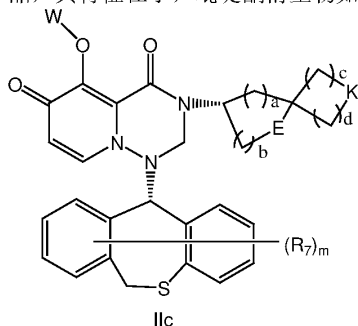
G为O或 CH_2 ；

Z为 CH_2 或O或S；

- 30 p, q 分别为0、1或2，且二者不同时为0，当Z为O或S时， $p+q$ 大于或等于2；
W、 R_7 以及m的定义分别同前述权利要求。
- 12、根据权利要求11所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于，式IIa和IIb中， $p+q=1$ 或2或3，Z为 CH_2 ；或者， $p=1$ 或2， $q=1$ 或2，Z为O或S。
- 13、根据权利要求11所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于， R_7 选自氢、羟基、氰基、卤素、 C_{1-6} 烃基、 C_{1-6} 卤代烃基、 C_{3-6} 环烷基、 C_{1-6} 烷氧基、 C_{1-6} 烃基、 C_{1-6} 烃基、 C_{1-6} 烃氧基。
- 35 14、根据权利要求13所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于， R_7 连接在苯环上， R_7 独立选自F、Cl、Br或甲基，且m为1、2、3。
- 15、根据权利要求11所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于，W选自下列基团：
- 40

(a)-C(=O)-R₈; (b)-C(=O)-(CH₂)_k-R₈, k选自 0-3; (c)-C(=O)-O-(CH₂)_k-R₈, k选自 0-3; (e)-CH₂-O-C(=O)-R₈; (f)-CH₂-O-C(=O)-O-R₈; (g)-CH(-CH₃)-O-C(=O)-R₈; (h)-CH(-CH₃)-O-C(=O)-O-(CH₂)_k-R₈, k选自 0-3; (i)-CH₂-O-P(=O)(OH)₂; (j)-CH₂-O-P(=O)(OPh)(NHR₈); (k)-CH₂-O-P(=O)(OCH₂OC(=O)OR₈)₂; 所述的 R₈选自甲基、乙基、异丙基、丁基。

- 5 16、根据权利要求 1 至 5 中任一项所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶, 其特征在于, 吡啶酮衍生物如下式 IIc 所示:



式 IIc 中, a, b, c, d 分别为 0、1、2 或 3, 其中 a 与 b 不同时为 0 或 3, c 与 d 不同时为 0 或 3; E 为 CH₂ 或 O;

- 10 K 为 CH₂ 或 O。

17、根据权利要求 16 所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶, 其特征在于, 式 IIc 中, a+b=1 或 2 或 3, c+d=1 或 2 或 3。

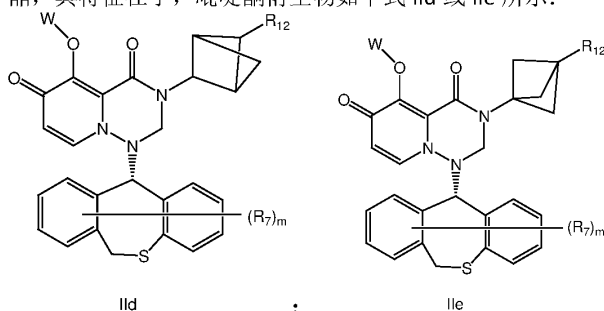
18、根据权利要求 16 所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶, 其特征在于, 式 IIc 中, R₇ 选自氢、羟基、氰基、卤素、C₁₋₆ 烷基、C₁₋₆ 卤代烷基、C₁₋₆ 烷氧基 C₁₋₆ 烷基、羟基 C₁₋₆ 烷基、C₁₋₆ 炔基, 且 R₇ 与苯环连接。

- 15 19、根据权利要求 1 至 5 中任一项所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶, 其特征在于, 当所述第五环为桥环时, 所述桥环为二环或三环, 且由该桥环的桥头碳原子或非桥头碳原子与母环上对应的氮连接。

- 20 20、根据权利要求 1 或 19 所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶, 其特征在于, 当所述第五环为桥环时, 所述桥环为二环[1.1.1]戊烷、二环[2.1.0]戊烷、二环[2.1.1]己烷、二环[2.2.0]己烷、二环[3.1.1]庚烷、二环[3.2.0]庚烷、二环[2.2.1]庚烷、二环[3.2.1]辛烷、二环[3.3.0]辛烷。

21、根据权利要求 1 或 19 或 20 所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶, 其特征在于, 当所述第五环为桥环时, 所述桥环上未被取代或被选自氟、氯、溴、三氟甲基、-CH₂OH、-CH₂OCH₃ 的 1 个, 2 个, 3 个或更多个取代基取代。

- 25 22、根据权利要求 1 至 5 中任一项所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶, 其特征在于, 吡啶酮衍生物如下式 IIId 或 IIe 所示:



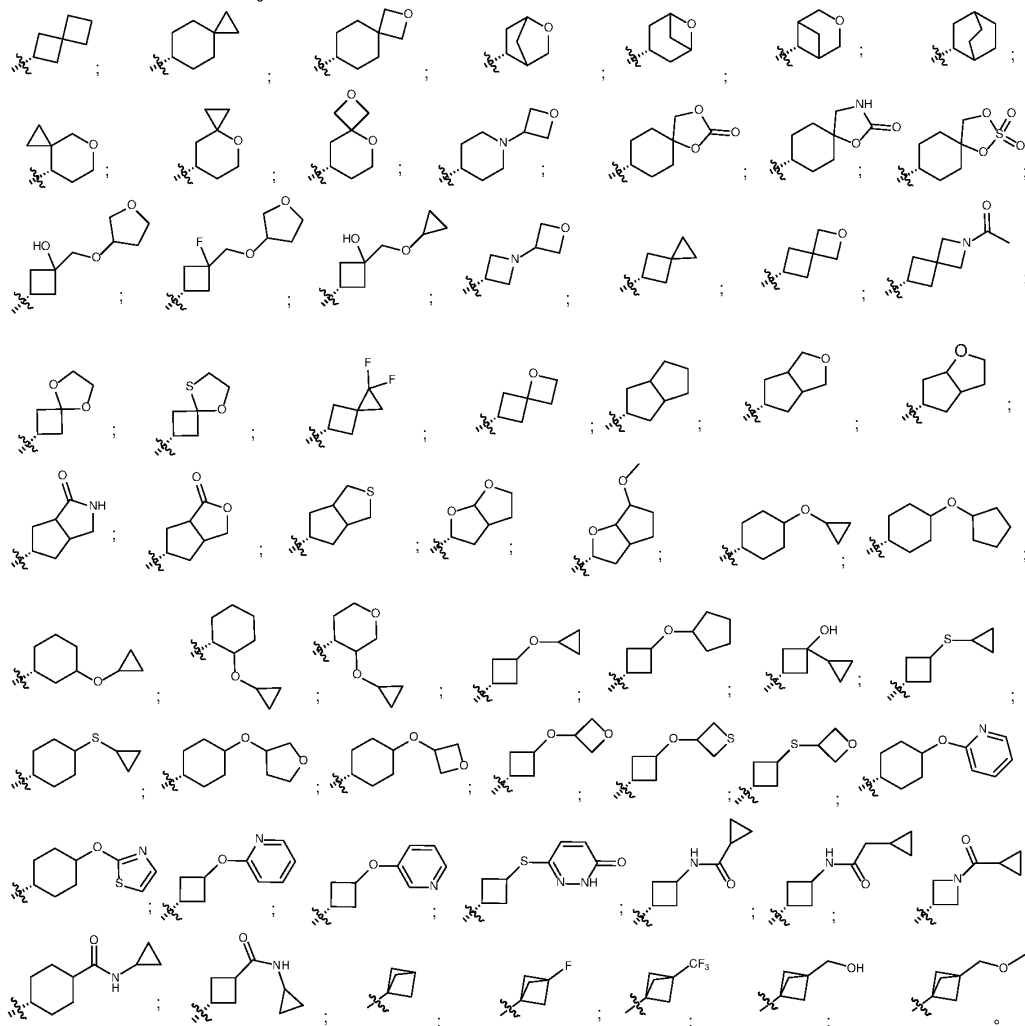
式 IIId 和 IIe 中,

- 30 R₁₂ 选自氢、羟基、氰基、卤素、C₁₋₆ 烷基、C₁₋₆ 卤代烷基、C₁₋₆ 烷氧基 C₁₋₆ 烷基、羟基 C₁₋₆ 烷基、C₁₋₆ 炔氧基、羧基、酰胺基、酯基。

23、根据权利要求 22 所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶, 其特征在于, R₁₂ 选自氢、氟、氯、甲基、乙基、异丙基、三氟甲基、甲氧基甲基、羟基甲基。

