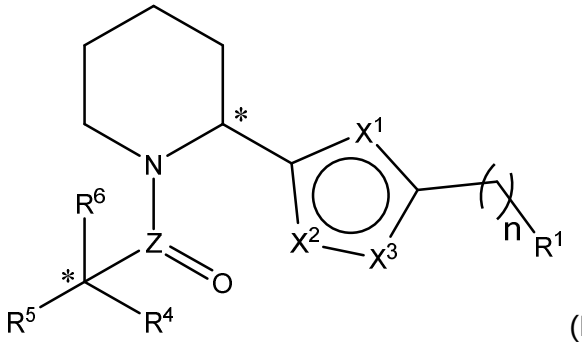
Claims

1. Non-medical method of modulating of transient receptor potential channel melastatin member 8 (TRPM8) comprising bringing the receptor into contact with a compound of formula (Ic), a salt or solvate thereof



(Ic)

wherein

n is 0 or 1;

$R^1$ is selected from

$C_6$ – $C_{10}$ aryl optionally substituted with up to four substituents independently selected from the group consisting of halogen; OH (hydroxyl); C≡N (cyano); $NO_2$ (nitro); $C_1$-$C_6$ alky optionally comprising up to 5 halogen atoms; $C_1$-$C_3$ alkyl comprising up to 3 OH groups; $C_2$-$C_6$ alkenyl, such as –CH=$CH_2$; $C_1$-$C_6$ alkoxy optionally comprising up to 3 halogen atoms; $C_1$-$C_3$ alkoxy $C_1$-$C_3$ alkyl; $C_3$-$C_7$ cycloalkyl; –C(O)$R^{10}$ wherein $R^{10}$ is selected from $C_1$-$C_3$ alkyl; –OC(O)$R^{11}$ wherein $R^{11}$ is selected from H, and $C_1$-$C_3$ alkyl; –C(O)O-$R^{12}$ wherein $R^{12}$ is selected from hydrogen and $C_1$-$C_3$ alkyl; – $(CH_2)_m$N($R^{13}$)$R^{14}$ wherein m is 0 or 1, $R^{13}$ is selected from hydrogen, $C_1$-$C_3$ alkyl, and –$SO_2R^{15}$ wherein $R^{15}$ is $C_1$-$C_3$ alkyl, and $R^{14}$ is selected from hydrogen, $C_1$-$C_3$ alkyl, and –$SO_2R^{16}$ wherein $R^{16}$ is $C_1$-$C_3$ alkyl, or wherein $R^{13}$ and $R^{14}$ form together with the N atom to which they are attached morpholine, thiomorpholine, or 1,1-dioxothiomorpholine; –$SR^{17}$ wherein $R^{17}$ is selected from hydrogen and $C_1$-$C_3$ alkyl; and –S(O)$_2R^{18}$ wherein $R^{18}$ is selected from hydrogen and $C_1$-$C_3$ alkyl*;*

with the proviso that when the aryl ring is substituted with two or more substituents, two substituents may form a cyclic ring together with the carbon atoms to which they are attached,

and

$C_5$-$C_{10}$ mono- or bicyclic heteroaryl wherein up to 2 C-atoms are replaced by a hetero atoms independently selected from sulfur, nitrogen, and oxygen, optionally substituted with up to four substituents selected from the group consisting of halogen; OH (hydroxyl); C≡N (cyano); $NO_2$ (nitro); $C_1$-$C_6$ alky optionally comprising up to 5 halogen atoms; $C_2$-$C_6$ alkenyl ; $C_1$-$C_6$ alkoxy optionally comprising up to 3 halogen atoms; $C_1$-$C_3$ alkoxy $C_1$-$C_3$ alkyl; $C_3$-$C_7$ cycloalkyl; –C(O)$R^{20}$ wherein $R^{20}$ is selected from $C_1$-$C_3$ alkyl; –OC(O)$R^{21}$ wherein $R^{21}$ is selected from H, and $C_1$-$C_3$ alkyl; –C(O)O-$R^{22}$ wherein $R^{22}$ is selected from hydrogen and $C_1$-$C_3$ alkyl; –$(CH_2)_m$N($R^{23}$)$R^{24}$ wherein m is 0 or 1, $R^{23}$ is selected from hydrogen, $C_1$-$C_3$ alkyl, and –$SO_2R^{25}$ wherein $R^{25}$ is $C_1$-$C_3$ alkyl, and $R^{24}$ is selected from hydrogen, $C_1$-$C_3$ alkyl, and –$SO_2R^{26}$ wherein $R^{26}$ is $C_1$-$C_3$ alkyl, or wherein $R^{23}$ and $R^{24}$ form together with the N atom to which they are attached morpholine, thiomorpholine, or 1,1-dioxothiomorpholine; –$SR^{27}$ wherein $R^{27}$ is selected from hydrogen and $C_1$-$C_3$ alkyl; and –$S(O)_2R^{28}$ wherein $R^{28}$ is selected from hydrogen and $C_1$-$C_3$ alkyl*;*

$X^1$ is NH or O; and

$X^2$ and $X^3$ are independently selected from C, N, and O, with the proviso that either $X^2$ or $X^3$ is not C;

