

SUPPLEMENTARY MATERIAL

Sense of Smell: Structural, Functional, Mechanistic Advancements and Challenges in Human Olfactory Research

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Human Olfactory Receptor Genes and Pseudogenes in Subfamilies

Sub- Family	Genes		Pseudogenes	
	No.	ID	No.	ID
OR1A	2	OR1A1, OR1A2	0	-
OR1B	1	OR1B1	0	-
OR1C	1	OR1C1	0	-
OR1D	4	OR1D2, OR1D4, OR1D5	1	OR1D3P
OR1E	2	OR1E1, OR1E2	1	OR1E3P
OR1F	2	OR1F1, OR1F12	1	OR1F2P
OR1G	1	OR1G1	-	-
OR1H	0	-	1	OR1H1P
OR1I	1	OR1I1	0	-
OR1J	3	OR1J1, OR1J2, OR1J4	0	-
OR1K	1	OR1K1	0	-
OR1L	5	OR1L1, OR1L3, OR1L4, OR1L6, OR1L8	0	-
OR1M	1	OR1M1	1	OR1M4P
OR1N	2	OR1N1, OR1N2	0	-
OR1P	0	-	1	OR1P1P
OR1Q	1	OR1Q1		
OR1R	0	-	1	OR1R1P
OR1S	2	OR1S1, OR1S2	0	-
OR1X	0	-	2	OR1X1P, OR1X5P
OR1AA	0	-	1	OR1AA1P
OR1AB1P	0	-	1	OR1AB1P

OR2A	9	OR2A1, OR2A12, OR2A14, OR2A2, OR2A25, OR2A4, OR2A42, OR2A5, OR2A7	6	OR2A13P, OR2A15P, OR2A20P, OR2A3P, OR2A41P, OR2A9P
OR2AD	0	-	1	OR2AD1P
OR2AE	1	OR2AE1	0	-
OR2AF	0	-	1	OR2AF1P
OR2AG	2	OR2AG1, OR2AG2	0	-
OR2AH	0	-	1	OR2AH1P
OR2AI	0	-	1	ORAI1P
OR2AJ	1	OR2AJ1	0	-
OR2AK	1	OR2AK2	0	-
OR2AL	0	-	1	OR2AL1P
OR2AM	0	-	1	OR2AM1P
OR2AO	0	-	1	OR2AO1P
OR2AP	0	-	1	OR2AP1
OR2AQ	0	-	1	OR2AQ1P
OR2AS	0	-	2	OR2AS1P, OR2AS2P
OR2AT	1	OR2AT4	2	OR2AT1P, OR2AT12P
OR2B	4	OR2B11, OR2B2, OR2B3, OR2B6	3	OR2B4P, OR2B7P, OR2B8P,
OR2BH	0	-	1	OR2BH1P
OR2C	2	OR2C1, OR2C3	0	-
OR2D	2	OR2D2, OR2D3	0	-
OR2E	0	-	1	OR2E1P
OR2F	2	OR2F1, OR2F2	0	-
OR2G	3	OR2G2, OR2G3, OR2G6	1	OR2G1P
OR2H	2	OR2H1, OR2H2	2	OR2H4P, OR2H5P
OR2I	0	-	1	OR2I1P

OR2J	2	OR2J2, OR2J3	2	OR2J1P, OR2J4P
OR2K	1	OR2K2	0	-
OR2L	5	OR2L13, OR2L2, OR2L3, OR2L5, OR2L8	3	OR2L1P, OR2L6P, OR2L9P
OR2M	5	OR2M2, OR2M3, OR2M4, OR2M5, OR2M7	1	OR2M1P
OR2N	0	-	1	OR2N1P
OR2P	0	-	1	OR2P1P
OR2Q	0	-	1	OR2Q1P
OR2R	0	-	1	OR2R1P
OR2S	1	OR2S2	1	OR2S1P
OR2T	16	OR2T1, OR2T10, OR2T11, OR2T12, OR2T2, OR2T27, OR2T29, OR2T3, OR2T33, OR2T34, OR2T35, OR2T4, OR2T5, OR2T6, OR2T7, OR2T8	1	OR2T32P
OR2U	0	-	1	OR2U1P, OR2U2P
OR2V	2	OR2V1, OR2V2	0	-
OR2W	3	OR2W1, OR2W3, OR2W5	3	OR2W2P, OR2W4P, OR2W6P
OR2X			1	OR2X1P
OR2Y	1	OR2Y1	0	-
OR2Z	1	OR2Z1	0	-

