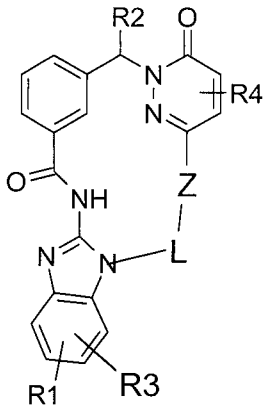
Claims

1. A compound of formula (I)



(I)

wherein

R1, R3 denote each, independently of one another H, $(CH_2)_pCON(R5)_2$, OA, Hal, COOH, COOA, $(CH_2)_pNHCOA$, $(CH_2)_pHet1$, $(CH_2)_pNR2R5$, or OH;

R2 denotes H or linear or branched alkyl with 1, 2 or 3 C atoms, wherein one or two H atoms of the alkyl group may be replaced by OR6, NR5R6, NHCOR5, CONR5R6;

R4 denotes H or methyl, ethyl, propyl, isopropyl, butyl, isobutyl, sec-butyl or tert-butyl, pentyl, 1-, 2- or 3-methylbutyl, 1,1- , 1,2- or 2,2-dimethyl-propyl, 1-ethylpropyl, hexyl, 1- , 2- , 3- or 4-methylpentyl, 1,1- , 1,2- , 1,3- , 2,2- , 2,3- or 3,3-dimethylbutyl, 1- or 2-ethylbutyl, 1-ethyl-1-methylpropyl, 1-ethyl-2-methylpropyl, 1,1,2- or 1,2,2-trimethylpropyl, trifluoromethyl;

R5 denotes H or linear or branched alkyl with 1, 2 or 3 C atoms;

R6 denotes H or linear or branched alkyl with 1, 2 or 3 C atoms;

Z is absent or denotes Ar-diyl or Het-diyl;

L denotes $(CH_2)_n$ wherein one or two CH_2 groups may be replaced by O and/or a CH=CH-group, and/or wherein one or two H atoms may be replaced by OR2, NR2R5 or Het1;

Ar-diyl denotes 1,2-, 1,3- or 1,4-phenylen optionally substituted with from 1 to 5 groups independently selected from Hal, CN, $-CF_3$, $-OCF_3$, OH, O-A, SO_2-A, COOH, COOA, -CO-A, O-phenyl, SO_2-phenyl, SO_2-CF_3, Het2 and/or A;

Het-diyl denotes an unsaturated, saturated or aromatic 5- or 6-membered heterocycle having 1 to 2 N, O and/or S atoms, which may be unsubstituted or mono-, di- or trisubstituted by Hal, CN, $-CF_3$, $-OCF_3$, O-A, SO_2-A, COOH, COOA, -CO-A, O-phenyl, SO_2-phenyl, SO_2-CF_3, Het2 and/or A;

A denotes an unbranched or branched alkyl having 1 to 10 C atoms, in which 1 to 5 H atoms may be replaced by F and/or in which one or two non-adjacent CH_2 groups may be replaced by O;

Het1 denotes morpholinyl, piperidinyl or pyrrolidinyl;

Het2 denotes morpholinyl, piperidinyl or pyrrolidinyl;

Hal denotes F, Cl, Br, I;

n denotes 1, 2, 3, 4, 5 or 6;

p denotes 0, 1 or 2;

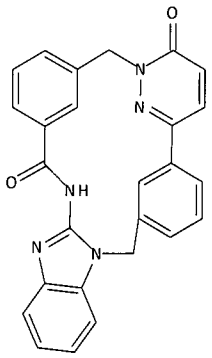
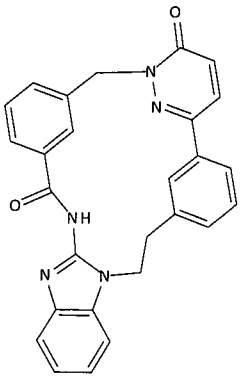
and pharmaceutically usable tautomers, solvates, salts and stereoisomers thereof, including mixtures thereof in all ratios.

2. A compound of Formula (I) according to claim 1 wherein R4 is H or methyl.

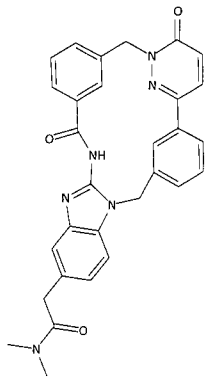
3. A compound of Formula (I) according to claims 1 or 2 wherein Het-diyl denotes pyridine-diyl, pyrimidine-diyl, pyridazin-diyl, pyrazol-diyl, imidazol-diyl, piperidin-diyl or pyrrolidin-diyl, each of which is unsubstituted or disubstituted by A.