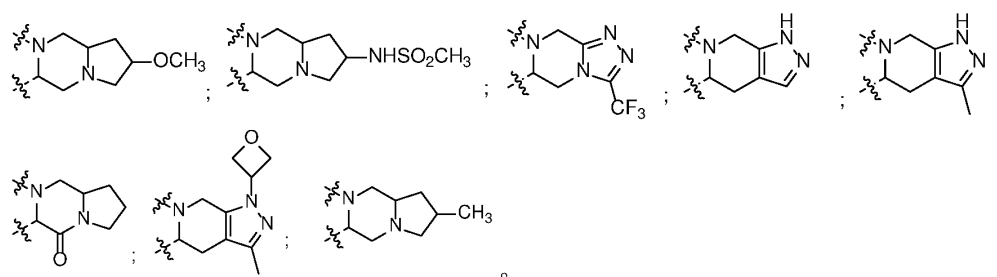
24、根据权利要求 22 所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于，式IIId或IIe中， R_7 分别选自氢、羟基、氰基、卤素、 C_{1-6} 烷基、 C_{1-6} 卤代烷基、 C_{1-6} 烷氧基 C_{1-6} 烷基、羟基 C_{1-6} 烷基、 C_{1-6} 炔氧基，且 R_7 与苯环连接。

- 5 25、根据权利要求 1 至 5 中任一项权利所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于： R_6 选自如下基团：

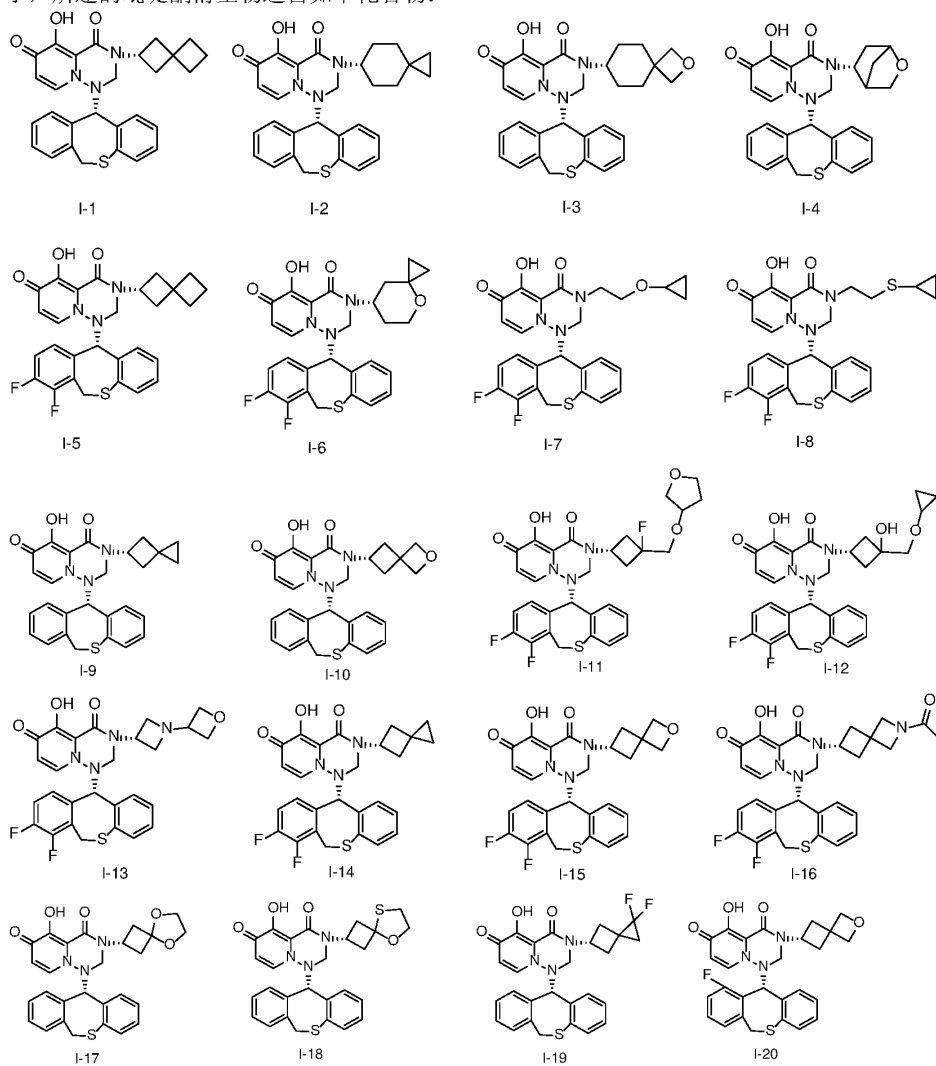


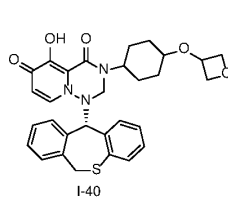
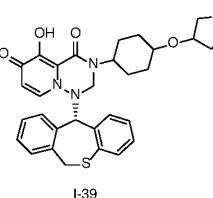
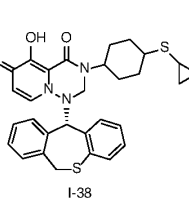
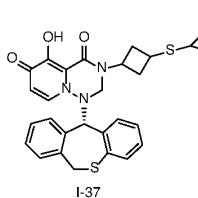
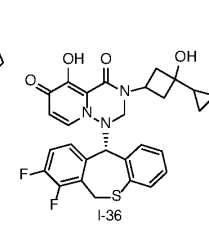
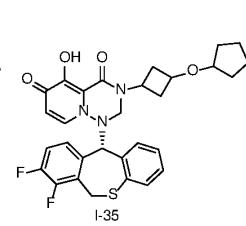
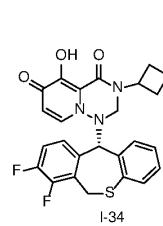
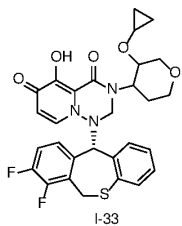
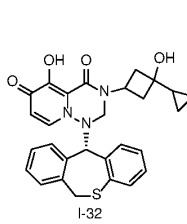
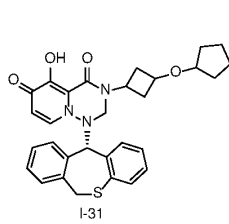
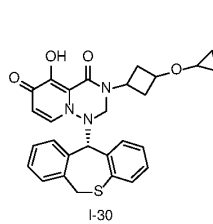
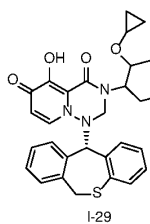
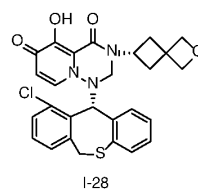
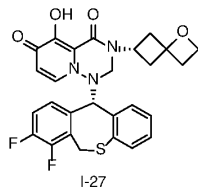
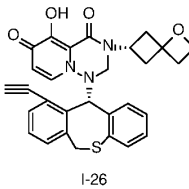
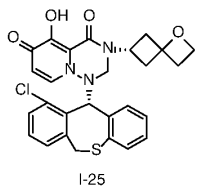
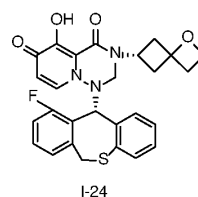
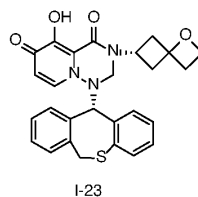
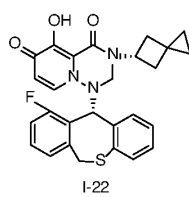
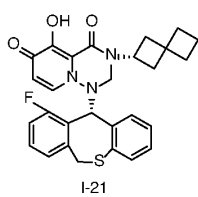
10

- 26、根据权利要求 1 至 5 中任一项所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在于，当所述第六环为 4、5、6 或 7 元单环时，式 (I) 还满足如下条件中的至少一个：
- 所述第六环除含有与所述 R 、 R_6 均连接的氮外，还可选的含有氧、另外的氮、 $C=O$ 、 $S=O$ 、 SO_2 中的一者或二者；
 - 所述第六环上具有至少一个选自羟基、氰基、羧基、酯基、磺酰胺基、酰胺基、 C_{2-6} 烯烷基、 C_{3-6} 环烷基、 C_{3-6} 卤代环烷基、 C_{3-6} 环烷氧基、 C_{1-6} 炔氧基 C_{1-6} 烷基、 C_{1-6} 炔氧基 C_{1-6} 炔氧基、 C_{1-6} 炔氧基、 C_{1-6} 炔硫基、肼基、 C_{1-6} 炔基羰基、 C_{1-6} 炔基氨基羰基、 C_{1-6} 炔基羰基氨基、 C_{1-6} 炔基氧基羰基的取代基；
 - 所述第六环具有环内碳碳烯键，或所述第六环具有与所述第六环共用一个碳原子的环外碳碳烯键；
 - 所述 $Ar1$ 和 $Ar2$ 中的至少一个为含氮芳杂环；
- 25 v) A 与 M 中的至少一个为 N 。