Z is C; and

$R^4$ is selected from hydrogen and methyl;
$R^5$ is selected from hydrogen, $C_1$-$C_2$ alkyl, and $C_2$-$C_3$ alkenyl; and
$R^6$ is selected from $C_1$-$C_4$ alkyl, $C_2$-$C_5$ alkenyl containing one or two double bonds, $C_1$-$C_3$ alkoxy, $C_1$-$C_4$ alkyl-C(O)-, $C_1$-$C_4$ alkyl–S–, $C_1$-$C_4$ alkyl–$SCH_2$–, $C_1$-$C_4$ alkenyl–S–, $C_1$–$C_4$ alkyl–S(O) –, $C_1$-$C_4$ alkyl–$S(O)_2$–, $C_1$-$C_4$ alkenyl–S(O) –, $C_1$-$C_4$ alkenyl–$S(O)_2$–, –SH, $CF_3S$–, cyclopropyl, cyclobutyl, furyl optionally substituted with methyl , $C_1$-$C_6$ fluoro-alkyl, and –$NR^{30}R^{31}$ wherein $R^{30}$ and $R^{31}$ are independently selected from hydrogen and $C_1$-$C_3$ alkyl;
or
$R^6$ and $R^5$ form together with the carbon atom to which they are attached
a) a carbonyl group (C=O) or vinyl group (C=C$R^{32}R^{33}$ wherein $R^{32}$ and $R^{33}$ are independently selected from H or $C_1$-$C_3$ alkyl); or

b) 3 to 7-membered saturated or unsaturated cycle ring comprising up to 3 heteroatoms selected from oxygen, nitrogen and sulfur, wherein the cyclic ring is optionally substituted with one or two groups independently selected from $C_1$-$C_3$ alkyl, $C_1$-$C_3$ alkoxy.

2. A non-medical method according to claim 1 wherein the compound of formula (Ic) is selected from the group consisting of (2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)(1,2,3-thiadiazol-5-yl)methanone, (2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)(thietan-3-yl)methanone, (2,2-dimethylcyclopropyl)(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, (2-ethoxycyclopropyl)(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, (2-methoxycyclopropyl)(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, (2-methylcyclopropyl)(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, (2S)-2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, (5-methyltetrahydrofuran-3-yl)(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, (E)-1-(2-(5-(3,4-difluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbut-2-en-1-one, (E)-2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)but-2-en-1-one, (E)-2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)pent-3-en-1-one, (R)-2-(methylthio)-1-((R)-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, (S)-2-(methylthio)-1-((R)-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, (S)-2-(methylthio)-1-((S)-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, (S)-2-methyl-1-((R)-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, (tetrahydrofuran-3-yl)(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)methanone, 1-(2-(4-(1-methyl-1H-pyrazol-4-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2,2-difluorobenzo[d][1,3]dioxol-5-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2,3-dihydrobenzofuran-5-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2,3-dihydrobenzofuran-6-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2,5-dimethylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2-chlorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2-cyclopropyloxazol-5-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2-hydroxyphenyl)-1H-imidazol-2-yl)piperidin-

1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(3-((dimethylamino)methyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(3,5-difluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(3,5-dimethylisoxazol-4-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(3-chloro-4-methylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(3-methylfuran-2-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-((1,1-dioxidothiomorpholino)methyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-(1-hydroxyethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-(difluoromethoxy)-3-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-(difluoromethyl)thiophen-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-(methylsulfonyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-(tert-butyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-cyclobutylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-cyclopropyl-2-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-hydroxyphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-isopropylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-methyl-3-(trifluoromethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(5-((dimethylamino)methyl)thiophen-2-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(5-methylfuran-2-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(5-methylpyridin-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(6-methylpyridin-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(benzo[b]thiophen-6-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-methyl-5-phenyl-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)-2-((trifluoromethyl)thio)ethan-1-one, 1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)hexa-3,5-dien-1-one, 1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)pent-4-en-1-one, 1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-

one, 1-(2-(5-(2,3-difluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(2,4-difluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(2,5-difluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(2-fluoro-4-methoxyphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(2-fluoro-4-methylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(2-methoxypyrimidin-5-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3-(methylamino)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3,4-difluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3,4-difluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbut-3-en-1-one, 1-(2-(5-(3,4-dimethoxyphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3,4-dimethylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3-fluoro-4-(methoxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3-fluoro-4-methylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3-methoxyisothiazol-4-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3-methoxyphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-((methylamino)methyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-(2-methoxyethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-(aminomethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-(dimethylamino)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-acetylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-aminophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-chloro-3-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-chlorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-ethylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-fluorophenyl)-4H-1,2,4-triazol-3-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-methoxy-2-methylphenyl)-1H-imidazol-2-

yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-methoxyphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-methyl-6-(methylthio)pyridin-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(5-(methoxymethyl)thiophen-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(6-methoxypyridin-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(benzo[d][1,3]dioxol-5-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 1-(2-(5-benzyl-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 2-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-5-yl)benzonitrile, 2-(2-(4-phenyl-1H-imidazol-2-yl)piperidine-1-carbonyl)cyclopropane-1-carbonitrile, 2-(5-methylfuran-2-yl)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(allylthio)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(dimethylamino)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-(dimethylamino)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(ethylthio)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(furan-2-yl)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)ethan-1-one, 2-(furan-2-yl)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(furan-3-yl)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)ethan-1-one, 2-(furan-3-yl)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylamino)-N-(4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-5-yl)phenyl)acetamide, 2-(methylsulfinyl)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylsulfonyl)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)ethan-1-one, 2-(methylsulfonyl)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(2-(p-tolyl)-2H-tetrazol-5-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(3-phenyl-1,2,4-oxadiazol-5-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(1-(trifluoromethyl)-1H-pyrazol-4-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(4-(morpholinomethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(5-(trifluoromethyl)furan-2-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(5-(trifluoromethyl)thiophen-2-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(5-methylthiophen-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(m-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-

