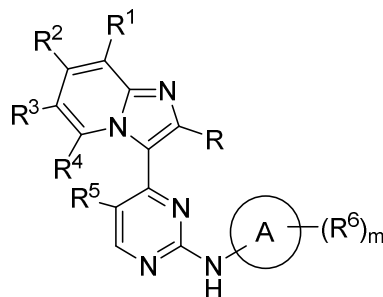


CLAIMS

1. A compound of formula I:

(I)



wherein:

A is a cycloalkyl or heterocycloalkyl, optionally substituted by one or more R^6 groups such that m is an integer from 0 to 5 inclusive, and wherein said heterocycloalkyl comprises at least one but no more than two heteroatoms selected from N, O and S; and wherein

R is H; and

R^1 , R^2 , R^3 and R^4 are each independently selected from the group consisting of H, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, CH_2 -heteroaryl, aralkyl, O-cycloalkyl, O-heterocycloalkyl, O-aryl, O-heteroaryl, NH-cycloalkyl, NH-heterocycloalkyl, NH-aryl, NH-heteroaryl, NHO-aryl, $NHCH_2$ -aryl, N-(cycloalkyl)₂, N-(heterocycloalkyl)₂, N-(aryl)₂, N-(heteroaryl)₂, N-(heteroalkyl)(R^7), N-(cycloalkyl)(R^7), N-(heterocycloalkyl)(R^7), N-(aryl)(R^7), N-(heteroaryl)(R^7), CONH-aryl, CON(aryl)(R^7), CON(heteroaryl)(R^7), SO_2 -aryl, SO_2 -aryl- R^7 , CO-aryl, and CO-aryl- R^7 , with the proviso that at least one of R^1 , R^2 , R^3 and R^4 is not H,

and wherein R^7 is selected from the group consisting of H, alkyl, heteroalkyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, aralkyl, halogen, NO_2 , CN, CF_3 , OH, O-alkyl, O-heteroalkyl, O-cycloalkyl, O-heterocycloalkyl, O-aryl, O-heteroaryl, NH_2 , NH-alkyl, NH-heteroalkyl, NH-cycloalkyl, NH-heterocycloalkyl, NH-aryl, NH-heteroaryl, N-(alkyl)₂, N-(heteroalkyl)₂, N-(cycloalkyl)₂, N-(heterocycloalkyl)₂, N-(aryl)₂, N-(heteroaryl)₂, $COOH$, COO -alkyl, $CONH_2$, $CONH$ -alkyl, $CONH$ -aryl, SO_3H , SO_2 -alkyl, SO_2 -aryl, SO_2NH_2 , CO-alkyl, and CO-aryl,

R^5 is selected from alkyl, O-alkyl, CN and halogen;

R^6 is selected from the group consisting of H, alkyl, alkyl- R^7 , heteroalkyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, CH_2 -heteroaryl, aralkyl, halogen, NO_2 , CN, CF_3 , OH, O-alkyl, O-alkyl- R^7 , O-heteroalkyl, O-cycloalkyl, O-heterocycloalkyl, O-aryl, O-heteroaryl, O- R^9 , NH_2 , NH-alkyl, NH-alkyl- R^7 , NH-heteroalkyl, NH-cycloalkyl, NH-heterocycloalkyl, NH-aryl, NH-heteroaryl, NH- R^7 , NHO-aryl, $NHCH_2$ -aryl, N-(alkyl)₂, N-(heteroalkyl)₂, N-(cycloalkyl)₂, N-(heterocycloalkyl)₂, N-(aryl)₂, N-(heteroaryl)₂, N-(alkyl)(R^7), N-(heteroalkyl)(R^7), N-(cycloalkyl)(R^7), N-

(heterocycloalkyl)(R⁷), N-(aryl)(R⁷), N-(heteroaryl)(R⁷), COOH, CONH₂, CONH-alkyl, CONH-aryl, CON-(alkyl)(R⁷), CON(aryl)(R⁷), CON(heteroaryl)(R⁷), CONH-R⁷, SO₃H, SO₂-alkyl, SO₂-alkyl-R⁷, SO₂-aryl, SO₂-aryl-R⁷, SO₂NH₂, SO₂NH-R⁷, CO-alkyl, CO-alkyl-R⁷, CO-aryl, CO-aryl-R⁷, CO-R⁷, and COOR⁷,

and wherein said heterocycloalkyl and heteroaryl groups comprise at least one but no more than two heteroatoms selected from N, S and O, and wherein said cycloalkyl, heterocycloalkyl, aralkyl, aryl and heteroaryl groups may be optionally substituted with one or more groups selected from halogen, CN, OH, O-methyl, O-ethyl, O-CHF₂, NH₂, COOH, CONH₂, heterocycloalkyl, CO-heterocycloalkyl, CF₃ and SO₂N(CH₃)₂;

or a pharmaceutically acceptable salt, solvate or prodrug thereof.