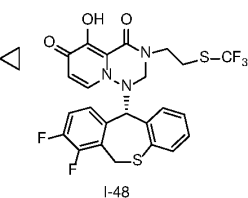
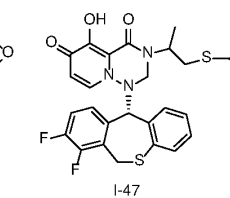
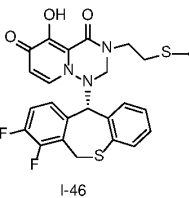
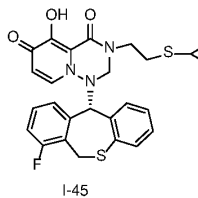
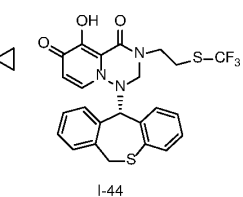
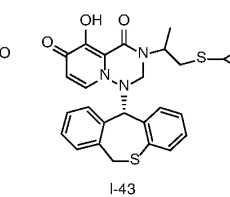
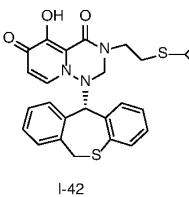
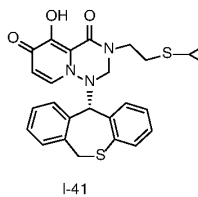


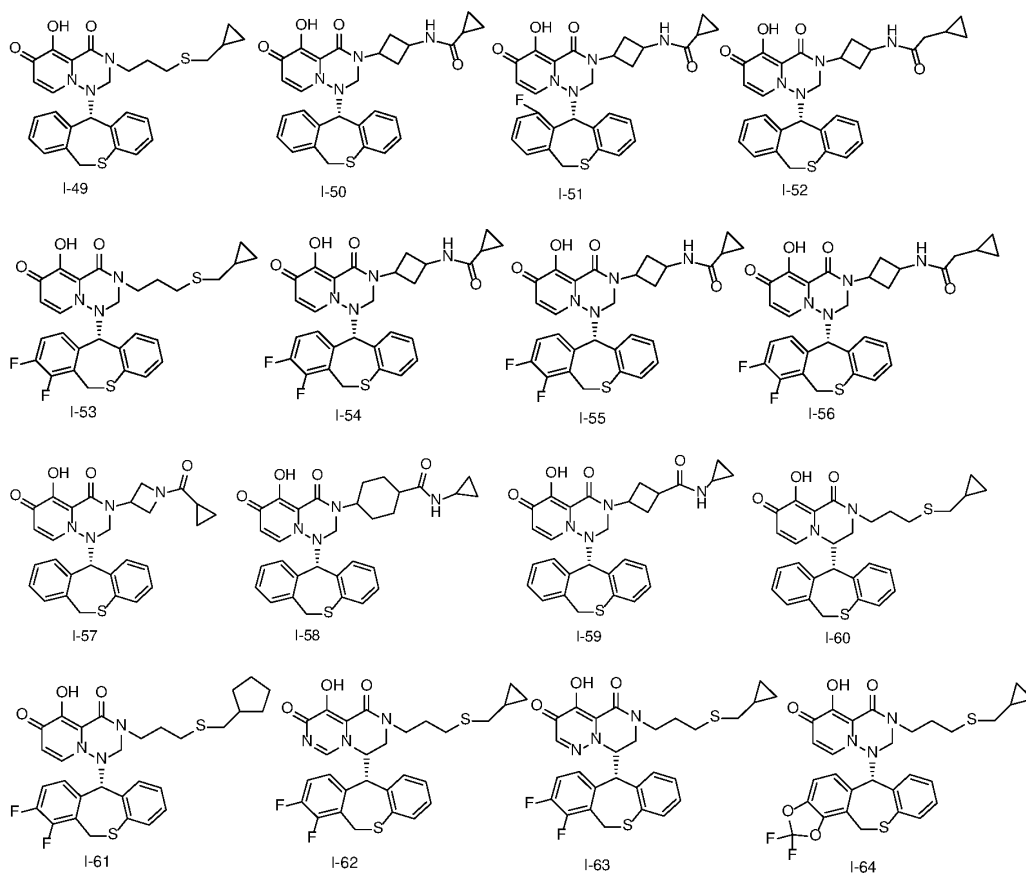
36、根据权利要求 1 所述的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，其特征在
5 于，所述的吡啶酮衍生物选自如下化合物：



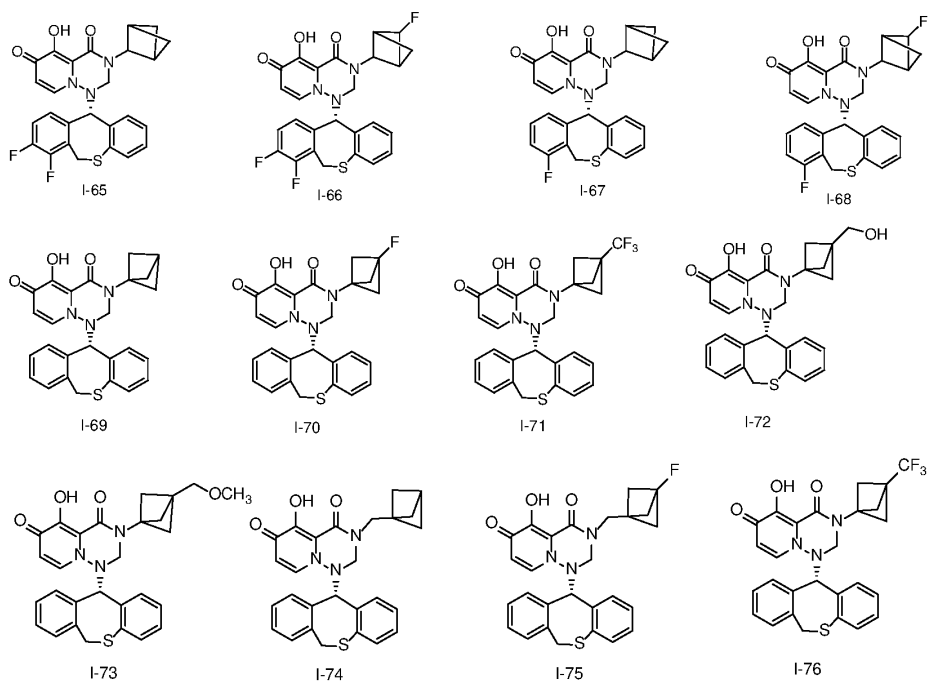


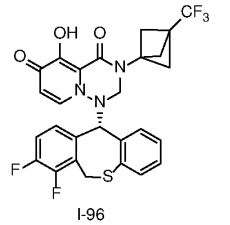
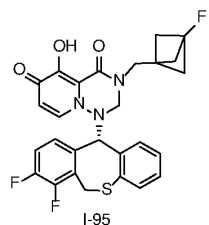
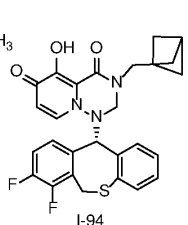
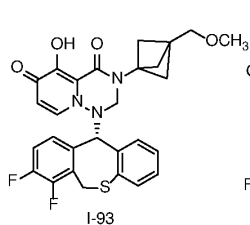
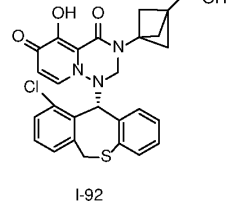
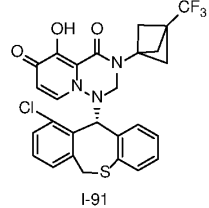
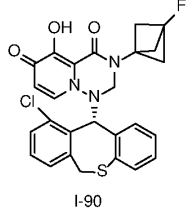
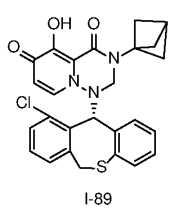
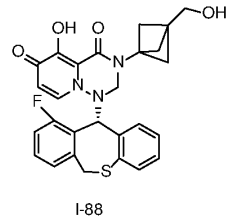
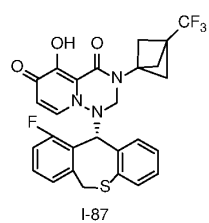
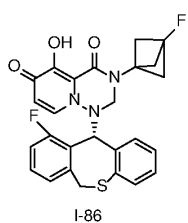
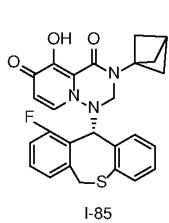
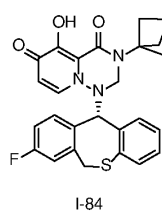
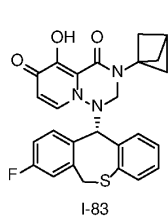
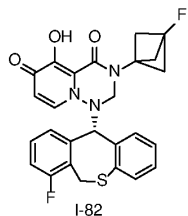
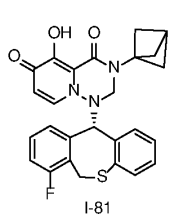
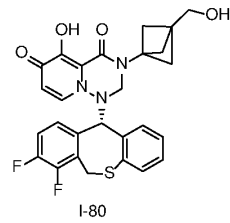
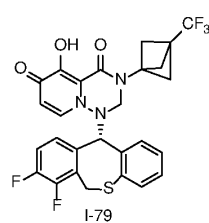
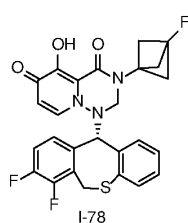
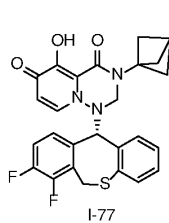
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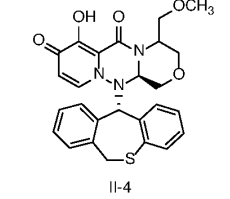
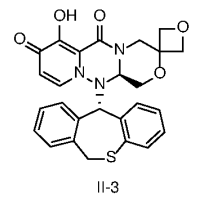
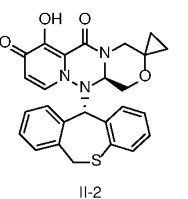
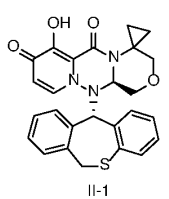


