

Table S1: Performance of SVM module developed using amino acids composition.

Parameters used: RBF Kernal,  $g=0.01$ ,  $c=2$ ,  $j=6$

<b>Threshold</b>	<b>Sensitivity</b>	<b>Specificity</b>	<b>Accuracy(%)</b>	<b>MCC</b>
-1.2	95.00	40.30	52.87	0.32
-1.1	92.50	42.54	54.02	0.31
-1.0	87.50	46.27	55.75	0.29
-0.9	87.50	51.49	59.77	0.33
-0.8	85.00	52.99	60.34	0.32
-0.7	82.50	54.48	60.92	0.31
-0.6	82.50	55.22	61.49	0.32
-0.5	82.50	58.21	63.79	0.34
-0.4	82.50	61.94	66.67	0.37
-0.3	82.50	64.18	68.39	0.39
-0.2	72.50	67.91	68.97	0.35
-0.1	70.00	70.90	70.69	0.35
0.0	67.50	73.13	71.84	0.36
0.1	65.00	76.87	74.14	0.38
0.2	57.50	80.60	75.29	0.36
0.3	47.50	84.33	75.86	0.32
0.4	42.50	88.06	77.59	0.33
0.5	37.50	90.30	78.16	0.32
0.6	32.50	91.04	77.59	0.28
0.7	32.50	94.03	79.89	0.34
0.8	25.00	94.78	78.74	0.28
0.9	22.50	96.27	79.31	0.29
1.0	15.00	97.76	78.74	0.24
1.1	12.50	98.51	78.74	0.24
1.2	7.50	98.51	77.59	0.15

Fig S1: ROC of SVM module developed using amino acids composition.

Area Under the Curve (AUC) = 0.823

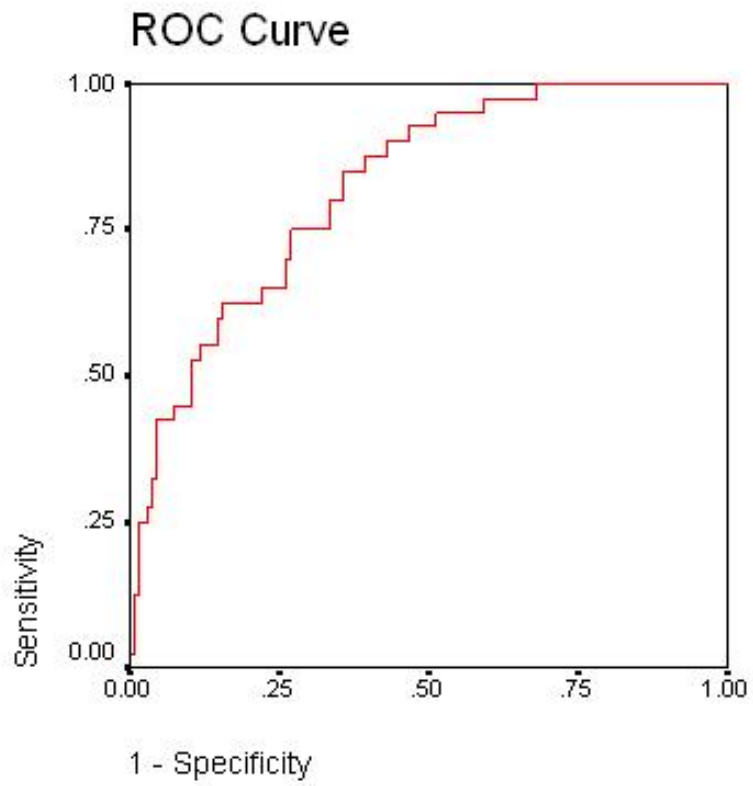


Table S2: Performance of SVM module developed using dipeptide composition.