4. A compound of Formula (I) according to claims 1, 2 or 3 wherein Z is 1,3-phenylen, which is unsubstituted or monosubstituted by A, Hal, OH, or OA.

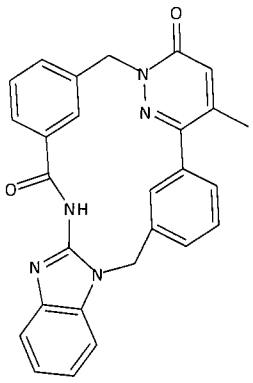
5. A compound of Formula (I), according to claim 1 selected from the following group:

Compound No.	Structure
1	
2	

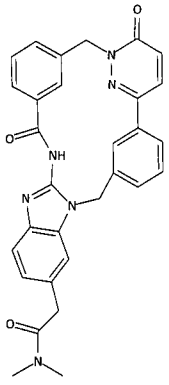
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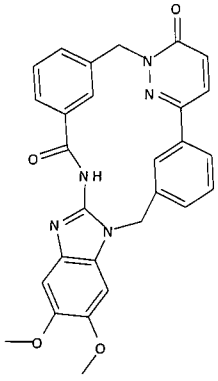
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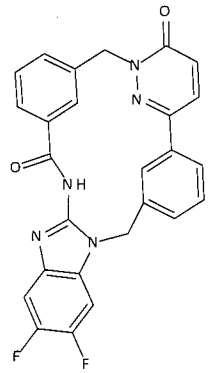
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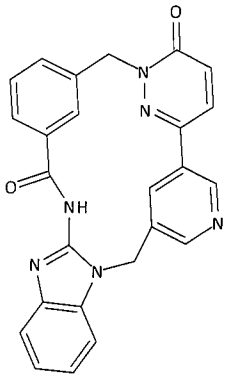
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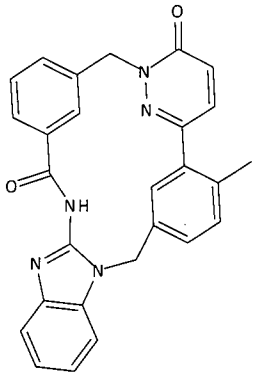
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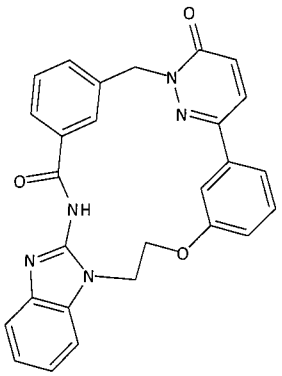
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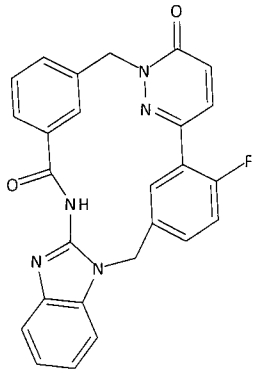
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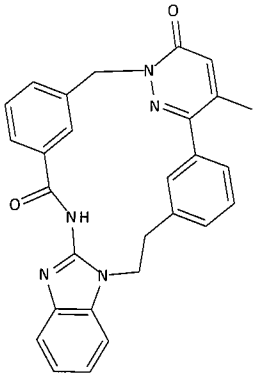
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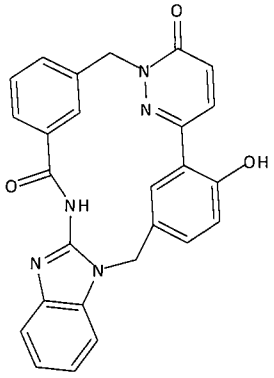