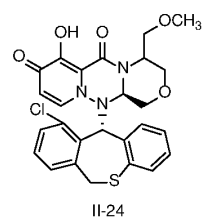
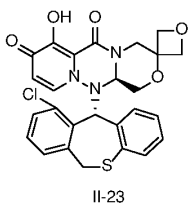
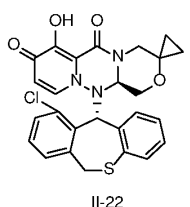
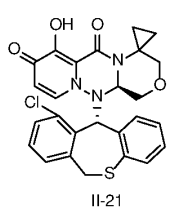
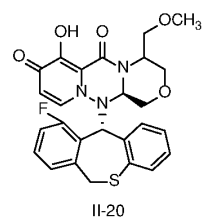
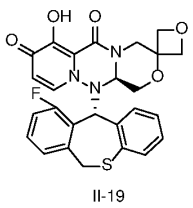
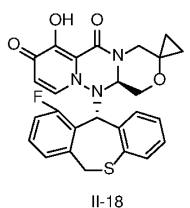
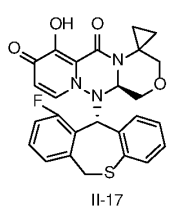
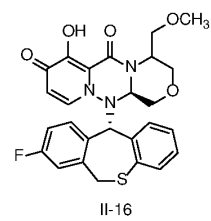
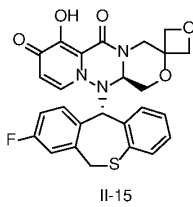
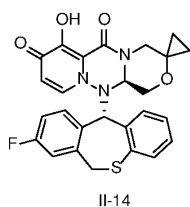
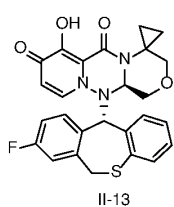
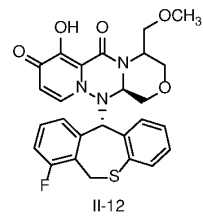
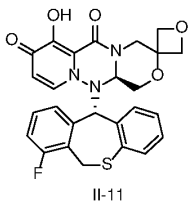
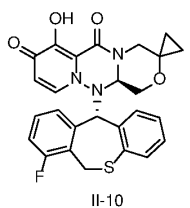
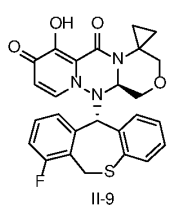
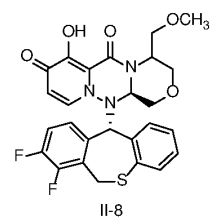
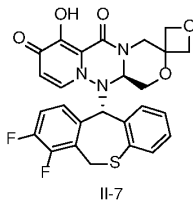
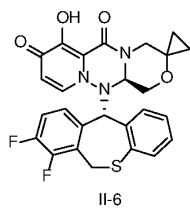
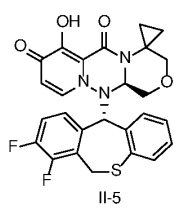
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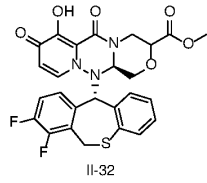
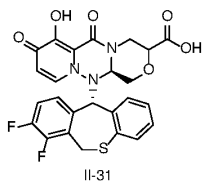
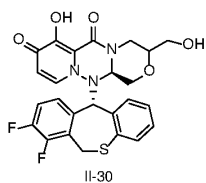
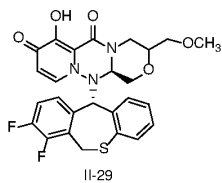
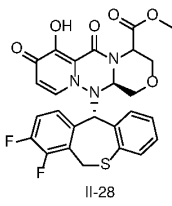
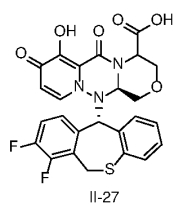
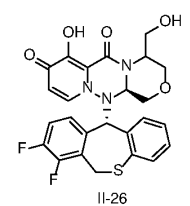
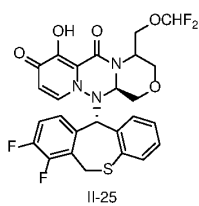


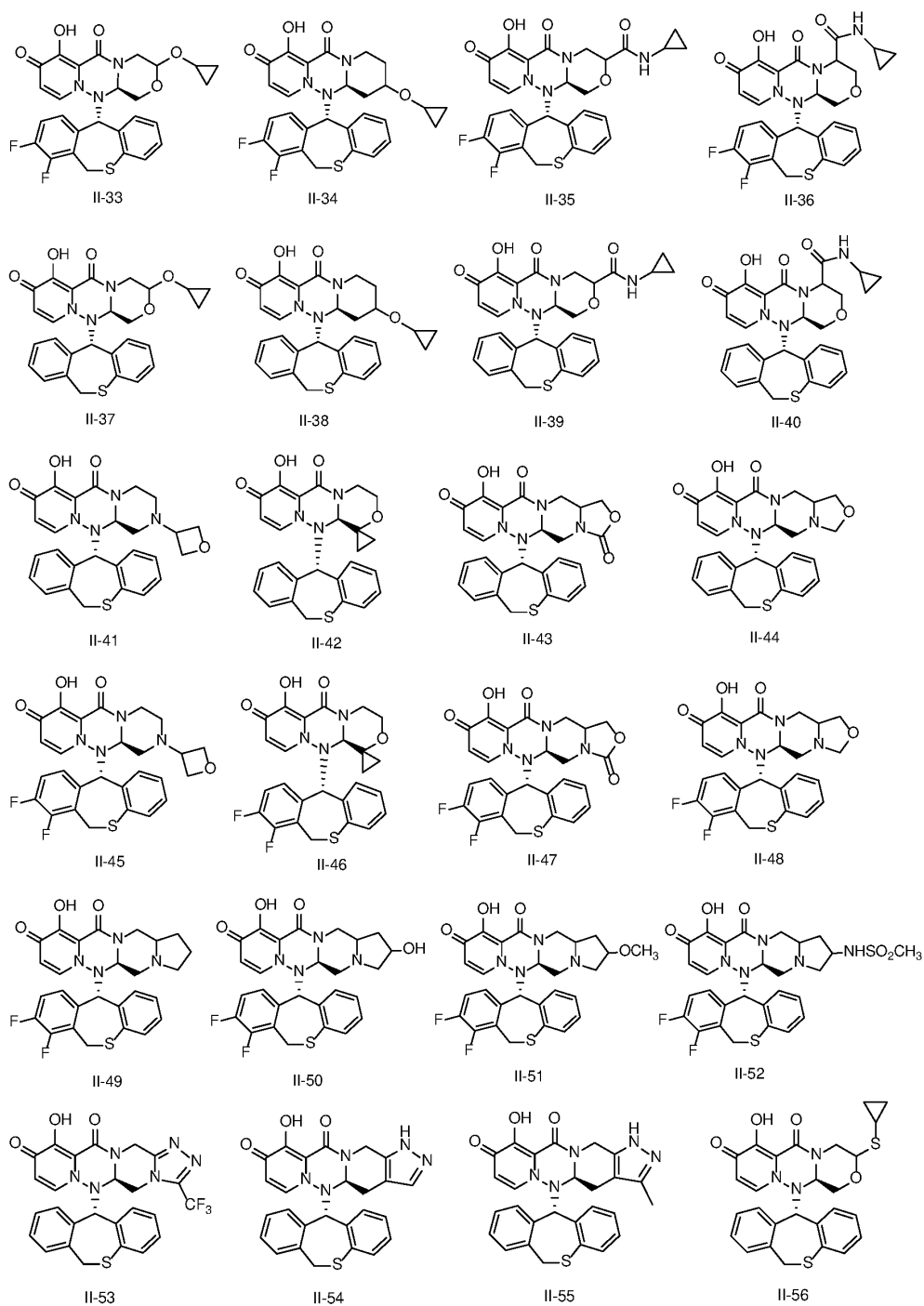
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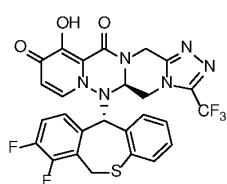