(methylthio)-1-(2-(4-(o-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(pyridin-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(pyridin-4-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(pyrimidin-5-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(quinoxalin-6-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(thiophen-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)ethan-1-one, 2-(methylthio)-1-(2-(5-(2-(trifluoromethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(2,3,4-trifluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(2,4,5-trifluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(3-(trifluoromethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(4-(trifluoromethoxy)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(4-(trifluoromethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(4-propylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(4-vinylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(5-methylthiophen-2-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)-1,3,4-oxadiazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)azepan-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)-4H-1,2,4-triazol-3-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)isoxazol-3-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)oxazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)thiazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-phenyl-1H-imidazol-2-yl)pyrrolidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-phenyl-4H-1,2,4-triazol-3-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-phenyloxazol-2-yl)piperidin-1-yl)propan-1-one, 2,2,3-trimethyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)but-3-en-1-one, 2,2,3-trimethyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2,2-dimethyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)but-3-en-1-one, 2,2-dimethyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2,3-dimethoxy-1-(2-(4-phenyl-1H-imidazol-2-

yl)piperidin-1-yl)propan-1-one, 2,3-dimethyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2,5-difluoro-4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-4-yl)benzonitrile, 2-amino-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-cyclobutyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-cyclopentyl-2-ethoxy-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)ethan-1-one, 2-cyclopropyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)ethan-1-one, 2-cyclopropyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-cyclopropyl-2-methoxy-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)ethan-1-one, 2-ethoxy-1-(2-(5-(3-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-ethyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)but-2-en-1-one, 2-ethyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-fluoro-4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-5-yl)benzonitrile, 2-mercapto-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-methoxy-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-methoxy-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-methoxy-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-methyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-methyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)but-3-en-1-one, 2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butane-1,3-dione, 2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)pentan-1-one, 2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)prop-2-en-1-one, 2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-methyl-2-(methylthio)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-methyl-3-(methylthio)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-methylene-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 3-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-4-yl)benzonitrile, 3,3,3-trifluoro-2-methyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 3,3,4,4,4-pentafluoro-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 3,3-difluoro-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 3-fluoro-4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-5-yl)benzonitrile, 3-methyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)but-2-en-1-one, 3-methyl-

1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-4-yl)benzonitrile, 4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-5-yl)benzaldehyde, 4,4,4-trifluoro-2-methyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, bicyclo[1.1.1]pentan-1-yl(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, cyclobutyl(2-(5-(3-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)methanone, cyclopentyl(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, cyclopropyl(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, methyl 4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-5-yl)benzoate, N-(2-hydroxyethyl)-4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-4-yl)benzenesulfonamide, 2-(methylthio)-1-(2-(5-(3-nitrophenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, N-(4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-4-yl)phenyl)methane-sulfonamide, 2-(methylthio)-1-(2-(5-(4-nitrophenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 1-(sec-butylsulfinyl)-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidine, 1-(2-(5-(4-(hydroxymethyl)-phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 2-(methylsulfonyl)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 1-(4-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(5-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(4-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 1-(5-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 1-(2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfonyl)propan-1-one, 1-(4-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfonyl)propan-1-one, 1-(5-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfonyl)propan-1-one, 1-(2-hydroxy-6-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-hydroxy-6-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 1-(2-hydroxy-6-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfonyl)propan-1-one, 1-(3-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(3-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 1-(3-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfonyl)propan-1-one, 1-(2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfinyl)-propan-1-one, 1-(4-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfinyl)propan-1-one, 1-(5-

hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfinyl)propan-1-one, 1-(2-hydroxy-6-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfinyl)propan-1-one, 1-(3-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfinyl)propan-1-one, 1-(2-hydroxy-6-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(5-hydroxy-2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(4-hydroxy-2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(3-hydroxy-2-(5-(4-(hydroxymethyl)-phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-hydroxy-6-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 1-(5-hydroxy-2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 1-(4-hydroxy-2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 1-(3-hydroxy-2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 4-(2-(1-(2-methylbutanoyl)piperidin-2-yl)-1H-imidazol-5-yl)benzaldehyde, 4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-5-yl)benzoic acid, 4-(2-(1-(2-methylbutanoyl)piperidin-2-yl)-1H-imidazol-5-yl)benzoic acid, (2,2-dimethylcyclopropyl)(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)methanone, 1-(2-(5-(4-chlorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 2-(4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-5-yl)phenyl)acetonitrile, 2-(4-(2-(1-(2-methylbutanoyl)piperidin-2-yl)-1H-imidazol-5-yl)phenyl)acetonitrile, 2-(4-(2-(1-(2-methylbutanoyl)piperidin-2-yl)-1H-imidazol-5-yl)phenyl)acetonitrile, 2,3-dimethyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-methyl-1-(2-(5-(o-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-methyl-1-(2-(5-(m-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 1-(2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 2-methyl-1-(2-(5-(5-methylthiophen-2-yl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperazin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(p-tolyl)oxazol-2-yl)piperidin-1-yl)propan-1-one, 2-methyl-1-(2-(4-(p-tolyl)oxazol-2-yl)piperidin-1-yl)butan-1-one, 2-(furan-2-yl)-1-(2-(5-phenylimidazol-2-yl)piperidin-1-yl)ethan-1-one, cyclopentyl(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)methanone, (E)-2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)pent-3-en-1-one, (tetrahydrofuran-3-yl)(2-(4-(p-tolyl)-

1H-imidazol-2-yl)piperidin-1-yl)methanone, 1-(2-(4-(4-ethylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-methoxy-2-methylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2-methoxypyrimidin-5-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 2-(methylthio)-1-(2-(4-(4-vinylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 1-(2-(4-(2-fluoro-4-methoxyphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-methyl-6-(methylthio)pyridin-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 2-(methylthio)-1-(2-(4-(4-propylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 1-(2-(4-(4-(2-methoxyethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(5-(methoxymethyl)thiophen-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(3-(methylamino)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(6-methoxypyridin-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, and 1-(2-(4-(3-fluoro-4-(methoxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one.

