Supplementary data for the article:

Šegan, S.; Opsenica, I.; Zlatović, M.; Milojković-Opsenica, D.; Šolaja, B. Quantitative Structure Retention/Activity Relationships of Biologically Relevant 4-Amino-7-Chloroquinoline Based Compounds. *Journal of Chromatography B: Analytical Technologies in the Biomedical and Life Sciences* **2016**, *1012–1013*, 144–152. https://doi.org/10.1016/j.jchromb.2016.01.033

Supplementary data

Quantitative structure retention/activity relationships of biologically relevant 4‑amino-7-chloroquinoline based compounds

Sandra Šegan[a,*], Igor Opsenica[b], Mario Zlatović[b], Dušanka Milojković-Opsenica[b], Bogdan Šolaja[b]

[a]Institute of Chemistry, Technology, and Metallurgy, University of Belgrade, Njegoševa 12, 11000 Belgrade, Serbia.

[b]Faculty of Chemistry, University of Belgrade, P.O. Box 51, 11158 Belgrade, Serbia

Content

Table S8. Percent variance captured by PCA model for R_M values.

Table S9. Percent variance captured by PCA model for monoprotonated structural descriptors.

Table S10. Percent variance captured by PCA model for diprotonated structural descriptors.

Table S11. Percent variance captured by PLS regression model for retention data obtained in chromatographic system containing DMSO.

Figure S1. PLS model for retention data obtained in chromatographic system containing DMSO, a) Plots of the measured versus predicted R_M^0 values, b) Plots of the variables versus VIP scores, c) Plot of the coefficients of parameters in model.

Table S12. Percent variance captured by PLS regression model for retention data obtained in chromatographic system containing acetone.

Figure S2. PLS model for retention data obtained in chromatographic system containing acetone, a) Plots of the measured versus predicted R_M^0 values, b) Plots of the variables versus VIP scores, c) Plot of the coefficients of parameters in model.

Table S13. Percent variance captured by PLS regression model for activity against BoNT.

Figure S3. PLS model for activity against BoNT, a) Plots of the measured versus predicted activities b) Plots of the variables versus VIP scores, c) Plot of the coefficients of parameters in model.

Table S14. Percent variance captured by PLS regression model for antimalarial activity against D6.

Figure S4. PLS model for antimalarial activity against D6, a) Plots of the measured versus predicted activities, b) Plots of the variables versus VIP scores, c) Plot of the coefficients of parameters in model.

Table S15. Percent variance captured by PLS regression model for antimalarial activity against W2.

Figure S5. PLS model for antimalarial for antimalarial activity against W2, a) Plots of the measured versus predicted activities b) Plots of the variables versus VIP scores, c) Plot of the coefficients of parameters in model.

Table S16. Percent variance captured by PLS regression model for antimalarial activity against TM91C235.

Figure S6. PLS model for antimalarial for antimalarial activity against TM91C235, a) Plots of the measured versus predicted activities b) Plots of the variables versus VIP scores, c) Plot of the coefficients of parameters in model.

Table S1. Computer calculated logP values.

Compound	kowwin	*mi*logP
1	3.61	3.87
2	4.10	4.14
3	5.52	5.58
4	6.01	5.85
5	3.69	3.93
6	4.18	4.20
7	3.81	4.03
8	4.30	4.30
9	4.50	4.68
10	4.99	4.95
11	2.07	2.58
12	2.56	2.85
13	2.07	2.63
14	2.56	2.90
15	2.71	3.24
16	3.20	3.51
17	2.15	2.62
18	2.64	2.89

Table S2. Calculated structural descriptors for monoprotonated 4,7-ACQ derivatives on pH = 7.

Comp.	mol MW	dipole	SASA	FOSA	FISA	PISA	WPSA	volume	accptHB	dip^2/V	ACxDN^.5/SA	glob	QPpolrz
1	311.81	6.02	628.58	107.79	39.50	409.77	71.53	1056.89	3.50	0.03	0.01	0.80	36.20
2	325.84	4.85	655.44	139.48	41.89	402.55	71.53	1111.17	3.50	0.02	0.01	0.79	37.67
3	367.92	6.45	728.42	299.34	39.39	318.17	71.53	1270.89	3.50	0.03	0.01	0.78	43.25
4	381.95	6.49	761.53	332.42	39.53	318.05	71.53	1331.68	3.50	0.03	0.01	0.77	45.04
5	341.84	6.34	665.67	200.57	39.47	354.11	71.53	1132.02	4.25	0.04	0.01	0.79	38.04
6	355.87	5.23	692.48	232.22	41.90	346.83	71.53	1186.19	4.25	0.02	0.01	0.78	39.49
7	329.80	4.67	637.55	107.86	39.34	371.81	118.54	1072.99	3.50	0.02	0.01	0.80	36.49
8	343.83	4.08	670.51	140.82	39.54	371.62	118.53	1133.68	3.50	0.01	0.01	0.78	38.27
9	390.71	4.81	657.60	107.83	39.38	361.47	148.93	1109.92	3.50	0.02	0.01	0.79	37.86
10	404.74	4.59	684.33	139.44	41.89	354.08	148.93	1164.06	3.50	0.02	0.01	0.78	39.32
11	312.80	4.62	620.99	108.82	66.79	373.85	71.54	1042.66	5.00	0.02	0.01	0.80	35.29
12	326.83	4.79	647.64	140.29	69.44	366.39	71.53	1096.67	5.00	0.02	0.01	0.79	36.74
13	312.80	6.48	611.47	103.85	73.52	362.57	71.53	1033.61	5.00	0.04	0.01	0.81	34.82
14	326.83	6.90	644.34	136.80	73.68	362.33	71.53	1094.23	5.00	0.04	0.01	0.80	36.60
15	347.25	5.91	627.01	98.79	69.73	329.55	128.94	1070.04	5.00	0.03	0.01	0.81	35.96
16	361.27	5.91	653.55	130.43	72.35	322.06	128.71	1124.20	5.00	0.03	0.01	0.80	37.42
17	342.83	6.40	535.92	172.56	65.11	226.84	71.40	1009.62	5.75	0.04	0.02	0.91	31.92
18	356.85	7.22	680.70	226.75	73.51	308.91	71.53	1170.75	5.75	0.04	0.01	0.79	38.51

