Supplementary Information for Development of Quantitative Structure-Activity Relationships and Classification Models for Anticonvulsant Activity of Hydantoin Analogues, J.J. Sutherland and D.F. Weaver.

no.	R ₁	R ₂	R ₃	R ₄	set membership [*]	class [‡]	qsar [#]	ref.
	hydantoins with aliphatic substituents only (1)[†]							
1	CH ₃	H	H	H	1, 3, 2, -, -, -	0	-	1
2	CH ₃	CH ₃	H	H	2, 2, 2, -, -, -	0	-	1
3	CH ₃	CH ₃	H	CH ₃	2, 2, 2, -, -, -	0	-	2
4	C ₂ H ₅	H	H	H	1, 1, 2, -, -, -	0	-	1
5	<i>n</i> -C ₃ H ₇	H	H	H	1, 3, 1, -, -, -	0	-	1
6	<i>i</i> -C ₃ H ₇	H	H	H	1, 3, 1, -, -, -	0	-	1
7	<i>i</i> -C ₄ H ₉	H	H	H	1, 1, 1, -, -, -	0	-	1
8	<i>i</i> -C ₄ H ₉	<i>i</i> -C ₄ H ₉	H	H	1, 1, 2, -, -, -	1	-	3
9	<i>sec</i> -C ₄ H ₉	H	H	H	2, 2, 1, -, -, -	0	-	1
10	<i>t</i> -C ₄ H ₉	CH ₃	H	H	2, 2, 2, 1, 1, 1	0	-1.87	4
11	<i>n</i> -C ₅ H ₁₁	CH ₃	H	H	2, 2, 1, -, -, -	1	-	3
12	<i>n</i> -C ₆ H ₁₃	CH ₃	H	H	1, 3, 1, -, -, -	1	-	3
13	cyclo-C ₃ H ₅	cyclo-C ₃ H ₅	H	CH ₃	2, 2, 2, -, -, -	1	-	5
14		CH ₃	H	H	2, 2, 1, -, -, -	0	-	1
	hydantoins with aromatic hydrocarbon substituents (1)							
15	C ₆ H ₅	H	H	H	1, 3, 1, 2, 2, 1	1	0.10	6
16	C ₆ H ₅	H	H	<i>n</i> -C ₃ H ₇	1, 3, 3, -, -, -	1	-	1
17	C ₆ H ₅	H	H	<i>i</i> -C ₃ H ₇	1, 1, 1, -, -, -	0	-	1
18	C ₆ H ₅	H	CH ₃	H	2, 2, 1, 1, 1, 1	1	0.93	4
19	C ₆ H ₅	H	C ₂ H ₅	H	1, 1, 3, 3, 3, 2	1	1.09	7
20	C ₆ H ₅	H	<i>n</i> -C ₃ H ₇	H	1, 3, 3, -, -, -	1	-	7
21	C ₆ H ₅	H	<i>i</i> -C ₃ H ₇	H	1, 1, 3, 1, 3, 1	1	0.09	7
22	C ₆ H ₅	H	CH ₂ =CHCH ₂ —	H	2, 2, 1, 2, 3, 1	1	0.93	7
23	C ₆ H ₅	H	<i>n</i> -C ₄ H ₉	H	1, 1, 3, 2, 2, 1	1	0.44	7

24	C ₆ H ₅	CH ₃	H	H	1, 1, 3, -, -, -	1	-	1
25	C ₆ H ₅	CH ₃	CH ₃	H	1, 3, 3, 2, 1, 1	1	0.71	7
26	C ₆ H ₅	CH ₃	<i>n</i> -C ₃ H ₇	H	1, 1, 3, 3, 3, 1	1	0.44	7
27	C ₆ H ₅	CH ₃	CH ₂ =CHCH ₂ —	H	1, 3, 3, 3, 3, 1	1	0.83	7
28	C ₆ H ₅	CH ₃	<i>n</i> -C ₄ H ₉	H	1, 3, 3, 3, 3, 1	1	-0.20	7