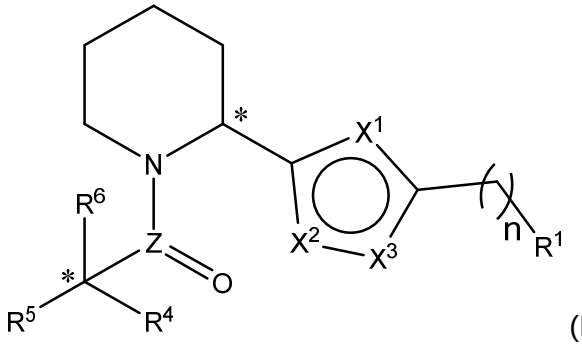
3. A non-medical method of inducing a cooling sensation in a human or animal comprising contacting the human or animal with a compound of formula (Ic), or a salt or solvate thereof, as defined in claim 1 to 2.

4. A consumer product comprising one or more compounds of formula (Ic) as defined in claim 1 to 2.

5. A pharmaceutical composition comprising one or more compounds of formula (Ic) as defined in claim 1 to 2.

6. The compound of formula (Ic) as defined in claim 1 to 2, for use in providing cooling sensation.

7. A composition comprising a cool sensation wherein the composition comprises a compound of formula (Ic)



(Ic)

wherein

n is 0 or 1;

$R^1$ is selected from

$C_6$ – $C_{10}$ aryl optionally substituted with up to four substituents independently selected from the group consisting of halogen; OH (hydroxyl); C≡N (cyano); $NO_2$ (nitro); $C_1$-$C_6$ alky optionally comprising up to 5 halogen atoms; $C_1$-$C_3$ alkyl comprising up to 3 OH groups; $C_2$-$C_6$ alkenyl, such as –CH=$CH_2$;
$C_1$-$C_6$ alkoxy optionally comprising up to 3 halogen atoms; $C_1$-$C_3$ alkoxy $C_1$-$C_3$ alkyl; $C_3$-$C_7$ cycloalkyl; –C(O)$R^{10}$ wherein $R^{10}$ is selected from $C_1$-$C_3$ alkyl;
–OC(O)$R^{11}$ wherein $R^{11}$ is selected from H, and $C_1$-$C_3$ alkyl;
–C(O)O-$R^{12}$ wherein $R^{12}$ is selected from hydrogen and $C_1$-$C_3$ alkyl;
– $(CH_2)_m$N($R^{13}$)$R^{14}$ wherein m is 0 or 1, $R^{13}$ is selected from hydrogen, $C_1$-$C_3$ alkyl, and –$SO_2R^{15}$ wherein $R^{15}$ is $C_1$-$C_3$ alkyl, and $R^{14}$ is selected from hydrogen, $C_1$-$C_3$ alkyl, and –$SO_2R^{16}$ wherein $R^{16}$ is $C_1$-$C_3$ alkyl, or wherein $R^{13}$ and $R^{14}$ form together with the N atom to which they are attached morpholine, thiomorpholine, or 1,1-dioxothiomorpholine; –$SR^{17}$ wherein $R^{17}$ is selected from hydrogen and $C_1$-$C_3$ alkyl; and –S(O)$_2R^{18}$ wherein $R^{18}$ is selected from hydrogen and $C_1$-$C_3$ alkyl*;*
with the proviso that when the aryl ring is substituted with two or more substituents, two substituents may form a cyclic ring together with the carbon atoms to which they are attached,
and
$C_5$-$C_{10}$ mono- or bicyclic heteroaryl wherein up to 2 C-atoms are replaced by a hetero atoms independently selected from sulfur, nitrogen, and oxygen,

optionally substituted with up to four substituents selected from the group consisting of halogen; OH (hydroxyl); C≡N (cyano); $NO_2$ (nitro); $C_1$-$C_6$ alky optionally comprising up to 5 halogen atoms; $C_2$-$C_6$ alkenyl ; $C_1$-$C_6$ alkoxy optionally comprising up to 3 halogen atoms; $C_1$-$C_3$ alkoxy $C_1$-$C_3$ alkyl; $C_3$-$C_7$ cycloalkyl; –C(O)$R^{20}$ wherein $R^{20}$ is selected from $C_1$-$C_3$ alkyl; –OC(O)$R^{21}$ wherein $R^{21}$ is selected from H, and $C_1$-$C_3$ alkyl; –C(O)O-$R^{22}$ wherein $R^{22}$ is selected from hydrogen and $C_1$-$C_3$ alkyl; –$(CH_2)_m$N($R^{23}$)$R^{24}$ wherein m is 0 or 1, $R^{23}$ is selected from hydrogen, $C_1$-$C_3$ alkyl, and –$SO_2R^{25}$ wherein $R^{25}$ is $C_1$-$C_3$ alkyl, and $R^{24}$ is selected from hydrogen, $C_1$-$C_3$ alkyl, and –$SO_2R^{26}$ wherein $R^{26}$ is $C_1$-$C_3$ alkyl, or wherein $R^{23}$ and $R^{24}$ form together with the N atom to which they are attached morpholine, thiomorpholine, or 1,1-dioxothiomorpholine; –$SR^{27}$ wherein $R^{27}$ is selected from hydrogen and $C_1$-$C_3$ alkyl; and –$S(O)_2R^{28}$ wherein $R^{28}$ is selected from hydrogen and $C_1$-$C_3$ alkyl*;*

