Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supplementary Material

Development of novel antipsychotic agents by inhibiting dopamine transporter – comprehensive in silico approach

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Table S1. The SMILES notation of the studied molecules, calculated values for the DCW, experimental data (Ac) – expr, the values of Ac calculated with the application of CORAL software – calc, the difference between expr and calc – diff for the built QSPR model

				Split 1				Split 2				Split 3			
	CHEMBL ID	SMILES notation	Exp.	DCW	Calc.	Diff	Set	DCW	Calc.	Diff	Set	DCW	Calc.	Diff	Set
1	CHEMBL59103	c1ccc(cc1)C1CCN(CC1)Cc1c[nH]c2c1cccc2	7.602	58.51804	7.4872	0.1148	Tr	89.68157	7.5207	0.0813	Tr	63.5441	7.3303	0.2717	Tr
2	CHEMBL57478	CC1CCN(CC1)Cc1c[nH]c2c1cccc2	6.244	39.89871	6.4623	-0.2183	Tr	69.16393	6.1929	0.0511	Tr	53.55339	6.5624	-0.3184	Tr
3	CHEMBL59324	c1ccc(cc1)N1CCN(CC1)Cc1c[nH]c2c1cccc2	8.097	66.02025	7.9001	0.1969	Tr	96.95687	7.9915	0.1055	Tr	72.02765	7.9824	0.1146	Tr
4	CHEMBL58296	Clc1ccc(cc1)CN1CCC(CC1)c1noc(c1)c1ccc(cc1)Cl	7.357	64.79921	7.8329	-0.4759	Ts	92.18446	7.6827	-0.3257	Ts	64.08256	7.3717	-0.0147	Tr
5	CHEMBL60815	c1ccc(cc1)N1CCN(CC1)Cc1[nH]cc(c1)c1ccccc1	7.921	74.28323	8.355	-0.434	Tr	102.0615	8.3219	-0.4009	Ts	75.4458	8.2452	-0.3242	Tr
6	CHEMBL60518	Ic1ccc(cc1)N1CCN(CC1)Cc1c[nH]c2c1cccn2	9.292	92.15413	9.3386	-0.0466	Tr	109.6511	8.813	0.479	Tr	86.44275	9.0904	0.2016	Tr
7	CHEMBL61080	Clc1ccc(cc1)CN1CCC(CC1)c1n[nH]c(c1)c1ccc(cc1)Cl	7.215	66.09157	7.904	-0.689	Ts	90.99112	7.6054	-0.3904	Tr	66.87735	7.5865	-0.3715	Tr
8	CHEMBL61079	Clc1ccc(cc1)c1[nH]nc(c1C)C1CCN(CC1)CCc1ccccc1	8.921	72.136	8.2368	0.6842	Ts	105.4192	8.5392	0.3818	Tr	82.20996	8.7651	0.1559	Tr
9	CHEMBL61195	Clc1ccc(cc1)CN1CCC(CC1)c1onc(c1)c1ccc(cc1)Cl	8.444	72.24857	8.243	0.201	Tr	95.27375	7.8826	0.5614	Tr	67.55574	7.6387	0.8053	Tr
10	CHEMBL80411	CN(C1=Nc2c(OC1)cccc2)CCCCN1CCN(CC1)c1ncccn1	6.253	46.48516	6.8248	-0.5718	Ts	69.66235	6.2252	0.0278	Ts	48.17423	6.1489	0.1041	Ts
11	CHEMBL80655	c1cnc(nc1)N1CCN(CC1)CCCN=C1COc2c(N1)cccc2	6.971	52.41001	7.151	-0.18	Tr	88.5796	7.4494	-0.4784	Tr	61.93618	7.2067	-0.2357	Tr
12	CHEMBL80645	C(CCN1CCN(CC1)c1ncccn1)CCN=C1COc2c(N1)cccc2	7.721	60.70983	7.6078	0.1132	Tr	92.88947	7.7283	-0.0073	Ts	66.27382	7.5401	0.1809	Tr
13	CHEMBL80627	C(CCN1CCN(CC1)c1ccccn1)CCN=C1COc2c(N1)cccc2	7.301	59.69728	7.5521	-0.2511	Tr	96.22169	7.9439	-0.6429	Tr	64.98704	7.4412	-0.1402	Tr
14	CHEMBL80711	COc1ccccc1N1CCN(CC1)CCCN=C1COc2c(N1)cccc2	8.523	72.86508	8.2769	0.2461	Tr	84.20015	7.166	1.357	Tr	71.67426	7.9553	0.5677	Ts
15	CHEMBL88289	FC(c1nc2c([nH]1)c(ccc2)N1CCN(CC1)Cc1ccccc1)(F)F	8.538	77.41586	8.5274	0.0106	Tr	97.6342	8.0354	0.5026	Ts	83.50093	8.8643	-0.3263	Tr
16	CHEMBL88837	c1ccc(cc1)CN1CCN(CC1)c1cccc2c1[nH]cn2	7.328	66.54151	7.9288	-0.6008	Ts	90.10007	7.5478	-0.2198	Tr	66.80635	7.5811	-0.2531	Tr
17	CHEMBL90476	Brc1ccc(c2c1[nH]cc2)N1CCN(CC1)Cc1ccccc1	8.585	75.07204	8.3984	0.1866	Tr	106.6664	8.6199	-0.0349	Tr	73.02764	8.0593	0.5257	Ts
18	CHEMBL99967	c1ccc(nc1)N1CCN(CC1)Cc1cnc([nH]1)c1ccccc1	8.071	70.94941	8.1714	-0.1004	Tr	108.3218	8.727	-0.656	Tr	77.64778	8.4144	-0.3434	Ts
19	CHEMBL103772	c1ccc(cc1)c1ncc([nH]1)CN1CCN(CC1)c1ncccn1	8.42	72.52936	8.2584	0.1616	Tr	93.46717	7.7657	0.6543	Tr	70.03573	7.8293	0.5907	Ts
20	CHEMBL103871	c1ccc(cc1)N1CCN(CC1)Cc1cnc([nH]1)c1ccccc1	8.284	75.41584	8.4173	-0.1333	Tr	106.2961	8.5959	-0.3119	Ts	75.82994	8.2747	0.0093	Tr
21	CHEMBL53	CN1CCc2c3C1Cc1ccc(c(c1c3ccc2)O)O	8.051	66.54681	7.9291	0.1219	Tr	97.83491	8.0483	0.0027	Tr	71.07302	7.909	0.142	Tr
22	CHEMBL108463	c1ccc(cc1)C1=CCN(CC1)CCC#Cc1cccnc1	6.17	40.11565	6.4742	-0.3042	Ts	71.46387	6.3418	-0.1718	Tr	45.94245	5.9774	0.1926	Ts

23	CHEMBL108531	Nc1ccc(cc1)C#CCCN1CCC(=CC1)c1ccccc1	6.64	39.71184	6.452	0.188	Tr	73.21589	6.4551	0.1849	Ts	52.52728	6.4835	0.1565	Tr
24	CHEMBL109063	N=c1ccc(c[nH]1)C#CCCN1CCC(=CC1)c1ccccc1	6.56	40.90899	6.5179	0.0421	Tr	69.92829	6.2424	0.3176	Tr	52.2023	6.4585	0.1015	Tr
25	CHEMBL109101	Nc1ccc(nc1)C#CCCN1CCC(=CC1)c1ccccc1	6.43	37.53353	6.3321	0.0979	Tr	73.37154	6.4652	-0.0352	Tr	55.36775	6.7018	-0.2718	Tr
26	CHEMBL110489	c1ccc(cc1)C1=CCN(CC1)CCC#Cc1ccncc1	6.24	37.6586	6.339	-0.099	Tr	66.48174	6.0193	0.2207	Ts	47.02242	6.0604	0.1796	Tr
27	CHEMBL125916	COc1ccccc1N1CCN(CC1)CCCCN=C(c1cc2c([nH]1)cccc2)O	6.322	50.01826	7.0193	-0.6973	Ts	82.57925	7.0611	-0.7391	Tr	50.64663	6.339	-0.017	Tr
28	CHEMBL128232	Cc1cccc(c1)OCCNCCCOc1ccccc1	9.34	89.10051	9.1706	0.1694	Tr	117.3888	9.3138	0.0262	Tr	92.76003	9.576	-0.236	Tr
29	CHEMBL128222	Clc1ccc(cc1)OCCNCCCOc1ccc(cc1)Br	7.42	68.22994	8.0218	-0.6018	Ts	93.11856	7.7431	-0.3231	Tr	69.49997	7.7881	-0.3681	Tr
30	CHEMBL129534	Clc1cccc(c1)OCCNCCCOc1ccccc1	9.51	87.66361	9.0915	0.4185	Tr	118.0714	9.3579	0.1521	Tr	84.67621	8.9547	0.5553	Tr
31	CHEMBL128647	Cc1ccc(cc1)OCCNCCCOc1ccccc1	9.28	86.6803	9.0373	0.2427	Tr	111.2546	8.9168	0.3632	Tr	84.71431	8.9576	0.3224	Tr
32	CHEMBL128524	C(CCOc1ccccc1)NCCOc1ccccc1	8.699	86.92222	9.0507	-0.3517	Tr	113.7024	9.0752	-0.3762	Ts	88.07767	9.2161	-0.5171	Tr
33	CHEMBL130370	Cc1ccc(cc1)OCCNCCCOc1ccc(cc1)C	7.96	80.31323	8.6869	-0.7269	Tr	106.7032	8.6222	-0.6622	Tr	72.43938	8.0141	-0.0541	Tr
34	CHEMBL129757	Fc1ccc(cc1)OCCCNCCOc1ccc(cc1)Cl	9.08	81.88274	8.7733	0.3067	Tr	106.6417	8.6183	0.4617	Tr	76.64771	8.3375	0.7425	Tr
35	CHEMBL129927	Cc1cc(OCCNCCCOc2ccccc2)ccc1C	9.46	93.32111	9.4029	0.0571	Tr	118.8424	9.4078	0.0522	Tr	91.74731	9.4982	-0.0382	Ts
36	CHEMBL131299	Cc1ccc(cc1)OCCCNCCOc1ccccc1	8.57	86.6803	9.0373	-0.4673	Tr	111.2546	8.9168	-0.3468	Tr	84.71431	8.9576	-0.3876	Tr
37	CHEMBL131396	Clc1ccccc1OCCNCCCOc1ccccc1	8.36	85.58591	8.9771	-0.6171	Ts	106.0592	8.5806	-0.2206	Ts	83.03642	8.8286	-0.4686	Ts
38	CHEMBL131484	Cc1ccc(cc1)OCCCNCCOc1ccc(cc1)Cl	8.25	76.88779	8.4983	-0.2483	Tr	101.7987	8.3049	-0.0549	Tr	79.73868	8.5751	-0.3251	Ts
39	CHEMBL131997	Clc1cc(OCCNCCCOc2ccccc2)ccc1C	9.28	89.67885	9.2024	0.0776	Tr	117.11	9.2957	-0.0157	Tr	88.41842	9.2423	0.0377	Tr
40	CHEMBL140594	N#Cc1ccc2c(c1)cc([nH]2)CN1CCN(CC1)c1ccc(cc1)Cl	8.678	77.07987	8.5089	0.1691	Tr	107.6666	8.6846	-0.0066	Ts	85.71794	9.0347	-0.3567	Ts
41	CHEMBL140165	N#Cc1ccc2c(c1)c(c[nH]2)CN1CCN(CC1)c1ccc(cc1)F	6.959	62.80985	7.7234	-0.7644	Ts	86.07992	7.2876	-0.3286	Tr	60.42443	7.0905	-0.1315	Tr
42	CHEMBL140258	N#Cc1ccc2c(c1)[nH]c(c2)CN1CCN(CC1)c1ccccc1Cl	8.469	76.62628	8.4839	-0.0149	Tr	106.8804	8.6337	-0.1647	Tr	78.60047	8.4876	-0.0186	Tr
43	CHEMBL141035	N#Cc1ccc2c(c1)cc([nH]2)CN1CCN(CC1)c1ccccc1Cl	8.854	81.45529	8.7497	0.1043	Tr	108.1881	8.7183	0.1357	Tr	83.24533	8.8447	0.0093	Tr
44	CHEMBL243225	CCOc1ccccc1N1CCN(CC1)CCCC1ON=C(C1)c1ccc(c(c1)OC)OC~	6.648	42.44611	6.6025	0.0455	Tr	74.93439	6.5663	0.0817	Tr	56.90235	6.8198	-0.1718	Ts