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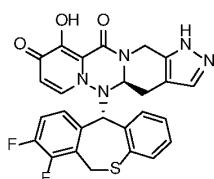




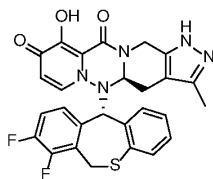
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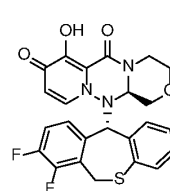
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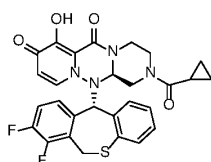
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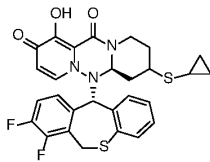
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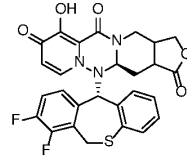
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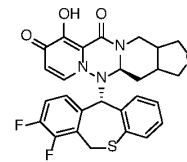
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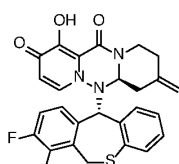
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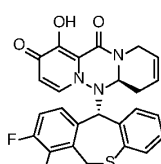
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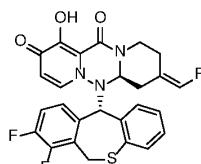
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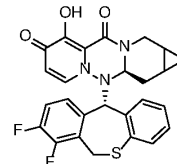
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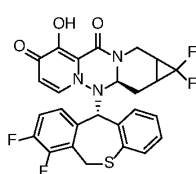
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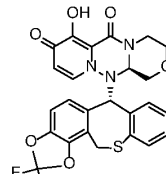
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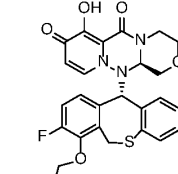
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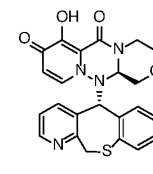
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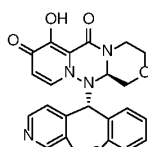
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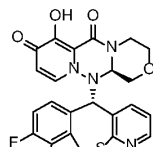
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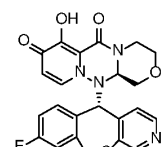
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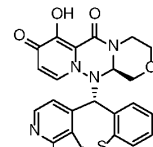
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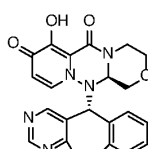
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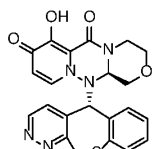
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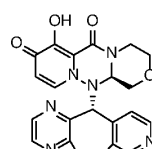
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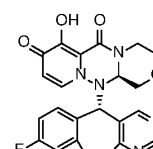
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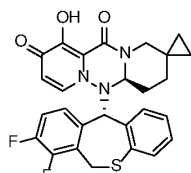
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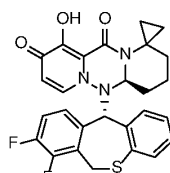
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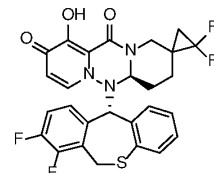
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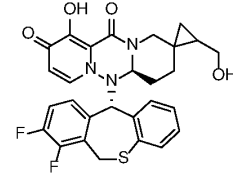
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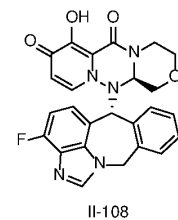
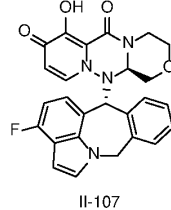
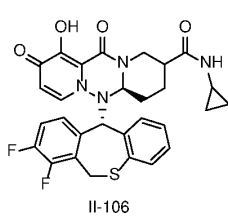
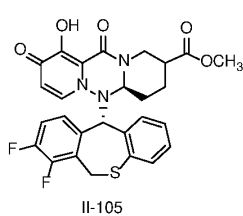
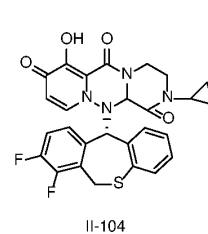
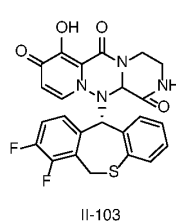
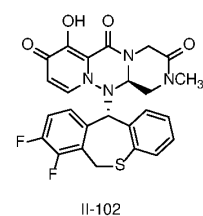
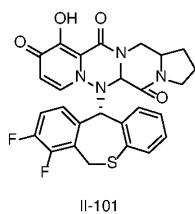
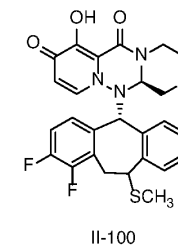
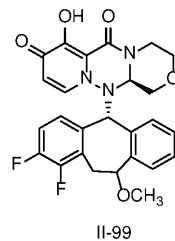
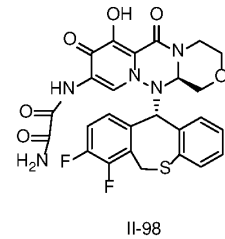
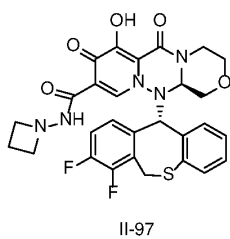
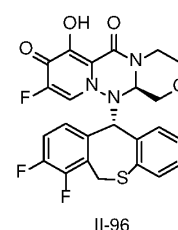
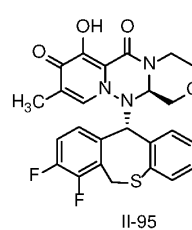
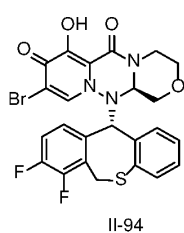
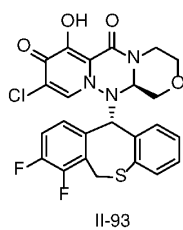
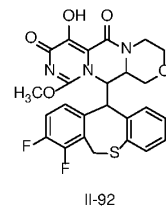
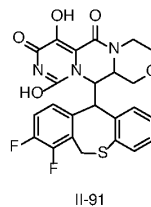
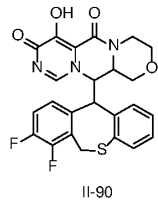
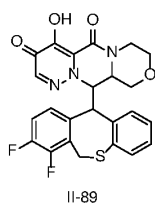
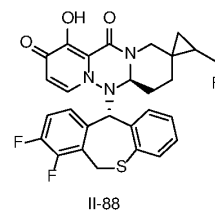
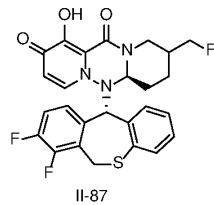
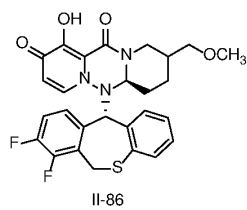
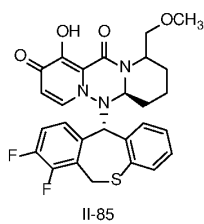
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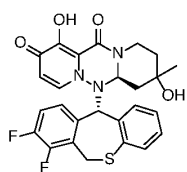