Table S2. *continued*

Comp.	QPlogPC16	QPlogPoct	QPlogw	QPlogPo/w	QPlogS	CIQPlogS	QPlogHERG	QPPCaco	QPlogBB	QPPMDCK	QPlogKp
1	12.11	17.11	9.37	4.19	-4.40	-3.96	-7.476	1042.87	0.363	1411.83	-2.29
2	12.62	17.39	9.18	4.50	-4.71	-4.241	-7.551	989.91	0.27	1334.51	-2.26
3	13.61	19.34	8.76	5.43	-6.02	-5.092	-7.352	1045.39	0.283	1415.54	-2.51
4	14.24	19.88	8.62	5.81	-6.45	-5.378	-7.518	1042.22	0.209	1410.82	-2.42
5	12.47	18.02	9.60	4.30	-4.66	-4.291	-7.359	1043.52	0.293	1412.79	-2.39
6	12.99	18.31	9.41	4.61	-4.97	-4.572	-7.43	989.70	0.199	1334.20	-2.36
7	11.70	17.17	9.15	4.42	-4.76	-4.32	-7.348	1046.52	0.476	2564.01	-2.42
8	12.32	17.66	9.00	4.80	-5.18	-4.603	-7.522	1041.92	0.402	2551.70	-2.33
9	12.85	17.78	9.13	4.76	-5.25	-5.556	-7.406	1045.60	0.543	3758.16	-2.46
10	13.37	18.20	8.94	5.07	-5.56	-5.844	-7.474	989.83	0.449	3541.99	-2.43
11	11.90	17.49	10.77	3.29	-3.82	-3.45	-7.265	574.64	0.082	741.37	-2.92
12	12.41	17.96	10.58	3.59	-4.11	-3.724	-7.337	542.42	-0.018	696.52	-2.90
13	11.79	17.65	10.71	3.18	-3.66	-3.45	-7.085	496.18	0.026	632.56	-3.08
14	12.39	18.24	10.57	3.55	-4.06	-3.724	-7.271	494.39	-0.058	630.09	-2.99
15	12.29	18.15	10.52	3.61	-4.17	-4.127	-6.954	539.00	0.203	1426.99	-3.13
16	12.79	18.59	10.33	3.92	-4.46	-4.405	-7.029	508.94	0.102	1337.34	-3.11
17	10.85	17.06	10.07	2.72	-2.03	-3.767	-4.826	596.10	0.189	769.99	-3.31
18	12.78	19.19	10.81	3.66	-4.29	-4.042	-7.142	496.30	-0.131	632.74	-3.08

Table S2. *continued*

Comp.	IP(eV)	IP(eV)	EA(eV)	QPlogKhsa	PSA	Jm	SemiEmpirical Energy	Dipole	Dipole X	Dipole Y	Dipole Z	HOMO Energy	LUMO Energy
1	8.26	1	0.80	0.47	36.91	0.06	400.76	6.52	-3.92	-4.93	-1.66	-14.49	-7.35
2	8.32	2	0.83	0.57	36.92	0.03	387.19	7.08	-5.14	3.09	-3.77	-14.35	-7.13
3	8.24	3	0.78	1.00	36.90	0.00	373.44	9.17	8.98	-1.79	-0.50	-14.12	-7.29
4	8.25	4	0.79	1.12	36.91	0.00	358.94	12.73	10.24	4.68	-5.94	-13.94	-6.96
5	8.25	5	0.80	0.49	45.20	0.03	362.27	4.60	2.12	1.48	-3.80	-13.74	-7.31
6	8.30	6	0.81	0.59	45.22	0.02	348.96	6.16	1.19	-1.46	-5.86	-13.61	-7.10
7	8.29	7	0.83	0.51	36.90	0.02	359.46	3.75	1.05	0.35	-3.58	-14.68	-7.37
8	8.30	8	0.83	0.63	36.93	0.01	344.67	8.73	0.02	-6.33	6.01	-14.50	-7.02
9	8.29	9	0.83	0.61	36.90	0.01	408.75	15.23	7.44	12.34	4.92	-14.01	-7.35
10	8.35	10	0.86	0.71	36.94	0.00	395.23	15.84	12.79	8.80	-3.12	-13.89	-7.14
11	8.30	11	0.84	0.18	49.62	0.06	414.63	3.72	-2.30	-0.25	-2.91	-14.95	-7.40
12	8.36	12	0.87	0.27	49.63	0.03	400.90	6.78	-2.84	-3.45	-5.09	-14.81	-7.19
13	8.25	13	0.79	0.16	50.28	0.06	413.22	13.86	-2.10	-10.24	9.10	-15.17	-7.37
14	8.26	14	0.80	0.27	50.31	0.03	398.40	7.60	-5.42	4.96	-1.93	-14.85	-7.02
15	8.26	15	0.80	0.25	49.73	0.02	405.78	10.38	9.01	5.15	0.24	-15.19	-7.38
16	8.31	16	0.82	0.35	49.69	0.01	392.20	3.35	2.85	-1.37	1.10	-14.98	-7.17
17	8.23	17	0.79	0.00	53.74	1.57	379.30	10.08	0.35	0.47	10.06	-15.77	-8.03
18	8.27	18	0.79	0.29	56.87	0.02	355.73	7.24	4.63	3.32	4.47	-14.81	-7.11

Table S3. Calculated structural descriptors for diprotonated 4,7-ACQ derivatives on pH = 7.