29	C ₆ H ₅	CH ₃	<i>n</i> -C ₇ H ₁₅	H	1, 1, 3, 1, 2, 1	1	-0.33	7
30	C ₆ H ₅	C ₂ H ₅	H	H	1, 1, 3, 1, 1, 1	1	1.69	8, 9, 10
31	C ₆ H ₅	C ₂ H ₅	H	CH ₃	1, 3, 3, 3, 3, 2	1	1.74	11, 12, 8, 13, 14, 9, 10
32	C ₆ H ₅	C ₂ H ₅	H	C ₂ H ₅	1, 3, 3, 3, 3, 1	1	0.01	14
33	C ₆ H ₅	C ₂ H ₅	CH ₃	H	1, 3, 3, 1, 3, 1	1	0.77	7, 14
34	C ₆ H ₅	C ₂ H ₅	CH ₃	CH ₃	2, 2, 2, 3, 2, 2	1	0.75	15
35	C ₆ H ₅	C ₂ H ₅	C ₂ H ₅	H	1, 3, 3, 3, 3, 2	1	0.44	7
36	C ₆ H ₅	C ₂ H ₅	CH ₂ =CHCH ₂ —	H	1, 3, 3, 3, 3, 2	1	0.49	7
37	C ₆ H ₅	C ₂ H ₅	<i>n</i> -C ₄ H ₉	H	1, 1, 3, 3, 3, 1	1	-0.43	7
38	C ₆ H ₅	C ₂ H ₅	<i>n</i> -C ₇ H ₁₅	H	1, 3, 1, 1, 2, 2	1	1.11	7
39	C ₆ H ₅	<i>n</i> -C ₃ H ₇	CH ₃	H	1, 3, 3, -, -, -	1	-	7
40	C ₆ H ₅	<i>n</i> -C ₃ H ₇	CH ₂ =CHCH ₂ —	H	1, 3, 3, 1, 3, 2	1	0.26	7
41	C ₆ H ₅	cyclo-C ₃ H ₅	H	H	1, 1, 1, -, -, -	1	-	5
42	C ₆ H ₅	cyclo-C ₃ H ₅	H	CH ₃	2, 2, 1, -, -, -	1	-	5
43	C ₆ H ₅	C ₆ H ₅	H	H	1, 3, 2, 1, 1, 1	1	3.05	16, 8, 6, 17, 18, 19, 4, 9, 10, 20, 21
44	C ₆ H ₅	C ₆ H ₅	H	CH ₃	1, 1, 1, 1, 1, 1	1	2.40	9, 10
45	C ₆ H ₅	C ₆ H ₅	CH ₃	CH ₃	1, 3, 2, 1, 1, 2	1	1.26	10

46	C ₆ H ₅	C ₆ H ₅	C ₂ H ₅	H	1,3,3,2,3,1	1	0.34	7
47	<i>p</i> -CH ₃ C ₆ H ₄	CH ₃	H	H	1,1,1,1,3,2	1	-1.04	4
48	<i>p</i> -CH ₃ C ₆ H ₄	C ₆ H ₅	H	CH ₂ =CHCH ₂ —	2,2,1,-,-,-	0	-	1
49	C ₆ H ₅ CH ₂ —	H	H	H	1,1,1,-,-,-	0	-	1
50	C ₆ H ₅ CH ₂ CH ₂ —	C ₆ H ₅ CH ₂ —	H	H	1,1,1,-,-,-	0	-	22
51		CH ₃	H	H	1,1,3,-,-,-	1	-	22
52		CH ₃	H	H	1,1,1,2,2,1	1	1.95	4
53		CH ₃	H	H	1,1,1,1,1,2	1	1.07	4
54		CH ₃	H	H	2,2,2,3,2,2	1	1.84	4
	hydantoins with heterocyclic substituents (1)							
55	CH ₃	CH ₃	H		1,1,1,-,-,-	0	-	23
56	CH ₃	CH ₃			2,2,1,-,-,-	0	-	24
57	2-C ₄ H ₃ S ^a	H	H	H	2,2,2,2,2,2	1	-0.58	6
58	2-C ₄ H ₃ S ^a	H	CH ₃	H	2,2,2,1,1,1	1	-0.52	6
59	2-C ₄ H ₃ S ^a	H	C ₂ H ₅	H	1,1,1,3,1,1	1	-0.20	6
60	2-C ₄ H ₃ S ^a	H	<i>n</i> -C ₃ H ₇	H	1,3,3,2,1,1	1	-0.65	6