Table S2. Y-randomization of the best QSAR model (best optimization run) for three independent splits

Run	Training	Test	Training	Test	Training	Test
0	0.9747	0.8873	0.8264	0.9329	0.9041	0.8812
1	0.0294	0.0006	0.0404	0.1584	0.0367	0.0564
2	0.0023	0.1438	0.0012	0.0643	0.038	0.041
3	0.0042	0.0358	0.0306	0	0.0533	0.046
4	0.0417	0.2768	0.0027	0.1363	0.0054	0.0062
5	0.0116	0.012	0.0667	0.1791	0.0191	0.3751
6	0.0422	0.1843	0.0088	0.0272	0.0156	0.0033
7	0.0009	0	0.0003	0.1602	0.0286	0.0111
8	0.0486	0.2302	0.1065	0.054	0.0115	0.0623
9	0.0345	0.0494	0.0913	0.0002	0.003	0.0465
10	0.0186	0.2257	0.0255	0.0002	0.0016	0.1788
R_r^2	0.0234	0.1159	0.0374	0.078	0.0213	0.0827
$^{C}R_p^2$	0.9629	0.8273	0.8075	0.893	0.8934	0.8388
$^{C}R_p^2 = R \times (R^2-R_r^2)^{1/2}$ should be > 0.5						

Table S3. The statistical quality of QSAR models developed with the GA-MLR method for dopamine transporter inhibition

Fitting criteria										
S	R^2	R^2_{adj}	R^2-R^2_{adj}	LOF	$RMSE_{tr}$	MAE_{tr}	RSS_{tr}	CCC_{tr}	s	F
1	0.9076	0.8905	0.0171	0.1683	0.286	0.2087	2.6986	0.9515	0.3161	53.0216
2	0.8754	0.8515	0.024	0.2735	0.3596	0.2853	4.1373	0.9336	0.3989	36.5427
3	0.8873	0.8656	0.0217	0.2332	0.332	0.2693	3.5272	0.9403	0.3683	40.9389
Internal validation criteria										
Sp	Q^2_{loo}	R^2-Q^2_{loo}	$RMSE_{cv}$	MAE_{cv}	$PRESS_{cv}$	CCC_{cv}				
1	0.8733	0.0343	0.3348	0.2474	3.6996	0.9335				
2	0.817	0.0584	0.4358	0.357	6.0767	0.9064				
3	0.8263	0.061	0.4121	0.3356	5.4352	0.9087				
External validation criteria										
Sp	$RMSE_{ext}$	MAE_{ext}	$PRESS_{ext}$	R^2_m(av)	ΔR^2_m	k	k'			
1	1.5504	1.2919	24.0374	0.5654	0.1780	0.8488	1.1356			
2	0.8703	0.6709	8.3317	0.5846	0.0387	0.9778	1.0169			
3	0.8474	0.6632	7.8995	0.6046	0.0220	0.9720	1.0177			
Predictions by LOO										
Sp	R'^2	R'^2_0	k'	C_{los}'	r'^2_m	R^2	R^2_0	k	C_{los}	R^2_m
1	0.8736	0.8606	0.9981	0.0149	0.7738	0.8736	0.8733	1.0003	0.0004	0.858
2	0.8229	0.8086	1.0023	0.0175	0.7243	0.8229	0.8187	0.9949	0.0052	0.7694
3	0.828	0.8078	0.9985	0.0244	0.7103	0.828	0.8264	0.9988	0.0019	0.7954

R^2 – The Coefficient of Determination; R^2_{adj} – adjusted R^2
LOF – Lack-of-fit
LOO – Leave One Out
RMSE – Root Mean Square Error; $RMSE_{tr}$ – for training set, $RMSE_{cv}$ – for internal validation; $RMSE_{ext}$ – for external validation
MAE – Mean Absolute Error; MAE_{tr} – for training set, MAE_{cv} – for internal validation
RSS – Residual Sum of Squares
CCC – The Concordance Correlation Coefficient; CCC_{tr} – for training set, CCC_{cv} – for internal validation
s – Standard Deviation
Sp – Split
PRESS – The Predicted Residual Error Sum of Squares; $PRESS_{cv}$ – for internal validation; $PRESS_{ext}$ – for external validation
R^2_m, R^2_m(av), ΔR^2_m – [49,50]
R_0^2, k, k' – Golbraikh A, Tropsha A, J. Mol. Graph. Model. 20 (2002) 269.
In predictions by LOO " ' " indicates Exp(x) vs. Pred(y) while without indicates Pred(x) vs. Exp(y)

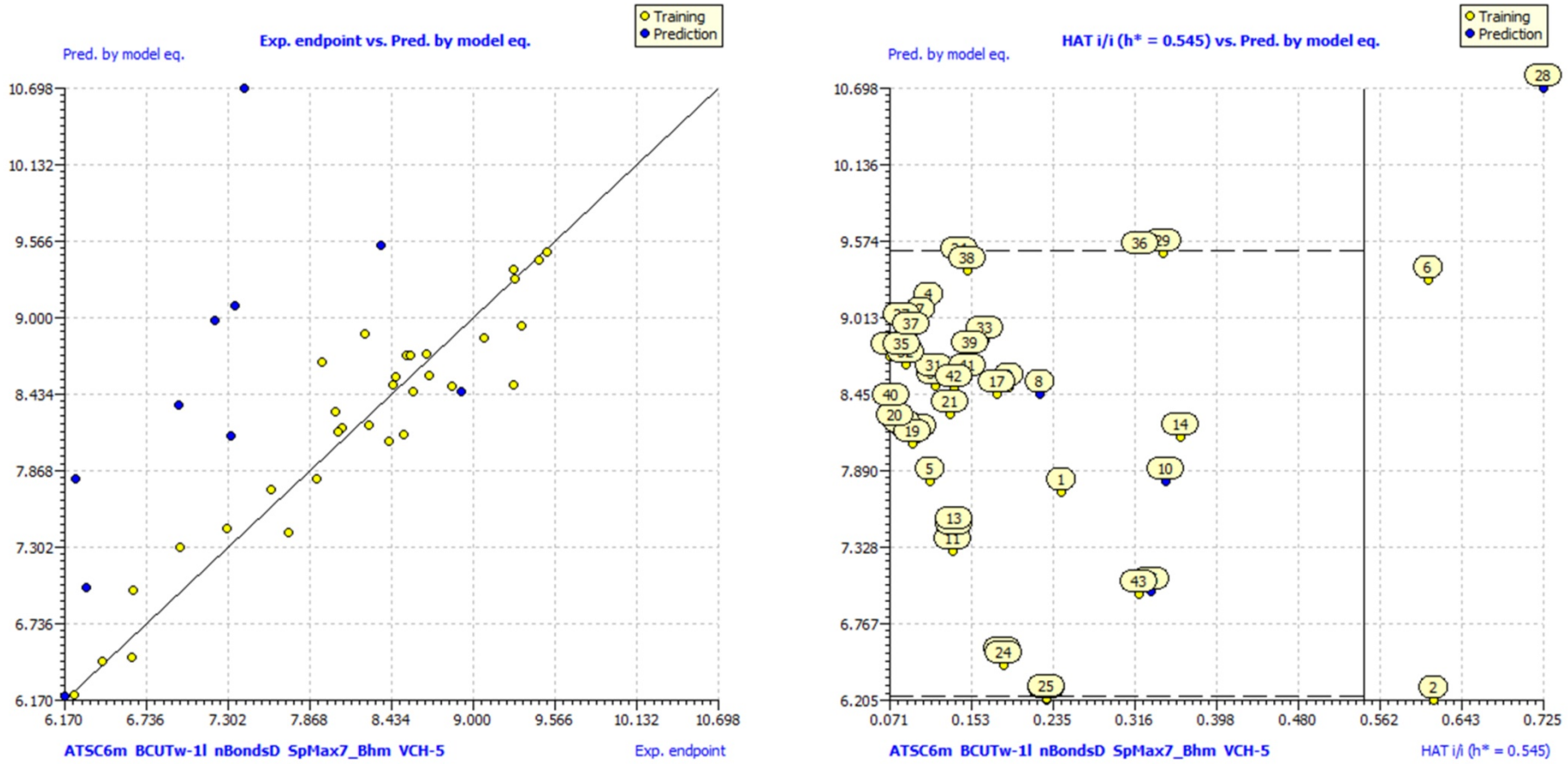

Figure S1. Left) Graphical representation of developed QSAR model with GA-MLR method for split 1; Right) Graphical representation of applicability domain established for split 1.

