Supplementary Table 2. Comparison of performances of deep neural network models with different values of hyperparameters

Model no.	Hidden layer, n	Node at layer #1, n	Node at layer #2, n	Node at layer #3, n	Node at layer #4, n	AUC in CV set 1	AUC in CV set 2	AUC in CV set 3	AUC in CV set 4	AUC in CV set 5	Average AUC
Deep neural network with nine variables											
1	2	26	26	-	-	0.753	0.730	0.733	0.718	0.731	0.7330
2	2	25	20	-	-	0.753	0.730	0.732	0.720	0.730	0.7330
3	2	25	25	-	-	0.753	0.729	0.733	0.720	0.730	0.7330
4	3	26	26	26	-	0.750	0.732	0.734	0.718	0.728	0.7324
5	3	24	24	20	-	0.752	0.732	0.734	0.720	0.724	0.7324
6	3	25	25	25	-	0.752	0.732	0.733	0.720	0.724	0.7322
7	3	25	20	10	-	0.752	0.733	0.733	0.720	0.723	0.7322
8	3	20	10	5	-	0.751	0.729	0.734	0.720	0.727	0.7322
9	2	28	28	-	-	0.751	0.730	0.733	0.717	0.729	0.7320
10	3	20	12	3	-	0.750	0.732	0.732	0.719	0.727	0.7320
11	2	30	30	-	-	0.751	0.730	0.731	0.718	0.729	0.7318
12	4	26	26	26	26	0.751	0.731	0.734	0.718	0.723	0.7314
13	2	18	8	-	-	0.751	0.729	0.731	0.715	0.731	0.7314
14	3	20	15	5	-	0.750	0.730	0.731	0.720	0.725	0.7312
15	3	20	11	4	-	0.751	0.730	0.731	0.720	0.722	0.7308
16	3	20	13	2	-	0.752	0.729	0.723	0.720	0.730	0.7308
17	3	30	20	10	-	0.750	0.732	0.732	0.719	0.720	0.7306
18	2	16	8	-	-	0.750	0.729	0.726	0.717	0.730	0.7304
19	2	10	2	-	-	0.752	0.728	0.724	0.715	0.732	0.7302
20	2	12	4	-	-	0.750	0.728	0.726	0.716	0.731	0.7302
21	4	25	25	25	25	0.748	0.730	0.734	0.718	0.720	0.7300
22	2	14	6	-	-	0.751	0.729	0.727	0.715	0.725	0.7294
23	2	20	10	-	-	0.737	0.734	0.714	0.725	0.722	0.7264
Deep neural network with 26 variables											
1	2	10	10	-	-	0.742	0.740	0.719	0.730	0.727	0.7316
2	3	20	20	20	-	0.745	0.737	0.718	0.723	0.722	0.729
3	2	15	15	-	-	0.746	0.738	0.720	0.724	0.716	0.7288
4	2	20	20	-	-	0.745	0.738	0.723	0.725	0.713	0.7288
5	2	25	25	-	-	0.745	0.739	0.718	0.722	0.720	0.7288
6	3	25	25	25	-	0.749	0.733	0.718	0.726	0.716	0.7284
7	3	22	22	22	-	0.743	0.736	0.722	0.722	0.719	0.7284
8	3	35	35	35	-	0.748	0.736	0.718	0.722	0.715	0.7278
9	4	50	40	30	10	0.740	0.734	0.718	0.721	0.722	0.7270
10	2	40	40	-	-	0.742	0.739	0.723	0.723	0.708	0.7270
11	3	45	45	45	-	0.745	0.733	0.720	0.721	0.715	0.7268
12	4	30	30	30	30	0.738	0.734	0.714	0.725	0.722	0.7266
13	4	30	30	30	30	0.738	0.734	0.714	0.725	0.722	0.7266
14	3	55	55	55	-	0.741	0.736	0.718	0.720	0.717	0.7264
15	4	25	25	25	25	0.739	0.733	0.715	0.725	0.720	0.7264

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Supplementary Table 2.Continued

Model no.	Hidden layer, n	Node at layer #1, n	Node at layer #2, n	Node at layer #3, n	Node at layer #4, n	AUC in CV set 1	AUC in CV set 2	AUC in CV set 3	AUC in CV set 4	AUC in CV set 5	Average AUC
16	3	10	10	10	-	0.739	0.742	0.713	0.717	0.720	0.7262
17	4	20	20	20	20	0.739	0.735	0.716	0.723	0.718	0.7262
18	3	65	65	65	-	0.741	0.736	0.716	0.720	0.717	0.7260
19	4	40	40	40	40	0.736	0.734	0.714	0.728	0.717	0.7258
20	4	45	45	45	45	0.74	0.732	0.716	0.719	0.719	0.7252
21	4	35	35	35	35	0.739	0.732	0.716	0.722	0.716	0.7250
22	4	60	40	20	5	0.739	0.731	0.714	0.720	0.719	0.7246
23	4	40	30	20	10	0.740	0.731	0.714	0.722	0.715	0.7244

All deep neural networks presented in the table used the sigmoid functions, the Xavier initializer, and the Adam optimizer with 1,000 epochs of the same dataset of the development group for each model.
AUC, area under the receiver operating characteristic curve; CV, cross-validation.