THE CLAIMS

1. A host cell transformed to express a polypeptide having an amino acid sequence that is at least 75% identical to SEQ ID NO: 2 or SEQ ID NO: 4.

2. The host cell as recited in claim 1, wherein the polypeptide comprises
   a) an amino acid sequence that is at least 80%, 85%, 90%, 95%, 98% or 99% identical to SEQ ID NO: 2 or SEQ ID NO: 4; or
   b) an amino acid sequence that is identical to SEQ ID NO: 2 or to SEQ ID NO: 4.

3. An expression vector comprising
   a) a nucleic acid that encodes for a polypeptide comprising an amino acid sequence that is at least 75%, 80%, 85%, 90%, 95%, 98% or 99% identical to SEQ ID NO: 2 or SEQ ID NO: 4; or
   b) a nucleic acid that comprises a nucleotide sequence that is at least 75%, 80%, 85%, 90%, 95%, 98% or 99% identical to SEQ ID NO: 1 or SEQ ID NO: 3.

4. The expression vector as recited in claim 3, wherein the polypeptide encoded by the nucleic acid of a) comprises an amino acid sequence that is identical to SEQ ID NO: 2 or SEQ ID NO: 4; or
   wherein the nucleic acid of b) comprises a nucleotide sequence identical to SEQ ID NO: 1 or SEQ ID NO: 3.

5. A cell that is recombinantly modified to express a polypeptide, wherein the cell comprises
   a) a nucleic acid encoding the polypeptide which comprises
      i) an amino acid sequence that is at least 75%, 80%, 85%, 90%, 95%, 98% or 99% identical to SEQ ID NO: 2 or SEQ ID NO: 4; or
      ii) an amino acid sequence that is identical to SEQ ID NO: 2 or to SEQ ID NO: 4; or
   b) the expression vector of claim 3.

6. The cell as recited in claim 5 wherein the cell is a eukaryotic cell.

7. The cell as recited in claim 5 wherein the cell is a prokaryotic cell.

8. The cell as recited in claim 6 that is selected from the group consisting of HEK293, CHO, Xenopus oocytes, COS, yeast and cells derived from the olfactory placode.

9. 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 a polycyclic musk compound and/or by 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, or the cell of claim 5 with a compound in the presence of the polycyclic musk compound and/or the musk X; and
   b) detecting whether the compound has an effect on the activity of the receptor.

10. The method as recited in claim 9, wherein the polycyclic compound is selected from the group consisting of a tonalide, vulcanolide, and cashmeran.

11. The method as recited in claim 9 or 10, wherein the polypeptide comprises
   a) an amino acid sequence that is at least 80%, 85%, 90%, 95%, 98% or 99% identical to SEQ ID NO: 2 or to SEQ ID NO: 4; or
   b) an amino acid sequence that is identical to SEQ ID NO: 2 or to SEQ ID NO: 4.

12. A musk compound that activates, mimics, blocks, inhibits, modulates, and/or enhances the activity of an olfactory receptor and that is identified by the method of claim 9, claim 10 or claim 11.

13. 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.

14. 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.