Parameters used: RBF Kernal,  $g=0.01$ ,  $c=4$ ,  $j=2$

<b>Threshold</b>	<b>Sensitivity</b>	<b>Specificity</b>	<b>Accuracy(%)</b>	<b>MCC</b>
-1.2	100.00	27.61	44.25	0.28
-1.1	100.00	35.07	50.00	0.33
-1.0	100.00	38.06	52.30	0.35
-0.9	97.50	44.03	56.32	0.37
-0.8	97.50	47.76	59.20	0.39
-0.7	95.00	52.99	62.64	0.41
-0.6	95.00	57.46	66.09	0.44
-0.5	95.00	64.18	71.26	0.50
-0.4	90.00	67.16	72.41	0.48
-0.3	82.50	75.37	77.01	0.50
-0.2	80.00	77.61	78.16	0.51
-0.1	72.50	82.09	79.89	0.50
0.0	65.00	85.82	81.03	0.49
0.1	60.00	89.55	82.76	0.50
0.2	47.50	91.79	81.61	0.44
0.3	45.00	96.27	84.48	0.51
0.4	37.50	97.01	83.33	0.47
0.5	30.00	98.51	82.76	0.44
0.6	20.00	98.51	80.46	0.33
0.7	20.00	99.25	81.03	0.37
0.8	12.50	99.25	79.31	0.27
0.9	7.50	99.25	78.16	0.19
1.0	2.50	99.25	77.01	0.07
1.1	2.50	100.00	77.59	0.14
1.2	2.50	100.00	77.59	0.14

Fig S2: ROC of SVM module developed using dipeptide composition.

Area Under the Curve (AUC) = 0.908

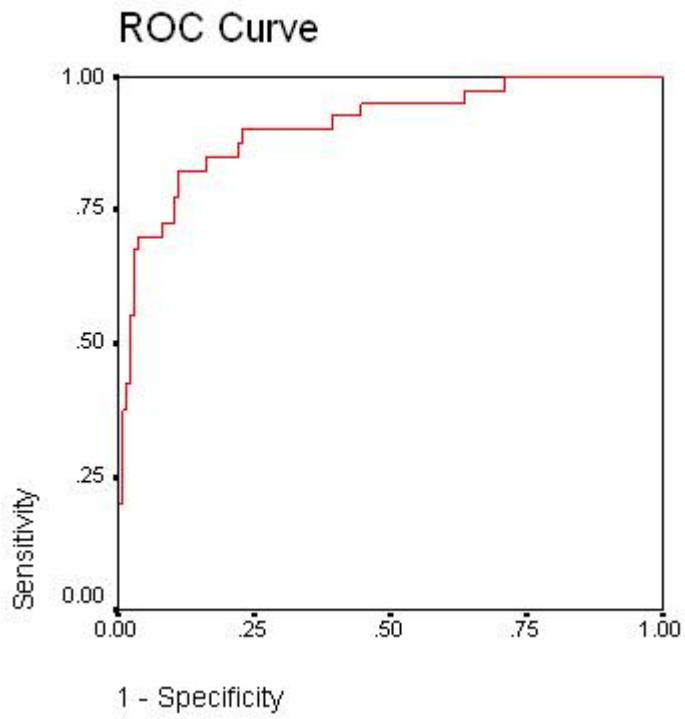


Table S3: Performance of SVM module developed using hybrid (amino acid+dipeptide) module.

Parameters used: RBF Kernal,  $g=0.01$ ,  $c=0.9$ ,  $j= 4$

<b>Threshold</b>	<b>Sensitivity</b>	<b>Specificity</b>	<b>Accuracy(%)</b>	<b>MCC</b>
-1.2	100.00	23.13	40.80	0.25
-1.1	100.00	28.36	44.83	0.29
-1.0	100.00	31.34	47.13	0.31
-0.9	97.50	38.06	51.72	0.33
-0.8	97.50	43.28	55.75	0.36
-0.7	92.50	47.01	57.47	0.34
-0.6	85.00	52.24	59.77	0.32
-0.5	80.00	54.48	60.34	0.29
-0.4	80.00	58.21	63.22	0.32
-0.3	80.00	64.18	67.82	0.37
-0.2	77.50	68.66	70.69	0.39
-0.1	72.50	73.13	72.99	0.40
0.0	70.00	82.09	79.31	0.48
0.1	57.50	85.82	79.31	0.43
0.2	52.50	88.81	80.46	0.43
0.3	45.00	90.30	79.89	0.39
0.4	37.50	94.03	81.03	0.39
0.5	32.50	97.01	82.18	0.42
0.6	30.00	97.76	82.18	0.42
0.7	20.00	98.51	80.46	0.33
0.8	20.00	99.25	81.03	0.37
0.9	10.00	99.25	78.74	0.23
1.0	5.00	99.25	77.59	0.14
1.1	2.50	100.00	77.59	0.14
1.2	2.50	100.00	77.59	0.14

Fig S3: ROC of SVM module developed using hybrid (amino acid+dipeptide) module.