2. A compound according to claim 1, wherein A is a 5- to 7-membered cycloalkyl or heterocycloalkyl group optionally substituted with one or more R⁶ groups.
3. A compound according to claim 1 or 2, wherein R¹ and/or R⁴ is H.
4. A compound according to claim 1 or 2, wherein R¹, R², R³ and R⁴ are independently selected from the group consisting of H, aryl, heteroaryl, CH₂-heteroaryl, NH-aryl, NH-heteroaryl, O-aryl, O-heteroaryl, NH-C₁₋₃O-aryl, NHO-aryl, NHO-heteroaryl, NHCH₂-aryl, and N-(alkyl)(aryl); wherein said heteroaryl groups comprise at least one but no more than two heteroatoms selected from N, S and O, and wherein said aryl and heteroaryl groups may be optionally substituted with one or more groups selected from halogen, alkyl, CN, OH, O-methyl, O-ethyl, O-CHF₂, NH₂, COOH, CONH₂, heterocycloalkyl, CO-heterocycloalkyl, CF₃ and SO₂N(CH₃)₂; but with the proviso that at least one of R¹, R², R³ and R⁴ is not H.
5. A compound according to any one of claims 1 to 3, wherein R² or R³ is phenyl.
6. A compound according to any one of the preceding claims, wherein R⁵ is methyl or halogen.
7. A compound according to any one of the preceding claims, wherein m is an integer selected from 1, 2 and 3.
8. A compound according to any one of the preceding claims, wherein R⁶ is selected from the group consisting of H, alkyl, OH, halogen, O-alkyl, CO₂-alkyl, COOH, C₁₋₃-heterocycloalkyl, O-heteroalkyl, NH₂, NH-alkyl, NH-heteroalkyl, NH-cycloalkyl, NH-R⁷ where R⁷ is CO(NH-alkyl), SO₂-alkyl, NH-alkyl-R⁷ where R⁷ is CF₃, O-alkyl, CO(NH₂), CO₂-alkyl, N-(alkyl)₂, N-(alkyl)(R⁷) where R⁷ is heteroalkyl, SO₂-alkyl, SO₂NH₂, alkyl-R⁷ where R⁷ is CO₂-alkyl, and COOR⁷ where R⁷ is a C₁₋₃ alkyl or C₁₋₆ alkyl; wherein said heterocycloalkyl and heteroaryl groups comprise at least one but no more than two heteroatoms selected from N, S and O, and wherein said cycloalkyl, heterocycloalkyl,

aralkyl, aryl and heteroaryl groups may be optionally substituted with one or more groups selected from halogen, alkyl, CN, OH, O-methyl, O-ethyl, O-CHF₂, NH₂, COOH, CONH₂, heterocycloalkyl, CO-heterocycloalkyl, CF₃ and SO₂N(CH₃)₂.

9. A compound according to any one of claims 1 to 7, wherein R⁶ is selected from the group consisting of heterocycloalkyl, NH₂, NH-C₁₋₃ alkyl, NH-R⁷ where R⁷ is heteroalkyl or CO(NH-alkyl), SO₂-C₁₋₃ alkyl, and SO₂NH₂; wherein said heterocycloalkyl comprise at least one but no more than two N heteroatoms, and may be optionally substituted with one or more groups selected from halogen, alkyl, CN, OH, O-methyl, O-ethyl, O-CHF₂, NH₂, COOH, CONH₂, CF₃ and SO₂N(CH₃)₂.

10. A compound according to any one of claims 1 to 7, wherein R⁶ is selected from the group consisting of azetidine, NH₂, NH-C₁₋₃ alkyl substituted with O-methyl or O-ethyl, SO₂-C₁₋₃ alkyl, and SO₂NH₂.

11. A compound according to any one of the preceding claims, wherein m is 1.

12. A compound according to any one of the preceding claims, wherein A is cyclohexane, adamantane, tetrahydro-2H-pyran or piperidine optionally substituted with at least one of R⁶.

13. The use of a compound according to any one of the preceding claims, or a pharmaceutically acceptable salt, solvate or prodrug thereof, for treating cancer or another proliferative cell disease or condition, wherein said cancer or another proliferative cell disease or condition is characterised by over-expression and/or aberrant activity of one or more CDK enzyme selected from CDK1, CDK2, CDK7 and CDK9.

14. A method of treating cancer or another proliferative cell disease or condition in a subject, the method comprising administering to said subject a therapeutically effective amount of a compound according to any one of claims 1 to 12 or a pharmaceutically acceptable salt, solvate or prodrug thereof, optionally in combination with a pharmaceutically acceptable carrier, diluent and/or excipient, wherein said cancer or another proliferative cell disease or condition is characterised by over-expression and/or aberrant activity of one or more CDK enzyme selected from CDK1, CDK2, CDK7 and CDK9.

