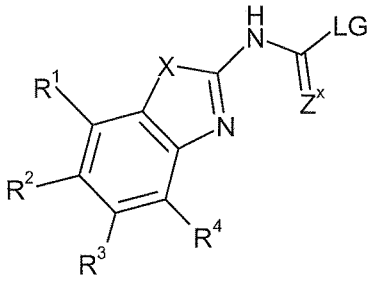


(III)

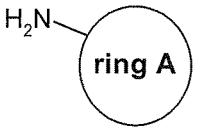
wherein ring A and Z^x are as defined herein;

(ii) reaction of a compound of formula (IV),



(IV)

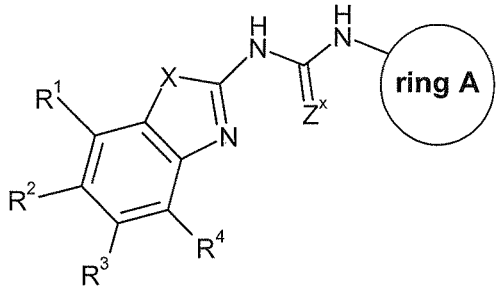
wherein LG represents a suitable leaving group, and R^1, R^2, R^3, R^4, X and Z^x are as defined herein, with a compound of formula (V),



(V)

wherein ring A is as defined herein.

In another aspect, there is use of a compound of formula (I) in the manufacture of a medicament for the treatment of a bacterial infection, wherein the compound of formula (I) represents:



(I)

wherein

R^1, R^2, R^3 and R^4 each independently represent hydrogen, halo, -CN, R^{t1}, -O-R^{t2}, -C(O)N(R^{t3})(R^{t4}), -SO_2R^{t5}, -N(H)SO_2R^{t6}, -N(R^{t7})(R^{t8}) or an aryl or heterocyclic group (which latter two groups are themselves optionally substituted by one or more substituents selected from halo and C_{1-6} alkyl);

R^{t1}, R^{t2}, R^{t3}, R^{t4}, R^{t5}, R^{t6}, R^{t7} and R^{t8} independently represent hydrogen or C_{1-6} alkyl optionally substituted by one or more halo atoms, or, R^{t3} and R^{t4} and/or R^{t7} and R^{t8} may

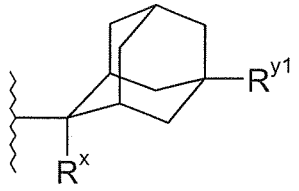
be linked together with the nitrogen atom to which they are attached to form a 3- to 7-membered ring, optionally containing one to three (e.g. one) further heteroatom(s) and optionally contain one to three double bonds;

Z^x represents O or S;

X represents S or O;

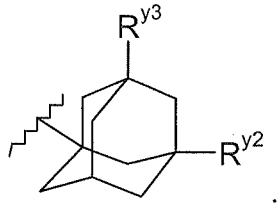
ring A represents either:

(i)



; or

(ii)



;

R^x represents hydrogen or C_{1-6} alkyl optionally substituted by one or more subsitutents selected from fluoro, -CN, $-OR^{x1}$, $-C(O)R^{x2}$ and $-C(O)NR^{x3}$;

R^{x1}, R^{x2} and R^{x3} independently represent hydrogen or C_{1-6} alkyl;

R^{y1}, R^{y2} and R^{y3} independently represent hydrogen, halo (e.g. fluoro), C_{1-6} alkyl, $-OR^{y4}$, $-C(O)-R^{y5}$ or $-CH_2-OR^{y6}$;

R^{y4}, R^{y5} and R^{y6} independently represent hydrogen or C_{1-6} alkyl;

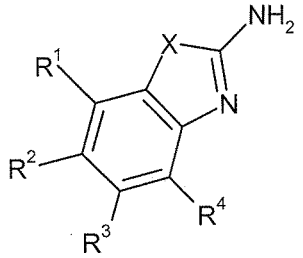
or a pharmaceutically acceptable salt (e.g. acid addition salt) thereof.