Comp.	mol MW	dipole	SASA	FOSA	FISA	PISA	WPSA	volume	accptHB	dip^2/V	ACxDN^.5/SA	glob	QPpolrz
1	311.81	6.93	512.32	123.59	40.87	277.35	70.52	944.82	3.50	0.05	0.01	0.91	30.45
2	325.84	5.15	653.70	139.29	43.38	399.45	71.58	1108.94	3.50	0.02	0.01	0.79	37.55
3	367.92	6.56	582.46	273.34	34.76	205.20	69.16	1130.31	3.50	0.04	0.01	0.90	36.55
4	381.95	5.29	753.56	330.82	43.39	307.77	71.57	1322.90	3.50	0.02	0.01	0.77	44.59
5	341.84	7.45	657.68	198.19	43.96	343.95	71.58	1123.15	4.25	0.05	0.01	0.79	37.59
6	355.87	4.57	690.74	232.04	43.42	343.70	71.58	1183.97	4.25	0.02	0.01	0.78	39.37
7	329.80	8.94	515.04	124.21	40.68	245.68	104.48	955.17	3.50	0.08	0.01	0.91	30.57
8	343.83	6.31	662.47	139.19	43.37	361.32	118.59	1124.85	3.50	0.04	0.01	0.79	37.82
9	390.71	8.45	517.38	120.25	40.09	233.72	123.33	976.71	3.50	0.07	0.01	0.92	31.31
10	404.74	5.03	682.54	139.18	43.43	350.96	148.97	1161.80	3.50	0.02	0.01	0.78	39.20
11	312.80	5.02	613.05	106.62	70.88	363.97	71.58	1033.72	5.00	0.02	0.01	0.81	34.84
12	326.83	5.11	645.95	140.12	70.90	363.36	71.58	1094.52	5.00	0.02	0.01	0.80	36.62
13	312.80	5.44	514.27	124.40	61.71	256.94	71.22	938.48	5.00	0.03	0.01	0.90	30.01
14	326.83	6.36	636.29	135.13	77.58	351.99	71.58	1085.36	5.00	0.04	0.01	0.80	36.15
15	347.25	4.45	522.12	120.06	59.56	233.52	108.97	963.82	5.00	0.02	0.01	0.90	30.80
16	361.27	6.29	652.12	130.30	73.63	319.09	129.10	1122.14	5.00	0.04	0.01	0.80	37.31
17	342.83	6.81	532.11	178.32	64.18	218.93	70.69	999.90	5.75	0.05	0.02	0.91	31.46
18	356.85	4.14	678.28	226.13	75.10	305.47	71.58	1168.38	5.75	0.01	0.01	0.79	38.39

Table S3. *continued*

Comp.	QPlogPC16	QPlogPoct	QPlogPw	QPlogPo/w	QPlogS	CIQPlogS	QPlogHERG	QPPCaco	QPlogBB	QPPMDCK	QPlogKp
1	10.44	15.44	8.19	3.37	-2.37	-3.96	-5.06	1012.21	0.44	1349.71	-2.78
2	12.59	17.39	9.16	4.48	-4.68	-4.24	-7.52	958.14	0.26	1289.02	-2.30
3	11.50	17.27	7.61	4.48	-3.41	-5.09	-4.84	1156.47	0.42	1532.21	-2.83
4	14.09	19.60	8.56	5.72	-6.31	-5.38	-7.39	957.90	0.17	1288.61	-2.53
5	12.34	18.08	9.54	4.20	-4.52	-4.29	-7.22	946.02	0.25	1271.45	-2.51
6	12.95	18.20	9.39	4.58	-4.94	-4.57	-7.40	957.27	0.18	1287.78	-2.40
7	10.10	16.06	8.00	3.53	-2.56	-4.32	-4.88	1016.37	0.53	2080.50	-2.89
8	12.17	17.81	8.94	4.71	-5.04	-4.60	-7.39	958.30	0.37	2332.60	-2.44
9	10.86	16.28	7.92	3.73	-2.68	-5.56	-4.67	1029.54	0.59	2675.91	-2.92
10	13.33	18.22	8.93	5.04	-5.53	-5.84	-7.44	957.19	0.43	3417.98	-2.47
11	11.78	17.41	10.71	3.20	-3.68	-3.45	-7.13	525.54	0.05	673.52	-3.03
12	12.38	17.96	10.56	3.57	-4.08	-3.72	-7.31	525.40	-0.03	673.32	-2.94
13	10.35	15.88	9.68	2.61	-2.03	-3.45	-5.08	642.18	0.27	832.71	-3.24
14	12.25	18.02	10.51	3.46	-3.92	-3.72	-7.13	454.04	-0.09	575.02	-3.10
15	10.68	16.16	9.54	2.90	-2.32	-4.13	-4.93	672.90	0.38	1410.00	-3.28
16	12.76	18.61	10.32	3.89	-4.44	-4.41	-7.00	494.98	0.09	1304.16	-3.14
17	10.70	16.96	10.00	2.65	-1.96	-3.77	-4.78	608.45	0.20	780.22	-3.32
18	12.74	18.75	10.79	3.63	-4.25	-4.04	-7.10	479.32	-0.15	609.72	-3.12

Table S3. *continued*

Comp.	IP(eV)	EA(eV)	QPlogKhsa	PSA	Jm	SemiEmpirical Energy	Dipole	Dipole X	Dipole Y	Dipole Z	HOMO Energy	LUMO Energy
1	8.14	0.66	0.22	33.87	2.21	218.56	16.51	10.56	8.05	-9.81	-11.43	-3.90
2	8.34	0.83	0.56	37.34	0.03	211.10	22.14	-19.23	10.79	2.00	-10.55	-4.16
3	8.16	0.69	0.67	32.94	0.21	192.02	17.22	14.95	4.40	7.31	-11.40	-3.77
4	8.33	0.83	1.10	37.34	0.00	184.73	16.95	-13.51	9.22	4.42	-10.52	-4.04
5	8.32	0.83	0.47	45.77	0.03	179.76	16.15	-15.20	-3.99	-3.70	-10.91	-4.11
6	8.33	0.83	0.59	45.64	0.02	173.21	18.85	-17.42	4.39	-5.72	-10.53	-4.05
7	8.19	0.70	0.25	34.15	1.17	177.00	18.64	-8.08	13.20	10.39	-11.45	-4.04
8	8.35	0.84	0.60	37.35	0.01	169.13	19.12	2.54	-1.57	18.89	-10.58	-4.32
9	8.16	0.66	0.31	34.61	0.97	226.81	19.77	17.38	2.26	-9.15	-11.40	-4.01
10	8.36	0.85	0.70	37.35	0.00	218.79	14.61	-8.21	11.37	4.11	-10.56	-4.28
11	8.38	0.88	0.16	50.10	0.06	230.03	16.22	-14.11	7.99	-0.13	-10.99	-4.54
12	8.38	0.87	0.27	50.05	0.03	223.56	20.52	-18.99	2.75	-7.28	-10.61	-4.49
-13	8.57	1.02	-0.02	46.83	1.69	228.57	17.05	9.99	10.41	9.09	-11.52	-4.11
14	8.34	0.83	0.25	50.75	0.03	222.96	22.02	-21.61	2.60	-3.32	-10.58	-4.41
15	8.59	1.02	0.04	46.66	0.86	220.95	16.38	9.48	8.79	10.05	-11.48	-4.25
16	8.34	0.83	0.34	50.18	0.01	215.41	19.96	-11.91	9.47	-12.91	-10.58	-4.52
17	8.24	0.78	-0.02	54.12	1.78	185.68	15.09	10.79	8.13	6.72	-11.51	-3.91
17	8.32	0.82	0.28	57.26	0.02	179.89	19.90	-4.57	11.81	-15.34	-10.55	-4.15