II-83

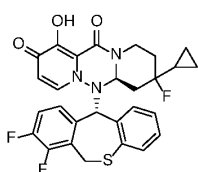


II-84

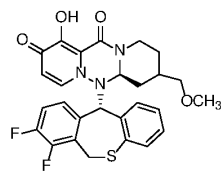




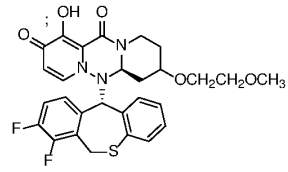
II-109



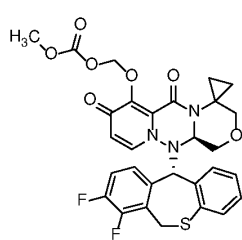
II-110



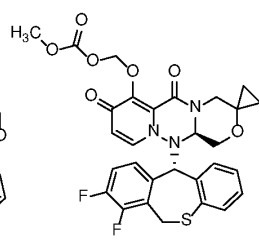
II-111



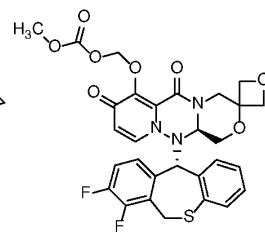
II-112



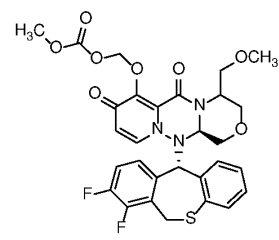
III-1



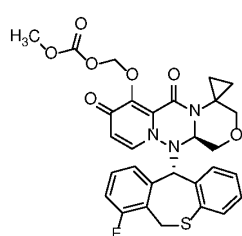
III-2



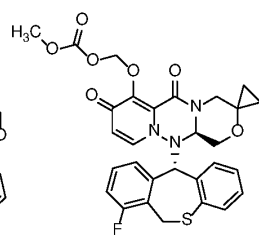
III-3



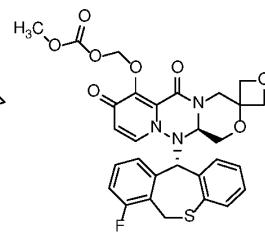
III-4



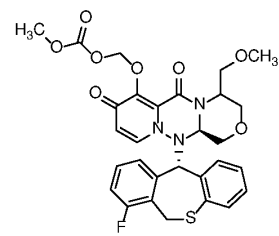
III-5



III-6

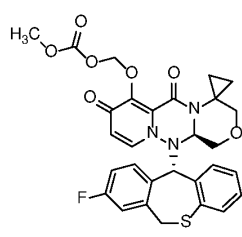


III-7

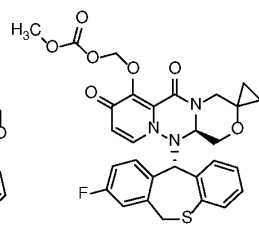


III-8

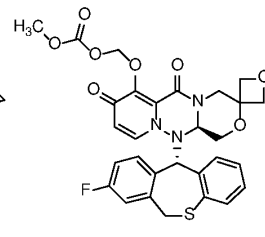
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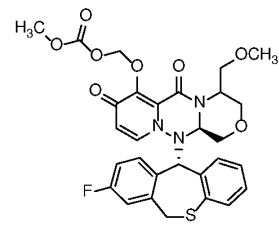
III-9



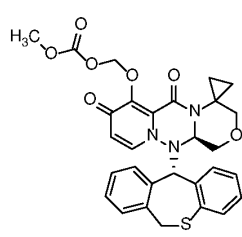
III-10



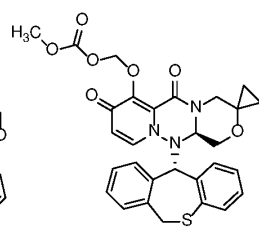
III-11



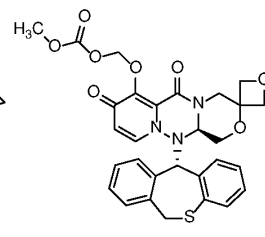
III-12



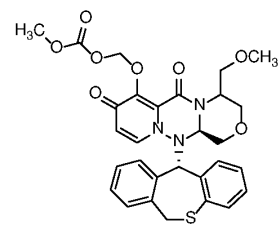
III-13



III-14

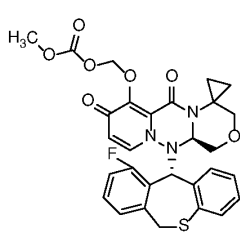


III-15

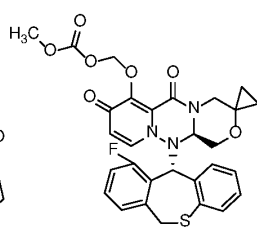


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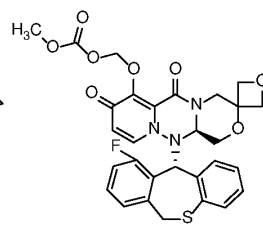
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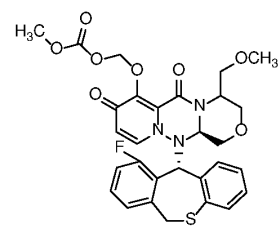
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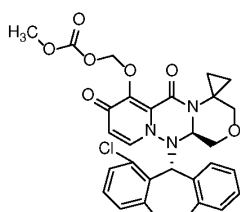
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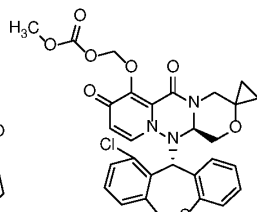
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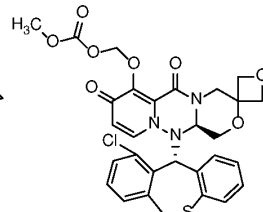
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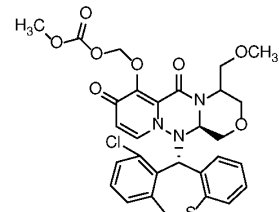
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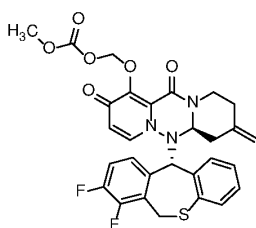
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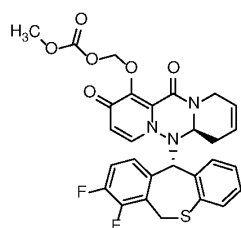
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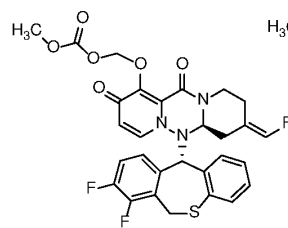
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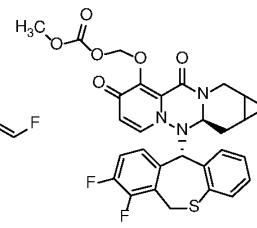
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III-26

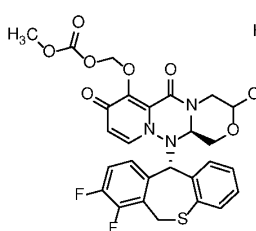


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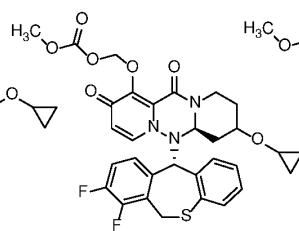


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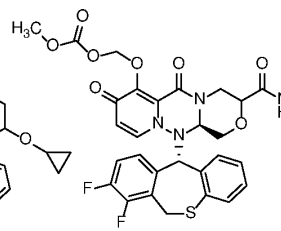
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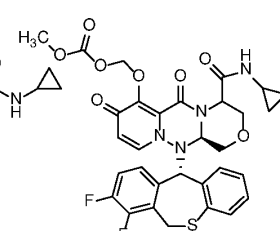
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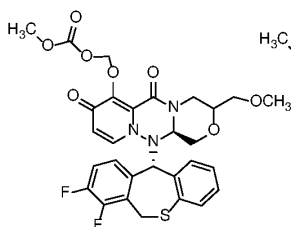
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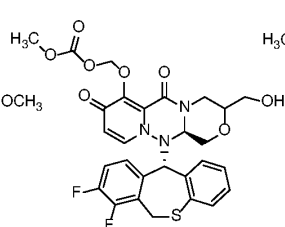
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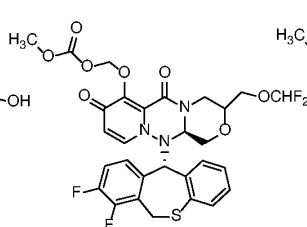
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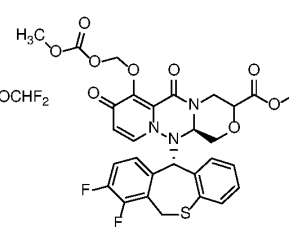
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III-34