In another aspect, there is use of a combination in the manufacture of a medicament for the treatment of a bacterial infection, wherein the combination comprises: (i) a compound as defined herein; and (ii) another therapeutic agent for use in the treatment of a bacterial infection.

Pharmaceutically-acceptable salts include acid addition salts and base addition salts. Such salts may be formed by conventional means, for example by reaction of a free acid or a free base form of a compound of formula I with one or more equivalents of an appropriate acid or base, optionally in a solvent, or in a medium in which the salt is insoluble, followed by removal of said solvent, or said medium, using standard techniques (e.g. *in vacuo*, by freeze-drying or by filtration). Salts may also be prepared by exchanging a counter-ion of a compound of the invention in the form of a salt with another counter-ion, for example using a suitable ion exchange resin.

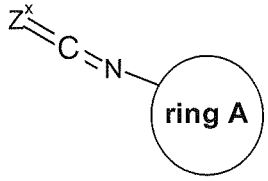
The pharmaceutically acceptable acid addition salts as mentioned hereinabove are meant to comprise the therapeutically active non-toxic acid addition salt forms that the compounds of formula (I) are able to form. These pharmaceutically acceptable acid addition salts can conveniently be obtained by treating the base form with such appropriate acid. Appropriate acids comprise, for example, inorganic acids such as hydrohalic acids, e.g. hydrochloric or hydrobromic acid, sulfuric, nitric, phosphoric and the like acids; or organic acids such as, for example, acetic, propanoic, hydroxyacetic, lactic, pyruvic, oxalic (*i.e.* ethanedioic), malonic, succinic (*i.e.* butanedioic acid), maleic, fumaric, malic, tartaric, citric, methanesulfonic, ethanesulfonic,

(i) reaction of a compound of formula (II),



(II)

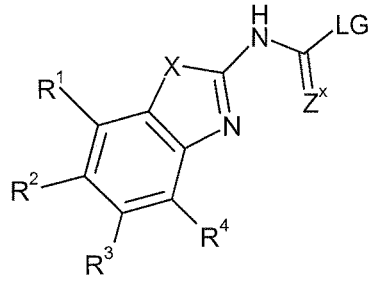
wherein X, R^1, R^2, R^3 and R^4 are as defined in claim 7, with a compound of formula (III),



(III)

wherein ring A and Z^x are as defined in claim 7;

(ii) reaction of a compound of formula (IV),



(IV)

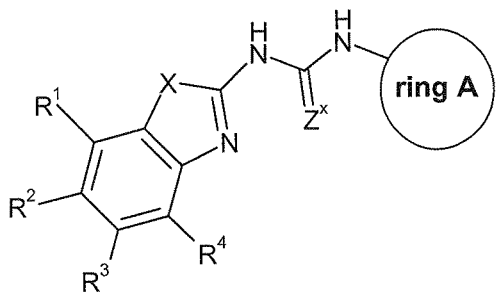
wherein LG represents a suitable leaving group, and R^1, R^2, R^3, R^4, X and Z^x are as defined in claim 7, with a compound of formula (V),



(V)

wherein ring A is as defined in claim 7.

13. Use of a compound of formula (I) in the manufacture of a medicament for the treatment of a bacterial infection, wherein the compound of formula (I) represents:



(I)

wherein

R^1, R^2, R^3 and R^4 each independently represent hydrogen, halo, -CN, R^{t1}, -O-R^{t2}, -C(O)N(R^{t3})(R^{t4}), -SO_2R^{t5}, -N(H)SO_2R^{t6}, -N(R^{t7})(R^{t8}) or an aryl or heterocyclic group (which latter two groups are themselves optionally substituted by one or more substituents selected from halo and C_{1-6} alkyl);