OR3A	4	OR3A1, OR3A2, OR3A3, OR3A4	0	-
OR3B	0	-	1	OR3B1P
OR3D	0	-	1	OR3D1P
OR4A	4	OR4A15, OR4A16, OR4A47, OR4A5	26	OR4A10P, OR4A11P, OR4A12P, OR4A13P, OR4A14P, OR4A17P, OR4A18P, OR4A19P, OR4A1P, OR4A21P, OR4A2P, OR4A3P, OR4A40P, OR4A41P, OR4A42P, OR4A43P, OR4A44P, OR4A45P, OR4A46P, OR4A48P, OR4A49P, OR4A4P, OR4A50P, OR4A6P, OR4A7P, OR4A8P, OR4A9P
OR4B	1	OR4B1	1	OR4B2
OR4C	10	OR4C11, OR4C12, OR4C13, OR4C15, OR4C16, OR4C3, OR4C45, OR4C46, OR4C5, OR4C6	10	OR4C10P, OR4C14P, OR4C1P, OR4C2P, OR4C48P, OR4C49P, OR4C4P, OR4C50P, OR4C7P, OR4C9P
OR4D	7	OR4D1, OR4D10, OR4D11, OR4D2, OR4D5, OR4D6, OR4D9	2	OR4D7P, OR4D8P
OR4E	1	OR4E2	1	OR4E1P

OR4F	9	OR4F15,OR4F16, OR4F17, OR4F21, OR4F29, OR4F3, OR4F4, OR4F5, OR4F6	7	OR4F13P, OR4F14P, OR4F1P, OR4F28P, OR4F2P, OR4F7P, OR4F8P
OR4G			6	OR4G11P, OR4G1P, OR4G2P, OR4G3P, OR4G4P, OR4G6P
OR4E	1	OR4E2	1	OR4E1P
OR4F	9	OR4F15, OR4F16, OR4F17, OR4F21, OR4F29, OR4F3, OR4F4, OR4F5, OR4F6	7	OR4F13P, OR4F14P, OR4F1P, OR4F28P, OR4F2P, OR4F7P, OR4F8P
OR4G	0	-	6	OR4G11P, OR4G1P, OR4G2P, OR4G3P, OR4G4P, OR4G6P
OR4H	0	-	2	OR4H12P, OR4H6P
OR4K	7	OR4K1, OR4K13, OR4K14, OR4K15, OR4K17, OR4K2, OR4K5	8	OR4K11P, OR4K12P, OR4K16P, OR4K3P, OR4K4P, OR4K6P, OR4K7P, OR4K8P
OR4L	1	OR4L1	0	-
OR4M	2	OR4M1, OR4M2	0	-
OR4N	3	OR4N2, OR4N4, OR4N5	2	OR4N1P, OR4N3P
OR4P	1	OR4P4	1	OR4P1P
OR4Q	1	OR4Q3	2	OR4Q1P, OR4Q2P
OR4R	0	-	3	OR4R1P, OR4R2P, OR4R3P

OR4S	2	OR4S1, OR4S2	0	-
OR4T	0	-	1	OR4T1P
OR4U	0	-	1	OR4U1P
OR4V	0	-	1	OR4V1P
OR4W	0	-	1	OR4W1P
OR4x	2	OR4X1, OR4X2	0	-
OR5A	2	OR5A1, OR5A2	0	-
OR5B	5	OR5B12, OR5B17, OR5B2, OR5B21, OR5B3	4	OR5B10P, OR5B15P, OR5B19P, OR5B1P,
OR5C	1	OR5C1		
OR5D	4	OR5D13, OR5D14, OR5D16, OR5D18	4	OR5D15P, OR5D17P, OR5D2P, OR5D3P
OR5E			1	OR5E1P
OR5F	1	OR5F1	1	OR5F2P
OR5G			4	OR5G1P, OR5G3P, OR5G4P, OR5G5P
OR5H	5	OR5H1, OR5H14, OR5H15, OR5H2, OR5H6	5	OR5H3P, OR5H4P, OR5H5P, OR5H7P, OR5H8P
OR5I	1	OR5I1		
OR5J	1	OR5J2	2	OR5J1P, OR5J7P
OR5K	4	OR5K1, OR5K2, OR5K3, OR5K4	0	-
OR5L	2	OR5L1, OR5L2	0	-
OR5M	6	OR5M1, OR5M10, OR5M11, OR5M3, OR5M8, OR5M9	8	OR5M12P, OR5M13P, OR5M14P, OR5M2P, OR5M4P, OR5M5P, OR5M6P, OR5M7P