Area Under the Curve (AUC) = 0.901.

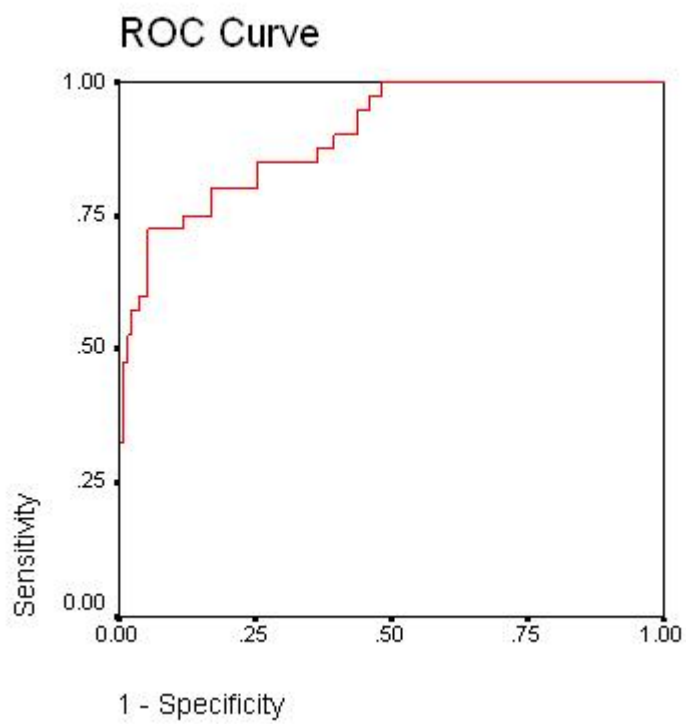


Table S4: Performance of SVM module developed using SAAC module.

Parameters used: RBF Kernal,  $g=0.001$ ,  $c=4$ ,  $j=2$

<b>Threshold</b>	<b>Sensitivity</b>	<b>Specificity</b>	<b>Accuracy(%)</b>	<b>MCC</b>
-1.2	100.00	35.82	50.57	0.34
-1.1	100.00	41.79	55.17	0.38
-1.0	100.00	49.25	60.92	0.43
-0.9	100.00	54.48	64.94	0.46
-0.8	100.00	58.96	68.39	0.50
-0.7	100.00	64.18	72.41	0.54
-0.6	100.00	67.16	74.71	0.57
-0.5	97.50	70.15	76.44	0.57
-0.4	97.50	76.12	81.03	0.63
-0.3	95.00	79.85	83.33	0.65
-0.2	92.50	81.34	83.91	0.65
-0.1	92.50	83.58	85.63	0.68
0.0	92.50	85.82	87.36	0.71
0.1	87.50	88.06	87.93	0.70
0.2	85.00	91.04	89.66	0.73
0.3	80.00	93.28	90.23	0.73
0.4	72.50	94.03	89.08	0.68
0.5	67.50	95.52	89.08	0.68
0.6	65.00	95.52	88.51	0.66
0.7	52.50	97.01	86.78	0.59
0.8	45.00	97.01	85.06	0.53
0.9	37.50	97.01	83.33	0.47
1.0	35.00	97.01	82.76	0.44
1.1	32.50	97.76	82.76	0.44
1.2	25.00	98.51	81.61	0.39

Fig S4: ROC of SVM module developed using SAAC module.