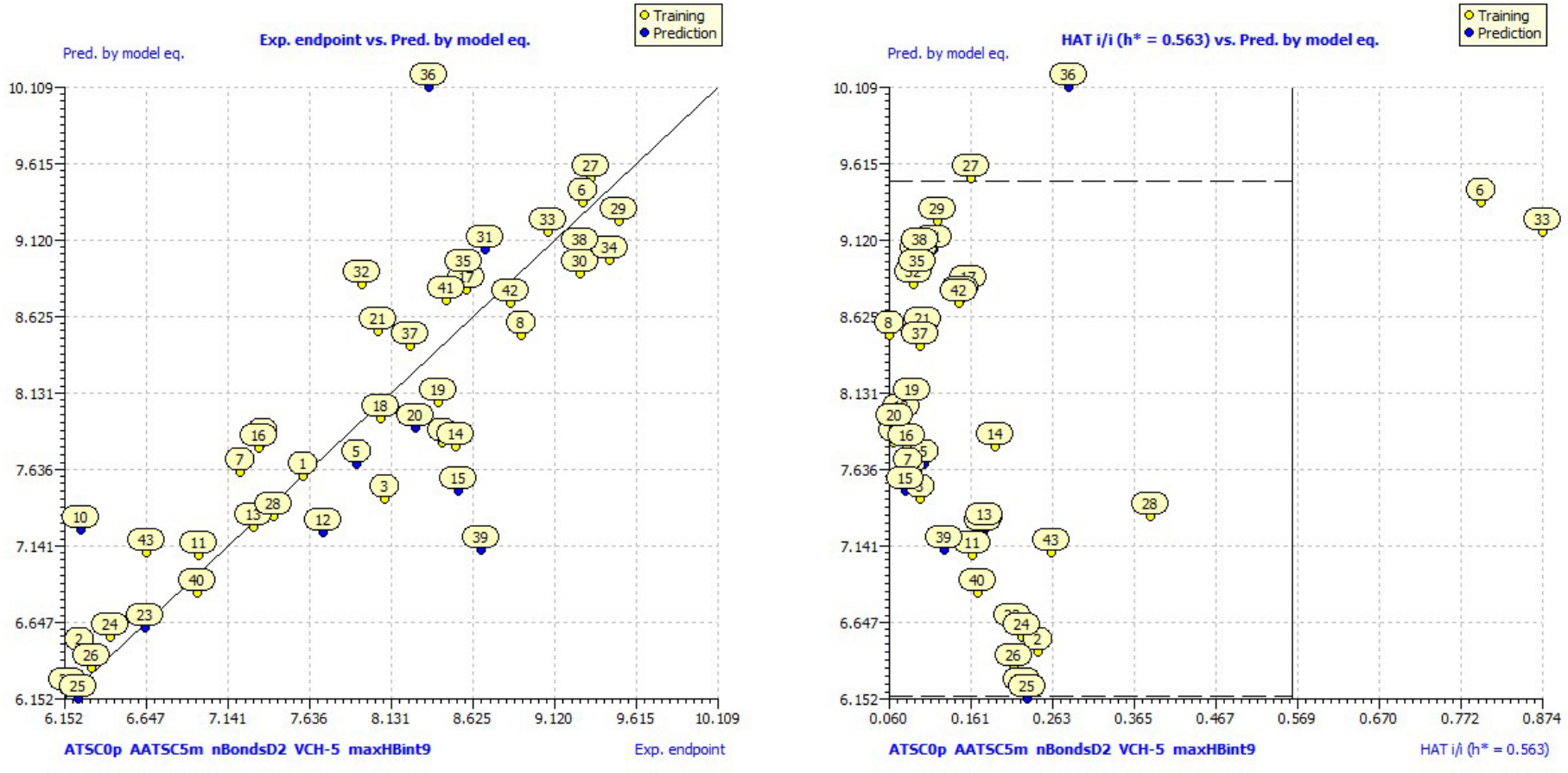

Figure S2. Left) Graphical representation of developed QSAR model with GA-MLR method for split 2; Right) Graphical representation of applicability domain established for split 2.

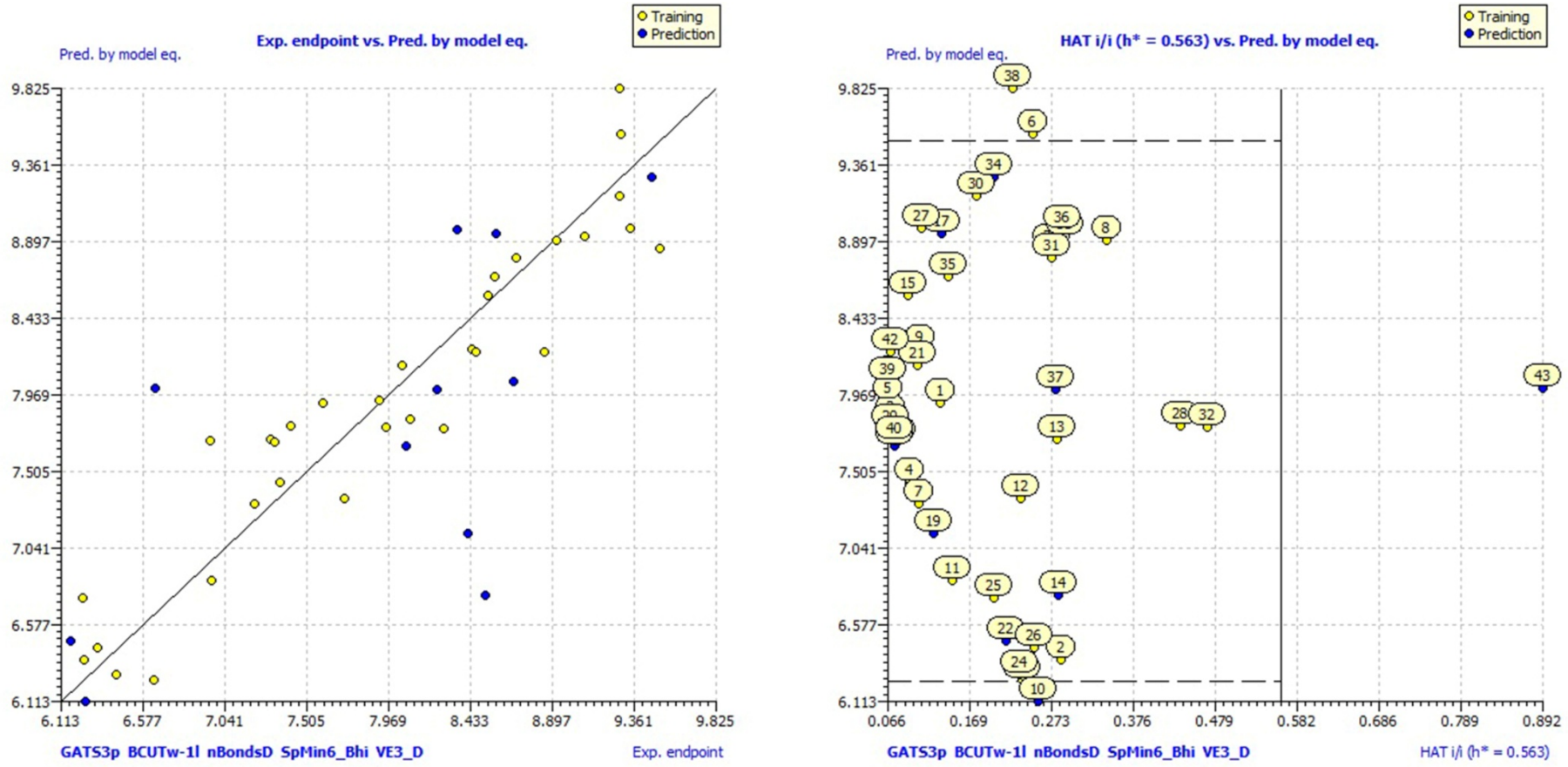

Figure S3. Left) Graphical representation of developed QSAR model with GA-MLR method for split 3; Right) Graphical representation of applicability domain established for split 3.

Table S4. The list of SAks together with their correlation weights for the three runs of the Monte Carlo optimization

SA(CW)	CW			SA(CW)	CW			SA(CW)	CW			SA(CW)	CW			SA(CW)	CW		
	Run 1	Run 2	Run 3		Run 1	Run 2	Run 3		Run 1	Run 2	Run 3		Run 1	Run 2	Run 3		Run 1	Run 2	Run 3
#.....	0.13838	-0.61717	0.23662	Br..(...1...	-1.14836	-0.78621	0.05237	P4E0o...7-..	0.36242	-0.09638	0.28747	PT2-I...2...	0.30344	0.59463	1.52808	VS3-C...6...	0.2546	0.18156	0.23146
$10000000	2.69353	-0.54565	1.66091	Br.....	1.1898	0.18389	0.16716	NNC-C...101.	-0.60766	0.10086	0.17896	PT2-Cl..2...	0.5359	0.0903	-0.72561	VS3-C...7...	0.29217	0.11761	0.2746
$10000001	2.14614	0.22365	0.40735	Br..c...1...	0.36301	-0.36323	-0.18217	NNC-C...110.	0.07715	0.30667	2.48372	PT2-N...1...	-1.23098	0.19437	-0.93134	VS3-C...8...	0.04874	-0.02903	0.12174
$10000010	-0.64534	1.23135	2.11634	I.....	0.36599	-0.63527	2.49334	NNC-C...202.	2.12037	0.35213	0.72849	PT2-N...2...	0.27268	0.37417	0.69884	VS3-C...9...	0.30291	-0.93651	0.03715
$10000100	1.30065	0.30289	0.47072	I...c...1...	0.42928	0.32488	2.27789	NNC-C...211.	0.28844	0.8152	0.36177	PT2-N...3...	-0.8636	-0.24291	-0.77606	VS3-F...4...	0.35192	0.15352	0.34707
$11000000	0.22522	2.35682	2.04787	Cl..(.....	0.49359	2.28092	-0.49422	NNC-C...220.	0.22593	0.45802	0.01177	PT2-N...4...	0.08229	0.30006	0.00474	VS3-Br..4...	-0.11203	0.42854	-0.6804
$11000100	-0.98729	0.02907	1.85065	Cl..(...1...	0.4604	0.04948	1.02237	NNC-C...303.	0.09931	0.35359	1.27014	PT2-O...2...	0.05102	0.06947	0.47979	VS3-Br..7...	2.14889	0.08725	2.14592
$11000110	-0.94115	-0.93591	-0.73517	Cl.....	-0.5869	2.10764	0.24751	NNC-C...312.	1.24101	0.16223	0.82881	PT2-O...3...	0.27782	-0.45908	0.41897	VS3-I...4...	0.51432	0.46746	2.29038
$11001100	1.15157	0.14948	2.42221	Cl..1.....	2.0818	-0.35107	-0.88289	NNC-C...321.	0.29841	-0.52601	-0.89912	PT2-o...3...	0.55526	-0.07325	0.56728	VS3-Cl..4...	0.27626	0.10477	0.3521
$1010000100	0.33382	0.04101	0.56747	Cl..c...1...	-1.36906	0.39877	1.65054	NNC-C...330.	0.04581	-0.96846	0.29336	PT3-C...1...	0.14761	-0.53112	-0.82961	VS3-Cl..5...	0.52616	0.3853	2.11651
$1010001000	-0.90826	-0.29902	-1.34069	Cmax.1.....	0.12281	0.25367	0.49301	NNC-F...110.	0.10102	0.41344	0.47332	PT3-C...2...	0.4518	-0.53337	0.13449	VS3-Cl..6...	0.31841	1.07057	0.09232
$10011000000	-0.75273	0.3343	-0.90777	Cmax.2.....	0.25293	0.06079	-0.0183	NNC-Br..110.	0.0606	0.28512	2.21623	PT3-C...3...	0.47383	0.47577	0.402	VS3-Cl..7...	0.33934	2.19271	0.38047
$11010000000	-0.75254	0.32472	0.4699	Cmax.3.....	-0.01254	0.4238	0.58241	NNC-I...110.	0.49556	0.40994	2.64196	PT3-C...4...	0.03346	0.02138	0.09068	VS3-N...10..	0.39979	0.17363	0.29201
(.....	0.10389	-0.69416	0.41973	HALO00000000	0.88245	0.02008	0.74961	NNC-Cl..110.	2.03959	0.07074	2.21744	PT3-C...5...	0.45041	0.34684	0.18364	VS3-N...11..	0.01458	0.40362	0.31021
(...C...#...	-0.78715	0.1076	-0.51352	HALO00010000	0.32252	0.59746	1.05333	NNC-N...110.	0.02407	-0.43192	-0.53326	PT3-C...6...	-0.82242	0.01883	-0.5623	VS3-N...12..	0.29321	4.30563	0.12795
(...O...(...	0.08421	-0.33465	-0.09698	HALO00100000	0.43922	0.40955	0.41236	NNC-N...202.	-0.61507	0.07083	-0.07626	PT3-C...7...	0.09117	0.08191	0.39306	VS3-N...13..	0.50232	-0.4992	0.04326
(...c...(...	-0.89406	-0.91774	-0.60226	HALO01000000	0.29763	0.08342	0.62896	NNC-N...211.	0.12067	0.09847	0.03073	PT3-C...8...	0.25955	0.43827	2.24564	VS3-N...4...	0.449	1.4732	-0.79704
++++B2--B3==	-0.74578	0.15598	-0.96146	HALO01100000	-0.89361	-0.3822	-1.08204	NNC-N...220.	0.06181	0.1597	0.61758	PT3-C...9...	-0.01842	0.15112	-0.0614	VS3-N...5...	0.15327	0.33214	0.34154
++++F---B3==	-0.37215	-0.76411	-0.82929	HALO10000000	0.38616	0.03032	0.18164	NNC-N...330.	-0.94704	0.29236	0.03173	PT3-F...2...	0.02354	0.1418	0.27506	VS3-N...6...	0.27673	-0.37917	-1.71427
++++F---Cl==	2.42109	2.26814	0.21866	HALO11000000	2.28262	2.15247	2.43827	NNC-O...110.	-0.91857	0.27748	0.25074	PT3-Br..2...	-0.47549	-0.27382	-0.91685	VS3-N...7...	-0.57832	0.48312	0.00542
++++F---N===	0.39311	0.10733	0.19088	N...#.....	-0.78409	1.44807	2.08279	NNC-O...211.	-2.03871	-1.07501	-0.16696	PT3-Br..3...	2.13932	0.12193	0.16155	VS3-N...8...	-0.61866	-0.09834	0.44429
++++F---O===	0.40102	-0.15371	-0.53361	N...#...C...	1.07809	0.05628	2.31816	NNC-O...220.	0.48415	0.3408	2.06967	PT3-I...2...	0.19602	2.74965	0.33612	VS3-N...9...	-0.86414	0.25423	1.16629
++++CL--Br==	-0.7783	0.28837	-0.78479	N...(.....	0.17889	0.03952	0.30752	NNC-o...211.	0.42751	0.28582	0.0407	PT3-Cl..2...	0.0343	0.51754	-0.65494	VS3-O...10..	0.48919	0.06177	0.47062
++++CL--N===	-0.2194	0.5215	0.05276	N...(...1...	0.03641	0.00922	0.48791	NNE0C...100-	0.08079	0.21305	0.22034	PT3-Cl..3...	2.13474	1.3856	2.43823	VS3-O...6...	0.00109	-0.49169	-0.56489
++++CL--O===	-0.22421	0.65431	-0.58629	N...(...2...	0.14712	0.54228	0.1226	NNE0C...109-	0.05832	0.46903	0.18464	PT3-N...2...	-0.48688	0.34767	-0.33673	VS3-O...7...	2.44615	0.28668	0.17548
++++Br--N===	1.99544	1.38663	0.97275	N...(...C...	0.2834	-0.87477	0.26888	NNE0C...200-	0.10552	0.39378	0.2217	PT3-N...3...	-0.70007	-0.94751	-0.94952	VS3-O...9...	0.20806	0.41122	0.00554
++++Br--O===	1.04325	0.79443	0.699	N.....	0.19611	-0.66385	-0.35664	NNE0C...209-	-0.21825	-0.4051	0.15965	PT3-N...4...	0.09105	0.37765	0.01104	VS3-o...12..	0.42145	0.23882	1.82934
++++I---N===	0.48471	0.24037	2.07521	N...1...(...	1.40684	0.28944	1.25064	NNE0C...218-	0.17897	0.3788	0.23805	PT3-N...5...	2.3783	0.28315	2.34466	Smax.0.....	1.78918	2.06471	-0.18932
++++Cl--B3==	0.04084	0.28841	0.34993	N...1.....	-0.82163	-0.13277	0.1324	NNE0C...300-	0.3649	0.3965	-0.94947	PT3-O...3...	0.31105	0.36982	0.29957	[...(.....	0.18869	0.24538	0.4076
++++N---B2==	0.26863	-0.5593	-0.37728	N...1...C...	0.21354	-0.95972	0.28189	NNE0C...309-	-0.94256	-0.76002	-0.39038	PT3-O...4...	-0.97757	-3.44294	0.38159	[...(...1...	-0.19506	2.00962	0.8708
++++N---B3==	0.1967	0.42536	-0.86168	N...=.....	-0.88348	0.07674	-0.03084	NNE0C...318-	0.00115	0.12237	0.20628	PT3-O...5...	0.33994	1.26891	0.34554	[.....	0.15659	0.44316	0.46781
++++N---O===	0.46343	0.1166	-0.99795	N...=...C...	0.01144	0.08325	0.27388	NNE0C...327-	0.95215	0.25625	-0.57177	PT3-o...5...	0.15806	0.74664	0.36977	[...1...(...	0.16517	0.01156	0.04752

