

Additional materials to the article

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## SUPPLEMENTARY TABLES

**Table S1.** The positive training dataset

No.	Protein 1	Protein 2	Predicted interaction	Probability
1	P6	R7	YES	0.5507
2	P10	R7	YES	0.5238
3	P6	R23	YES	0.5192
4	P8	R7	NO	0.4885
5	P1	R25	NO	0.4756
6	P10	R12	NO	0.4709
7	P10	R9	NO	0.4614
8	P8	R23	NO	0.4603
9	P9	R1	NO	0.4594
10	P10	R23	NO	0.4543
11	P3	R23	NO	0.447
12	P10	R10	NO	0.445
13	P1	R27	NO	0.4421
14	P4	R23	NO	0.44
15	P5	R7	NO	0.4377
16	P8	R5	NO	0.4375
17	P1	R5	NO	0.4355
18	P4	R7	NO	0.4342
19	P3	R7	NO	0.4282
20	P10	R30	NO	0.4232
21	P7	R21	NO	0.4219
22	P10	R2	NO	0.4199
23	P5	R12	NO	0.417
24	P11	R3	NO	0.416
25	P3	R10	NO	0.4072
26	P11	R2	NO	0.4053
27	P6	R26	NO	0.4049
28	P11	R5	NO	0.4046
29	P8	R21	NO	0.4044
30	P10	R21	NO	0.4044
31	P3	R12	NO	0.4037
32	P7	R1	NO	0.4025
33	P9	R6	NO	0.402
34	P11	R19	NO	0.3982
35	P11	R1	NO	0.3966
36	P10	R18	NO	0.3946
37	P7	R22	NO	0.3941
38	P7	R24	NO	0.3937

39	P11	R9	NO	0.393
40	P4	R5	NO	0.3919
41	P4	R1	NO	0.3918
42	P8	R18	NO	0.3909
43	P4	R24	NO	0.3882
44	P9	R31	NO	0.3879
45	P3	R1	NO	0.3855
46	P10	R8	NO	0.3824
47	P5	R10	NO	0.3812
48	P8	R6	NO	0.3795
49	P9	R11	NO	0.3758
50	P4	R21	NO	0.374
51	P11	R25	NO	0.3731
52	P5	R26	NO	0.3664
53	P4	R19	NO	0.3654
54	P11	R30	NO	0.3603
55	P7	R16	NO	0.359
56	P9	R26	NO	0.3554
57	P11	R20	NO	0.3539
58	P2	R18	NO	0.3526
59	P4	R20	NO	0.3499
60	P8	R4	NO	0.349
61	P8	R25	NO	0.347
62	P11	R14	NO	0.3465
63	P3	R28	NO	0.3456
64	P4	R25	NO	0.342
65	P7	R26	NO	0.3409
66	P7	R31	NO	0.3376
67	P4	R6	NO	0.3365
68	P3	R14	NO	0.3345
69	P5	R25	NO	0.3336
70	P9	R27	NO	0.332
71	P11	R4	NO	0.3312
72	P4	R28	NO	0.3283
73	P10	R29	NO	0.325
74	P7	R29	NO	0.3222
75	P11	R16	NO	0.3164
76	P2	R28	NO	0.3053
77	P4	R22	NO	0.3045
78	P10	R14	NO	0.3028
79	P10	R31	NO	0.3027
80	P8	R31	NO	0.296
81	P4	R27	NO	0.2707
82	P12	R1	NO	0.2128

