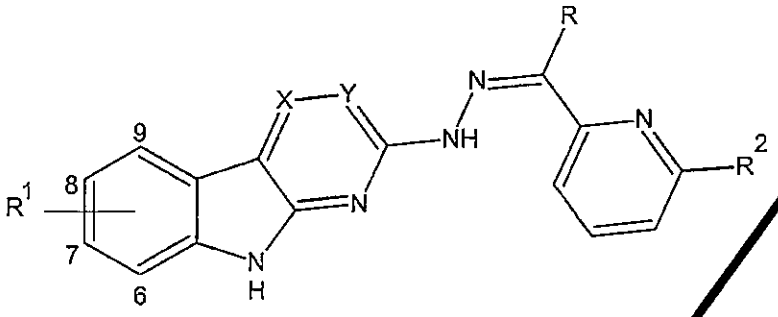
Claims

1. Cytotoxic compound of the general formula I, wherein R is H or methyl or methylene substituted by C_1-C_4 straight or branched alkyl, R^1 is selected from the group consisting of H, C_1-C_4 straight or branched alkyl, methoxy, methoxy substituted by from one to three fluorine, halogen; R^2 is H or C_1-C_4 straight or branched alkyl; X is CH or N; Y is CH or N; R does not comprise H or methyl if R^1 is H or C_1-C_4 alkyl, R^2 is H or C_1-C_4 straight or branched alkyl, X is N and Y is N.



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2. The compound of claim 1, wherein R^2 is H.

3. The compound of claim 2, selected from the group consisting of R = H, R^1 = 6-CH_3, R_2=H, X and Y = CH; R = $CH_2C(CH_3)_3$, R^1 = 6-CH_3, R_2 = H, X and Y = N; R = CH_2CH_3, R^1 = 6-CH_3, R_2 = H, X and Y = N.

4. The compound of claim 3, wherein R = $CH_2C(CH_3)_3$, R^1 = 6-CH_3, R_2 = H, X and Y = N.

5. The compound of claim 3, wherein R = CH_2CH_3, R^1 = 6-CH_3, R_2 = H, X and Y = N.

6. The compound of any of claims 1 to 5, additionally substituted by C_1-C_4 straight or branched alkyl at one of positions 6, 7, 8 or 9 of the mono-, di- or tri-azacarbazolyl moiety not substituted by R^1.

7. A mixture of cis-, trans-isomers of the compound of any of claims 1 to 6.

8. A pharmaceutically acceptable salt, salt/solvent complex, metal complex, except one with any of Fe^{2+}, Fe^{3+}, Co^{2+}, solvent complex or prodrug of the compound of any of claims 1 to 7.

9. The pharmaceutical acceptable salt of claim 8 selected from hydrochloride and di-hydrochloride.

10. Pharmaceutical composition comprising the compound of any of claims 1 to 7 or the salt of any of claims 8-9 and a pharmaceutically acceptable carrier.

11. The compound of any of claims 1 to 7, the pharmaceutical salt of any of claims 8-9, or the pharmaceutical composition of claim 10 for use in treating a solid cancer tumour.

12. The compound of any of claims 1-7, the pharmaceutical salt of any of claims 8-9, or the pharmaceutical composition of claim 10 for use according to claim 11 in a pharmacologically effective dose.

13. The compound of any of claims 1-7, the pharmaceutical salt of any of claims 8-9 or the pharmaceutical composition of claim 10 for use according to claim 11 or 12, wherein the tumour is starved on glucose before administration.

The invention claimed is:

1. Cytotoxic compound of formula I, wherein R is H, methyl or methylene substituted by C_1-C_4 straight or branched alkyl, R^1 is selected from the group consisting of H, C_1-C_4 straight or branched alkyl, methoxy, methoxy substituted by from one to three fluorine, and halogen; R^2 is H or C_1-C_4 straight or branched alkyl; X is CH or N; and Y is CH or N; provided that R is methylene substituted by C_1-C_4 straight or branched alkyl if R^1 is H, halogen, or C_1-C_4 alkyl, R^2 is H or C_1-C_4 straight or branched alkyl, X is N and Y is N,