Table S4. The R_F values of investigated 4,7-ACQ derivatives for chromatographic system RP-18 / DMSO-water.

Comp.	95% DMSO	90% DMSO	85% DMSO	80% DMSO	75% DMSO
1	0.65	0.44	0.30	0.22	0.15
2	0.55	0.36	0.20	0.16	0.06
3	0.38	0.21	0.07	0.06	0.02
4	0.30	0.14	0.04	0.03	0.01
5	0.67	0.48	0.36	0.26	0.15
6	0.56	0.32	0.23	0.15	0.06
7	0.64	0.48	0.30	0.23	0.11
8	0.55	0.37	0.20	0.14	0.06
9	0.60	0.41	0.23	0.17	0.07
10	0.51	0.30	0.16	0.11	0.03
11	0.74	0.59	0.48	0.40	0.26
12	0.69	0.51	0.41	0.32	0.22
13	0.71	0.60	0.46	0.41	0.23
14	0.64	0.49	0.34	0.29	0.16
15	0.68	0.45	0.33	0.24	0.13
16	0.62	0.38	0.27	0.19	0.10
17	0.69	0.55	0.41	0.34	0.20
18	0.62	0.44	0.30	0.23	0.11

Table S5. The R_F values of investigated 4,7-ACQ derivatives for chromatographic system RP-18 / Acetone-water.

Comp.	95% Ac	85% Ac	75% Ac	65% Ac	55% Ac
1	0.78	0.73	0.50	0.31	0.14
2	0.71	0.63	0.44	0.26	0.09
3	0.63	0.56	0.34	0.14	0.04
4	0.58	0.47	0.24	0.09	0.03
5	0.75	0.72	0.51	0.34	0.14
6	0.67	0.62	0.39	0.25	0.08
7	0.74	0.71	0.53	0.31	0.12
8	0.70	0.66	0.46	0.26	0.07
9	0.73	0.66	0.43	0.23	0.06
10	0.68	0.59	0.39	0.17	0.06
11	0.77	0.76	0.64	0.46	0.34
12	0.77	0.75	0.60	0.43	0.28
13	0.74	0.70	0.61	0.46	0.28
14	0.70	0.64	0.57	0.43	0.24
15	0.79	0.75	0.56	0.40	0.24
16	0.75	0.72	0.51	0.36	0.20
17	0.73	0.58	0.56	0.43	0.25
18	0.72	0.55	0.49	0.36	0.18

Table S6. Retention and statistical parameters for chromatographic system RP-18 / DMSO–water.

Comp.	R_M^0	b	r	SE	F	P
1	4.533±0.375	4.979±0.440	0.988	0.07	128.081	0.001
2	5.695±0.461	6.069±0.540	0.988	0.085	126.313	0.001
3	7.036±0.651	7.149±0.763	0.983	0.121	87.689	0.002
4	7.969±0.634	7.953±0.743	0.987	0.117	114.551	0.001
5	4.557±0.233	5.083±0.273	0.996	0.043	345.909	0.000
6	5.682±0.444	6.051±0.521	0.989	0.082	135.058	0.001
7	5.087±0.293	5.612±0.343	0.994	0.054	267.563	0.000
8	5.852±0.291	6.243±0.341	0.996	0.054	335.74	0.000
9	5.784±0.353	6.259±0.414	0.993	0.065	228.397	0.000
10	6.808±0.560	7.188±0.656	0.988	0.104	119.947	0.001
11	3.668±0.253	4.302±0.296	0.993	0.047	210.888	0.001
12	3.770±0.278	4.278±0.325	0.991	0.051	172.877	0.001
13	3.712±0.358	4.323±0.420	0.986	0.066	105.923	0.002
14	4.163±0.311	4.623±0.365	0.99	0.058	160.571	0.001
15	4.902±0.364	5.439±0.427	0.991	0.068	162.23	0.001
16	5.080±0.377	5.502±0.442	0.99	0.07	155.139	0.001
17	3.989±0.246	4.549±0.289	0.994	0.046	248.391	0.001
18	4.863±0.312	5.322±0.366	0.993	0.058	211.683	0.001

Table S7. Retention and statistical parameters for chromatographic system RP-18 / Acetone–water.