OR5P	2	OR5P2, OR5P3	2	OR5P1P, OR5P4P
OR5R	1	OR5R1		
OR5S			1	OR5S1P
OR5T	3	OR5T1, OR5T2, OR5T3		
OR5V	1	OR5V1		
OR5W	1	OR5W2	1	OR5W1P
OR5AC	1	OR5AC2	2	OR5AC1P, OR5AC4P
OR5AH	0	-	1	OR5AH1P
OR5AK	1	OR5AK2	3	OR5AK1P, OR5AK3P, OR5AK4P
OR5AL	0	-	2	OR5AL1P, OR5AL2P
OR5AM	0	-	1	OR5AM1P
OR5AN	1	OR5AN1	1	OR5AN2P
OR5AO			1	OR5AO1P
OR5AP	1	OR5AP2	1	OR5AP1P
OR5AQ			1	OR5AQ1P
OR5AR	1	OR5AR1	0	-
OR5AS	1	OR5AS1	0	-
OR5AU	1	OR5AU1	0	-
OR5AW	0	-	1	OR5AW1P
OR5AZ	0	-	1	OR5AZ1P
OR5BA	0	-	1	OR5BA1P
OR5BB	0	-	1	OR5BB1P
OR5BC	0	-	1	OR5BC1P
OR5BD	0	-	1	OR5BD1P
OR5BE	0	-	1	OR5BE1P
OR5BH	0	-	1	OR5BH1P
OR5BJ	0	-	1	OR5BJ1P
OR5BK	0	-	1	OR5BK1P
OR5BL	0	-	1	OR5BL1P
OR5BM	0	-	1	OR5BM1P
OR5BN	0	-	2	OR5BN1P, OR5BN2P
OR5BP	0	-	1	OR5BP1P
OR5BQ	0	-	1	OR5BQ1P
OR5BR	0	-	1	OR5BR1P
OR5BS	0	-	1	OR5BS1P
OR5BT	0	-	1	OR5BT1P
OR6A	1	OR6A2	0	-
OR6B	3	OR6B1, OR6B2, OR6B3	0	-

		OR6C1, OR6C2, OR6C3, OR6C4, OR6C6, OR6C65, OR6C68, OR6C70, OR6C74, OR6C75, OR6C76		OR6C5P, OR6C64P, OR6C66P, OR6C69P, OR6C71P, OR6C72P, OR6C73P, OR6C7P
OR6C	11		8	
OR6D	0	-	1	OR6D1P
OR6E	0	-	1	OR6E1P
OR6F	1	OR6F1	0	-
OR6J	1	OR6J1	0	-
		OR6K2, OR6K3, OR6K6		OR6K1P, OR6K4P, OR6K5P
OR6K	3		3	
OR6L	0	-	2	OR6L1P, OR6L2P
OR6M	1	OR6M1	2	OR6M2P, OR6M3P
		OR6N1, OR6N2		
OR6N	1		0	-
OR6P	1	OR6P1	0	-
OR6Q	1	OR6Q1	0	-
OR6R	0	-	2	OR6R1P, OR6R2P
OR6S	1	OR6S1	0	-
OR6T	1	OR6T1	0	-
OR6U	0	-	1	OR6U2P
OR6V	1	OR6V1	0	-
OR6W	0	-	1	OR6W1P
OR6X	1	OR6X1	0	-
OR6Y	1	OR6Y1	0	-
		OR7A10, OR7A17, OR7A5		OR7A11P, OR7A15P, OR7A18P, OR7A19P, OR7A1P, OR7A2P, OR7A3P, OR7A8P
OR7A	3		8	
		OR7C1, OR7C2		
OR7C	2		0	-
		OR7D2, OR7D4		
OR7D	2		1	OR7D1P