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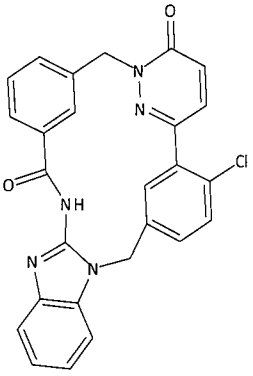
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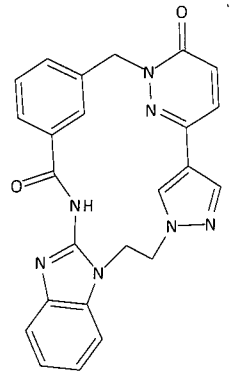
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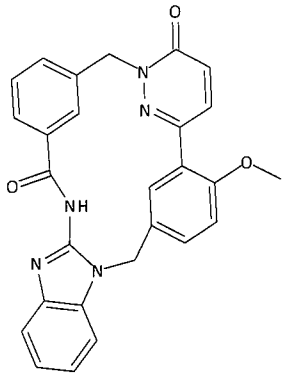
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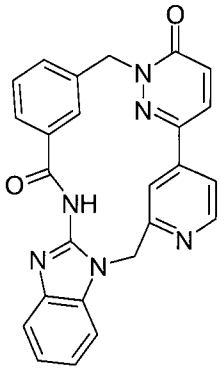
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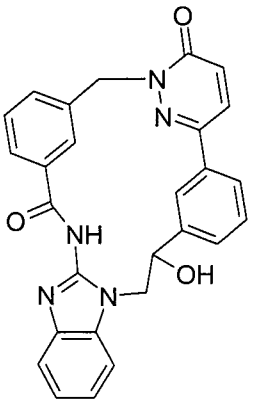
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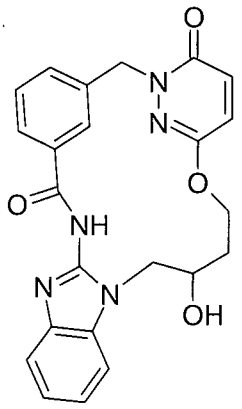
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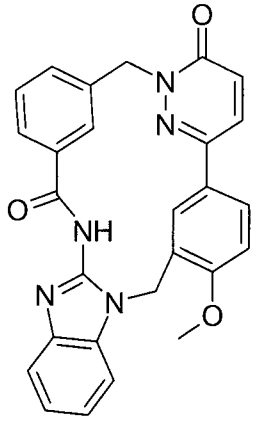
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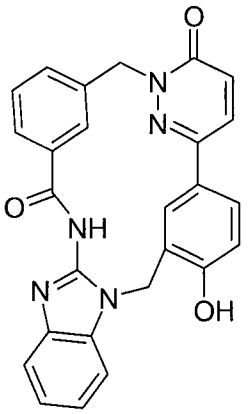
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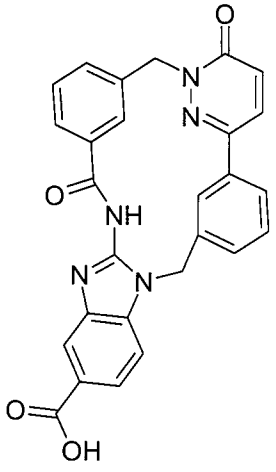
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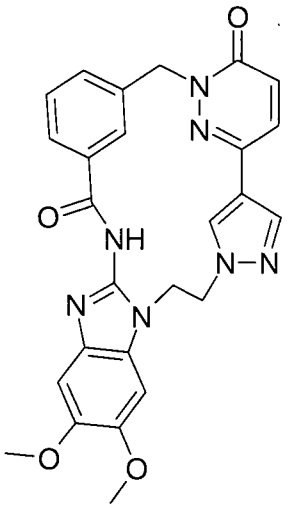
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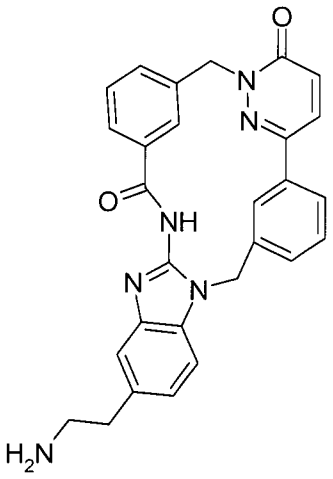