Comp.	R_M^0	b	r	SE	F	P
1	2.622±0.250	3.456±0.327	0.987	0.104	111.33	0.002
2	2.793±0.304	3.473±0.398	0.981	0.126	76.241	0.003
3	3.511±0.395	4.116±0.518	0.977	0.164	63.235	0.003
4	3.775±0.278	4.252±0.365	0.989	0.115	135.861	0.001
5	2.456±0.318	3.229±0.416	0.976	0.132	60.149	0.005
6	2.812±0.349	3.426±0.457	0.974	0.144	56.262	0.004
7	2.595±0.369	3.375±0.484	0.971	0.153	48.663	0.006
8	2.992±0.457	3.725±0.599	0.963	0.189	38.733	0.007
9	3.274±0.400	4.067±0.524	0.976	0.166	60.312	0.004
10	3.237±0.313	3.891±0.411	0.984	0.13	89.748	0.002
11	1.463±0.223	2.196±0.293	0.974	0.093	56.339	0.007
12	1.723±0.217	2.469±0.284	0.981	0.09	75.739	0.004
13	1.518±0.223	2.166±0.292	0.974	0.092	54.963	0.006
14	1.559±0.244	2.109±0.320	0.967	0.101	43.496	0.008
15	2.008±0.188	2.805±0.246	0.989	0.078	129.74	0.002
16	2.103±0.226	2.818±0.296	0.984	0.093	90.947	0.003
17	1.545±0.223	2.081±0.293	0.972	0.093	50.56	0.006
18	1.942±0.212	2.474±0.278	0.982	0.088	79.027	0.003

Table S8. Percent variance captured by PCA model for R_M values.

Principal component number	Eigenvalue of Cov(x)	% Variance captured this PC	% Variance captured total
1	9.07e+000	90.67	90.67
2	5.92e-001	5.92	96.59
3	1.64e-001	1.64	98.23
4	9.87e-002	0.99	99.21

Table S9. Percent variance captured by PCA model for monoprotonated structural descriptors.

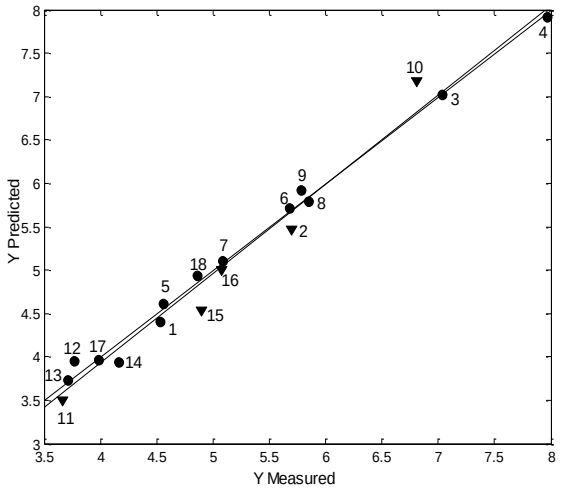
Principal component number	Eigenvalue of Cov(x)	% Variance captured this PC	% Variance captured total
1	1.38e+001	38.45	38.45
2	1.05e+001	29.17	67.62

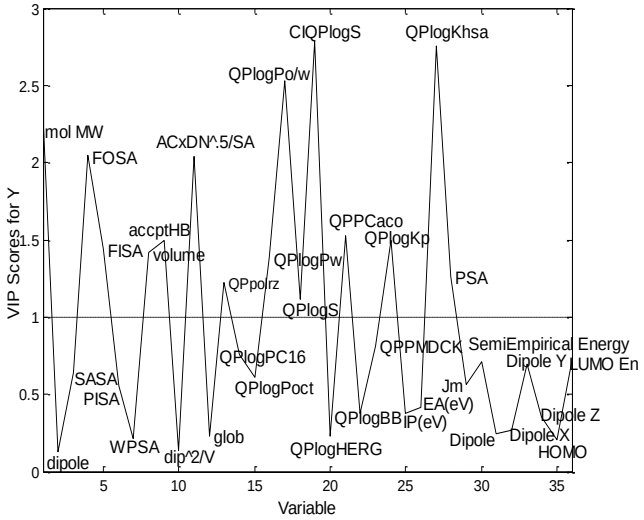
Table S10. Percent variance captured by PCA model for diprotonated structural descriptors.

Principal component number	Eigenvalue of Cov(x)	% Variance captured this PC	% Variance captured total
1	1.69e+001	47.05	47.05
2	6.35e+000	17.64	64.70
3	4.64e+000	12.88	77.57
4	3.29e+000	9.13	86.71

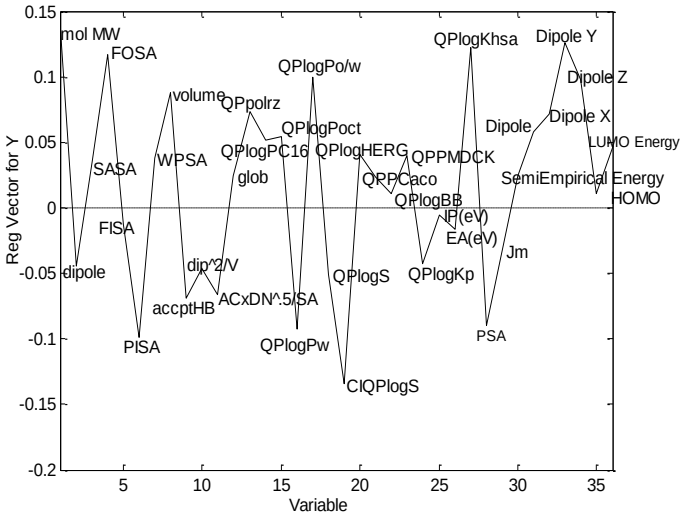
Table S11. Percent variance captured by PLS regression model for retention data obtained in chromatographic system containing DMSO.

Comp.	R^2_X	R^2_{cal}	R^2_{YCV}
1	31.16	86.41	68.51
2	62.44	92.11	83.06
3	79.40	97.12	88.72
4	84.23	99.31	92.42