				OR7E101P, OR7E102P, OR7E103P, OR7E104P, OR7E105P, OR7E106P, OR7E108P, OR7E109P, OR7E10P, OR7E110P, OR7E111P, OR7E115P, OR7E116P, OR7E117P, OR7E11P, OR7E121P, OR7E122P, OR7E125P, OR7E126P, OR7E128P, OR7E129P, OR7E12P, OR7E130P, OR7E136P, OR7E13P, OR7E140P, OR7E145P, OR7E148P, OR7E149P, OR7E14P, OR7E154P, OR7E155P, OR7E156P, OR7E157P, OR7E158P, OR7E159P, OR7E15P, OR7E160P, OR7E161P, OR7E162P, OR7E163P, OR7E16P, OR7E18P, OR7E19P, OR7E1P, OR7E21P, OR7E22P, OR7E23P, OR7E25P, OR7E26P, OR7E28P, OR7E29P,
OR7E	1	OR7E24	26	
OR7G	3	OR7G1, OR7G2, OR7G3	1	OR7G15P
OR7H	0	-	2	OR7H1P, OR7H2P
OR7K	0	-	1	OR7K1P
OR7L	0	-	1	OR7L1P
OR7M	0	-	1	OR7M1P
OR8A	0	OR8A1	2	OR8A2P, OR8A3P
OR8B	5	OR8B12, OR8B2, OR8B3, OR8B4, OR8B8	6	OR8B10P, OR8B1P, OR8B5P, OR8B6P, OR8B7P, OR8B9P
OR8C	0	-	1	OR8C1P
OR8D	3	OR8D1, OR8D2, OR8D4	0	-
OR8F	0	-	1	OR8F1P

OR8G	2	OR8G1, OR8G5	3	OR8G2P, OR8G3P, OR8G7P
OR8H	3	OR8H1, OR8H2, OR8H3	0	-
OR8I	1	OR8I2	1	OR8I1P
OR8J	2	OR8J1, OR8J3	1	OR8J2P
OR8K	3	OR8K1, OR8K3, OR8K5	2	OR8K2P, OR8K4P
OR8L	0	-	1	OR8L1P
OR8Q	0	-	1	OR8Q1P
OR8R	0	-	1	OR8R1P
OR8S	1	OR8S1	0	-
OR8T	0	-	1	OR8T1P
OR8U	3	OR8U1, OR8U8, OR8U9	0	-
OR8V	0	-	1	OR8V1P
OR8X	0	-	1	OR8X1P
OR9A	2	OR9A2, OR9A4	2	OR9A1P, OR9A3P
OR9G	3	OR9G1, OR9G4, OR9G9	2	OR9G2P, OR9G3P
OR9H	0	-	1	OR9H1P
OR9I	1	OR9I1	2	OR9I2P, OR9I3P
OR9K	1	OR9K2	1	OR9K1P
OR9L	0	-	1	OR9L1P
OR9M	0	-	1	OR9M1P
OR9N	0	-	1	OR9N1P
OR9P	0	-	1	OR9P1P
OR9Q	2	OR9Q1, OR9Q2	0	-
OR9R	0	-	1	OR9R1P
OR9S	0	-	1	OR9S24P
OR10A	6	OR10A2, OR10A3, OR10A4, OR10A5, OR10A6, OR10A7	0	-
OR10AA	0	-	1	OR10AA1P

OR10AB	0	-	1	OR10AB1P
OR10AC	0	-	1	OR10AC1P
OR10AD	1	OR10AD1	0	-
OR10AE	0	-	2	OR10AE1P, OR10AE3P
OR10AF	0	-	1	OR10AF1P
OR10AG	1	OR10AG1	0	-
OR10AH	0	-	1	OR10AH1P
OR10AK	0	-	1	OR10AK1P
OR10B	0	-	1	OR10B1P
OR10C	1	OR10C1	0	-
OR10D	1	OR10D3	3	OR10D1P, OR10D4P, OR10D5P
OR10G	7	OR10G2, OR10G3, OR10G4, OR10G6, OR10G7, OR10G8, OR10G9	2	OR10G1P, OR10G5P
OR10H	5	OR10H1, OR10H2, OR10H3, OR10H4, OR10H5	0	-
OR10J	3	OR10J1, OR10J3, OR10J5	4	OR10J2P, OR10J4P, OR10J6P, OR10J7P
OR10K	2	OR10K1, OR10K2	0	-
OR10N	0	-	1	OR10N1P
OR10P	1	OR10P1	0	-
OR10Q	1	OR10Q1	1	OR10Q2P
OR10R	1	OR10R2	2	OR10R1P, OR10R3P
OR10S	1	OR10S1	0	-
OR10T	1	OR10T2	1	OR10T1P
OR10U	0	-	1	OR10U1P
OR10V	1	OR10V1	2	OR10V2P, OR10V3P
OR10W	1	OR10W1	0	-
OR10X	1	OR10X1	0	-
OR10Y	0	-	1	OR10Y1P
OR10Z	1	OR10Z1	0	-
OR11A	1	OR11A1	0	-
OR11G	1	OR11G2	1	OR11G1P