**Table S2.** Performances of different learning algorithms on individual feature sets using fusion of feature vectors

Algorithm	Sensitivity	Specificity	Accuracy	MCC	AUC
<b>AAC</b>					
NB	65.9	59.8	62.8	0.257	0.655
RF	62.2	69.5	65.9	0.318	0.755
Bagging	68.3	68.3	<b>68.3</b>	0.366	0.725
IBK	64.6	68.3	66.5	0.329	0.657
SMO-RBF	54.9	67.1	61.0	0.221	0.610
ROF	58.5	75.6	67.1	0.347	0.724
RARF	62.2	72.0	67.1	0.343	0.761
<b>DPC</b>					
NB	63.4	62.2	62.8	0.256	0.681
RF	63.4	67.1	65.2	0.305	0.732
Bagging	64.6	64.6	64.6	0.293	0.703
IBK	70.7	57.3	64.0	0.283	0.649
SMO-RBF	53.7	67.1	60.4	0.209	0.604
ROF	63.4	69.5	<b>66.5</b>	0.330	0.701
RARF	62.2	68.3	65.2	0.305	0.741
<b>PGC</b>					
NB	63.4	54.9	59.1	0.184	0.623
RF	65.9	73.2	<b>69.5</b>	0.391	0.730
Bagging	61.0	63.4	62.2	0.244	0.694
IBK	56.1	52.4	54.3	0.085	0.559
SMO-RBF	54.9	68.3	61.6	0.234	0.616
ROF	67.1	63.4	65.2	0.305	0.691
RARF	67.1	69.5	68.3	0.366	0.743
<b>PGC_Stretch</b>					
NB	79.3	42.7	61.0	0.236	0.651
RF	63.4	72.0	<b>67.7</b>	0.355	0.705
Bagging	63.4	61.0	62.2	0.244	0.685
IBK	63.4	53.7	58.5	0.172	0.581
SMO-RBF	80.5	45.1	62.8	0.274	0.628
ROF	72.0	63.4	<b>67.7</b>	0.355	0.720
RARF	65.9	69.5	<b>67.7</b>	0.354	0.713
<b>ATC</b>					
NB	79.3	41.5	60.4	0.224	0.640
RF	74.4	63.4	<b>68.9</b>	0.380	0.727
Bagging	59.8	64.6	62.2	0.244	0.677
IBK	69.5	58.5	64.0	0.282	0.625
SMO-RBF	80.5	28.0	54.3	0.100	0.543
ROF	68.3	57.3	62.8	0.258	0.693
RARF	64.6	68.3	66.5	0.329	0.720
<b>AAC_Dist</b>					
NB	90.2	26.8	58.5	0.221	0.599
RF	62.2	68.3	65.2	0.305	0.724
Bagging	67.1	61.0	64.0	0.281	0.667
IBK	68.3	59.8	64.0	0.282	0.637
SMO-RBF	65.9	65.9	65.9	0.317	0.659
ROF	62.2	74.4	<b>68.3</b>	0.369	0.721
RARF	61.0	68.3	64.6	0.293	0.714
<b>PG_Comb</b>					
NB	81.7	42.7	62.2	0.265	0.645
RF	65.9	59.8	62.8	0.257	0.711
Bagging	56.1	61.0	58.5	0.171	0.619
IBK	70.7	47.6	59.1	0.188	0.604
SMO-RBF	61.0	56.1	58.5	0.171	0.585
ROF	62.2	65.9	<b>64.0</b>	0.281	0.661

RARF	63.4	63.4	63.4	0.268	0.727
<b>AAC-PSSM</b>					
NB	75.6	37.8	56.7	0.145	0.653
RF	65.9	69.5	<b>67.7</b>	0.354	0.747
Bagging	65.9	67.1	66.5	0.329	0.727
IBK	70.7	53.7	62.2	0.248	0.623
SMO-RBF	68.3	50.0	59.1	0.186	0.591
ROF	59.8	65.9	62.8	0.257	0.688
RARF	65.9	68.3	67.1	0.342	0.747
<b>DF-PSSM</b>					
NB	79.3	37.8	58.5	0.188	0.587
RF	65.9	69.5	67.7	0.354	0.745
Bagging	69.5	70.7	<b>70.1</b>	0.402	0.724
IBK	56.1	57.3	56.7	0.134	0.554
SMO-RBF	79.3	35.4	57.3	0.163	0.573
ROF	63.4	64.6	64.0	0.281	0.677
RARF	63.4	75.6	69.5	0.393	0.742
<b>Factors</b>					
NB	64.6	56.1	60.4	0.208	0.631
RF	59.8	63.4	61.6	0.232	0.691
Bagging	63.4	64.6	<b>64.0</b>	0.281	0.681
IBK	57.3	54.9	56.1	0.122	0.580
SMO-RBF	65.9	53.7	59.8	0.197	0.598
ROF	59.8	61.0	60.4	0.207	0.678
RARF	62.2	63.4	62.8	0.256	0.706
<b>PAAC</b>					
NB	65.9	59.8	62.8	0.257	0.673
RF	61.0	61.0	61.0	0.220	0.681
Bagging	62.2	70.7	66.5	0.330	0.739
IBK	65.9	47.6	56.7	0.136	0.548
SMO-RBF	67.1	62.2	64.6	0.293	0.646
ROF	63.4	72.0	<b>67.7</b>	0.355	0.684
RARF	59.8	69.5	64.6	0.294	0.690