a) **b)**

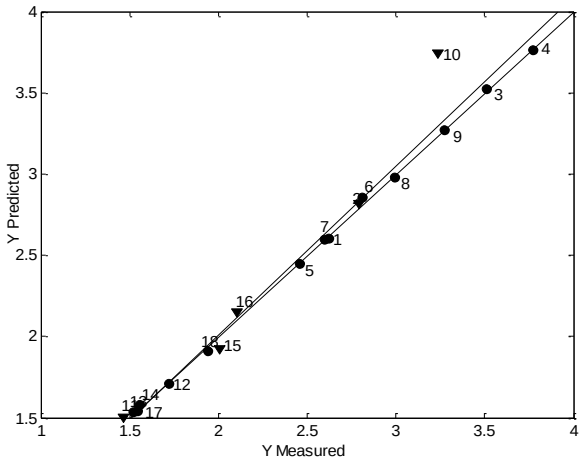


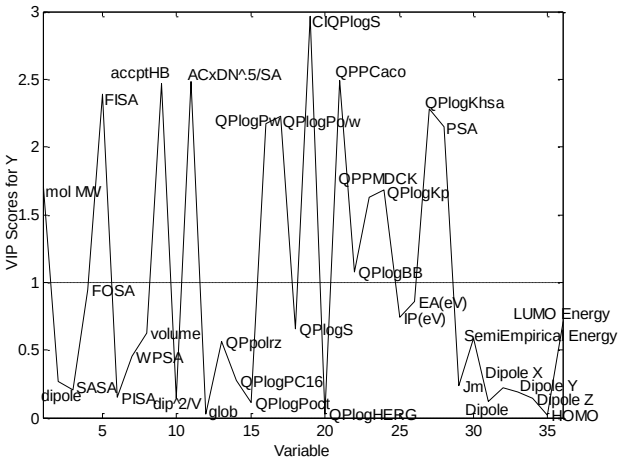
c)

Figure S1. PLS model for retention data obtained in chromatographic system containing DMSO, a) Plots of the measured versus predicted R_M^0 values, b) Plots of the variables versus VIP scores, c) Plot of the coefficients of parameters in model.

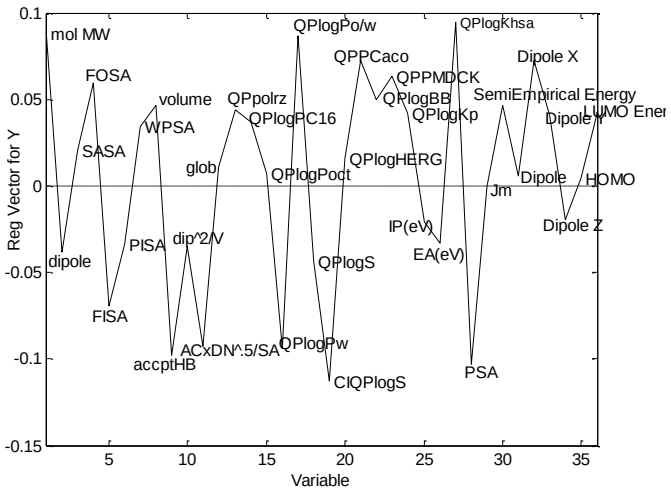
Table S12. Percent variance captured by PLS regression model for retention data obtained in chromatographic system containing acetone.

Comp.	R^2_X	R^2_{cal}	R^2_{CV}
1	29.89	96.50	87.69
2	48.87	98.48	94.22
3	78.01	99.31	95.15
4	84.18	99.90	96.52
5	89.16	99.94	97.55





a) **b)**

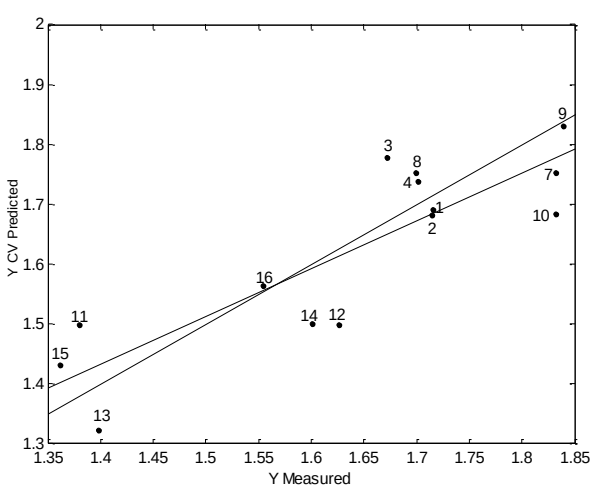


c)

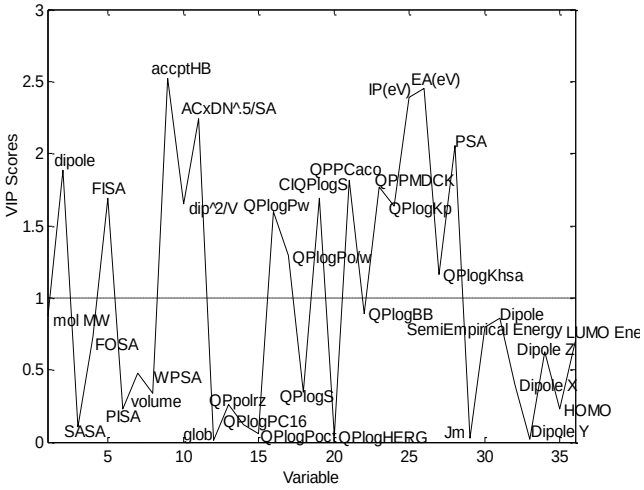
Figure S2. PLS model for retention data obtained in chromatographic system containing acetone, a) Plots of the measured versus predicted R_M^0 values, b) Plots of the variables versus VIP scores, c) Plot of the coefficients of parameters in model.

Table S13. Percent variance captured by PLS regression model for activity against BoNT.

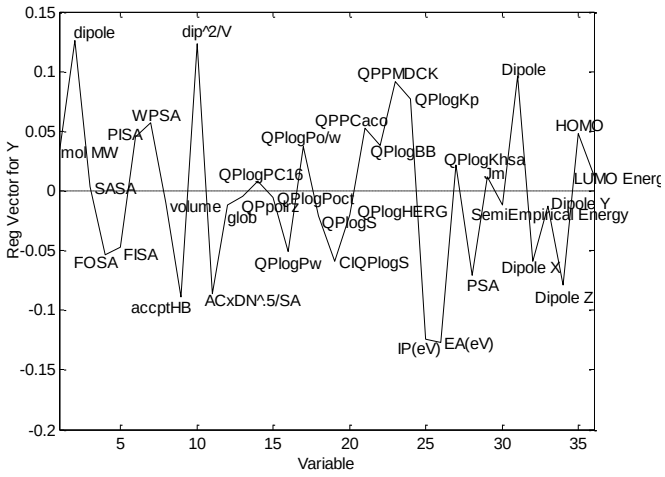
Comp.	R^2_X	R^2_{cal}	R^2_{CV}
1	32.22	76.02	52.39
2	42.08	90.32	73.56



a)



b)