Area Under the Curve (AUC) = 0.945

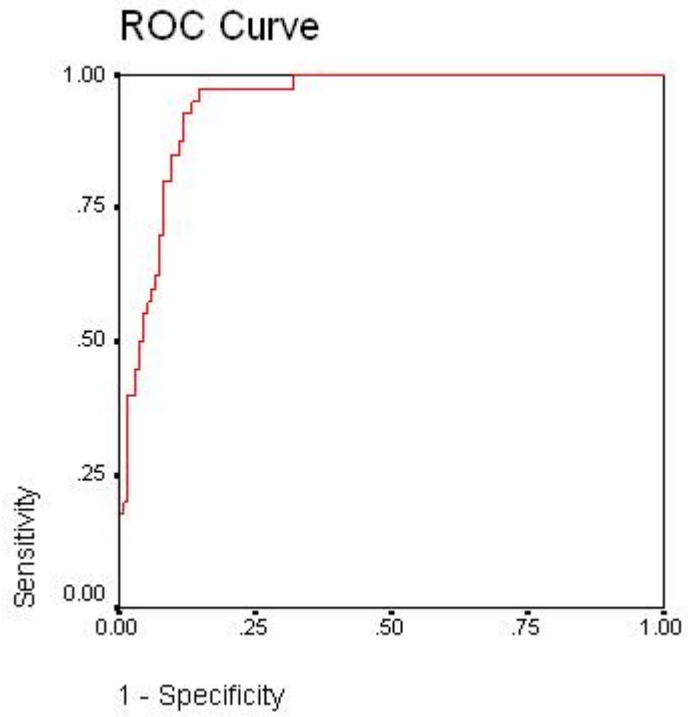




Table S5: Performance of SVM module developed using PSSM module.

Parameters used: RBF Kernal, g=50, c=2, j=2

<b>Threshold</b>	<b>Sensitivity</b>	<b>Specificity</b>	<b>Accuracy(%)</b>	<b>MCC</b>
-1.2	100.00	46.27	58.62	0.41
-1.1	100.00	50.75	62.07	0.44
-1.0	100.00	55.97	66.09	0.48
-0.9	97.50	64.93	72.41	0.53
-0.8	97.50	66.42	73.56	0.54
-0.7	97.50	68.66	75.29	0.56
-0.6	97.50	72.39	78.16	0.59
-0.5	95.00	73.13	78.16	0.58
-0.4	92.50	76.87	80.46	0.60
-0.3	90.00	81.34	83.33	0.63
-0.2	80.00	82.84	82.18	0.57
-0.1	75.00	85.07	82.76	0.56
0.0	75.00	88.06	85.06	0.60
0.1	72.50	94.03	89.08	0.68
0.2	70.00	95.52	89.66	0.70
0.3	65.00	99.25	91.38	0.75
0.4	55.00	100.00	89.66	0.70
0.5	40.00	100.00	86.21	0.58
0.6	35.00	100.00	85.06	0.54
0.7	30.00	100.00	83.91	0.50
0.8	22.50	100.00	82.18	0.43
0.9	15.00	100.00	80.46	0.35
1.0	5.00	100.00	78.16	0.20
1.1	5.00	100.00	78.16	0.20
1.2	5.00	100.00	78.16	0.20

Fig S5: ROC of SVM module developed using PSSM module.

Area Under the Curve (AUC) = 0.940.

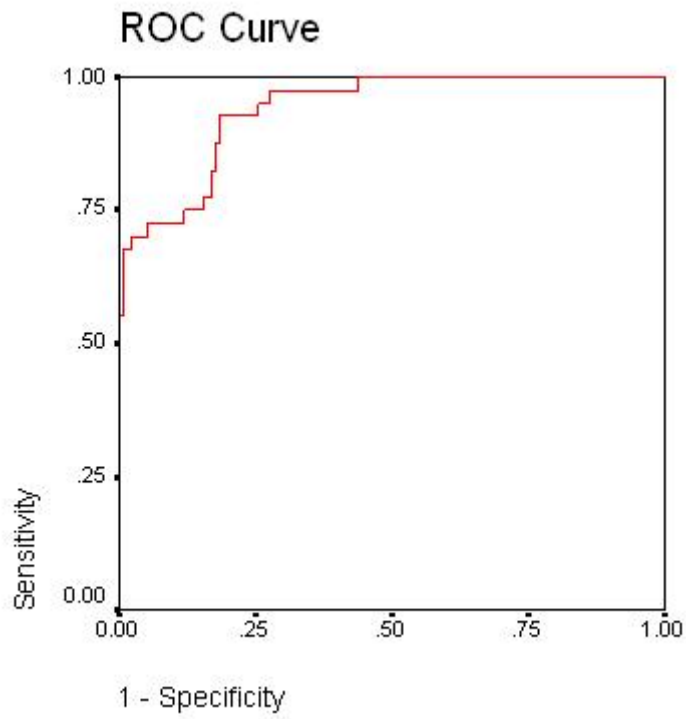


Table S6: Performance of SVM module developed using PSSM and amino acid hybrid module.  
Parameters used: RBF Kernal,  $g=0.005$ ,  $c=1$ ,  $j=4$