15. The use of a compound according to any one of claims 1 to 12, or a pharmaceutically acceptable salt, solvate or prodrug thereof, in the manufacture of a medicament for treating cancer or another proliferative cell disease or condition, wherein said cancer or another proliferative cell disease or condition is characterised by over-expression and/or aberrant activity of one or more CDK enzyme selected from CDK1, CDK2, CDK7 and CDK9.

16. A pharmaceutical composition or medicament comprising a compound according to any one of claims 1 to 12 and a pharmaceutically acceptable carrier, diluent and/or excipient.

17. A compound according to claim 1, wherein the compound is selected from the group consisting of:

(1*r*,4*r*)-*N*¹-(5-Fluoro-4-(6-((4-fluorobenzyl)amino)imidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)cyclohexane-1,4-diamine,

(1*r*,4*r*)-*N*¹-(5-Methyl-4-(6-phenylimidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)cyclohexane-1,4-diamine,

(1*r*,4*r*)-*N*¹-(5-Fluoro-4-(6-((3-fluorophenyl)amino)imidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)cyclohexane-1,4-diamine,

(1*r*,4*r*)-*N*¹-(5-Fluoro-4-(6-(pyridin-3-yl)imidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)cyclohexane-1,4-diamine,

(1*r*,4*r*)-*N*¹-(5-Fluoro-4-(6-(3-fluoropyridin-2-yl)imidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)cyclohexane-1,4-diamine,

(1*r*,4*r*)-*N*¹-(5-Methyl-4-(6-(phenylamino)imidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)cyclohexane-1,4-diamine,

(1*r*,4*r*)-*N*¹-(5-Methyl-4-(6-(pyridin-3-ylamino)imidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)cyclohexane-1,4-diamine,

*N*¹,*N*¹-Dimethyl-*N*⁴-(5-Methyl-4-(6-(pyridin-3-ylamino)imidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)cyclohexane-1,4-diamine,

*N*¹,*N*¹-dimethyl-*N*⁴-(5-Methyl-4-(6-(pyrimidin-5-ylamino)imidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)cyclohexane-1,4-diamine,

(1*r*,4*r*)-*N*¹-(5-Chloro-4-(7-(pyrimidin-5-ylamino)imidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)cyclohexane-1,4-diamine,

3-(2-(((1*r*,4*r*)-4-(Aziridin-1-yl)cyclohexyl)amino)-5-methylpyrimidin-4-yl)-*N*-(pyrimidin-5-yl)imidazo[1,2-*a*]pyridin-7-amine,

(1*r*,4*r*)-*N*¹-(2-Methoxyethyl)-*N*⁴-(5-methyl-4-(6-phenylimidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)cyclohexane-1,4-diamine,

(1*s*,4*s*)-*N*¹-(2-Methoxyethyl)-*N*⁴-(5-methyl-4-(6-phenylimidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)cyclohexane-1,4-diamine,

(1*r*,4*r*)-*N*¹-Ethyl-*N*⁴-(5-methyl-4-(6-phenylimidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)cyclohexane-1,4-diamine,

(1*s*,4*s*)-*N*¹-ethyl-*N*⁴-(5-Methyl-4-(6-phenylimidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)cyclohexane-1,4-diamine,

N-((1*r*,4*r*)-4-(Azetidin-1-yl)cyclohexyl)-5-methyl-4-(6-phenylimidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-amine,

N-((1*s*,4*s*)-4-(Azetidin-1-yl)cyclohexyl)-5-methyl-4-(6-phenylimidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-amine,

5-Fluoro-4-(6-phenylimidazo[1,2-*a*]pyridin-3-yl)-*N*-((1*r*,4*r*)-4-(pyrrolidin-1-yl)cyclohexyl)pyrimidin-2-amine,

N-((1*r*,4*r*)-4-(Azetidin-1-yl)cyclohexyl)-5-fluoro-4-(6-phenylimidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-amine,

5-Fluoro-*N*-(1-(methylsulfonyl)piperidin-4-yl)-4-(6-phenylimidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-amine,

N-(1-(Ethylsulfonyl)piperidin-4-yl)-5-fluoro-4-(6-phenylimidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-amine,

(1*r*,4*r*)-*N*-Cyclopropyl-4-((5-methyl-4-(6-(pyrimidin-5-ylamino)imidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)amino)cyclohexane-1-carboxamide, and

4-((5-fluoro-4-(6-phenylimidazo[1,2-*a*]pyridin-3-yl)pyrimidin-2-yl)amino)cyclohexane-1-sulfonamide.