Supplementary 1. DDI types, descriptions and number of DDI

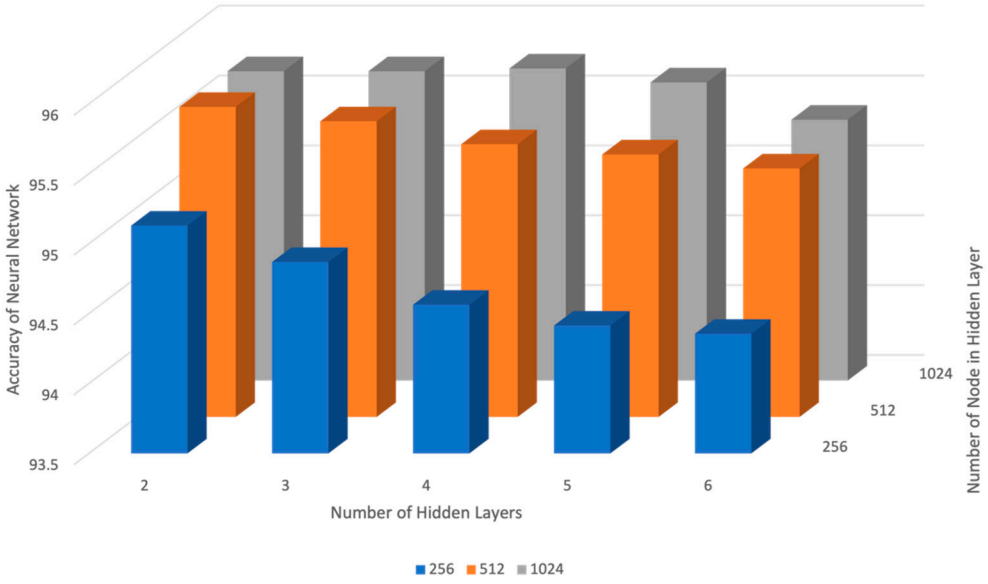
DDI Type	Description	DDI Number
1	The risk or severity of adverse effects can be increased when Drug a is combined with Drug b.	60997
2	The metabolism of Drug b can be decreased when combined with Drug a.	34360
3	The serum concentration of Drug b can be increased when it is combined with Drug a.	23779
4	The serum concentration of Drug b can be decreased when it is combined with Drug a.	9506
5	Drug a may increase the hypotensive activities of Drug b.	8397
6	The therapeutic efficacy of Drug b can be decreased when used in combination with Drug a.	7788
7	Drug a may increase the QTc-prolonging activities of Drug b.	6140
8	Drug a may increase the central nervous system depressant (CNS depressant) activities of Drug b.	5435
9	The metabolism of Drug b can be increased when combined with Drug a.	5011
10	Drug a may increase the anticoagulant activities of Drug b.	3160
11	Drug a may decrease the antihypertensive activities of Drug b.	3089
12	Drug a may increase the hypoglycemic activities of Drug b.	2109
13	Drug a may decrease the excretion rate of Drug b which could result in a higher serum level.	1825
14	Drug a may increase the bradycardic activities of Drug b.	1277
15	Drug a may increase the hypokalemic activities of Drug b.	1204
16	Drug a can cause a decrease in the absorption of Drug b resulting in a reduced serum concentration and potentially a decrease in efficacy.	1092
17	Drug a may decrease the cardiotoxic activities of Drug b.	1043
18	Drug a may increase the sedative activities of Drug b.	1015
19	Drug a may increase the neuroexcitatory activities of Drug b.	936
20	Drug a may increase the serotonergic activities of Drug b.	803
21	Drug a may increase the atrioventricular blocking (AV block) activities of Drug b.	716
22	Drug a may increase the hypertensive activities of Drug b.	673
23	Drug a may increase the nephrotoxic activities of Drug b.	664
24	Drug a may increase the antihypertensive activities of Drug b.	629
25	Drug a may increase the orthostatic hypotensive activities of Drug b.	616
26	Drug a may decrease the sedative activities of Drug b.	558
27	The serum concentration of the active metabolites of Drug b can be increased when Drug b is used in combination with Drug a.	538
28	The bioavailability of Drug b can be decreased when combined with Drug a.	519
29	Drug a may decrease the stimulatory activities of Drug b.	498
30	The risk or severity of QTc prolongation can be increased when Drug a is combined with Drug b.	443
31	Drug a may increase the neuromuscular blocking activities of Drug b.	428
32	Drug a may increase the fluid retaining activities of Drug b.	422
33	Drug a may increase the tachycardic activities of Drug b.	372
34	Drug a may decrease the bronchodilatory activities of Drug b.	361
35	Drug a may increase the arrhythmogenic activities of Drug b.	355
36	Drug a may increase the antiplatelet activities of Drug b.	336
37	Drug a may decrease the diuretic activities of Drug b.	324