<b>Threshold</b>	<b>Sensitivity</b>	<b>Specificity</b>	<b>Accuracy(%)</b>	<b>MCC</b>
-1.2	100.00	14.07	33.71	0.19
-1.1	100.00	18.52	37.14	0.22
-1.0	100.00	21.48	39.43	0.24
-0.9	100.00	28.15	44.57	0.29
-0.8	100.00	31.85	47.43	0.31
-0.7	100.00	35.56	50.29	0.33
-0.6	97.50	37.04	50.86	0.32
-0.5	95.00	39.26	52.00	0.31
-0.4	92.50	45.93	56.57	0.33
-0.3	90.00	48.89	58.29	0.33
-0.2	90.00	51.85	60.57	0.36
-0.1	90.00	54.81	62.86	0.38
0.0	90.00	60.00	66.86	0.42
0.1	85.00	65.19	69.71	0.42
0.2	85.00	68.15	72.00	0.45
0.3	85.00	75.56	77.71	0.52
0.4	77.50	76.30	76.57	0.47
0.5	77.50	80.74	80.00	0.52
0.6	72.50	88.15	84.57	0.58
0.7	55.00	90.37	82.29	0.48
0.8	50.00	91.85	82.29	0.46
0.9	47.50	94.81	84.00	0.50
1.0	35.00	97.78	83.43	0.46
1.1	27.50	97.78	81.71	0.39
1.2	20.00	98.52	80.57	0.34

Fig S6: ROC of SVM module developed using PSSM and amino acid hybrid module.

Area Under the Curve (AUC) = 0.871.

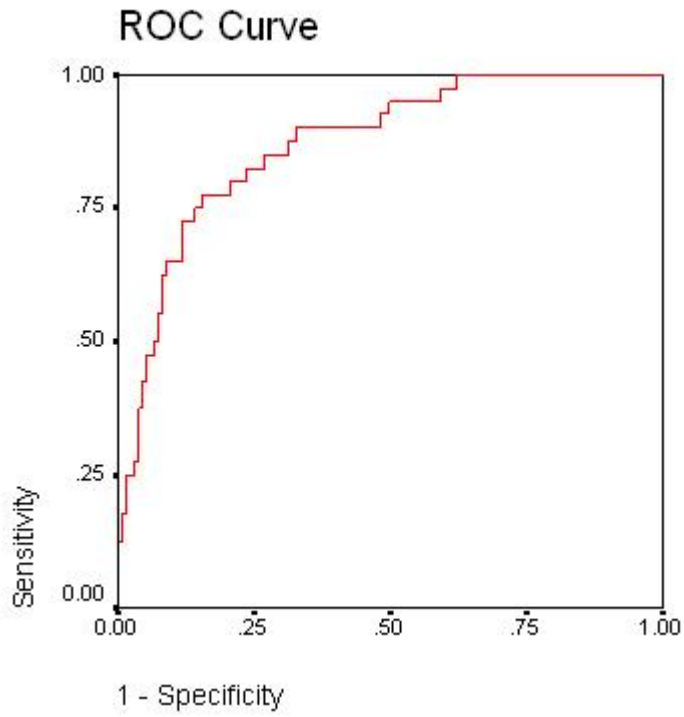


Table S7: Performance of SVM module developed using PSSM and dipeptide hybrid module.  
Parameters used: RBF Kernal, g=0.03, c=1, j=2