61	2-C ₄ H ₃ S ^a	H	<i>i</i> -C ₃ H ₇	H	2,2,3,2,3,2	1	-0.13	6
62	2-C ₄ H ₃ S ^a	H	CH ₂ =CHCH ₂ —	H	1,3,1,3,2,1	1	-0.24	6

63	2-C ₄ H ₃ S ^a	H	<i>n</i> -C ₄ H ₉	H	2, 2, 3, 3, 2, 1	1	-0.99	6
64	2-C ₄ H ₃ S ^a	H	C ₆ H ₅ CH ₂ –	H	1, 1, 2, –, –, –	0	–	6
65	2-C ₄ H ₃ S ^a	H	C ₆ H ₅ CH ₂ CH ₂ –	H	2, 2, 1, –, –, –	0	–	6
66	2-C ₄ H ₃ S ^a	CH ₃	H	HOOCCH ₂ CH ₂ –	1, 1, 1, –, –, –	0	–	25
67	3-C ₄ H ₃ S ^a	C ₂ H ₅	H	H	1, 1, 3, –, –, –	1	–	26
68	3-C ₄ H ₃ S ^a	C ₂ H ₅	H	CH ₃	2, 2, 3, –, –, –	1	–	26
69	2-C ₄ H ₃ S ^a	cyclo-C ₃ H ₅	H	H	1, 1, 1, –, –, –	1	–	27
70	2-C ₄ H ₃ S ^a	cyclo-C ₃ H ₅	H	CH ₃	2, 2, 1, –, –, –	1	–	27
71	2-C ₄ H ₃ S ^a	2-C ₄ H ₃ S ^a	H	H	2, 2, 3, 1, 1, 1	1	1.91	6
72	2-C ₄ H ₃ S ^a	3-C ₄ H ₃ S ^a	H	H	1, 1, 3, –, –, –	1	–	26
73	C ₆ H ₅	H	H		2, 2, 1, –, –, –	0	–	1
74	C ₆ H ₅	2-C ₄ H ₃ S ^a	H	H	1, 3, 3, 3, 3, 1	1	2.12	6
75	C ₆ H ₅	3-C ₄ H ₃ S ^a	H	H	1, 3, 1, –, –, –	1	–	26
76	C ₆ H ₅	C ₆ H ₅	H		1, 1, 2, –, –, –	0	–	23
77	C ₆ H ₅	C ₆ H ₅	H		1, 1, 2, –, –, –	1	–	23
78	C ₆ H ₅	C ₆ H ₅	H		2, 2, 2, –, –, –	1	–	24
79	C ₆ H ₅	C ₆ H ₅	H		1, 1, 2, –, –, –	0	–	28
80	C ₆ H ₅	C ₆ H ₅	H		2, 2, 2, –, –, –	0	–	24
81	C ₆ H ₅ CH=CH–	CH ₃	H		1, 1, 1, –, –, –	0	–	24
82	C ₆ H ₅ CHBrCHBr–	CH ₃	H		2, 2, 2, –, –, –	0	–	24
83		CH ₃	H	H	1, 1, 2, –, –, –	0	–	4

84		<i>t</i> -C ₄ H ₉	H	H	2, 2, 2, -, -, -	0	-	4
85		C ₆ H ₅	H	H	2, 2, 3, 1, 3, 1	0	-1.70	4
86		CH ₃	H	H	1, 1, 2, -, -, -	0	-	4
hydantoins with amine substituents (1)								
87	C ₆ H ₅	H	H	(C ₂ H ₅) ₂ NCH ₂ CH ₂ -	2, 2, 1, 1, 1, 1	1	0.93	13
88	C ₆ H ₅	CH ₃	H	(CH ₃) ₂ NCH ₂ CH ₂ -	2, 2, 3, 3, 1, 2	1	0.36	13
89	C ₆ H ₅	CH ₃	H	(C ₂ H ₅) ₂ NCH ₂ CH ₂ -	1, 3, 1, 1, 1, 1	1	0.84	13
90	C ₆ H ₅	C ₂ H ₅	H	(C ₂ H ₅) ₂ NCH ₂ CH ₂ -	1, 1, 1, 1, 1, 1	1	0.68	29
91	C ₆ H ₅	C ₆ H ₅	H	(CH ₃) ₂ NCH ₂ CH ₂ -	1, 1, 3, 3, 1, 2	1	-0.78	29
92	C ₆ H ₅	C ₆ H ₅	H	(C ₂ H ₅) ₂ NCH ₂ CH ₂ -	1, 3, 1, 1, 1, 1	1	1.06	13