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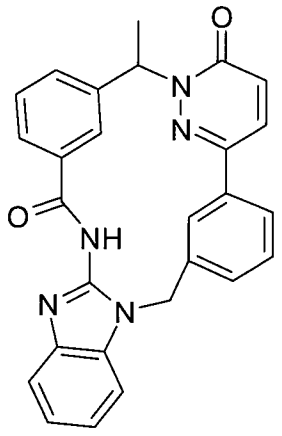
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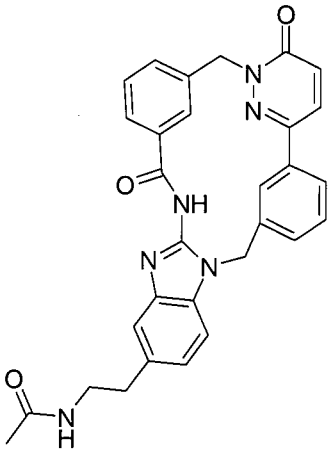
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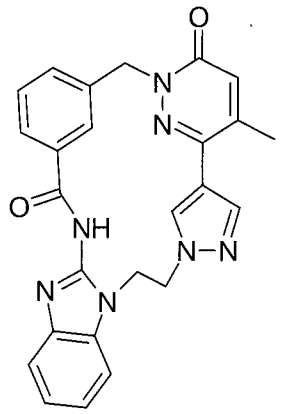
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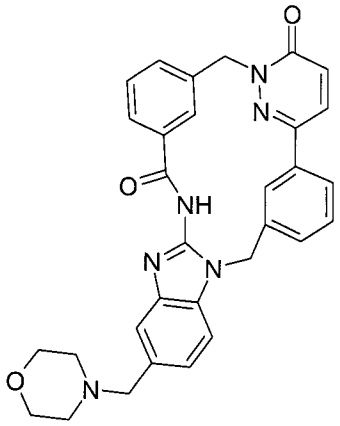
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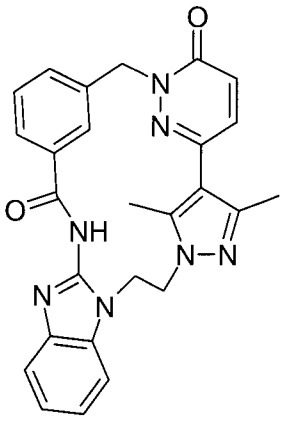
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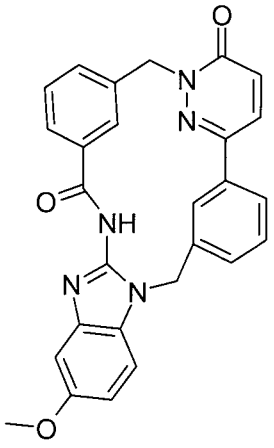
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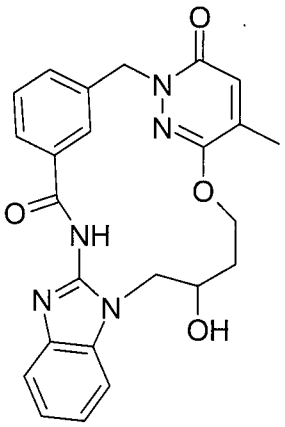
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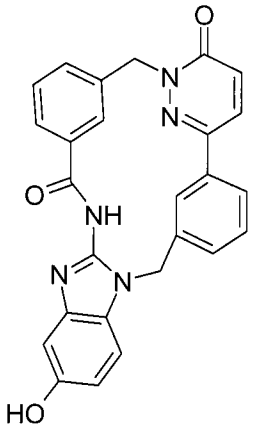
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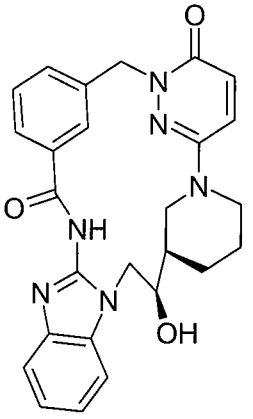
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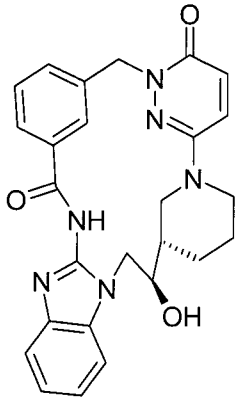
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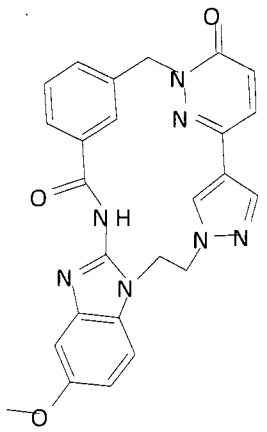