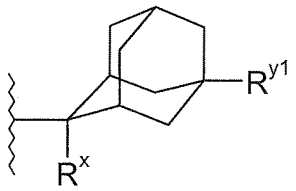
R^{t1}, R^{t2}, R^{t3}, R^{t4}, R^{t5}, R^{t6}, R^{t7} and R^{t8} independently represent hydrogen or C_{1-6} alkyl optionally substituted by one or more halo atoms, or, R^{t3} and R^{t4} and/or R^{t7} and R^{t8} may be linked together with the nitrogen atom to which they are attached to form a 3- to 7-membered ring, optionally containing one to three (e.g. one) further heteroatom(s) and optionally contain one to three double bonds;

Z^x represents O or S;

X represents S or O;

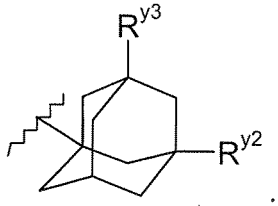
ring A represents either:

(i)



; or

(ii)



;

R^x represents hydrogen or C_{1-6} alkyl optionally substituted by one or more subsitutents selected from fluoro, -CN, -OR^{x1}, -C(O)R^{x2} and -C(O)NR^{x3};

R^{x1}, R^{x2} and R^{x3} independently represent hydrogen or C_{1-6} alkyl;

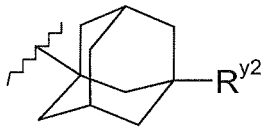
R^{y1}, R^{y2} and R^{y3} independently represent hydrogen, halo (e.g. fluoro), C_{1-6} alkyl, $-OR^{y4}$, $-C(O)-R^{y5}$ or $-CH_2-OR^{y6}$;

R^{y4}, R^{y5} and R^{y6} independently represent hydrogen or C_{1-6} alkyl;

or a pharmaceutically acceptable salt (e.g. acid addition salt) thereof.

14. Use as claimed in claim 13, wherein ring A represents:

(ii)



.

15. Use as claimed in claim 13 or 14, wherein R^{y1} represents fluoro, chloro, C_{1-6} alkyl, -OH, $-C(O)R^{y5}$ or $-CH_2-OR^{y6}$; and R^{y2} represents -OH, C_{1-6} alkyl (e.g. methyl), $-C(O)R^{y5}$ or $-CH_2-OR^{y6}$).

16. Use as claimed in any one of claims 13 to 15, wherein R^1, R^2, R^3 and R^4 each independently represent hydrogen, fluoro or C_{1-6} alkyl substituted by one or more halo subsituents.

17. Use as claimed in any one of claims 13 to 16, wherein
R^1, R^2, R^3 and R^4 each independently represent hydrogen;
Z^x represents O;
X represents O or S; and/or
R^x represents hydrogen.

18. Use as claimed in any one of claims 13 to 16, wherein:
R^1, R^2, R^3 and R^4 each independently represent hydrogen, fluoro or C_{1-6} alkyl optionally substituted by one or more halo subsituents (but preferably unsubstituted); for instance, in which:
one or two of R^1 to R^4 represents fluoro, and the remaining represent hydrogen;
one of R^1 to R^4 represents $-CF_3$, and the remaining represent hydrogen,
provided that the following compounds of formula I are excluded:
those in which X represents S, Z^x represents O, R^1 and R^4 represent H, R^2 represents $-CH_3$, ring A represents ring (ii) in which R^{y2} and R^{y3} both represent hydrogen, and R^3 represents hydrogen or $-CH_3$.

19. Use of a combination in the manufacture of a medicament for the treatment of a bacterial infection, wherein the combination comprises: (i) a compound as defined in any one of claims 13 to 18; and (ii) another therapeutic agent for use in the treatment of a bacterial infection.

20. Use as claimed in any one of claims 13 to 19, wherein the bacterial infection is a mycobacterial infection.

21. Use as claimed in claim 20, wherein the mycobacterial infection is *Mycobacterium tuberculosis*.