93	(CH ₃) ₂ NCH ₂ CH ₂ -	CH ₃	H	H	2, 2, 1, -, -, -	0	-	4
94	(CH ₃) ₂ NCH ₂ CH(CH ₃)-	C ₂ H ₅	H	H	1, 3, 1, -, -, -	0	-	4
95	<i>o</i> - C ₂ H ₅) ₂ NCH ₂ CH ₂ OC ₆ H ₄ -	CH ₃	H	H	1, 3, 1, -, -, -	0	-	4
96	<i>o</i> - (C ₂ H ₅) ₂ NCH ₂ CH ₂ OC ₆ H ₄ -	C ₂ H ₅	H	H	1, 1, 1, -, -, -	0	-	4
97	<i>o</i> - (C ₂ H ₅) ₂ NCH ₂ CH ₂ OC ₆ H ₄ -	<i>n</i> -C ₃ H ₇	H	H	2, 2, 2, 1, 1, 2	0	-1.79	4
98	<i>p</i> - C ₂ H ₅) ₂ NCH ₂ CH ₂ OC ₆ H ₄ -	CH ₃	H	H	1, 1, 1, -, -, -	0	-	4
99	<i>p</i> - C ₂ H ₅) ₂ NCH ₂ CH ₂ OC ₆ H ₄ -	C ₂ H ₅	H	H	1, 3, 1, -, -, -	0	-	4
100	<i>p</i> - (C ₂ H ₅) ₂ NCH ₂ CH ₂ OC ₆ H ₄ -	<i>n</i> -C ₃ H ₇	H	H	1, 1, 2, -, -, -	0	-	4
hydantoins with ether substituents (1)								
101	CH ₃ OCH ₂ -	H	H	H	1, 1, 2, -, -, -	0	-	1
102	<i>i</i> -C ₃ H ₇ OCH ₂ -	H	H	H	1, 1, 1, -, -, -	0	-	1

103	C ₆ H ₅	C ₂ H ₅	H	CH ₃ OCH ₂ –	1, 3, 3, 1, 3, 1	1	1.83	10
104	C ₆ H ₅	C ₂ H ₅	H	<i>n</i> -C ₄ H ₉ OCH ₂ –	2, 2, 3, 1, 1, 1	1	-0.09	10
105	C ₆ H ₅	C ₂ H ₅	H	C ₆ H ₅ CH ₂ OCH ₂ –	1, 3, 3, 1, 1, 1	1	0.72	10
106	C ₆ H ₅	C ₂ H ₅	CH ₃ OCH ₂ –	CH ₃	1, 3, 1, 3, 1, 1	1	0.93	10
107	C ₆ H ₅	C ₆ H ₅	H	CH ₃ OCH ₂ –	1, 3, 3, 3, 3, 2	1	3.28	30
108	C ₆ H ₅	C ₆ H ₅	H	<i>n</i> -C ₄ H ₉ OCH ₂ –	2, 2, 1, -, -, -	1	-	30
109	C ₆ H ₅	C ₆ H ₅	H	C ₆ H ₅ CH ₂ OCH ₂ –	1, 1, 2, -, -, -	1	-	30
110	C ₆ H ₅	C ₆ H ₅	CH ₃ OCH ₂ –	CH ₃ OCH ₂ –	1, 1, 2, 1, 1, 2	1	2.23	10
111	<i>p</i> -CH ₃ OC ₆ H ₄ –	H	H	H	1, 1, 3, -, -, -	0	-	1
112	<i>p</i> -CH ₃ OC ₆ H ₄ –	cyclo-C ₃ H ₅	H	H	2, 2, 1, -, -, -	0	-	5
113	2,3-(CH ₃ O) ₂ C ₆ H ₃ –	H	H	H	1, 1, 3, -, -, -	0	-	1
114	3,4-(C ₂ H ₅ O) ₂ C ₆ H ₃ –	H	H	H	1, 1, 2, -, -, -	0	-	1
115	<i>o</i> -CH ₂ =CHCH ₂ OC ₆ H ₄ –	CH ₃	H	H	1, 1, 3, 1, 3, 1	1	0.11	4
116	<i>o</i> -CH ₂ =CHCH ₂ OC ₆ H ₄ –	CH ₃	H	CH ₃	1, 1, 3, -, -, -	0	-	4
117	<i>o</i> -CH ₂ =CHCH ₂ OC ₆ H ₄ –	C ₂ H ₅	H	H	1, 1, 3, 3, 3, 1	1	0.55	4
