Supplementary Table 1 differential expressed olfactory genes list. VF: virgin female. MF: mated female. VM: virgin male. MM: mated male. VIRGIN: both virgin female and virgin male. MATED: both mated female and mated male. SE: specific expression. AE: absent expression.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Compare with VM | | | | |
|  | up (P<0.05) | down (P<0.05) | specific expression（SE） | illustration |
| MM | 66 ORs c34563\_g1  25 IRs c56684\_g4  25 IRs c52561\_g3  16 OBPs c54030\_g1  16 OBPs c51494\_g3  16 OBPs c51398\_g1  12 CSPs c57906\_g2 | 66 ORs c58677\_g4  66 ORs c56723\_g1  66 ORs c56587\_g2  66 ORs c56292\_g1  66 ORs c49472\_g1  66 ORs c34269\_g1  25 IRs c56684\_g3  25 IRs c50331\_g1  16 OBPs c57509\_g2  16 OBPs c55239\_g5 | 66 ORs c34563\_g1  66 ORs c56292\_g1  66 ORs c56587\_g2  25 IRs c56684\_g3  16 OBPs c51494\_g3 | MM SE  MM AE  VIRGIN SE  MM AE  MATED SE |
| VF | 66 ORs c58677\_g4  66 ORs c56723\_g1  66 ORs c56230\_g1  25 IRs c56684\_g4  25 IRs c58783\_g2  25 IRs c57470\_g4  25 IRs c56337\_g1  16 OBPs c49769\_g1  16 OBPs c45552\_g2  12 CSPs c53910\_g2  12 CSPs c53910\_g12 | 66 ORs c58590\_g4  66 ORs c58572\_g3  66 ORs c58126\_g2  66 ORs c57502\_g4  66 ORs c57424\_g1  66 ORs c56628\_g7  66 ORs c56520\_g1  66 ORs c55301\_g2  66 ORs c55179\_g2  66 ORs c55035\_g5  66 ORs c54819\_g2  66 ORs c54454\_g2  66 ORs c54445\_g4  66 ORs c53716\_g6  66 ORs c53716\_g5  66 ORs c53592\_g1  66 ORs c53086\_g3  66 ORs c51997\_g1  66 ORs c51992\_g1  66 ORs c49472\_g1  66 ORs c45801\_g1  66 ORs c43281\_g1  66 ORs c34269\_g1  25 IRs c58232\_g4  25 IRs c56493\_g2  25 IRs c53796\_g1  16 OBPs c58869\_g1  16 OBPs c58866\_g7  16 OBPs c56831\_g2  16 OBPs c55239\_g5  16 OBPs c54030\_g1  16 OBPs c51494\_g1  16 OBPs c38673\_g1  12 CSPs c54730\_g3 | 66 ORs c58677\_g4  66 ORs c49472\_g1 | VF AE  VF AE |
| MF | 66 ORs c56723\_g1  25 IRs c56684\_g4  25 IRs c58783\_g2  25 IRs c57470\_g4  25 IRs c46617\_g3  16 OBPs c51494\_g3  16 OBPs c49769\_g1  16 OBPs c45552\_g2  12 CSPs c53910\_g2  12 CSPs c53910\_g12 | 66 ORs c58590\_g4  66 ORs c58572\_g3  66 ORs c58126\_g2  66 ORs c57502\_g4  66 ORs c57424\_g1  66 ORs c56628\_g7  66 ORs c56587\_g2  66 ORs c56520\_g1  66 ORs c55301\_g2  66 ORs c55179\_g2  66 ORs c55035\_g5  66 ORs c54819\_g2  66 ORs c54454\_g2  66 ORs c54445\_g4  66 ORs c53716\_g6  66 ORs c53716\_g5  66 ORs c53592\_g1  66 ORs c53272\_g1  66 ORs c51997\_g1  66 ORs c51992\_g1  66 ORs c51725\_g3  66 ORs c51119\_g1  66 ORs c45801\_g1  66 ORs c43281\_g1  66 ORs c34269\_g1  25 IRs c58232\_g4  25 IRs c56837\_g3  25 IRs c56493\_g2  25 IRs c53796\_g1  16 OBPs c58869\_g1  16 OBPs c58866\_g7  16 OBPs c56831\_g2  16 OBPs c55239\_g5  16 OBPs c54030\_g1  16 OBPs c51494\_g1  16 OBPs c38673\_g1  12 CSPs c55251\_g3  12 CSPs c54730\_g3 | 66 ORs c53272\_g1  66 ORs c51992\_g1  66 ORs c51725\_g3  25 IRs c46617\_g3  16 OBPs c51494\_g3 | MF AE  MF AE  MF AE  MF SE  MATED SE |
| Compare with VF | | | | |
|  | up (P<0.05) | down (P<0.05) | specific expression（SE） | illustration |