++++O---B2==	-1.3313	0.11956	-1.88736	N...C...(...	0.43867	-1.30789	-0.74547	NNE0F...109-	0.17921	-0.61178	0.11169	PT4-C...1...	-0.711	-0.179	0.06011	[...1.....	0.27488	-2.02619	1.11809
1...(.....	0.326	0.13516	0.27226	N...C.....	-0.70525	0.49576	-2.41753	NNE0Br..109-	0.12398	0.94264	0.45711	PT4-C...10..	0.20772	0.06652	-0.04301	[...2...(...	0.32771	0.36025	-0.17675
1.....	0.1971	0.38049	0.00735	N...C...C...	0.18511	0.48335	-1.26857	NNE0I...109-	0.45804	2.40822	2.24379	PT4-C...11..	0.18269	0.20677	0.39095	[...2.....	-0.20662	0.17102	0.42707
1...C...(...	-1.30758	1.99449	-1.44054	N...O...1...	-0.1143	-0.56913	0.23582	NNE0Cl..109-	-0.78008	0.00698	2.2605	PT4-C...12..	0.27066	0.32588	-0.63057	[...H.....	0.32303	0.40719	-0.00147
1...N...(...	2.19144	2.70859	0.86071	N...c...1...	0.03475	2.39795	0.25439	NNE0N...109-	0.20535	1.17807	-0.59433	PT4-C...13..	1.05824	0.17449	0.2341	[...c...(...	0.19574	0.14394	-0.02626
1...N...1...	0.20017	-0.5899	-0.56114	O...(.....	2.13402	0.22007	0.0014	NNE0N...200-	-0.93903	-1.33996	0.03903	PT4-C...17..	0.35549	0.11698	-0.18877	[...c...1...	0.22839	0.0645	0.1279
1...c...(...	0.19733	0.12435	0.1665	O...(...1...	0.19196	0.39158	0.47573	NNE0N...209-	0.05408	-0.65243	0.26188	PT4-C...2...	-0.00758	2.49726	-0.1576	[...c...2...	0.08704	0.05247	0.16351
2...(.....	0.26218	0.42509	0.13953	O...(...2...	-0.62633	0.31347	0.45885	NNE0N...218-	0.16194	0.27675	0.75616	PT4-C...3...	0.18736	0.48544	0.38143	[...n...1...	-0.932	-0.59736	-0.81222
2.....	0.22092	-0.07729	0.42192	O...(...C...	-0.60554	0.17341	-0.99749	NNE0N...327-	0.34089	0.04335	0.10784	PT4-C...4...	0.19395	-0.93669	-0.65286	[...n...H...	0.15037	0.02191	-0.29212
2...c...(...	0.17609	-0.83688	0.465	O...(...O...	0.2872	0.20701	0.20139	NNE0O...109-	0.06467	0.42192	0.25293	PT4-C...5...	0.4296	0.24403	-0.75097	c...(.....	0.3549	0.43123	0.26374
2...c...1...	2.45426	0.40825	0.12489	O.....	0.07183	0.05921	2.21248	NNE0O...209-	2.37014	0.17657	0.31219	PT4-C...6...	0.06979	-0.29818	0.25553	c...(...1...	0.25861	0.76506	0.31556
3.....	2.41789	0.71499	3.351	O...1.....	-0.36078	0.20202	0.3711	NNE0O...218-	0.17136	0.48653	0.25782	PT4-C...7...	0.40062	0.00103	0.46737	c...(...2...	2.40207	2.23259	0.61036
3...C...1...	2.21687	0.28108	1.13315	O...1...C...	0.31074	-0.8554	-0.03128	NNE0o...209-	-0.64342	-0.61009	0.3367	PT4-C...8...	-0.03439	2.46095	0.31404	c...(...C...	0.00746	0.00276	0.35037
3...c...1...	0.26946	0.13765	-0.92557	O...C...(...	-0.97477	-0.02834	-0.65338	NOSP10000000	-0.71395	0.14793	1.27025	PT4-C...9...	0.30203	0.07847	0.68656	c...(...N...	1.48228	1.11785	0.99269
3...c...2...	2.40312	0.12507	0.60467	O...C.....	2.20397	2.18745	-0.19994	NOSP11000000	0.62079	0.40113	0.31723	PT4-F...2...	0.07787	-0.03821	2.21257	c...(...O...	0.69905	0.1274	2.08234
=...(.....	0.41356	0.04898	1.38226	O...C...1...	-0.65374	0.24506	-0.35268	S2E0C...1-..	-0.85878	0.05272	-0.86052	PT4-Br..2...	-0.0814	-0.66787	0.01809	c...(...[...	-0.92613	0.30798	-0.03019
=.....	-0.86506	-0.00786	-0.77812	O...C...C...	2.03589	0.39524	0.22382	S2E0C...10-.	0.15868	2.19414	0.35353	PT4-Br..5...	-0.20703	-0.05245	-0.71928	c...(...c...	-0.99541	-0.68932	-1.15135
=...1.....	0.42866	0.31167	0.55879	O...N.....	0.1622	-0.91096	0.07043	S2E0C...11-.	0.22039	0.42545	0.26474	PT4-I...2...	2.32293	1.52646	0.11067	c.....	0.01909	0.2522	0.05212
=...C...(...	0.14485	-0.78311	-0.67928	O...N...=...	-0.82704	0.18564	0.00781	S2E0C...2-..	0.10685	0.32299	0.25661	PT4-Cl..2...	0.03003	0.29404	-0.88981	c...1...(...	0.71458	0.36949	0.12498
=...C...1...	1.16923	0.15407	0.56754	O...c...1...	-0.76125	2.2457	0.39167	S2E0C...3-..	-0.40729	0.4043	0.08092	PT4-Cl..5...	-0.91267	1.53403	2.04272	c...1.....	0.28346	0.10346	0.43728
=...c...1...	0.09497	0.0514	-0.79687	O...c...2...	2.06257	0.37741	2.12595	S2E0C...4-..	0.09375	0.63993	-0.00706	PT4-N...2...	1.40451	0.01054	0.98393	c...1...C...	0.34047	0.25526	0.16183
C...#.....	0.48528	-0.62005	0.37696	P2E0C...0-..	0.22735	0.04823	0.11842	S2E0C...5-..	0.48756	0.1549	0.47608	PT4-N...3...	-0.04451	0.24941	0.99922	c...1...Cl..	0.3852	0.39582	0.08028
C...#...C...	0.07936	0.47037	0.52879	P2E0C...1-..	-0.34985	0.23981	0.12593	S2E0C...6-..	0.23889	0.09925	0.11639	PT4-N...4...	0.73286	0.40291	0.28959	c...1...N...	-0.96506	0.36608	0.1089
C...(.....	0.14417	0.6331	0.0473	P2E0C...2-..	0.48004	2.01569	0.4044	S2E0C...7-..	0.29067	0.25561	2.43726	PT4-N...5...	0.17199	0.82187	0.18422	c...1...[...	0.57193	0.04611	0.07835
C...(...1...	0.63382	0.37214	0.72312	P2E0C...3-..	0.34744	0.38819	0.33472	S2E0C...8-..	-2.14213	-1.33219	-0.73771	PT4-N...6...	0.12101	2.42612	0.59358	c...1...c...	2.20071	0.25028	0.21538
C...(...2...	0.38416	2.24803	0.68526	P2E0F...1-..	0.62543	-0.64362	0.0718	S2E0C...9-..	0.03894	0.14262	-0.82667	PT4-N...7...	0.19796	-0.77829	0.11956	c...2...(...	0.28025	-0.31725	-2.39271
C...(...=...	-0.89299	0.6216	2.6922	P2E0Br..1-..	0.34371	0.05368	-0.54597	S2E0F...3-..	0.06309	-0.8543	-0.88042	PT4-N...8...	0.28339	0.15885	0.22941	c...2.....	0.0135	-0.78172	0.39027
C...(...C...	0.13054	0.29098	0.1131	P2E0I...1-..	0.45922	0.14491	0.3239	S2E0Br..3-..	-0.64339	0.3685	-1.07618	PT4-N...9...	-0.67017	0.37959	-0.04153	c...2...c...	0.13981	2.08783	0.43353
C.....	0.43818	0.09769	0.32623	P2E0Cl..1-..	0.19522	0.28009	0.00777	S2E0Br..4-..	-0.04075	0.49149	2.18257	PT4-O...3...	0.06635	0.36572	0.12217	c...3.....	0.06231	-0.22544	0.43061
C...1...(...	0.37322	0.32388	-0.88361	P2E0N...0-..	-0.93459	0.01789	0.07872	S2E0I...3-..	0.1921	0.2277	0.54439	PT4-O...5...	-0.80641	0.29186	0.00654	c...3...C...	-0.87863	0.32347	0.21345
C...1.....	0.11161	-0.67245	0.094	P2E0N...1-..	0.26502	0.05116	0.26386	S2E0Cl..3-..	0.25184	0.44916	-0.2596	PT4-O...6...	0.1405	-0.02121	0.10303	c...3...c...	2.26678	0.35622	2.16881
C...1...=...	0.29707	0.0519	-0.90482	P2E0N...2-..	0.0186	0.69538	0.22316	S2E0Cl..4-..	-0.20607	2.33305	0.18475	PT4-O...8...	0.38318	0.52111	-0.43594	c...=.....	0.70607	-0.028	0.35461
C...1...C...	0.46317	-0.96285	-0.43893	P2E0O...0-..	0.2102	-0.39063	0.35838	S2E0N...2-..	0.10123	0.11856	2.48276	PT4-O...9...	0.14845	-0.65912	0.11437	c...=...N...	0.05183	0.40302	0.25775
C...3.....	0.45086	0.38356	0.44542	P2E0O...1-..	0.37064	2.07936	0.01147	S2E0N...3-..	-0.55718	0.49725	1.36796	PT4-o...9...	-0.63749	0.13731	0.00835	c...C...#...	0.44048	0.23782	0.02951
C...=...(...	-0.51883	-0.83225	-0.59387	P2E0o...1-..	0.3964	-0.29419	0.17087	S2E0N...4-..	0.04282	2.46688	0.41436	Nmax.1.....	0.23372	0.12592	0.0242	c...C...(...	0.40481	1.14391	0.00924