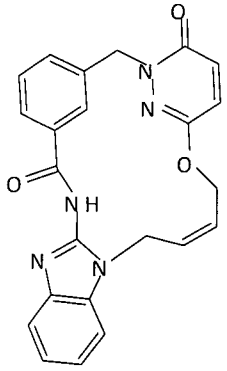
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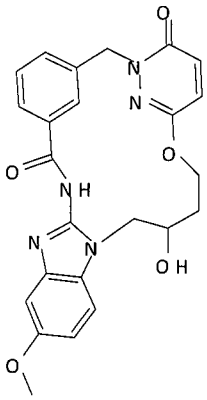


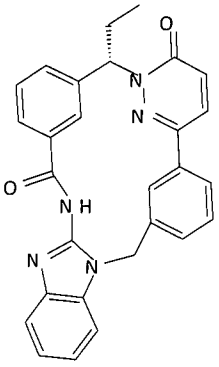
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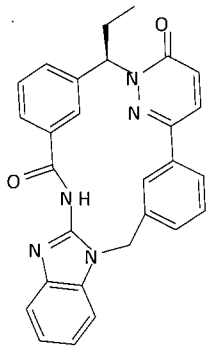


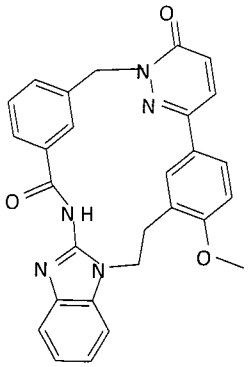
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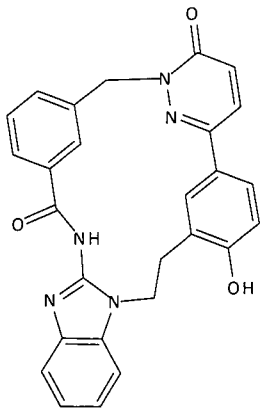
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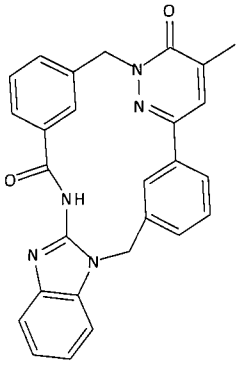
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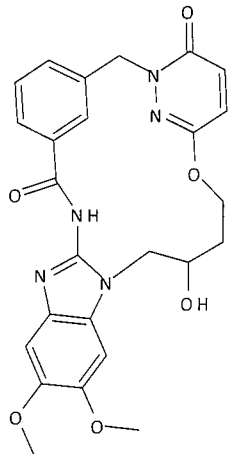
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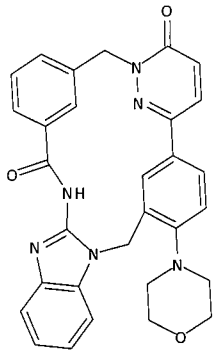
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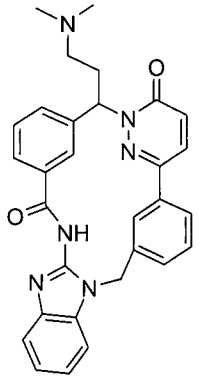
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and pharmaceutically usable tautomers, solvates, salts and stereoisomers thereof, including mixtures thereof in all ratios.

6. A compound of Formula (I) according to the aforementioned claims and pharmaceutically acceptable tautomers, solvates, tautomers, salts, solvates and stereoisomers thereof, including mixtures thereof in all ratios, for use as a medicament.

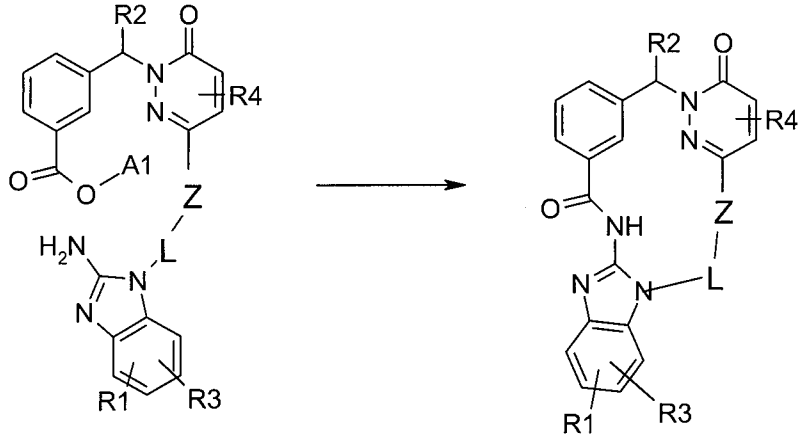
7. A compound of Formula (I) according to claim 1 for the prevention and/or treatment of the diseases associated to IRAK overexpression.

8. A Pharmaceutical composition comprising at least one of the compounds of Formula (I) according to any one of claims 1 to 5 and/or pharmaceutically usable tautomers, solvates, salts and stereoisomers thereof, including mixtures thereof in all ratios.

9. A pharmaceutical composition according to claim 9 which additionally comprises at least one further medicament used in the treatment of inflammatory diseases or immune disorders.

10. A pharmaceutical composition according to claim 10 which additionally comprises at least one further immunomodulating agent.

11. A process for the synthesis of a compound of Formula (I) according to claim 1 wherein compound of formula (I) is obtained by macrocyclisation of a compound of formula (II) wherein R1, R2, R3, R4, Z and L are as defined in claim 1 and A1 is H, Li, Na or K:



(II) (I)