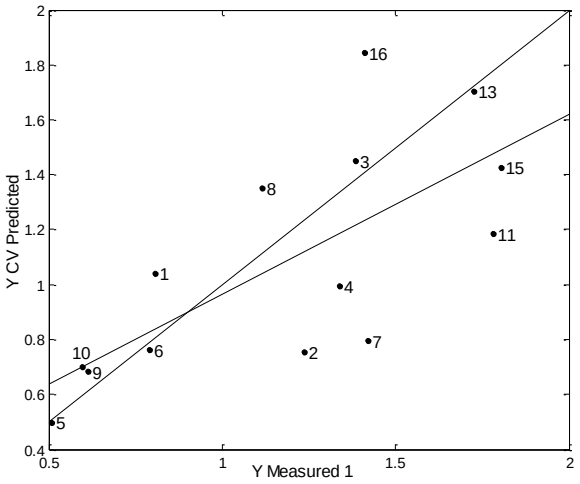


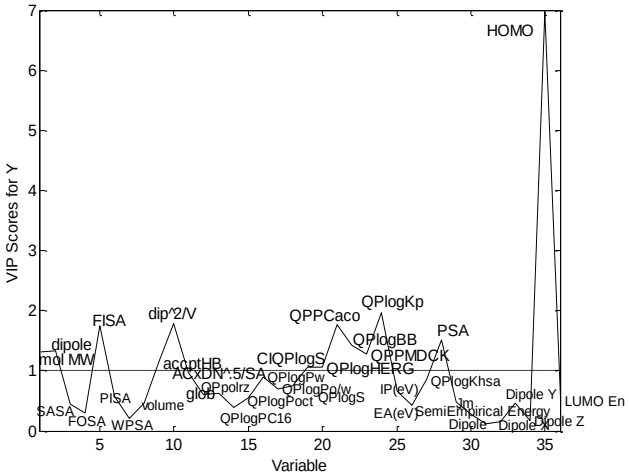
c)

Figure S3. PLS model for activity against BoNT, a) Plots of the measured versus predicted activities, b) Plots of the variables versus VIP scores, c) Plot of the coefficients of parameters in model.

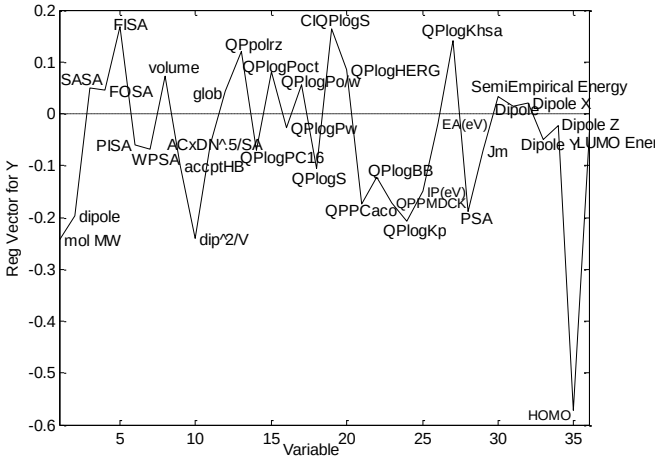
Table S14. Percent variance captured by PLS regression model for antimalarial activity against D6.

Comp.	R^2_X	R^2_{cal}	R^2_{CV}
1	47.75	48.36	22.23
2	68.04	67.16	38.16
3	73.46	89.36	53.25
4	83.61	94.14	64.55





a) **b)**

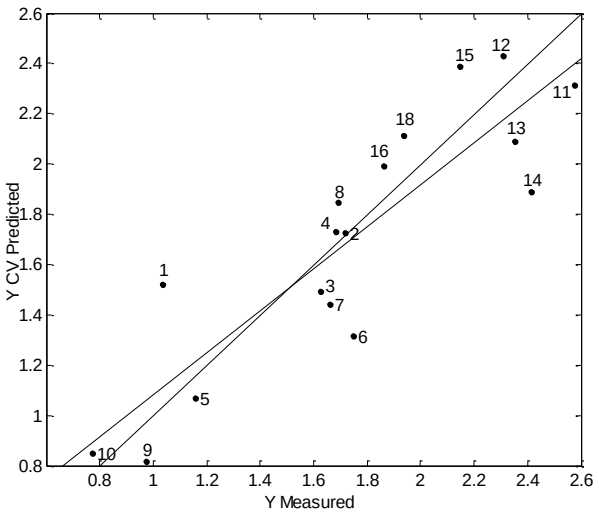


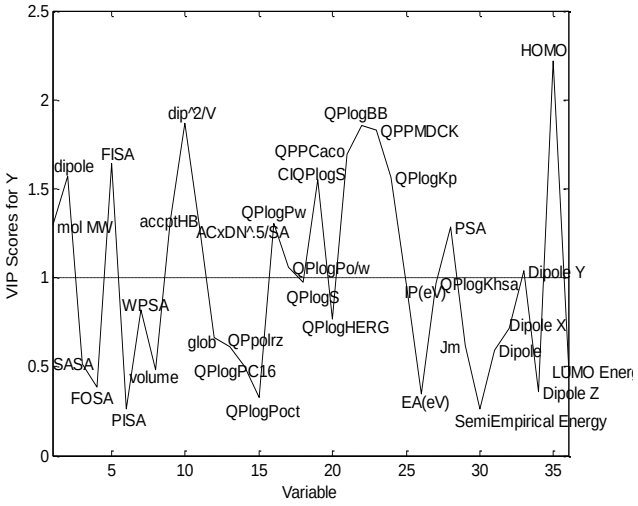
c)

Figure S4. PLS model for antimalarial activity against D6, a) Plots of the measured versus predicted activities, b) Plots of the variables versus VIP scores, c) Plot of the coefficients of parameters in model.