C...=.....	0.15117	-0.50382	0.22446	P3E0C...0-..	0.14075	0.05367	0.38958	S2E0N...5-..	2.43082	0.25082	0.23302	Nmax.2.....	0.47342	0.31207	2.48259	c...C.....	0.52272	0.1474	-0.06948
C...=...1...	-0.66222	0.44635	-0.53549	P3E0C...1-..	0.46942	0.06948	0.35866	S2E0N...6-..	0.08641	0.01276	0.20753	Nmax.3.....	-0.69846	-2.22662	-0.60009	c...C...1...	-0.00343	0.12727	-0.93882
C...C...#...	-0.60925	0.34101	-1.00899	P3E0C...2-..	0.53692	0.43353	0.30722	S2E0N...7-..	2.35278	0.3406	0.26896	Nmax.4.....	-0.33926	0.30953	0.42038	c...C...C...	0.12749	0.18718	1.26817
C...C...(...	0.18592	-0.80232	-0.53583	P3E0C...3-..	0.1054	0.47413	0.57951	S2E0O...3-..	-0.57948	0.40039	-0.94141	Omax.0.....	0.08273	0.40312	0.4738	c...F.....	0.00537	0.29337	-0.51655
C...C.....	0.14218	0.14285	0.33624	P3E0C...4-..	-0.71781	0.42287	0.20757	S2E0O...4-..	0.14674	0.42325	0.13872	Omax.1.....	0.13754	0.17473	0.49387	c...Br.....	0.53822	2.40597	0.35411
C...C...1...	0.18586	0.13955	-2.71432	P3E0C...5-..	2.07297	0.36396	0.3627	S2E0O...5-..	-0.14819	-4.1553	-0.12551	Omax.2.....	0.44113	0.2183	0.1192	c...I.....	2.14681	2.19497	0.31537
C...C...=...	0.15003	-0.99791	-0.12226	P3E0C...6-..	0.21509	0.59836	2.07131	S2E0O...6-..	-0.55425	0.30194	-0.28026	Omax.4.....	0.1004	0.05016	0.91312	c...Cl.....	-2.39972	0.9342	0.75556
C...C...C...	0.27673	-0.69323	0.2685	P3E0F...1-..	0.11289	1.22581	0.85885	S2E0o...6-..	0.00353	0.05336	0.27773	VS2-C...10..	0.00398	0.35687	0.36726	c...N.....	-0.25309	0.40986	-0.46039
C...N...(...	0.40512	0.08026	-0.58338	P3E0Br..1-..	-0.03056	-0.85029	-0.91258	S3E0C...10-.	-0.41979	-0.36682	-0.75858	VS2-C...11..	0.43603	-1.20667	-0.98324	c...O.....	0.09562	0.28732	1.31973
C...N...1...	0.30311	0.42463	-0.83987	P3E0Br..2-..	0.17125	0.156	0.04853	S3E0C...11-.	0.18215	-0.38263	2.2749	VS2-C...12..	0.19187	0.37024	0.20393	c...O...C...	0.03931	-0.62297	0.02425
C...N...=...	-0.7622	0.40239	-0.64804	P3E0I...1-..	0.72511	0.02194	2.46201	S3E0C...12-.	0.02598	0.16884	0.34743	VS2-C...13..	0.44289	0.42877	0.38576	c...[.....	0.03052	0.23805	0.34806
C...N...C...	0.08415	0.26548	2.41778	P3E0Cl..1-..	0.29131	0.4251	2.23792	S3E0C...13-.	0.13401	0.07843	0.15063	VS2-C...14..	0.39125	0.01773	0.46382	c...[...H...	0.4275	0.48102	0.42446
C...O...(...	0.32479	0.24119	1.00739	P3E0Cl..2-..	0.9703	0.09109	-0.26979	S3E0C...15-.	0.15241	0.48218	0.29997	VS2-C...2...	-0.5082	-0.59089	-0.52162	c...c...(...	0.228	0.45076	0.04921
C...c...1...	0.9918	0.3175	-0.40953	P3E0N...0-..	0.26467	-0.33584	-0.93675	S3E0C...16-.	0.09239	0.40437	0.49044	VS2-C...3...	-0.812	0.3512	0.20803	c...c.....	0.43719	0.23359	0.24413
C...c...2...	2.21815	0.35879	-0.35273	P3E0N...1-..	2.31147	0.20255	-0.79185	S3E0C...2-..	0.06608	-0.08958	0.45282	VS2-C...4...	2.40876	-0.3091	2.00836	c...c...1...	0.20475	0.54003	0.18503
C3.....0...	2.39303	2.9498	3.51518	P3E0N...2-..	0.04964	0.15352	0.29539	S3E0C...3-..	0.84818	0.29012	-0.53018	VS2-C...5...	0.33392	-0.19748	0.25995	c...c...2...	0.23283	0.13362	-0.54485
C4.....0...	0.98293	4.23992	4.40297	P3E0N...3-..	0.67336	0.15467	-0.88416	S3E0C...4-..	1.19972	0.35177	0.3293	VS2-C...6...	0.05634	-0.48965	0.37871	c...c...3...	0.71611	0.33665	1.14311
C5.....0...	1.49414	1.87563	0.67397	P3E0O...1-..	0.2545	0.37467	-0.31071	S3E0C...5-..	0.13587	0.19544	0.43269	VS2-C...7...	-0.84665	0.46927	0.33867	c...c...[...	1.07524	1.45722	0.48555
C5....H.1...	-0.7542	0.69465	-0.75495	P3E0O...2-..	-0.64552	-0.51524	-1.38695	S3E0C...6-..	-0.72612	0.43942	0.17472	VS2-C...8...	0.10465	-0.53155	0.09432	c...c...c...	1.33498	0.45174	0.19863
C5...AH.1...	-0.50555	0.21184	0.35328	P3E0O...3-..	1.23608	2.00481	3.00191	S3E0C...7-..	0.0629	0.39753	0.19174	VS2-C...9...	-0.74696	-0.76581	0.2418	c...n...(...	0.36109	-0.90356	0.14452
C6...A..2...	1.89089	1.51511	2.45889	P3E0o...3-..	-0.71721	-0.90314	1.22025	S3E0C...8-..	0.24578	0.40149	0.03171	VS2-F...4...	0.08076	-0.90274	0.23491	c...n...1...	0.03952	0.27336	0.18609
C6...AH.2...	0.26286	0.17349	0.2765	P4E0C...0-..	0.23655	0.48126	0.17601	S3E0C...9-..	0.18639	0.09555	0.15677	VS2-Br..4...	0.32126	0.69383	0.46737	c...n...2...	0.09281	-0.06921	0.14077
C6...AH.3...	-0.80076	0.12036	-0.53884	P4E0C...1-..	0.01053	0.22546	-0.5084	S3E0F...3-..	0.00711	0.15417	0.35322	VS2-Br..5...	-0.09643	0.02279	0.0556	c...n...[...	0.38279	0.0762	0.32971
C6...AH.4...	2.20422	0.0875	2.44395	P4E0C...10-.	0.15996	2.42976	1.06508	S3E0Br..3-..	1.29499	-0.44481	-0.79741	VS2-I...4...	0.64841	0.59124	1.48194	c...n...c...	0.01863	0.14285	0.49098
C7.....0...	-0.59715	0.16596	0.41772	P4E0C...11-.	0.40099	0.44158	2.09127	S3E0Br..6-..	0.20582	-0.08628	2.43953	VS2-Cl..4...	0.27399	0.33416	-0.24297	n...(.....	1.00325	0.52773	-0.38618
C7...AH.1...	0.39676	0.72824	-0.93483	P4E0C...14-.	0.44338	0.07186	0.57669	S3E0I...3-..	0.11732	0.05887	-0.22512	VS2-Cl..5...	0.32881	2.97762	0.31045	n...(...c...	-0.05936	1.23588	0.10348
BOND00000000	0.28048	0.04271	0.45355	P4E0C...2-..	2.56879	2.22438	3.12611	S3E0Cl..3-..	-0.53702	0.43954	0.22498	VS2-N...3...	-0.49342	0.09119	2.30675	n.....	0.3335	-0.63566	0.24722
BOND01000000	0.82212	0.01171	-0.03454	P4E0C...3-..	-0.0727	0.34347	0.25322	S3E0Cl..4-..	2.38811	1.3782	0.21563	VS2-N...4...	-0.96253	0.12113	-0.19388	n...1...(...	0.47225	-0.30262	0.25665
BOND10000000	-2.09477	-0.88771	-1.9978	P4E0C...4-..	0.09324	-0.23108	-0.72032	S3E0Cl..5-..	-0.02845	0.17533	0.26402	VS2-N...5...	0.13151	0.23063	1.00898	n...1.....	0.25654	0.01101	0.36174
BOND11000000	-0.9956	0.25402	-0.79208	P4E0C...5-..	0.08977	0.106	-0.07476	S3E0Cl..6-..	1.29396	2.06782	2.25541	VS2-N...6...	-0.74617	0.49122	-0.98484	n...1...c...	0.24308	0.04408	1.49324
F...(.....	0.05062	0.27784	0.03052	P4E0C...6-..	0.40702	-0.02725	0.28945	S3E0N...10-.	0.0134	0.24844	2.10257	VS2-N...7...	0.16072	0.33447	0.44376	n...2.....	0.03449	0.14849	0.0012
F...(...1...	0.29409	0.63424	0.05635	P4E0C...7-..	1.45777	-0.00986	-0.85736	S3E0N...2-..	0.40489	0.41501	-0.07336	VS2-N...8...	0.09822	1.29774	0.52599	n...H.....	0.04367	0.1885	-0.94768
F.....	0.12149	0.12655	0.25292	P4E0C...8-..	-0.90554	0.36923	-0.5712	S3E0N...3-..	0.23147	0.56765	0.34876	VS2-N...9...	0.00949	0.58764	-1.30279	n...H...[...	0.23711	0.3409	2.07922
F...c...1...	2.11848	0.11676	2.25415	P4E0C...9-..	0.48314	-0.47001	2.33956	S3E0N...4-..	-0.8317	-0.53538	0.35646	VS2-O...5...	0.26087	0.34713	0.2861	n...[...(...	0.32959	0.07277	0.47371
EC0-C...1...	0.11314	0.04763	-0.16303	P4E0F...1-..	0.41217	0.26868	-0.50667	S3E0N...5-..	0.26059	0.15309	0.46638	VS2-O...6...	0.48735	2.45354	0.40081	n...[.....	0.27145	0.45557	0.31441