$X^1$ is NH or O; and

$X^2$ and $X^3$ are independently selected from C, N, and O, with the proviso that either $X^2$ or $X^3$ is not C;

Z is C; and

$R^4$ is selected from hydrogen and methyl;

$R^5$ is selected from hydrogen, $C_1$-$C_2$ alkyl, and $C_2$-$C_3$ alkenyl; and

$R^6$ is selected from $C_1$-$C_4$ alkyl, $C_2$-$C_5$ alkenyl containing one or two double bonds, $C_1$-$C_3$ alkoxy, $C_1$-$C_4$ alkyl-C(O)-, $C_1$-$C_4$ alkyl–S–, $C_1$-$C_4$ alkyl–$SCH_2$–, $C_1$-$C_4$ alkenyl–S–, $C_1$–$C_4$ alkyl–S(O) –, $C_1$-$C_4$ alkyl–$S(O)_2$–, $C_1$-$C_4$ alkenyl–S(O) –, $C_1$-$C_4$ alkenyl–$S(O)_2$–, –SH, $CF_3S$–, cyclopropyl, cyclobutyl, furyl optionally substituted with methyl , $C_1$-$C_6$ fluoro-alkyl, and –$NR^{30}R^{31}$ wherein $R^{30}$ and $R^{31}$ are independently selected from hydrogen and $C_1$-$C_3$ alkyl;

or

$R^6$ and $R^5$ form together with the carbon atom to which they are attached

a) a carbonyl group (C=O) or vinyl group (C=$CR^{32}R^{33}$ wherein $R^{32}$ and $R^{33}$ are independently selected from H or $C_1$-$C_3$ alkyl; or

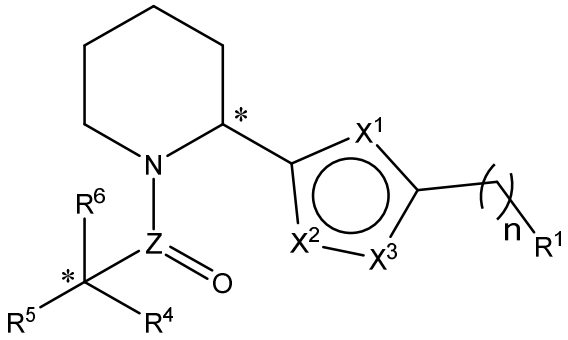
b) 3 to 7-membered saturated or unsaturated cycle ring comprising up to 3 heteroatoms selected from oxygen, nitrogen and sulfur, wherein the cyclic ring is

optionally substituted with one or two groups independently selected from $C_1$-$C_3$ alkyl, $C_1$-$C_3$ alkoxy.

8. A composition according to claim 7 comprising at least one compound of formula (Ic), a salt or solvate thereof, and a further cooling compound.

9. A composition according to claim 8, wherein the further cooling compound is selected from menthol , menthone, p-menthanecarboxamides, N-2,3-trimethyl-2-isopropyl-butanamide, menthyl lactate, menthone glycerol acetal, 3-(1-menthoxy)-propane-1,2-diol, p-menthane-3,8-diol, isopulegol, monomenthyl succinate, monomenthyl glutarate, o-menthylglycerol, menthyl N,N-dimethylsuccinamate, 2-(sec-butyl)cyclohexan-1-one, N-(pyrazol-3-yl)-N-(thiophen-2-ylmethyl)-2-(p-tolyloxy)acetamide, 2-(4-ethylphenoxy)-N-(pyrazol-3-yl)-N-(thiophen-2-ylmethyl)acetamide, 3-(benzo[d][1,3]dioxol-5-yl)-N,N-diphenylacrylamide, 4-(2-(4-allyl-2,6-dimethoxyphenoxy)-1-ethoxypropyl)-2-methoxyphenol, 4-(2-(4-allyl-2,6-dimethoxyphenoxy)-1-((2-isopropyl-5-methylcyclohexyl)oxy)propyl)-2-methoxyphenol, N-(2-Hydroxy-2-phenylethyl)-2-isopropyl-5,5-dimethylcyclohexane-1-carboxamide, N-(4-(Cyanomethyl)phenyl)-2-isopropyl-5,5-dimethylcyclohexanecarboxamide and N-(3-Hydroxy-4-methoxyphenyl )-2-isopropyl-5,5-dimethylcyclohexanecarboxamide.

