

Table S1. Classifier performance on GPCRDB proteins. % positive identifications by each classifier are summarized for each GPCR class as well as for two organisms (*Homo sapiens* and *Drosophila melanogaster*). The highest % positives and those lower than 80% are shown in bold italic and in red color, respectively. For Class Z (non-GPCR), the values indicate % false positives, with higher than 10% in blue color. The last four columns show the results by using combination of classifiers. '6class' is the intersection of SVM-AA, SVM-di, PLS-ACC, LDA, QDA, and KNN20. For other combination classifiers, '+' indicates taking the union and '&' indicates taking the intersection of corresponding classifiers.

	No. proteins	SAM	SAM1	SAM2	GPCRH MM	SVM_ AA	SVM_ di	PLS_ ACC	LDA	QDA	LOG	KNN5	KNN10	KNN15	KNN20	6class	6class + GPCRH MM	6class + GPCRH MM + SAM2	6class & (GPCRH MM + SAM2)
[GPCRDB class]																			
All (excluding Class Z)	9394	87.27	91.95	92.27	94.07	97.92	99.16	99.49	98.56	97.82	97.64	98.64	98.79	98.81	98.79	95.39	99.18	99.76	94.60
A: Rhodopsin like	6039	99.95	99.98	99.98	99.14	99.59	99.95	99.98	99.47	99.24	98.77	99.74	99.72	99.70	99.67	98.97	99.95	100.00	98.97
B: Secretin like	309	98.06	98.71	99.03	96.76	91.26	96.76	88.35	78.64	77.67	77.99	79.29	79.29	80.58	80.58	77.02	97.73	99.35	76.70
C: Metabotropic glutamate / pheromone	206	65.53	78.16	78.64	93.69	84.95	95.63	80.10	69.90	68.45	64.08	81.07	75.73	69.42	68.93	58.25	93.69	97.57	58.25
D: Fungal pheromone	65	18.46	20.00	23.08	90.77	93.85	98.46	100.00	100.00	98.46	98.46	100.00	100.00	100.00	100.00	93.85	100.00	100.00	86.15
E: cAMP receptors	10	100.00	100.00	100.00	100.00	60.00	80.00	100.00	100.00	80.00	100.00	80.00	80.00	100.00	80.00	60.00	100.00	100.00	60.00
Ocular albinism proteins	8	75.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Frizzled/smoothened	130	97.69	100.00	100.00	99.23	97.69	100.00	98.46	100.00	97.69	96.92	97.69	99.23	98.46	96.92	96.15	99.23	100.00	96.15
Insect odorant receptors	236	89.83	98.73	99.15	0.00	100.00	100.00	99.15	99.58	99.58	99.58	100.00	100.00	100.00	100.00	98.73	98.73	100.00	97.88
Plant Mlo receptors	52	57.69	82.69	84.62	0.00	92.31	100.00	98.08	98.08	98.08	94.23	98.08	100.00	100.00	100.00	90.38	90.38	98.08	76.92
Nematode chemoreceptors	755	18.68	40.26	42.12	93.51	99.34	98.54	98.54	99.60	99.47	99.47	98.94	99.60	99.60	99.60	96.82	98.01	98.81	93.38
Vomeranase receptors (V1R&V3R)	286	56.64	93.01	94.06	98.25	100.00	100.00	98.60	100.00	100.00	100.00	100.00	100.00	100.00	100.00	98.60	100.00	100.00	97.90
Taste receptors (T2R)	237	100.00	100.00	100.00	99.58	0.00	0.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Putative	1061	74.18	83.88	84.54	87.46	90.39	93.69	95.19	92.84	89.44	90.67	92.65	93.78	93.78	93.69	83.79	96.51	98.77	81.43
Z: Archaeal/bacterial/fungal opsins (non-GPCR)	110	0.00	0.00	0.00	0.91	9.09	21.82	91.82	96.36	90.00	96.36	75.45	80.91	90.91	96.36	6.36	6.36	6.36	0.91
[Species]																			
<i>Homo sapiens</i>	1426	97.55	98.39	98.39	97.55	97.41	98.81	97.69	95.51	93.76	94.67	96.56	96.21	96.14	96.14	93.06	99.02	99.79	92.78
<i>Drosophila melanogaster</i>	314	91.72	93.95	93.95	57.01	93.31	97.45	94.59	89.17	88.54	85.35	94.27	93.95	93.95	92.04	85.03	98.73	99.68	85.03