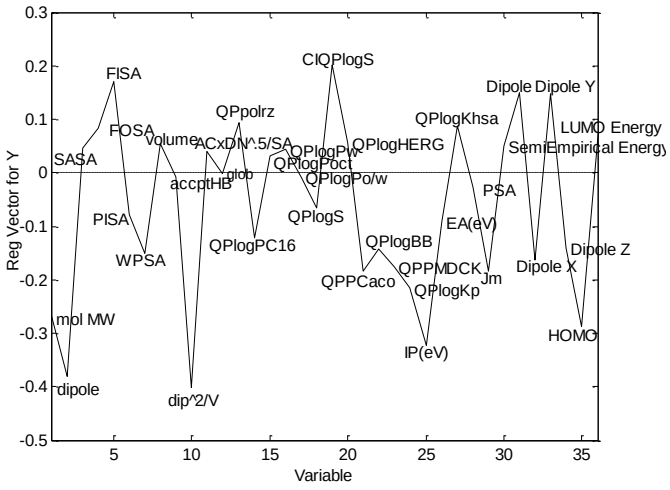
Table S15. Percent variance captured by PLS regression model for antimalarial activity against W2.

Comp.	R^2_X	R^2_{cal}	R^2_{CV}
1	45.81	59.65	48.32
2	65.53	71.28	53.46
3	75.54	80.78	56.98
4	81.17	89.66	65.51
5	89.13	93.04	68.17
6	91.43	96.97	76.78





a) **b)**



c)

Figure S5. PLS model for antimalarial for antimalarial activity against W2, a) Plots of the measured versus predicted activities, b) Plots of the variables versus VIP scores, c) Plot of the coefficients of parameters in model.

Table S16. Percent variance captured by PLS regression model for antimalarial activity against TM91C235.

Comp.	R^2_X	R^2_{cal}	R^2_{CV}
1	47.43	53.09	38.10
2	66.09	65.34	37.00
3	75.85	75.49	32.20
4	81.16	87.50	40.01
5	89.75	91.70	56.12
6	91.95	96.84	67.02
7	94.66	97.66	80.72

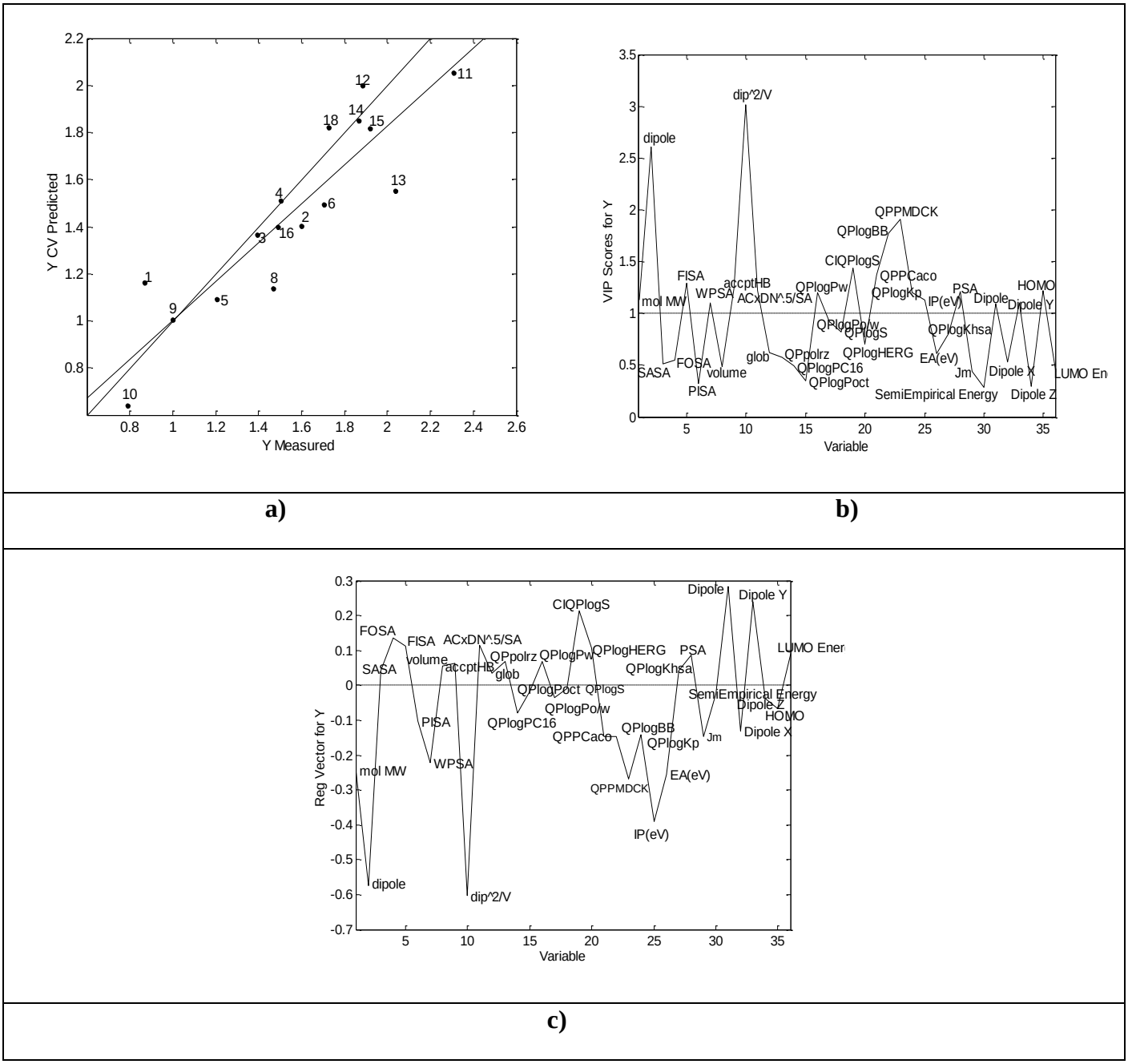


Figure S6. PLS model for antimalarial for antimalarial activity against TM91C235, a) Plots of the measured versus predicted activities, b) Plots of the variables versus VIP scores, c) Plot of the coefficients of parameters in model.