EC0-C...2...	0.07419	0.09905	1.39211	P4E0Br..1-..	0.29179	-0.51973	-0.93707	S3E0N...6-..	0.36828	0.22909	0.21502	VS2-O...7...	-0.32747	-0.07823	0.14478	n...[...1...	-1.83257	0.12677	2.42536
EC0-C...3...	0.29889	-0.67798	-0.46687	P4E0Br..4-..	0.08888	0.19715	0.1449	S3E0N...7-..	2.03279	0.10874	0.08002	VS2-O...8...	0.76772	0.31454	-0.88505	n...[...H...	0.09338	0.11316	0.2373
EC0-F...1...	0.00464	1.46204	1.34355	P4E0I...1-..	0.48161	0.26482	1.88319	S3E0N...8-..	0.29063	0.0669	2.01125	VS2-o...8...	0.26397	0.19143	0.7057	n...[...c...	0.08421	0.3665	0.0025
EC0-Br..1...	-0.809	0.06021	-0.63711	P4E0Cl..1-..	0.34816	0.10943	-0.01889	S3E0N...9-..	-0.89305	0.1475	0.0648	VS3-C...10..	0.04506	2.16721	0.05531	n...[...n...	0.07331	-0.50272	-0.6449
EC0-I...1...	1.3286	1.63231	0.32414	P4E0Cl..4-..	2.03097	2.4358	-0.04972	S3E0O...4-..	0.36001	0.12784	0.2017	VS3-C...11..	0.25652	-0.55626	0.26503	n...c...(...	2.22045	0.56356	0.03625
EC0-Cl..1...	-0.69374	-0.00951	2.1299	P4E0N...0-..	0.23731	0.12603	-0.92916	S3E0O...5-..	0.3595	-0.64253	0.44271	VS3-C...12..	0.51146	0.90293	2.02354	n...c.....	0.43038	-0.57753	0.20811
EC0-N...1...	0.49535	2.39305	-0.73961	P4E0N...1-..	0.08173	0.23844	0.16405	S3E0O...8-..	0.63217	0.35279	0.3973	VS3-C...13..	0.34651	0.22523	-0.4953	n...c...1...	-0.34109	-0.87386	0.02587
EC0-N...2...	-1.33505	0.24333	-0.91065	P4E0N...3-..	0.41488	0.24125	-0.67034	S3E0o...10-.	0.35194	0.01362	0.48288	VS3-C...14..	0.26273	2.27114	0.2148	n...c...[...	0.06773	0.30995	-1.11365
EC0-N...3...	0.20114	0.20743	-0.74116	P4E0N...4-..	0.12363	0.32704	0.0151	PT2-C...1...	0.42701	0.0524	-0.65202	VS3-C...15..	0.08956	4.44813	-0.72802	n...c...c...	-0.86836	0.38561	-0.85596
EC0-O...1...	2.16737	0.24589	0.27243	P4E0N...5-..	2.75092	0.17746	2.40364	PT2-C...2...	0.79571	0.40932	0.13916	VS3-C...16..	0.1562	1.93097	2.52258	n...o...1...	0.34037	1.6818	0.29471
EC0-O...2...	-0.58478	0.31241	-0.89523	P4E0N...6-..	0.03666	0.07585	0.23984	PT2-C...3...	0.30819	-0.2124	-1.26186	VS3-C...17..	0.0415	0.38754	0.56959	o.....	0.1883	0.14493	0.39791
EC0-o...2...	0.05332	1.437	2.00826	P4E0N...7-..	0.33283	1.43708	-0.57169	PT2-C...4...	0.03921	-0.20539	-0.6328	VS3-C...18..	0.10212	0.39728	2.1501	o...1.....	0.42723	0.33823	0.23492
H.....	0.43613	0.39177	0.32187	P4E0O...1-..	0.88848	-0.47807	0.49098	PT2-C...5...	0.34853	2.18371	0.02667	VS3-C...19..	0.66512	0.0298	0.3163	o...1...c...	0.09988	0.40471	0.32375
H...[...1...	0.02854	-0.09255	0.16442	P4E0O...3-..	0.4003	0.32263	-0.20275	PT2-C...6...	2.12257	0.0702	0.36238	VS3-C...3...	0.19216	0.64115	-0.31479	o...n.....	2.43507	0.00673	0.32879
H...[...2...	-0.6929	0.02092	2.03175	P4E0O...4-..	-0.81046	-0.08406	-1.65002	PT2-F...2...	-0.45981	0.16486	-0.69537	VS3-C...4...	0.07822	0.07276	2.2225	o...n...c...	0.0706	0.17053	0.40389
Br..(.....	0.41058	-0.76523	-0.91031	P4E0O...7-..	-1.05828	0.46426	1.93701	PT2-Br..2...	-0.90091	-0.46571	0.0669	VS3-C...5...	-0.41519	0.08141	0.29392				

Table S4. Calculated numerical values for designed molecules physicochemical properties, lipophilicity, water solubility, pharmacokinetics and druglikeness

Molecule	A	A1	A2	A3	A4	A5
#Heavy atoms	21	22	23	24	22	23
#Aromatic heavy atoms	12	12	12	12	12	12
Fraction Csp3	0.33	0.37	0.4	0.43	0.37	0.37
#Rotatable bonds	9	9	10	10	9	10
#H-bond acceptors	3	3	3	3	3	3
#H-bond donors	1	1	1	1	1	1
MR	85.94	90.91	95.72	100.52	90.91	98.78
TPSA	30.49	30.49	30.49	30.49	30.49	30.49
iLOGP	3.58	3.96	4.16	4.31	3.92	4.13
XLOGP3	3.85	4.22	4.65	4.98	4.22	4.41
WLOGP	3.43	3.74	3.99	4.56	3.74	4.18
MLOGP	3.05	3.29	3.51	3.74	3.29	3.63
Silicos-IT Log P	4.13	4.65	5.05	5.28	4.65	5.2
Consensus Log P	3.61	3.97	4.27	4.57	3.96	4.31
ESOL Log S	-3.86	-4.16	-4.44	-4.72	-4.16	-4.69
ESOL Solubility (mg/ml)	3.91E-02	2.05E-02	1.14E-02	6.27E-03	2.05E-02	7.73E-03
ESOL Solubility (mol/l)	1.37E-04	6.85E-05	3.64E-05	1.92E-05	6.85E-05	2.04E-05
ESOL Class	Soluble	Moderate	Moderate	Moderate	Moderate	Moderate
Ali Log S	-4.19	-4.57	-5.02	-5.36	-4.57	-4.77
Ali Solubility (mg/ml)	1.86E-02	8.05E-03	3.02E-03	1.43E-03	8.05E-03	6.46E-03
Ali Solubility (mol/l)	6.51E-05	2.69E-05	9.62E-06	4.37E-06	2.69E-05	1.71E-05
Ali Class	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Silicos-IT LogSw	-6.85	-7.24	-7.63	-7.66	-7.24	-8.05
Silicos-IT Solubility (mg/ml)	4.00E-05	1.74E-05	7.31E-06	7.23E-06	1.74E-05	3.34E-06
Silicos-IT Solubility (mol/l)	1.40E-07	5.82E-08	2.33E-08	2.21E-08	5.82E-08	8.83E-09
Silicos-IT class	Poorly	Poorly	Poorly	Poorly	Poorly	Poorly
GI absorption	High	High	High	High	High	High
BBB permeant	Yes	Yes	Yes	Yes	Yes	Yes
Pgp substrate	No	No	No	No	No	No
CYP1A2 inhibitor	Yes	Yes	Yes	Yes	Yes	Yes
CYP2C19 inhibitor	Yes	Yes	Yes	Yes	Yes	Yes
CYP2C9 inhibitor	No	No	No	No	No	Yes
CYP2D6 inhibitor	Yes	Yes	Yes	Yes	Yes	Yes
CYP3A4 inhibitor	No	Yes	Yes	Yes	Yes	Yes
log Kp (cm/s)	-5.31	-5.13	-4.91	-4.76	-5.13	-5.48
Lipinski #violations	0	0	0	0	0	0
Ghose #violations	0	0	0	0	0	0
Veber #violations	0	0	0	0	0	0

Egan #violations	0	0	0	0	0	0
Muegge #violations	0	0	0	0	0	0
Bioavailability Score	0.55	0.55	0.55	0.55	0.55	0.55