118	<i>o</i> -CH ₂ =CHCH ₂ OC ₆ H ₄ –	<i>n</i> -C ₃ H ₇	H	H	1, 1, 3, 1, 1, 1	1	-0.60	4
119	<i>p</i> -CH ₂ =CHCH ₂ OC ₆ H ₄ –	CH ₃	H	H	1, 3, 3, 2, 3, 1	1	-0.94	4
120	<i>p</i> -CH ₂ =CHCH ₂ OC ₆ H ₄ –	CH ₃	H	CH ₃	1, 3, 3, 1, 3, 1	1	-1.03	4
121	<i>p</i> -CH ₂ =CHCH ₂ OC ₆ H ₄ –	CH ₃	H	C ₆ H ₅ CH ₂ –	1, 1, 1, -, -, -	0	-	4
122	<i>p</i> -CH ₂ =CHCH ₂ OC ₆ H ₄ –	C ₂ H ₅	H	H	2, 2, 1, 1, 3, 2	1	-0.48	4
123	<i>p</i> -CH ₂ =CHCH ₂ OC ₆ H ₄ –	<i>n</i> -C ₃ H ₇	H	H	1, 1, 1, -, -, -	0	-	4
124	<i>p</i> -CH ₂ =CHCH ₂ OC ₆ H ₄ –	<i>p</i> -CH ₂ =CHCH ₂ OC ₆ H ₄ –	H	H	2, 2, 2, -, -, -	0	-	4
125	5-Br-2-CH ₃ OC ₆ H ₃ –	H	H	H	1, 1, 1, -, -, -	0	-	1
126	<i>o</i> -BrCH ₂ CH(Br)CH ₂ OC ₆ H ₄ –	CH ₃	H	H	1, 1, 1, -, -, -	0	-	4
127	<i>o</i> -BrCH ₂ CH(Br)CH ₂ OC ₆ H ₄ –	C ₂ H ₅	H	H	2, 2, 1, -, -, -	0	-	4
128	<i>o</i> -BrCH ₂ CH(Br)CH ₂ OC ₆ H ₄ –	<i>n</i> -C ₃ H ₇	H	H	1, 1, 2, -, -, -	0	-	4
129	<i>p</i> -BrCH ₂ CH(Br)CH ₂ OC ₆ H ₄ –	CH ₃	H	H	1, 3, 2, -, -, -	0	-	4

130	<i>p</i> -BrCH ₂ CH(Br)CH ₂ OC ₆ H ₄ –	C ₂ H ₅	H	H	1, 1, 2, –, –, –	0	–	4
131	<i>p</i> -BrCH ₂ CH(Br)CH ₂ OC ₆ H ₄ –	<i>n</i> -C ₃ H ₇	H	H	2, 2, 2, –, –, –	0	–	4
132	<i>p</i> -BrCH ₂ CH(Br)CH ₂ OC ₆ H ₄ –	<i>n</i> -C ₃ H ₇	H	CH ₃	2, 2, 2, –, –, –	0	–	4
133	<i>p</i> -BrCH ₂ CH(Br)CH ₂ OC ₆ H ₄ –	<i>p</i> -CH ₂ =CHCH ₂ OC ₆ H ₄ –	H	H	2, 2, 2, –, –, –	0	–	4
134	<i>p</i> -C ₆ H ₅ OC ₆ H ₄ –	CH ₃	H	H	1, 1, 1, 2, 1, 2	1	-0.19	4
135	<i>p</i> -C ₆ H ₅ OC ₆ H ₄ –	CH ₃	H	CH ₃	1, 1, 1, –, –, –	0	–	4
136	3-CH ₃ O-4-HOC ₆ H ₃ CH ₂ –	H	H	H	1, 1, 2, –, –, –	0	–	1
137	C ₆ H ₅ OCH ₂ –	CH ₃	H	H	1, 1, 3, –, –, –	0	–	1
	hydantoins with ketone substituents (1)							
138	<i>i</i> -C ₄ H ₉	CH ₃	H	CH ₃ COCH ₂ –	2, 2, 2, –, –, –	0	–	1
139	C ₂ H ₅ CH(CH ₃)CH ₂ –	H	H	CH ₃ COCH ₂ –	1, 1, 2, –, –, –	0	–	1
140	C ₆ H ₅	H	H	CH ₃ COCH ₂ –	2, 2, 2, –, –, –	0	–	1
141	C ₆ H ₅	C ₂ H ₅	H	CH ₃ CO–	2, 2, 1, 3, 3, 1	1	1.10	9