10. A compound of formula (Ic), a salt or solvate thereof




(Ic)

wherein

n is 0 or 1;

$R^1$ is selected from

$C_6$ – $C_{10}$ aryl optionally substituted with up to four substituents independently selected from the group consisting of halogen; OH (hydroxyl); C≡N (cyano); $NO_2$ (nitro); $C_1$-$C_6$ alky optionally comprising up to 5 halogen atoms; $C_1$-$C_3$ alkyl comprising up to 3 OH groups; $C_2$-$C_6$ alkenyl, such as –CH=$CH_2$;
$C_1$-$C_6$ alkoxy optionally comprising up to 3 halogen atoms; $C_1$-$C_3$ alkoxy $C_1$-$C_3$ alkyl; $C_3$-$C_7$ cycloalkyl; –C(O)$R^{10}$ wherein $R^{10}$ is selected from $C_1$-$C_3$ alkyl;
–OC(O)$R^{11}$ wherein $R^{11}$ is selected from H, and $C_1$-$C_3$ alkyl;
–C(O)O-$R^{12}$ wherein $R^{12}$ is selected from hydrogen and $C_1$-$C_3$ alkyl;
– $(CH_2)_m$N($R^{13}$)$R^{14}$ wherein m is 0 or 1, $R^{13}$ is selected from hydrogen, $C_1$-$C_3$ alkyl, and –$SO_2R^{15}$ wherein $R^{15}$ is $C_1$-$C_3$ alkyl, and $R^{14}$ is selected from hydrogen, $C_1$-$C_3$ alkyl, and –$SO_2R^{16}$ wherein $R^{16}$ is $C_1$-$C_3$ alkyl, or wherein $R^{13}$ and $R^{14}$ form together with the N atom to which they are attached morpholine, thiomorpholine, or 1,1-dioxothiomorpholine; –$SR^{17}$ wherein $R^{17}$ is selected from hydrogen and $C_1$-$C_3$ alkyl; and –$S(O)_2R^{18}$ wherein $R^{18}$ is selected from hydrogen and $C_1$-$C_3$ alkyl*;*
with the proviso that when the aryl ring is substituted with two or more substituents, two substituents may form a cyclic ring together with the carbon atoms to which they are attached,
and
$C_5$-$C_{10}$ mono- or bicyclic heteroaryl wherein up to 2 C-atoms are replaced by a hetero atoms independently selected from sulfur, nitrogen, and oxygen, optionally substituted with up to four substituents selected from the group consisting of halogen; OH (hydroxyl); C≡N (cyano); $NO_2$ (nitro);
$C_1$-$C_6$ alky optionally comprising up to 5 halogen atoms; $C_2$-$C_6$ alkenyl ;
$C_1$-$C_6$ alkoxy optionally comprising up to 3 halogen atoms; $C_1$-$C_3$ alkoxy $C_1$-$C_3$ alkyl; $C_3$-$C_7$ cycloalkyl; –C(O)$R^{20}$ wherein $R^{20}$ is selected from $C_1$-$C_3$ alkyl;
–OC(O)$R^{21}$ wherein $R^{21}$ is selected from H, and $C_1$-$C_3$ alkyl;
–C(O)O-$R^{22}$ wherein $R^{22}$ is selected from hydrogen and $C_1$-$C_3$ alkyl;

–$(CH_2)_m$N($R^{23}$)$R^{24}$ wherein m is 0 or 1, $R^{23}$ is selected from hydrogen, $C_1$-$C_3$ alkyl, and –$SO_2R^{25}$ wherein $R^{25}$ is $C_1$-$C_3$ alkyl, and $R^{24}$ is selected from hydrogen, $C_1$-$C_3$ alkyl, and –$SO_2R^{26}$ wherein $R^{26}$ is $C_1$-$C_3$ alkyl, or wherein $R^{23}$ and $R^{24}$ form together with the N atom to which they are attached morpholine, thiomorpholine, or 1,1-dioxothiomorpholine; –$SR^{27}$ wherein $R^{27}$ is selected from

hydrogen and $C_1$-$C_3$ alkyl; and $–S(O)_2R^{28}$ wherein $R^{28}$ is selected from hydrogen and $C_1$-$C_3$ alkyl;

$X^1$ is NH or O; and

$X^2$ and $X^3$ are independently selected from C, N, and O, with the proviso that either $X^2$ or $X^3$ is not C;

Z is C; and

$R^4$ is selected from hydrogen and methyl;

$R^5$ is selected from hydrogen, $C_1$-$C_2$ alkyl, and $C_2$-$C_3$ alkenyl; and

$R^6$ is selected from $C_1$-$C_4$ alkyl, $C_2$-$C_5$ alkenyl containing one or two double bonds, $C_1$-$C_3$ alkoxy, $C_1$-$C_4$ alkyl-C(O)-, $C_1$-$C_4$ alkyl–S–, $C_1$-$C_4$ alkyl–$SCH_2$–, $C_1$-$C_4$ alkenyl–S–, $C_1$–$C_4$ alkyl–S(O) –, $C_1$-$C_4$ alkyl–$S(O)_2$–, $C_1$-$C_4$ alkenyl–S(O) –, $C_1$-$C_4$ alkenyl–$S(O)_2$–, –SH, $CF_3S$–, cyclopropyl, cyclobutyl, furyl optionally substituted with methyl , $C_1$-$C_6$ fluoro-alkyl, and $–NR^{30}R^{31}$ wherein $R^{30}$ and $R^{31}$ are independently selected from hydrogen and $C_1$-$C_3$ alkyl;

or

$R^6$ and $R^5$ form together with the carbon atom to which they are attached

a) a carbonyl group (C=O) or vinyl group ($C=CR^{32}R^{33}$ wherein $R^{32}$ and $R^{33}$ are independently selected from H or $C_1$-$C_3$ alkyl; or

b) 3 to 7-membered saturated or unsaturated cycle ring comprising up to 3 heteroatoms selected from oxygen, nitrogen and sulfur, wherein the cyclic ring is optionally substituted with one or two groups independently selected from $C_1$-$C_3$ alkyl, $C_1$-$C_3$ alkoxy.