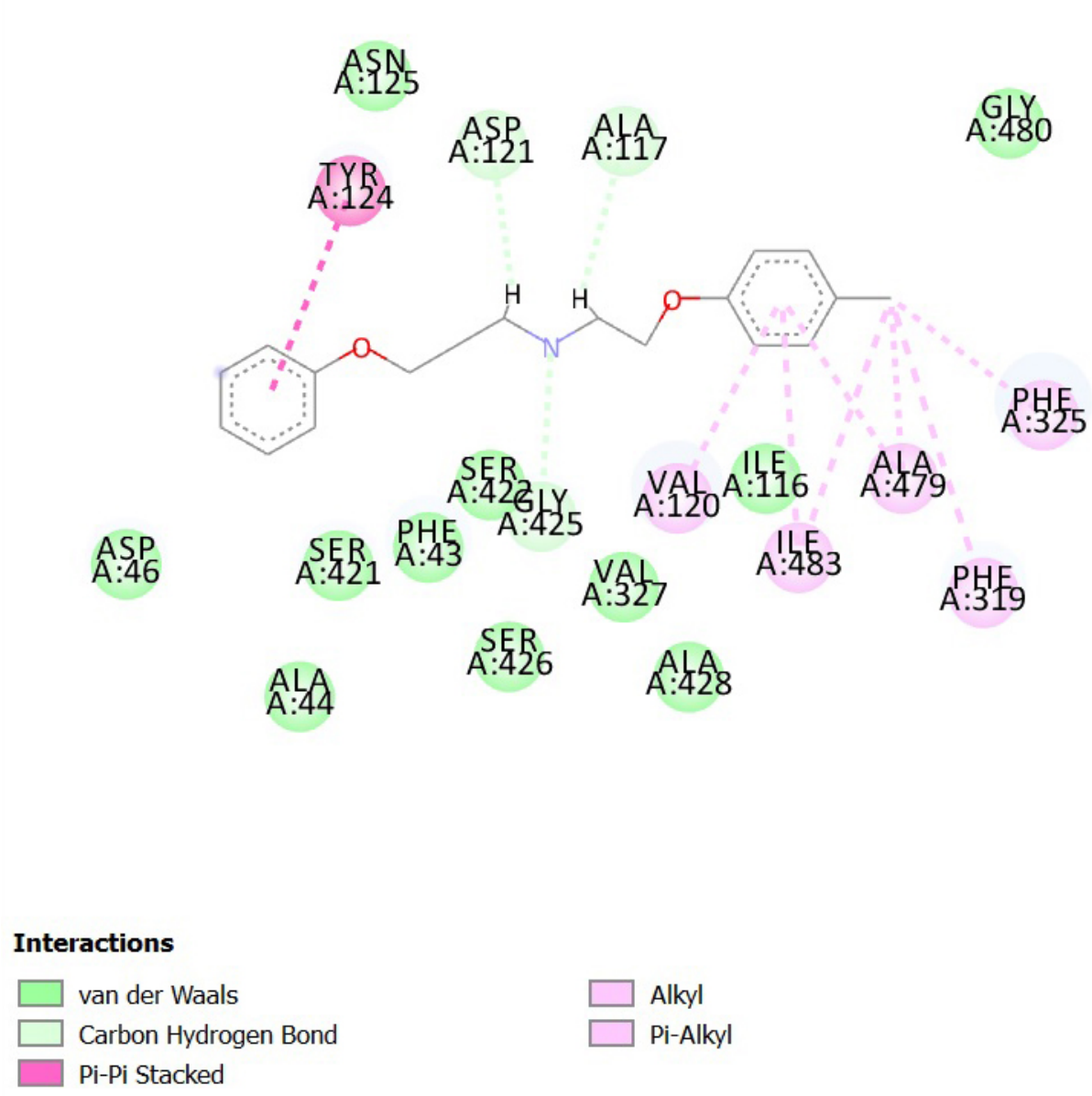

Figure S4. Two-dimensional representation of the interaction between molecule A and amino acids inside dopamine transporter binding pocket.

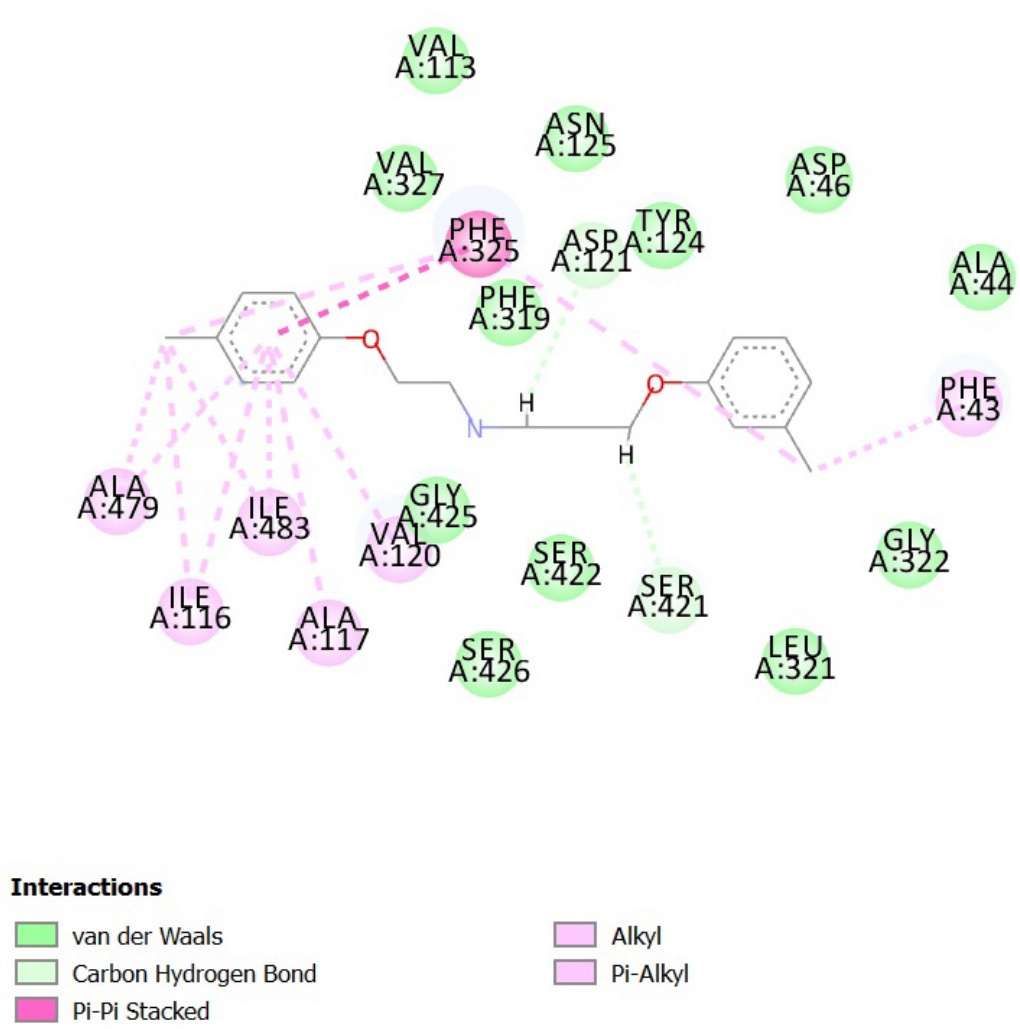

Figure S5. Two-dimensional representation of the interaction between molecule A1 and amino acids inside dopamine transporter binding pocket.

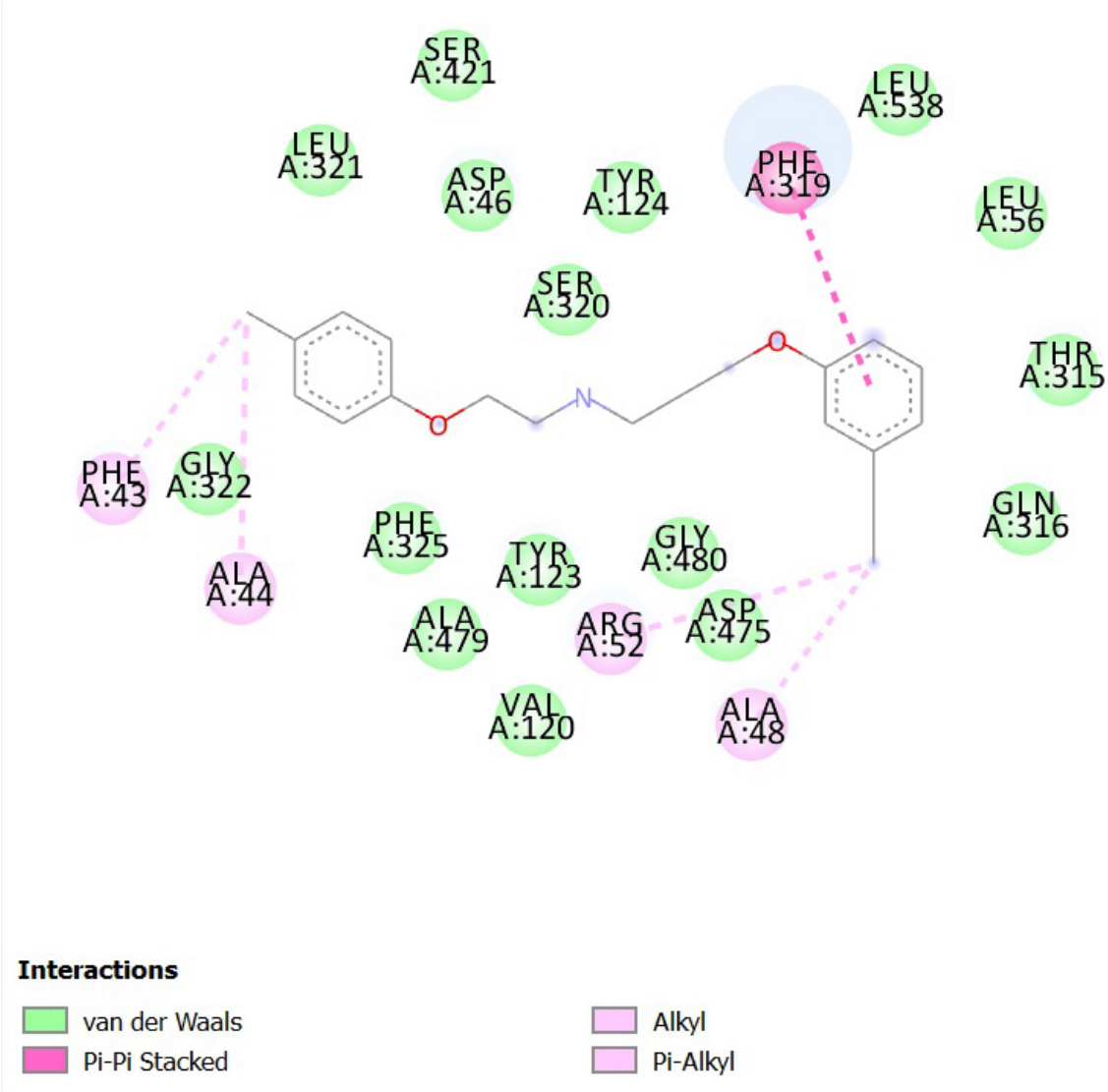

Figure S6. Two-dimensional representation of the interaction between molecule A2 and amino acids inside dopamine transporter binding pocket.

