

CLAIMS

1. A method for identifying a compound that activates, mimics, blocks, inhibits, modulates, and/or enhances the activity of an olfactory receptor that is activated by one or more musk compounds selected from a polycyclic musk compound and musk X, wherein the receptor is a polypeptide having an amino acid sequence that is at least 75% identical to SEQ ID NO: 2 or SEQ ID NO: 4, wherein the method comprises:
 - a) contacting the receptor, or a chimera or fragment thereof, retaining the ability of said polypeptide to be activated by one or more musk compounds selected from a polycyclic musk compound and musk X, or a cell that is recombinantly modified to express said polypeptide, wherein the cell comprises
 - 1) a nucleic acid encoding said polypeptide; or
 - 2) an expression vector comprising a nucleic acid that encodes for said polypeptide and comprises a nucleotide sequence that is at least 75% identical to SEQ ID NO: 1 or SEQ ID NO: 3with a compound in the presence of said one or more musk compounds selected from a polycyclic musk compound and musk X; and
 - b) detecting whether the compound has an effect on the activity of the receptor.
2. The method as recited in claim 1, wherein the polycyclic compound is selected from the group consisting of a tonalide, vulcanolide, and cashmeran.
3. The method as recited in claim 1 or 2, wherein the polypeptide comprises an amino acid sequence that is at least 80% identical to SEQ ID NO: 2 or to SEQ ID NO: 4.
4. The method as recited in claims 1 to 3, wherein the cell is a eukaryotic cell.
5. The method as recited in claims 1 to 3, wherein the cell is a prokaryotic cell.
6. The method as recited in claim 4, wherein the cell is selected from the group consisting of HEK293, CHO, *Xenopus* oocytes, COS, yeast and cells derived from the olfactory placode.

7. Use of a polypeptide having an amino acid sequence that is at least 75% identical to SEQ ID NO: 2 or SEQ ID NO: 4 for identifying a musk compound.
8. A method for identifying a musk compound, comprising utilizing a polypeptide having an amino acid sequence that is at least 75% identical to SEQ ID NO: 2 or SEQ ID NO: 4 in a receptor based assay for identifying a musk compound.
9. Use of an expression vector comprising a nucleic acid that comprises a nucleotide sequence that is identical to SEQ ID NO: 1 or SEQ ID NO: 3 for identifying a musk compound.
10. Use of a cell that is recombinantly modified to express a polypeptide, wherein the cell comprises the expression vector of claim 9 for identifying a musk compound.
11. The use as recited in claim 10 wherein the cell is a eukaryotic cell.
12. The use as recited in claim 10 wherein the cell is a prokaryotic cell.
13. The use as recited in claim 11 wherein the cell is selected from the group consisting of HEK293, CHO, Xenopus oocytes, COS, yeast and cells derived from the olfactory placode.