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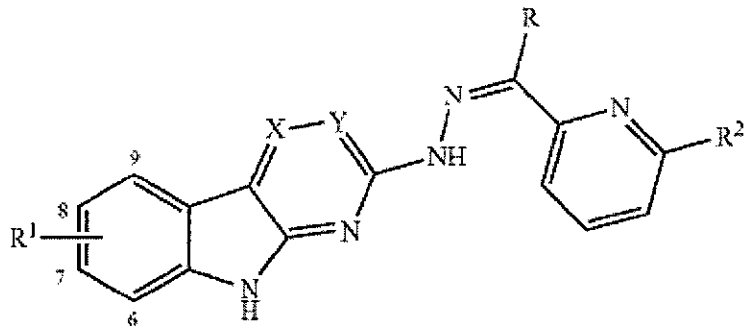


or a pharmaceutically acceptable salt of the compound of formula I, or a pharmaceutically acceptable metal complex of the compound of formula I with a metal other than Fe^{2+}, Fe^{3+}, or Co^{2+}.

2. The compound of claim **1**, or the pharmaceutically acceptable salt thereof or the pharmaceutically acceptable

3. The compound of claim **2**, or the pharmaceutically acceptable salt thereof or the pharmaceutically acceptable metal complex thereof, wherein R=H, R^1=6-CH_3, R^2=H, and X and Y=CH; wherein R=$CH_2C(CH_3)_3$, R^1=6-CH_3, R^2=H, and X and Y=N; or wherein R=CH_2CH_3, R^1=6-CH_3, R^2=H, and X and Y=N.

4. A mixture of cis- and trans-isomers of the compound of claim **1**.

5. A pharmaceutically acceptable salt or a pharmaceutically acceptable metal complex with a metal other than Fe^{2+}, Fe^{3+}, or Co^{2+}, of the compound of claim **1**.

6. A pharmaceutically acceptable salt of the compound of claim 1 selected from hydrochloride salt and di-hydrochloride salt.

7. Pharmaceutical composition comprising the compound of claim 1, or the pharmaceutically acceptable salt thereof or the pharmaceutically acceptable metal complex thereof, and a pharmaceutically acceptable carrier.

8. The compound of claim 3, or the pharmaceutically acceptable salt thereof or the pharmaceutically acceptable metal complex thereof, wherein R=$CH_2C(CH_3)_3$, R^1=6-CH_3, R^2=H, and X and Y=N.

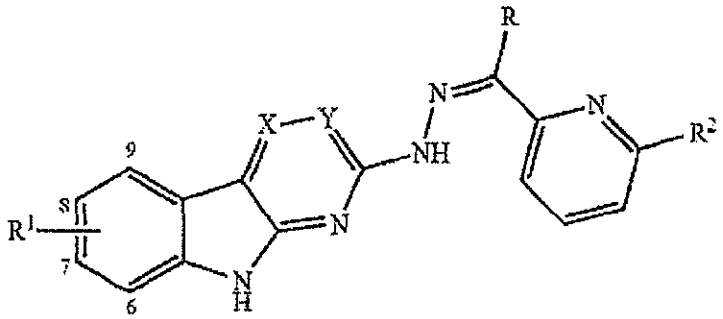
9. The compound of claim 3, or the pharmaceutically acceptable salt thereof or the pharmaceutically acceptable metal complex thereof, wherein R=CH_2CH_3, R^1=6-CH_3, R^2=H, and X and Y=N.

10. A pharmaceutically acceptable salt of the compound of claim 3 selected from hydrochloride salt and di-hydrochloride salt.

11. A pharmaceutically acceptable salt of the compound of claim 8 selected from hydrochloride salt and di-hydrochloride salt.

12. A pharmaceutically acceptable salt of the compound of claim 9 selected from hydrochloride salt and di-hydrochloride salt.

13. Cytotoxic compound of formula I, wherein R is H, methyl or methylene substituted by C_1-C_4 straight or branched alkyl, R^1 is selected from the group consisting of C_1-C_4 straight or branched alkyl, methoxy, methoxy substituted by from one to three fluorine, and halogen; R^2 is H or C_1-C_4 straight or branched alkyl; X is CH or N; and Y is CH or N; provided that R does not comprise H or methyl if R^1 is C_1-C_4 alkyl, R^2 is H or C_1-C_4 straight or branched alkyl, X is N and Y is N,



and wherein the cytotoxic compound is additionally substituted by a C_1-C_4 straight or branched alkyl at one of positions 6, 7, 8 or 9 not substituted by R^1,

or a pharmaceutically acceptable salt of the compound of formula I, or a pharmaceutically acceptable metal complex of the compound of formula I with a metal other than Fe^{2+}, Fe^{3+}, or Co^{2+}.