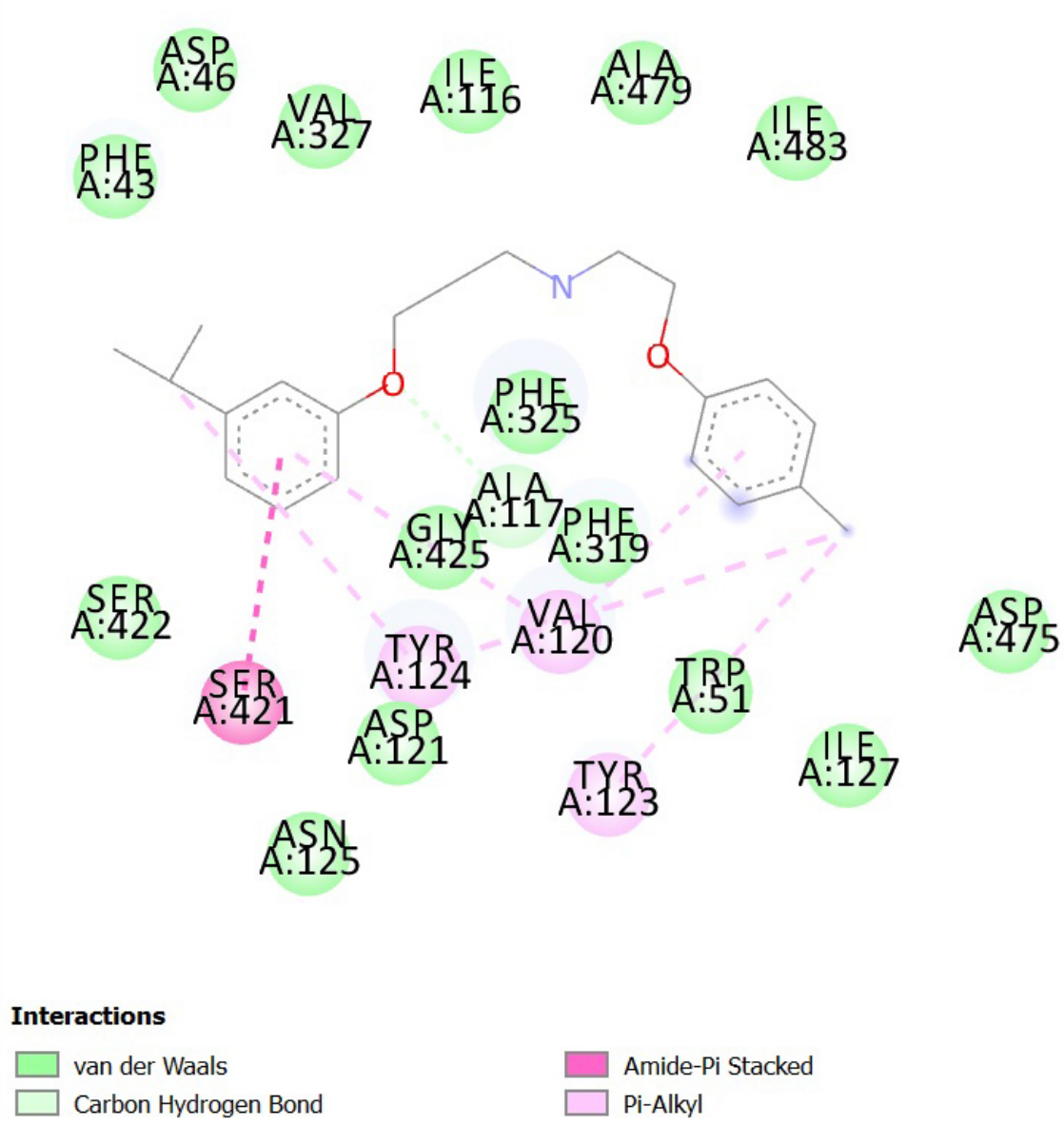

Figure S7. Two-dimensional representation of the interaction between molecule A3 and amino acids inside dopamine transporter binding pocket.

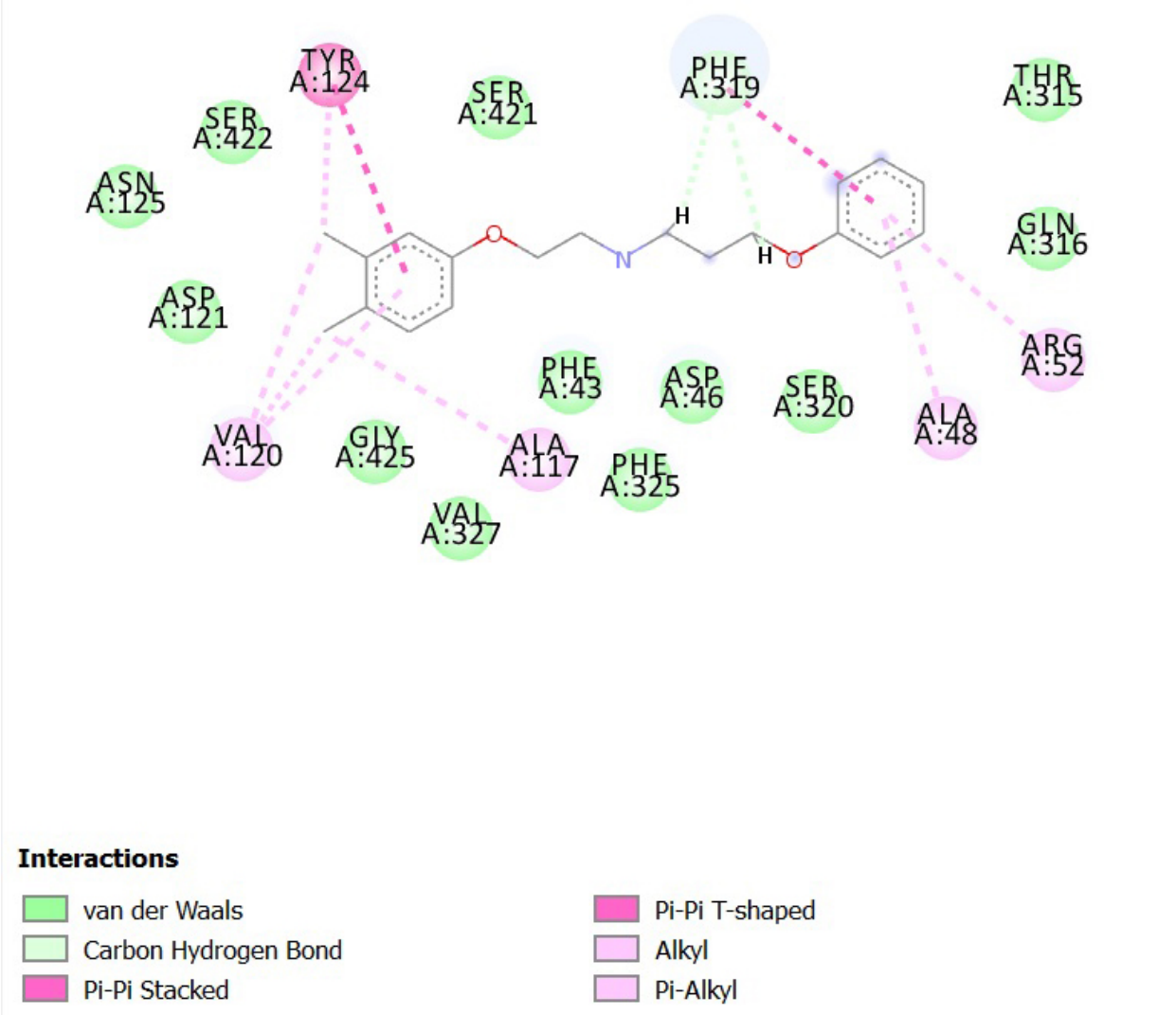

Figure S8. Two-dimensional representation of the interaction between molecule A4 and amino acids inside dopamine transporter binding pocket.

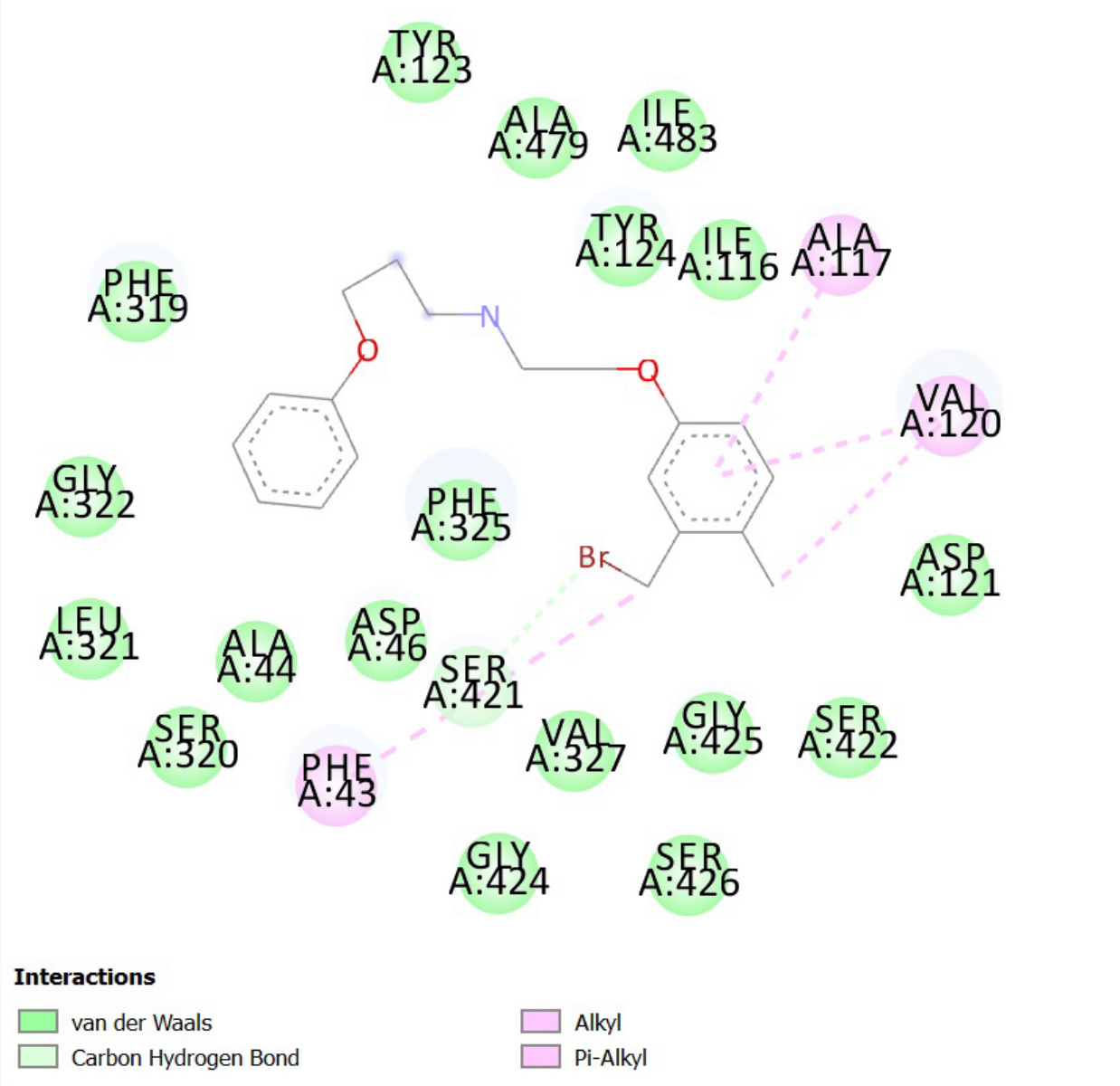

Figure S9. Two-dimensional representation of the interaction between molecule A5 and amino acids inside dopamine transporter binding pocket.