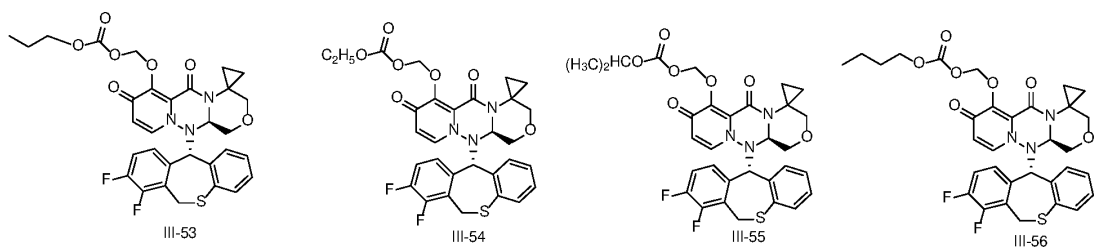
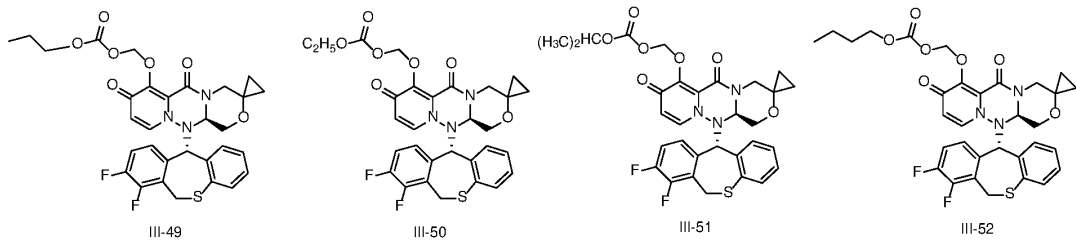
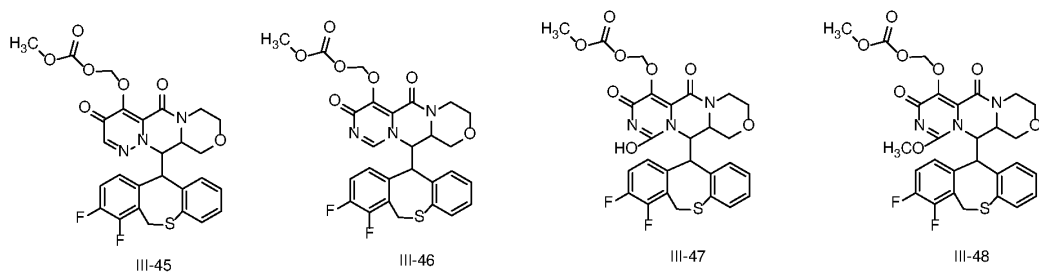
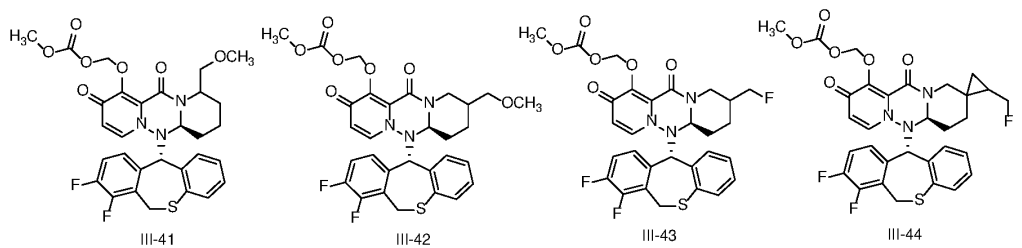
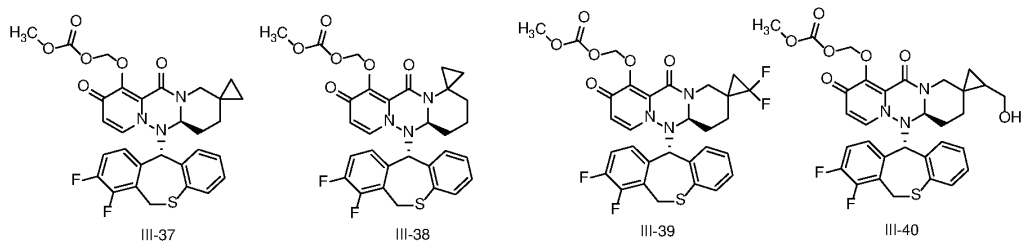


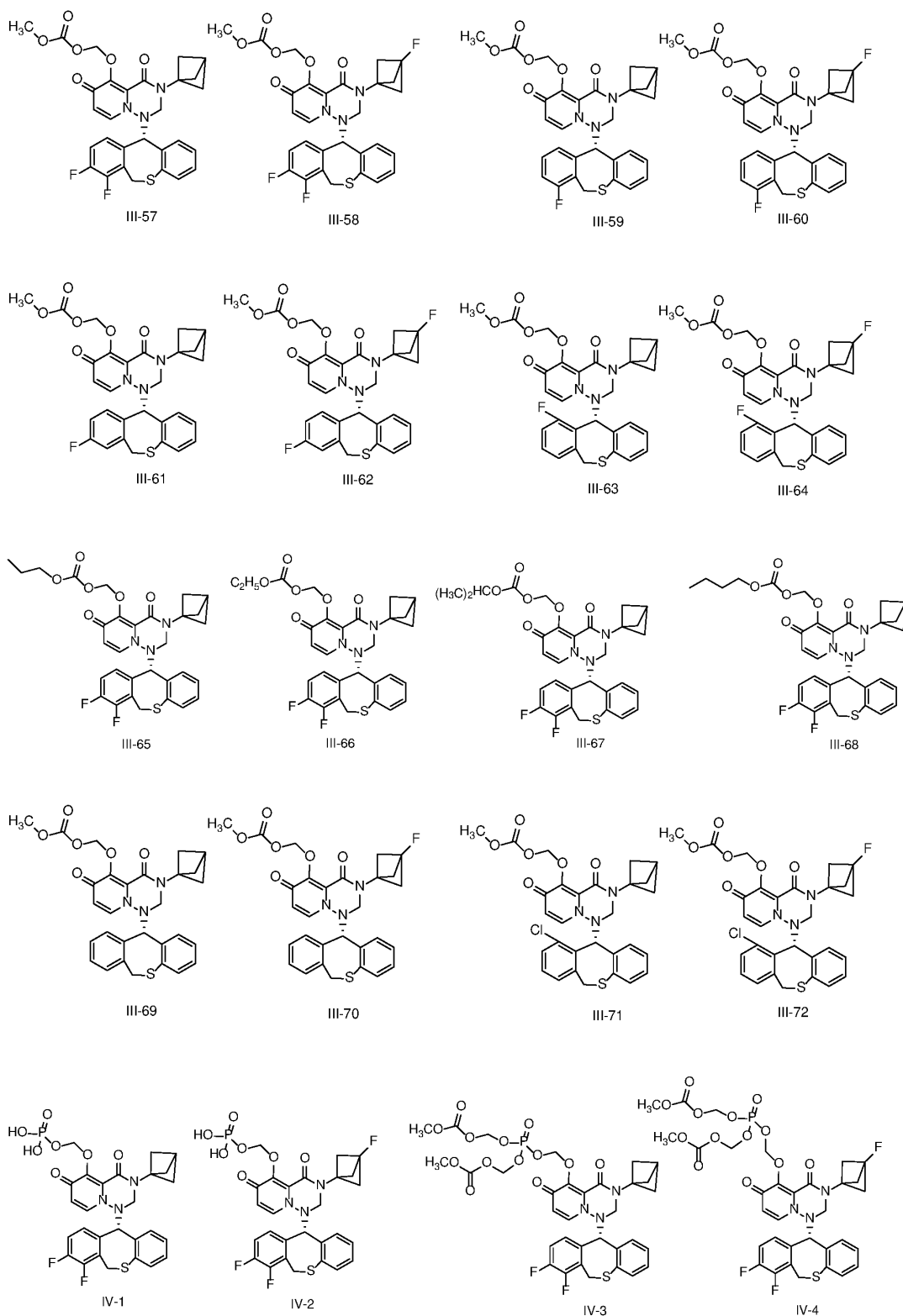
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III-36