11. A compound according to claim 10 wherein the compound is selected from selected from the group consisting of (2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)(1,2,3-thiadiazol-5-yl)methanone, (2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)(thietan-3-yl)methanone, (2,2-dimethylcyclopropyl)(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, (2-ethoxycyclopropyl)(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, (2-methoxycyclopropyl)(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, (2-methylcyclopropyl)(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, (2S)-2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, (5-methyltetrahydrofuran-3-yl)(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, (E)-1-(2-(5-(3,4-difluorophenyl)-1H-

imidazol-2-yl)piperidin-1-yl)-2-methylbut-2-en-1-one, (E)-2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)but-2-en-1-one, (E)-2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)pent-3-en-1-one, (R)-2-(methylthio)-1-((R)-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, (S)-2-(methylthio)-1-((R)-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, (S)-2-(methylthio)-1-((S)-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, (S)-2-methyl-1-((R)-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, (tetrahydrofuran-3-yl)(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)methanone, 1-(2-(4-(1-methyl-1H-pyrazol-4-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2,2-difluorobenzo[d][1,3]dioxol-5-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2,3-dihydrobenzofuran-5-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2,3-dihydrobenzofuran-6-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2,5-dimethylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2-chlorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2-cyclopropyloxazol-5-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2-hydroxyphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(3-((dimethylamino)methyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(3,5-difluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(3,5-dimethylisoxazol-4-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(3-chloro-4-methylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(3-methylfuran-2-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-((1,1-dioxidothiomorpholino)methyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-(1-hydroxyethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-(difluoromethoxy)-3-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-(difluoromethyl)thiophen-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-(methylsulfonyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-(tert-butyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-

cyclobutylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-cyclopropyl-2-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-hydroxyphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-isopropylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-methyl-3-(trifluoromethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(5-((dimethylamino)methyl)thiophen-2-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(5-methylfuran-2-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(5-methylpyridin-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(6-methylpyridin-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(benzo[b]thiophen-6-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-methyl-5-phenyl-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)-2-((trifluoromethyl)thio)ethan-1-one, 1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)hexa-3,5-dien-1-one, 1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)pent-4-en-1-one, 1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 1-(2-(5-(2,3-difluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(2,4-difluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(2,5-difluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(2-fluoro-4-methoxyphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(2-fluoro-4-methylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(2-methoxypyrimidin-5-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3-(methylamino)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3,4-difluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3,4-difluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbut-3-en-1-one, 1-(2-(5-(3,4-dimethoxyphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3,4-dimethylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3-fluoro-4-(methoxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3-fluoro-4-

methylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3-methoxyisothiazol-4-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(3-methoxyphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-((methylamino)methyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-(2-methoxyethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-(aminomethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-(dimethylamino)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-acetylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-aminophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-chloro-3-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-chlorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-ethylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-fluorophenyl)-4H-1,2,4-triazol-3-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-methoxy-2-methylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-methoxyphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(4-methyl-6-(methylthio)pyridin-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(5-(methoxymethyl)thiophen-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(6-methoxypyridin-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(benzo[d][1,3]dioxol-5-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 1-(2-(5-benzyl-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 2-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-5-yl)benzonitrile, 2-(2-(4-phenyl-1H-imidazol-2-yl)piperidine-1-carbonyl)cyclopropane-1-carbonitrile, 2-(5-methylfuran-2-yl)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(allylthio)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(dimethylamino)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-(dimethylamino)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(ethylthio)-1-(2-(5-(p-tolyl)-1H-

imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(furan-2-yl)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)ethan-1-one, 2-(furan-2-yl)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(furan-3-yl)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)ethan-1-one, 2-(furan-3-yl)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylamino)-N-(4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-5-yl)phenyl)acetamide, 2-(methylsulfinyl)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylsulfonyl)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)ethan-1-one, 2-(methylsulfonyl)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(2-(p-tolyl)-2H-tetrazol-5-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(3-phenyl-1,2,4-oxadiazol-5-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(1-(trifluoromethyl)-1H-pyrazol-4-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(4-(morpholinomethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(5-(trifluoromethyl)furan-2-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(5-(trifluoromethyl)thiophen-2-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(5-methylthiophen-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(m-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(o-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(pyridin-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(pyridin-4-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(pyrimidin-5-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(quinoxalin-6-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(thiophen-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)ethan-1-one, 2-(methylthio)-1-(2-(5-(2-(trifluoromethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(2,3,4-trifluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(2,4,5-trifluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(3-(trifluoromethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(4-(trifluoromethoxy)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(4-(trifluoromethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-

(methylthio)-1-(2-(5-(4-propylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(4-vinylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(5-methylthiophen-2-yl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)-1,3,4-oxadiazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)azepan-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)-4H-1,2,4-triazol-3-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)isoxazol-3-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)oxazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)thiazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-phenyl-1H-imidazol-2-yl)pyrrolidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-phenyl-4H-1,2,4-triazol-3-yl)piperidin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(5-phenyloxazol-2-yl)piperidin-1-yl)propan-1-one, 2,2,3-trimethyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)but-3-en-1-one, 2,2,3-trimethyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2,2-dimethyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)but-3-en-1-one, 2,2-dimethyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2,3-dimethoxy-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2,3-dimethyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2,5-difluoro-4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-4-yl)benzonitrile, 2-amino-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-cyclobutyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-cyclopentyl-2-ethoxy-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)ethan-1-one, 2-cyclopropyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)ethan-1-one, 2-cyclopropyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-cyclopropyl-2-methoxy-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)ethan-1-one, 2-ethoxy-1-(2-(5-(3-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-ethyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)but-2-en-1-one, 2-ethyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-fluoro-4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-5-yl)benzonitrile, 2-mercapto-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-methoxy-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-methoxy-1-(2-(4-phenyl-