| MF | 66 ORs c58590\_g4  66 ORs c57502\_g4  66 ORs c53592\_g1  66 ORs c53272\_g1  66 ORs c51997\_g1  66 ORs c51992\_g1  66 ORs c51725\_g3  66 ORs c45801\_g1  66 ORs c43281\_g1  25 IRs c46617\_g3  16 OBPs c56831\_g2  16 OBPs c51494\_g3 | 66 ORs c58677\_g4  66 ORs c58301\_g1  66 ORs c57979\_g1  66 ORs c56587\_g2  66 ORs c51992\_g1  66 ORs c49472\_g1  25 IRs c56837\_g3  25 IRs c56493\_g2  25 IRs c56337\_g1  16 OBPs c45552\_g2  12 CSPs c55251\_g3 | 66 ORs c53272\_g1  66 ORs c51992\_g1  66 ORs c51725\_g3  25 IRs c46617\_g3  16 OBPs c51494\_g3 | MF AE  MF AE  MF AE  MF SE  MATED SE |
| VM | 66 ORs c58677\_g4  66 ORs c58590\_g4  66 ORs c58572\_g3  66 ORs c58126\_g2  66 ORs c57502\_g4  66 ORs c57424\_g1  66 ORs c56628\_g7  66 ORs c56520\_g1  66 ORs c55301\_g2  66 ORs c55179\_g2  66 ORs c55035\_g5  66 ORs c54819\_g2  66 ORs c54454\_g2  66 ORs c54445\_g4  66 ORs c53716\_g6  66 ORs c53716\_g5  66 ORs c53592\_g1  66 ORs c53086\_g3  66 ORs c51997\_g1  66 ORs c49472\_g1  66 ORs c45801\_g1  66 ORs c43281\_g1  66 ORs c34269\_g1  25 IRs c58232\_g4  25 IRs c56493\_g2  25 IRs c53796\_g1  16 OBPs c58869\_g1  16 OBPs c58866\_g7  16 OBPs c56831\_g2  16 OBPs c55239\_g5  16 OBPs c54030\_g1  16 OBPs c51494\_g1  16 OBPs c38673\_g1  12 CSPs c54730\_g3 | 66 ORs c56723\_g1  66 ORs c56230\_g1  25 IRs c56684\_g4  25 IRs c58783\_g2  25 IRs c57470\_g4  25 IRs c56337\_g1  16 OBPs c49769\_g1  16 OBPs c45552\_g2  12 CSPs c53910\_g2  12 CSPs c53910\_g12 | 66 ORs c57502\_g4  66 ORs c53592\_g1  66 ORs c51997\_g1  66 ORs c45801\_g1  66 ORs c43281\_g1  66 ORs c34269\_g1  25 IRs c56684\_g4  16 OBPs c56831\_g2 | MALE SE  MALE SE  MALE SE  MALE SE  MALE SE  VM SE  VM AE  MALE SE |
| MM | 66 ORs c58677\_g4  66 ORs c58590\_g4  66 ORs c58572\_g3  66 ORs c58308\_g2  66 ORs c58126\_g2  66 ORs c57502\_g4  66 ORs c57424\_g1  66 ORs c57235\_g2  66 ORs c56628\_g7  66 ORs c56520\_g1  66 ORs c55301\_g2  66 ORs c55035\_g5  66 ORs c54819\_g2  66 ORs c54454\_g2  66 ORs c54445\_g4  66 ORs c53716\_g6  66 ORs c53592\_g1  66 ORs c51997\_g1  66 ORs c51992\_g1  66 ORs c51119\_g1  66 ORs c49472\_g1  66 ORs c45801\_g1  66 ORs c43281\_g1  66 ORs c34563\_g1  25 IRs c58509\_g2  25 IRs c58232\_g4  25 IRs c56493\_g2  25 IRs c55232\_g4  25 IRs c53796\_g1  25 IRs c52561\_g3  16 OBPs c58869\_g1  16 OBPs c58866\_g7  16 OBPs c56831\_g2  16 OBPs c56133\_g19  16 OBPs c54030\_g1  16 OBPs c51494\_g3  16 OBPs c51494\_g1  16 OBPs c51398\_g1  16 OBPs c42610\_g1  16 OBPs c38673\_g1  12 CSPs c57906\_g2  12 CSPs c54730\_g3  12 CSPs c52288\_g1 | 66 ORs c56723\_g1  66 ORs c56587\_g2  66 ORs c56292\_g1  66 ORs c56230\_g1  25 IRs c56684\_g3  25 IRs c50331\_g1  25 IRs c58783\_g2  25 IRs c58271\_g2  25 IRs c57470\_g4  25 IRs c56337\_g1  16 OBPs c57509\_g2  16 OBPs c49769\_g1  16 OBPs c45552\_g2  12 CSPs c53910\_g2  12 CSPs c53910\_g12 | 66 ORs c58590\_g4  66 ORs c57502\_g4  66 ORs c53592\_g1  66 ORs c51997\_g1  66 ORs c45801\_g1  66 ORs c43281\_g1  66 ORs c34563\_g1  66 ORs c56292\_g1  25 IRs c56684\_g3  25 IRs c50331\_g1  16 OBPs c56831\_g2  16 OBPs c51494\_g3 | MALE SE  MALE SE  MALE SE  MALE SE  MALE SE  MALE SE  MM SE  MM AE  MM AE  MM AE  MALE SE  MATED SE |