**Table S3.** Performances of different learning algorithms on individual feature sets using average of feature vectors

Algorithm	Sensitivity	Specificity	Accuracy	MCC	AUC
<b>AAC</b>					
NB	67.1	42.7	61.1	0.245	0.643
RF	58.5	64.6	61.6	0.232	0.687
Bagging	52.4	54.9	53.7	0.073	0.618
IBK	63.4	68.3	<b>65.9</b>	0.317	0.658
SMO-RBF	57.3	63.4	60.4	0.208	0.604
ROF	67.1	57.3	62.2	0.245	0.699
RARF	58.5	64.6	61.6	0.232	0.710
<b>DPC</b>					
NB	68.3	53.7	61.0	0.222	0.674
RF	67.1	65.9	<b>66.5</b>	0.329	0.730
Bagging	73.2	53.7	63.4	0.274	0.668
IBK	58.5	52.4	55.5	0.110	0.569
SMO-RBF	58.5	69.5	64.0	0.282	0.640
ROF	65.9	57.3	61.6	0.233	0.662
RARF	64.6	68.3	66.5	0.329	0.742
<b>PGC</b>					
NB	82.9	39.0	61.0	0.244	0.619
RF	69.5	54.9	<b>62.2</b>	0.247	0.647
Bagging	62.2	56.1	59.2	0.183	0.608
IBK	64.6	54.9	59.8	0.196	0.603
SMO-RBF	78.0	46.3	<b>62.2</b>	0.257	0.622
ROF	62.2	52.4	57.3	0.147	0.623
RARF	62.2	54.9	58.5	0.171	0.655
<b>PGC_Stretch</b>					
NB	82.9	39.0	61.0	0.244	0.619
RF	69.5	54.9	<b>62.2</b>	0.247	0.647
Bagging	62.2	56.1	59.1	0.183	0.608
IBK	64.6	54.9	59.8	0.196	0.603
SMO-RBF	78.0	46.3	<b>62.2</b>	0.257	0.622
ROF	62.2	52.4	57.3	0.147	0.623
RARF	62.2	54.9	58.5	0.171	0.655
<b>ATC</b>					
NB	79.3	39.0	59.1	0.200	0.616
RF	65.9	52.4	59.1	0.185	0.628
Bagging	58.5	51.2	54.9	0.098	0.595
IBK	67.1	51.2	59.1	0.185	0.574
SMO-RBF	93.9	20.7	57.3	0.215	0.573
ROF	70.7	53.7	<b>62.2</b>	0.248	0.665
RARF	67.1	47.6	57.3	0.149	0.633
<b>AAC_Dist</b>					
NB	89.0	22.0	55.5	0.148	0.561
RF	72.0	67.1	<b>69.5</b>	0.391	0.740
Bagging	64.6	62.2	63.4	0.268	0.686
IBK	68.3	57.3	62.8	0.258	0.634
SMO-RBF	54.9	80.5	67.7	0.366	0.677
ROF	73.2	65.9	<b>69.5</b>	0.391	0.742
RARF	67.1	65.9	66.5	0.329	0.741
<b>PG_Comb</b>					
NB	78.0	42.7	60.4	0.222	0.637
RF	72.0	56.1	64.0	0.284	0.745
Bagging	64.6	59.8	62.2	0.244	0.679
IBK	74.4	59.8	67.1	0.345	0.674

SMO-RBF	62.2	61.0	61.6	0.232	0.616
ROF	68.3	63.4	65.9	0.317	0.705
RARF	75.6	63.4	<b>69.5</b>	0.393	0.753
<b>AAC-PSSM</b>					
NB	72.0	45.1	58.5	0.177	0.641
RF	68.3	4.9	61.6	0.234	0.690
Bagging	58.5	61.0	59.8	0.195	0.632
IBK	72.0	59.8	<b>65.9</b>	0.319	0.646
SMO-RBF	78.0	40.2	59.1	0.198	0.591
ROF	63.4	54.9	59.1	0.184	0.647
RARF	63.4	61.0	62.2	0.244	0.699
<b>DF-PSSM</b>					
NB	72.0	41.5	56.7	0.141	0.580
RF	64.6	63.4	<b>64.0</b>	0.281	0.645
Bagging	63.4	59.8	61.6	0.232	0.633
IBK	52.4	63.4	57.9	0.160	0.564
SMO-RBF	79.3	40.2	59.8	0.212	0.598
ROF	58.5	61.0	59.8	0.195	0.607
RARF	64.6	62.2	63.4	0.268	0.652
<b>Factors</b>					
NB	61.0	56.1	<b>58.5</b>	0.171	0.614
RF	52.4	61.0	56.7	0.135	0.605
Bagging	50.0	54.9	52.4	0.049	0.547
IBK	57.3	53.7	55.5	0.110	0.550
SMO-RBF	37.8	74.4	56.1	0.131	0.561
ROF	58.5	57.3	57.9	0.159	0.583
RARF	50.0	61.0	55.5	0.110	0.597
<b>PAAC</b>					
NB	57.3	57.3	57.3	0.146	0.610
RF	65.9	63.4	<b>64.6</b>	0.293	0.654
Bagging	64.6	54.9	59.8	0.196	0.610
IBK	69.5	46.3	57.9	0.163	0.588
SMO-RBF	67.1	52.4	59.8	0.197	0.598
ROF	63.4	62.2	62.8	0.256	0.665
RARF	65.9	62.2	64.0	0.281	0.677