OR11H	5	OR11H1, OR11H12, OR11H2, OR11H4, OR11H6	4	OR11H13P, OR11H3P, OR11H5P, OR11H7P
OR11I	0	-	1	OR11I1P
OR11J	0	-	5	OR11J1P, OR11J2P, OR11J5P, OR11J6P, OR11J7P
OR11K	0	-	2	OR11K1P, OR11K2P
OR11L	1	OR11L1	0	-
OR11M	0	-	1	OR11M1P
OR11N	0	-	1	OR11N1P
OR11P	0	-	1	OR11P1P
OR11Q	0	-	1	OR11Q1P
OR12D	2	OR12D2, OR12D3	1	OR12D1P
OR13A	1	OR13A1	0	-
OR13C	6	OR13C2, OR13C3, OR13C4, OR13C5, OR13C8, OR13C9	3	OR13C1P, OR13C6P, OR13C7P
OR13D	1	OR13D1	2	OR13D2P, OR13D3P
OR13E	0	-	1	OR13E1P
OR13F	1	OR13F1	0	-
OR13G	1	OR13G1	0	-
OR13H	1	OR13H1	0	-
OR13I	0	-	1	OR13I1P
OR13J	1	OR13J1	0	-
OR13K	0	-	1	OR13K1P
OR13Z	0	-	2	OR13Z1P, OR13Z2P
OR14A	2	OR14A16, OR14A2	0	-
OR14C	1	OR14C36	0	-
OR14I	1	OR14I1	0	-
OR14J	1	OR14J1	0	-
OR14K	1	OR14K1	0	-
OR14L	0	-	1	OR14L1P
OR51A	3	OR51A2, OR51A4, OR51A7	7	OR51A10P, OR51A1P, OR51A3P, OR51A5P, OR51A6P, OR51A8P, OR51A9P

OR51AB	0	-	1	OR51AB1P
OR51B	4	OR51B2, OR51B4, OR51B5, OR51B6,	2	OR51B3P, OR51B8P
OR51C	0	-	2	OR51C1P, OR51C4P
OR51D	1	OR51D1	0	-
OR51E	2	OR51E1, OR51E2	0	-
OR51F	2	OR51F1, OR51F2	3	OR51F3P, OR51F4P, OR51F5P
OR51G	2	OR51G1, OR51G2	0	-
OR51H	0	-	2	OR51H1P, OR51H2P
OR51I	2	OR51I1, OR51I2	0	-
OR51J	1	OR51J1	0	-
OR51K	0	-	1	OR51K1P
OR51L	1	OR51L1	0	-
OR51M	1	OR51M1	0	-
OR51N	0	-	1	OR51N1P
OR51P	0	-	1	OR51P1P
OR51Q	1	OR51Q1	0	-
OR51R	0	-	1	OR51R1P
OR51S	1	OR51S1	0	-
OR51T	1	OR51T1	0	-
OR51V	1	OR51V1	0	-
OR52A	3	OR52A1, OR52A4, OR52A5	0	-
OR52B	3	OR52B2, OR52B4, OR52B6	3	OR52B1P, OR52B3P, OR52B5P
OR52D	1	OR52D1	0	-
OR52E	5	OR52E2, OR52E4, OR52E5, OR52E6, OR52E8	3	OR52E1P, OR52E3P, OR52E7P
OR52H	1	OR52H1	1	OR52H2P
OR52I	2	OR52I1, OR52I2	0	-
OR52J	1	OR52J3	2	OR52J1P, OR52J2P

OR52K	2	OR52K1, OR52K2	1	OR52K3P
OR52L	1	OR52L1	1	OR52L2P
OR52M	1	OR52M1	1	OR52M2P
OR52N	4	OR52N1, OR52N2, OR52N4, OR52N5	1	OR52N3P
OR52P	0	-	2	OR52P1P, OR52P2P
OR52Q	0	-	1	OR52Q1P
OR52R	1	OR52R1	0	-
OR52S	0	-	1	OR52S1P
OR52T	0	-	1	OR52T1P
OR52U	0	-	1	OR52U1P
OR52V	0	-	1	OR52V1P
OR52W	1	OR52W1	0	-
OR52X	0	-	1	OR52X1P
OR52Y	0	-	1	OR52Y1P
OR52Z	0	-	1	OR52Z1P
OR55B	0	-	1	OR55B1P
OR56A	4	OR56A1, OR56A3, OR56A4, OR56A5	1	OR56A7P
OR56B	2	OR56B1, OR56B4	2	OR56B2P, OR56B3P