



Research article

Improved multi-label classifiers for predicting protein subcellular localization

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Supplementary

Table S1. Performance of PMPSL-GRAKEL-Hum on each of the 14 subcellular locations.

i	Location	SN(i)	SP(i)	ACC(i)	MCC(i)
1	Centrosome	0.8701	0.9937	0.9907	0.8186
2	Cytoplasm	0.8898	0.9401	0.9269	0.8155
3	Cytoskeleton	0.8101	0.9960	0.9913	0.8215
4	Endoplasmic reticulum	0.9039	0.9864	0.9804	0.8616
5	Endosome	0.1250	0.9994	0.9926	0.2716
6	Extracellular	0.9351	0.9868	0.9804	0.9108
7	Golgi apparatus	0.8696	0.9891	0.9829	0.8323
8	Lysosome	0.9740	0.9950	0.9945	0.8983
9	Microsome	0.7917	0.9994	0.9977	0.8452
10	Mitochondrion	0.9588	0.9923	0.9884	0.9444
11	Nucleus	0.9334	0.9588	0.9504	0.8882
12	Peroxisome	0.9787	0.9990	0.9987	0.9579
13	Plasma membrane	0.8983	0.9898	0.9794	0.8970
14	Synapse	0.5455	0.9997	0.9965	0.7081

Table S2. Performance of PMPSL-GRAKEL-Anim on each of the 20 subcellular locations.

i	Location	SN(i)	SP(i)	ACC(i)	MCC(i)
1	Acrosome	0.8077	0.9992	0.9980	0.8397
2	Cell cortex	0.9729	0.9736	0.9735	0.9265
3	Cell membrane	0.7273	0.9990	0.9974	0.7615
4	Centriole	0.8953	0.9963	0.9941	0.8674
5	Centrosome	0.5122	0.9977	0.9926	0.5952
6	Cytoplasm	0.9205	0.9541	0.9431	0.8713
7	Cytoskeleton	0.9452	0.9842	0.9811	0.8795
8	Endoplasmic reticulum	0.9473	0.9899	0.9849	0.9275
9	Endosome	0.9366	0.9960	0.9939	0.9143
10	Extracellular space	0.8763	0.9971	0.9941	0.8778
11	Golgi apparatus	0.9432	0.9908	0.9870	0.9146
12	Lysosome	0.8684	0.9958	0.9921	0.8606
13	Melanosome	0.9650	0.9918	0.9883	0.9490
14	Microsome	0.2000	1.0000	0.9980	0.4468
15	Mitochondrion	0.9298	0.9992	0.9982	0.9372
16	Nucleus	0.9342	0.9741	0.9633	0.9072
17	Peroxisome	0.9531	0.9982	0.9974	0.9234
18	Plasma membrane	0.9638	0.9812	0.9773	0.9358
19	Spindle	0.8447	0.9955	0.9916	0.8363
20	Synapse	0.7273	0.9971	0.9926	0.7655

Table S3. Performance of PMPSL-GRAKEL-Geng on each of the 8 subcellular locations.

i	Location	SN(i)	SP(i)	ACC(i)	MCC(i)
1	Cell inner membrane	0.9910	0.9844	0.9871	0.9732
2	Cell outer membrane	0.9597	0.9953	0.9921	0.9515
3	Cytoplasm	0.9756	0.9817	0.9799	0.9519
4	Extracellular	0.9774	0.9928	0.9914	0.9514
5	Fimbrium	0.9063	0.9971	0.9950	0.8898
6	Flagellum	1.0000	1.0000	1.0000	1.0000
7	Nucleoid	1.0000	1.0000	1.0000	1.0000
8	Periplasm	0.9611	0.9934	0.9892	0.9523

Table S4. Performance of PMPSL-GRAKEL-Euk on each of the 22 subcellular locations.

i	Location	SN(i)	SP(i)	ACC(i)	MCC(i)
1	Acrosome	0.2143	1.0000	0.9986	0.4626
2	Cell membrane	0.9082	0.9870	0.9799	0.8795
3	Cell wall	0.7755	0.9988	0.9974	0.7905
4	Centrosome	0.8750	0.9969	0.9954	0.8227
5	Chloroplast	0.9766	0.9985	0.9974	0.9727
6	Cyanelle	0.9873	1.0000	0.9999	0.9936
7	Cytoplasm	0.9163	0.9351	0.9298	0.8320
8	Cytoskeleton	0.6763	0.9965	0.9907	0.7202
9	Endoplasmic reticulum	0.9716	0.9910	0.9898	0.9145
10	Endosome	0.0732	0.9997	0.9948	0.2083
11	Extracel	0.9647	0.9915	0.9879	0.9486
12	Golgi apparatus	0.7520	0.9956	0.9876	0.7945
13	Hydrogenosome	0.9000	0.9999	0.9997	0.8999
14	Lysosome	0.6491	0.9995	0.9969	0.7640
15	Melanosome	0.8723	0.9991	0.9983	0.8624
16	Microsome	0.0769	1.0000	0.9985	0.2771
17	Mitochondrion	0.9459	0.9899	0.9865	0.9098
18	Nucleus	0.9147	0.9620	0.9478	0.8757
19	Peroxisome	0.9636	0.9986	0.9981	0.9334
20	Spindle pole body	0.9118	0.9990	0.9982	0.8977
21	Synapse	0.5319	0.9996	0.9968	0.6878
22	Vacuole	0.9647	0.9966	0.9959	0.9105



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