1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-methoxy-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-methyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-methyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)but-3-en-1-one, 2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butane-1,3-dione, 2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)pentan-1-one, 2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)prop-2-en-1-one, 2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-methyl-2-(methylthio)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-methyl-3-(methylthio)-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 2-methylene-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 3-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-4-yl)benzonitrile, 3,3,3-trifluoro-2-methyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 3,3,4,4,4-pentafluoro-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 3,3-difluoro-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 3-fluoro-4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-5-yl)benzonitrile, 3-methyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)but-2-en-1-one, 3-methyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-4-yl)benzonitrile, 4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-5-yl)benzaldehyde, 4,4,4-trifluoro-2-methyl-1-(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, bicyclo[1.1.1]pentan-1-yl(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, cyclobutyl(2-(5-(3-fluorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)methanone, cyclopentyl(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, cyclopropyl(2-(4-phenyl-1H-imidazol-2-yl)piperidin-1-yl)methanone, methyl 4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-5-yl)benzoate, N-(2-hydroxyethyl)-4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-4-yl)benzenesulfonamide, 2-(methylthio)-1-(2-(5-(3-nitrophenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, N-(4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-4-yl)phenyl)methane-sulfonamide, 2-(methylthio)-1-(2-(5-(4-nitrophenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 1-(2-(5-(4-(hydroxymethyl)-phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one,

2-(methylsulfonyl)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 1-(4-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(5-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(4-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 1-(5-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 1-(2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfonyl)propan-1-one, 1-(4-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfonyl)propan-1-one, 1-(5-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfonyl)propan-1-one, 1-(2-hydroxy-6-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-hydroxy-6-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 1-(2-hydroxy-6-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfonyl)propan-1-one, 1-(3-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(3-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 1-(3-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfonyl)propan-1-one, 1-(2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfinyl)-propan-1-one, 1-(4-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfinyl)propan-1-one, 1-(5-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfinyl)propan-1-one, 1-(2-hydroxy-6-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfinyl)propan-1-one, 1-(3-hydroxy-2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylsulfinyl)propan-1-one, 1-(2-hydroxy-6-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(5-hydroxy-2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(4-hydroxy-2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(3-hydroxy-2-(5-(4-(hydroxymethyl)-phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-hydroxy-6-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 1-(5-hydroxy-2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 1-(4-hydroxy-2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 1-(3-hydroxy-2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 4-(2-(1-(2-methylbutanoyl)piperidin-2-yl)-1H-imidazol-5-yl)benzaldehyde, 4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-

1H-imidazol-5-yl)benzoic acid, 4-(2-(1-(2-methylbutanoyl)piperidin-2-yl)-1H-imidazol-5-yl)benzoic acid, (2,2-dimethylcyclopropyl)(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)methanone, 1-(2-(5-(4-chlorophenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 2-(4-(2-(1-(2-(methylthio)propanoyl)piperidin-2-yl)-1H-imidazol-5-yl)phenyl)acetonitrile, 2-(4-(2-(1-(2-methylbutanoyl)piperidin-2-yl)-1H-imidazol-5-yl)phenyl)acetonitrile, 2-(4-(2-(1-(2-methylbutanoyl)piperidin-2-yl)-1H-imidazol-5-yl)phenyl)acetonitrile, 2,3-dimethyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-methyl-1-(2-(5-(o-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-methyl-1-(2-(5-(m-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 1-(2-(5-(4-(hydroxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-methylbutan-1-one, 2-methyl-1-(2-(5-(5-methylthiophen-2-yl)-1H-imidazol-2-yl)piperidin-1-yl)butan-1-one, 2-(methylthio)-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperazin-1-yl)propan-1-one, 2-(methylthio)-1-(2-(4-(p-tolyl)oxazol-2-yl)piperidin-1-yl)propan-1-one, 2-methyl-1-(2-(4-(p-tolyl)oxazol-2- yl)piperidin-1-yl)butan-1-one, 2-(furan-2-yl)-1-(2-(5-phenylimidazol-2-yl)piperidin-1-yl)ethan-1-one, cyclopentyl(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)methanone, (E)-2-methyl-1-(2-(5-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)pent-3-en-1-one, (tetrahydrofuran-3-yl)(2-(4-(p-tolyl)-1H-imidazol-2-yl)piperidin-1-yl)methanone, 1-(2-(4-(4-ethylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-methoxy-2-methylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(2-methoxypyrimidin-5-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 2-(methylthio)-1-(2-(4-(4-vinylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 1-(2-(4-(2-fluoro-4-methoxyphenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(4-methyl-6-(methylthio)pyridin-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 2-(methylthio)-1-(2-(4-(4-propylphenyl)-1H-imidazol-2-yl)piperidin-1-yl)propan-1-one, 1-(2-(4-(4-(2-methoxyethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(5-(methoxymethyl)thiophen-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(3-(methylamino)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, 1-(2-(4-(6-methoxypyridin-3-yl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one, and 1-(2-(4-(3-fluoro-4-(methoxymethyl)phenyl)-1H-imidazol-2-yl)piperidin-1-yl)-2-(methylthio)propan-1-one.