<b>Threshold</b>	<b>Sensitivity</b>	<b>Specificity</b>	<b>Accuracy(%)</b>	<b>MCC</b>
-1.2	100.00	17.78	36.57	0.22
-1.1	100.00	21.48	39.43	0.24
-1.0	97.50	26.67	42.86	0.25
-0.9	97.50	35.56	49.71	0.31
-0.8	95.00	42.22	54.29	0.33
-0.7	92.50	51.11	60.57	0.37
-0.6	92.50	62.22	69.14	0.46
-0.5	90.00	77.78	80.57	0.59
-0.4	87.50	88.15	88.00	0.70
-0.3	85.00	93.33	91.43	0.76
-0.2	80.00	96.30	92.57	0.78
-0.1	65.00	97.04	89.71	0.69
0.0	52.50	97.78	87.43	0.61
0.1	47.50	99.26	87.43	0.62
0.2	42.50	99.26	86.29	0.58
0.3	35.00	99.26	84.57	0.51
0.4	25.00	99.26	82.29	0.42
0.5	22.50	100.00	82.29	0.43
0.6	17.50	100.00	81.14	0.38
0.7	15.00	100.00	80.57	0.35
0.8	10.00	100.00	79.43	0.28
0.9	10.00	100.00	79.43	0.28
1.0	10.00	100.00	79.43	0.28
1.1	10.00	100.00	79.43	0.28
1.2	10.00	100.00	79.43	0.28

Fig S7: ROC of SVM module developed using PSSM and dipeptide hybrid module.

Area Under the Curve (AUC) = 0.924.

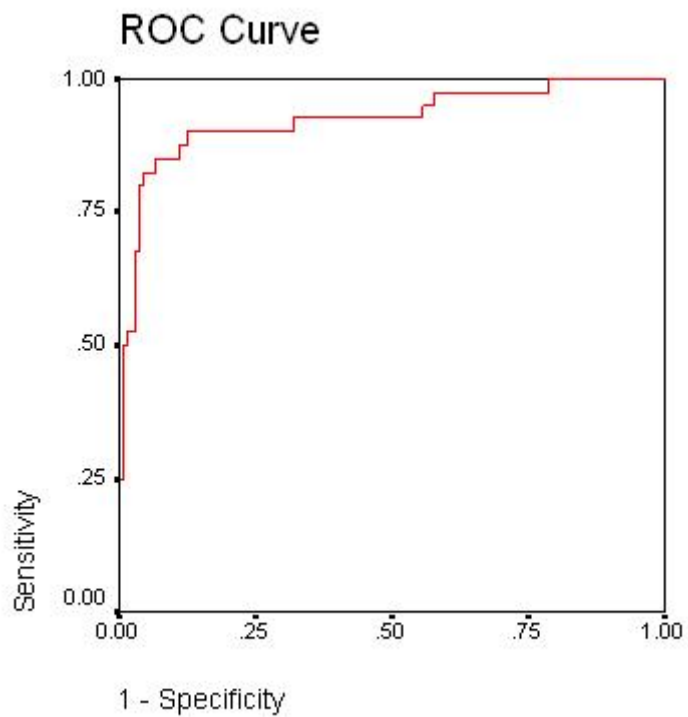


Table S8: Performance of SVM module developed using PSSM and SAAC hybrid module.

Parameters used: RBF Kernal,  $g=0.0001$ ,  $c=8$ ,  $j=2$

<b>Threshold</b>	<b>Sensitivity</b>	<b>Specificity</b>	<b>Accuracy(%)</b>	<b>MCC</b>
-1.2	100.00	54.07	64.57	0.46
-1.1	100.00	57.04	66.86	0.48
-1.0	100.00	60.74	69.71	0.51
-0.9	97.50	67.41	74.29	0.55
-0.8	97.50	71.11	77.14	0.58
-0.7	97.50	75.56	80.57	0.62
-0.6	97.50	81.48	85.14	0.69
-0.5	97.50	83.70	86.86	0.72
-0.4	97.50	85.93	88.57	0.74
-0.3	97.50	87.41	89.71	0.76
-0.2	97.50	90.37	92.00	0.81
-0.1	92.50	90.37	90.86	0.77
0.0	87.50	90.37	89.71	0.73
0.1	80.00	91.85	89.14	0.70
0.2	80.00	92.59	89.71	0.71
0.3	67.50	92.59	86.86	0.62
0.4	62.50	94.81	87.43	0.62
0.5	60.00	95.56	87.43	0.62
0.6	55.00	96.30	86.86	0.60
0.7	55.00	96.30	86.86	0.60
0.8	42.50	96.30	84.00	0.49
0.9	40.00	97.04	84.00	0.49
1.0	30.00	97.78	82.29	0.42
1.1	22.50	98.52	81.14	0.36
1.2	15.00	98.52	79.43	0.27

Fig S8: ROC of SVM module developed using PSSM and SAAC hybrid module.

Area Under the Curve (AUC) = 0.947