38	Drug a may increase the anticholinergic activities of Drug b.	323
39	The serum concentration of the active metabolites of Drug b can be reduced when Drug b is used in combination with Drug a resulting in a loss in efficacy.	313
40	Drug a may increase the immunosuppressive activities of Drug b.	312
41	Drug a may decrease the vasoconstricting activities of Drug b.	309
42	Drug a may increase the respiratory depressant activities of Drug b.	300
43	Drug a may increase the analgesic activities of Drug b.	280
44	Drug a may increase the hyperkalemic activities of Drug b.	278
45	The therapeutic efficacy of Drug b can be increased when used in combination with Drug a.	245
46	Drug a may decrease the anticoagulant activities of Drug b.	238
47	Drug a may increase the cardiotoxic activities of Drug b.	202
48	Drug a may increase the hypocalcemic activities of Drug b.	180
49	Drug a may increase the constipating activities of Drug b.	148
50	The risk or severity of bleeding can be increased when Drug a is combined with Drug b.	128
51	Drug a may increase the hyponatremic activities of Drug b.	118
52	Drug a may increase the vasoconstricting activities of Drug b.	109
53	Drug a may increase the thrombogenic activities of Drug b.	108
54	Drug a may increase the antipsychotic activities of Drug b.	94
55	Drug a may increase the adverse neuromuscular activities of Drug b.	94
56	Drug a may decrease the neuromuscular blocking activities of Drug b.	83
57	Drug a may increase the hypercalcemic activities of Drug b.	83
58	Drug a can cause an increase in the absorption of Drug b resulting in an increased serum concentration and potentially a worsening of adverse effects.	82
59	Drug a may increase the myopathic rhabdomyolysis activities of Drug b.	69
60	Drug a may increase the vasopressor activities of Drug b.	65
61	Drug a may increase the hepatotoxic activities of Drug b.	64
62	Drug a may increase the stimulatory activities of Drug b.	56
63	The absorption of Drug b can be decreased when combined with Drug a.	45
64	Drug a may increase the ulcerogenic activities of Drug b.	43
65	Drug a may increase the myelosuppressive activities of Drug b.	34
66	Drug a may decrease effectiveness of Drug b as a diagnostic agent.	33
67	Drug a may increase the vasodilatory activities of Drug b.	33
68	The risk or severity of hypotension can be increased when Drug a is combined with Drug b.	33
69	Drug a may increase the hyperglycemic activities of Drug b.	28
70	Drug a may increase the central nervous system depressant (CNS depressant) and hypertensive activities of Drug b.	27
71	The risk of a hypersensitivity reaction to Drug b is increased when it is combined with Drug a.	27
72	Drug a may increase the bronchoconstrictory activities of Drug b.	26
73	The risk or severity of heart failure can be increased when Drug b is combined with Drug a.	26
74	Drug a may increase the hypotensive and central nervous system depressant (CNS depressant) activities of Drug b.	14

75	The risk or severity of hypertension can be increased when Drug b is combined with Drug a.	14
76	Drug a may increase the central neurotoxic activities of Drug b.	13
77	The protein binding of Drug b can be decreased when combined with Drug a.	11
78	The bioavailability of Drug b can be increased when combined with Drug a.	11
79	Drug a may increase the dermatologic adverse activities of Drug b.	11
80	Drug a may decrease the analgesic activities of Drug b.	10

Supplementary Figure 1. Graph of model's accuracy depend on number of hidden layer and number of node in hidden layer

	2	3	4	5	6
256	95.12979	94.869663	94.563995	94.414829	94.35614
512	95.718198	95.615495	95.451655	95.378295	95.278036
1024	95.713308	95.713308	95.73287	95.63313	95.366068



Supplementary Figure 2. Graph of F1 score for decision threshold