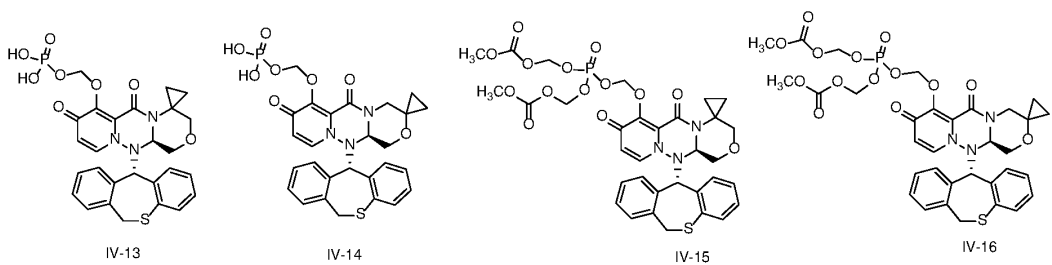
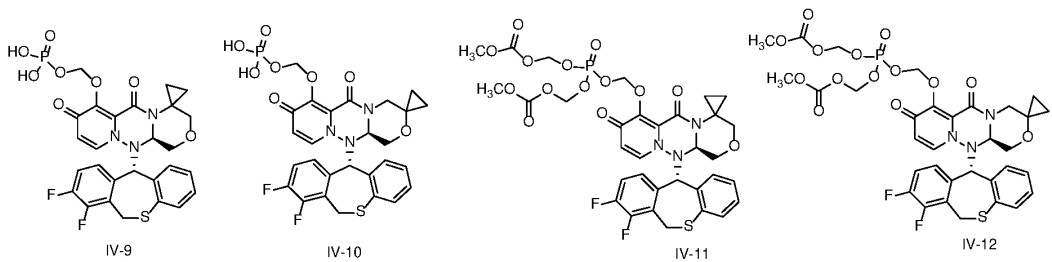
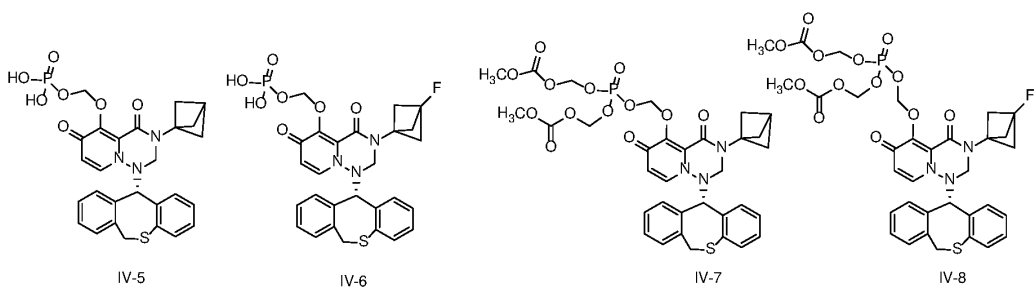
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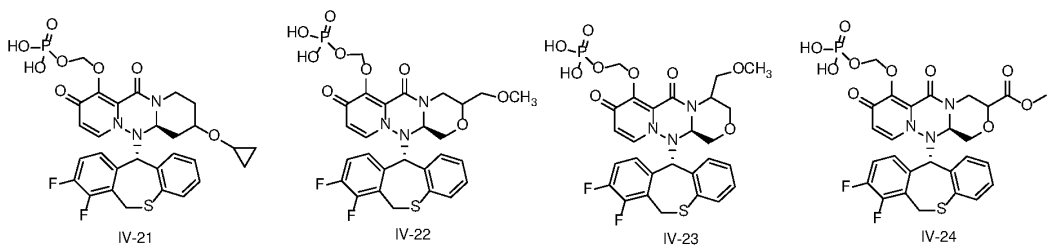
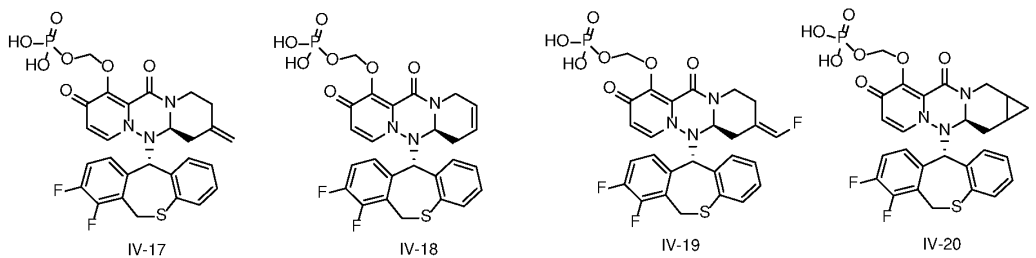


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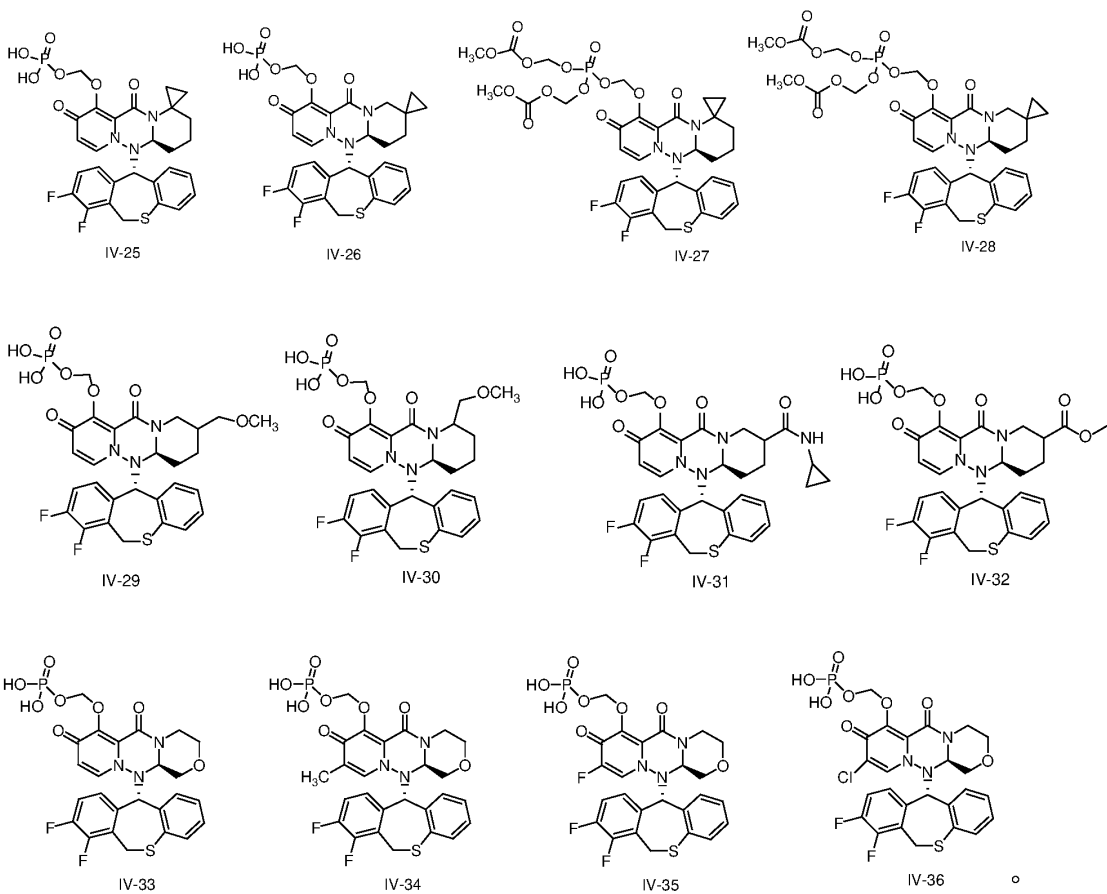
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37、含有如权利要求 1 至 36 中任一项权利要求所述的式 (I) 所示的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶的药物组合物，其特征在于，所述药物组合物为抗病毒药物组合物，其中还选择性地包含一种或多种治疗剂，所述治疗剂选自以下组成的群：神经氨酸酶抑制剂、核苷类药物、PB2 抑制剂、PB1 抑制剂、M2 抑制剂或其他抗流感药物。

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38、根据权利要求 37 所述的药物组合物，其特征在于，所述药物组合物为药物制剂，所述药物制剂选自片剂、粉剂、胶囊、颗粒剂、口服液、注射剂、粉剂、栓剂、丸剂、乳膏剂、糊剂、凝胶剂、散剂、吸入剂、混悬剂、干悬剂、贴剂、洗剂、纳米制剂。

15

39、如权利要求 1 至 36 中任一项权利要求所述的式 (I) 所示的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，权利要求 37 或 38 所述的药物组合物中的一种或多种的组合在制备预防和/或治疗病毒性感染疾病的药物中的应用，所述病毒感染性疾病优选是流感 A 型和/或流感 B 型引起的感染性疾病。

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40、如权利要求 1 至 36 中任一项权利要求所述的式 (I) 所示的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，权利要求 37 或 38 所述的药物组合物中的一种或多种的组合在制备抗病毒药物中的应用，所述抗病毒药物优选是抑制流感帽依赖性内切核酸酶活性的药物或试剂。

41、一种预防和/或治疗病毒性感染疾病的方法，其特征在于：该方法包括向需要预防和/或治疗的动物或人施用有效量的选自如权利要求 1 至 36 中任一项权利要求所述的式 (I) 所示的吡啶酮衍生物或其立体异构体、可药用盐、溶剂化物或结晶，如权利要求 37 或 38 所述的药物组合物中的一种或多种的组合。

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42、根据权利要求 41 所述的方法，其特征在于：所述病毒性感染为流感 A 型和/或流感 B 型引起的感染性疾病。