142	C ₆ H ₅	C ₆ H ₅	H	CH ₃ CO–	1, 1, 2, 2, 3, 2	1	3.10	9
143	C ₆ H ₅	C ₆ H ₅	H	C ₆ H ₅ CO–	1, 3, 2, 1, 2, 1	1	3.34	9
144	C ₆ H ₅	C ₆ H ₅	H	C ₆ H ₅ CH ₂ CO–	1, 1, 2, 2, 2, 1	1	2.84	9
145	C ₆ H ₅	C ₆ H ₅	(C ₃ H ₇) ₂ CHCO–	H	2, 2, 2, –, –, –	1	–	31
	hydantoins with hydroxy substituents (1)							
146	C ₆ H ₅	H	H	HOCH ₂ CH ₂ –	1, 1, 1, 1, 1, 1	1	0.61	13
147	C ₆ H ₅	H	H	CH ₃ CH(OH)CH(OH)–	2, 2, 2, –, –, –	0	–	1
148	C ₆ H ₅	CH ₃	H	HOCH ₂ –	1, 3, 3, 1, 1, 2	1	2.40	13
149	C ₆ H ₅	CH ₃	H	HOCH ₂ CH ₂ –	1, 3, 3, 3, 3, 1	1	1.74	13
150	C ₆ H ₅	C ₂ H ₅	H	HOCH ₂ –	1, 1, 3, 3, 3, 1	1	3.15	29
151	C ₆ H ₅	C ₂ H ₅	H	HOCH ₂ CH ₂ –	1, 3, 3, 3, 3, 1	1	1.30	29
152	C ₆ H ₅	C ₆ H ₅	H	HOCH ₂ CH ₂ –	1, 3, 3, 3, 3, 1	1	1.82	29
153	<i>o</i> -HOC ₆ H ₄ –	H	CH ₃	H	1, 3, 1, –, –, –	0	–	4

154	<i>o</i> -HOC ₆ H ₄ –	H	C ₂ H ₅ –	H	1,1,3,-,-,-	0	-	4
155	<i>o</i> -HOC ₆ H ₄ –	H	<i>n</i> -C ₃ H ₇	H	1,3,1,-,-,-	0	-	4
156	<i>o</i> -HOC ₆ H ₄ –	H	CH ₂ =CHCH ₂ –	H	1,3,1,-,-,-	0	-	4
157	<i>o</i> -HOC ₆ H ₄ –	H	BrCH ₂ CH(Br)CH ₂ –	H	2,2,2,-,-,-	0	-	4
158	<i>o</i> -HOC ₆ H ₄ –	H	C ₆ H ₅ CH ₂ –	H	2,2,1,-,-,-	0	-	4
159	<i>o</i> -HOC ₆ H ₄ –	CH ₃	H	H	1,1,1,1,1,1	1	-1.40	4
160	<i>o</i> -HOC ₆ H ₄ –	C ₂ H ₅	H	H	2,2,3,2,2,2	0	-1.74	4
161	<i>o</i> -HOC ₆ H ₄ –	<i>n</i> -C ₃ H ₇	H	H	2,2,1,2,2,1	0	-2.24	4
162	<i>o</i> -HOC ₆ H ₄ –	<i>p</i> -HOC ₆ H ₄ –	H	H	1,1,2,-,-,-	0	-	1
163	<i>p</i> -HOC ₆ H ₄ –	H	H	H	1,1,2,-,-,-	0	-	1
164	<i>p</i> -HOC ₆ H ₄ –	CH ₃	H	H	1,1,1,-,-,-	0	-	4
165	<i>p</i> -HOC ₆ H ₄ –	C ₂ H ₅	H	H	1,1,3,-,-,-	0	-	4
166	<i>p</i> -HOC ₆ H ₄ –	<i>n</i> -C ₃ H ₇	H	H	1,1,1,-,-,-	0	-	4
167	<i>p</i> -HOC ₆ H ₄ –	C ₆ H ₅	H	H	2,2,1,-,-,-	0	-	4
168	<i>p</i> -FC ₆ H ₄ –	CH ₃	H	HOCH ₂ CH ₂ –	1,1,3,1,1,2	1	-0.14	29
169	<i>p</i> -FC ₆ H ₄ –	C ₂ H ₅	H	HOCH ₂ CH ₂ –	1,3,3,3,1,1	1	0.34	29
170	<i>p</i> -ClC ₆ H ₄ –	CH ₃	H	HOCH ₂ CH ₂ –	1,1,3,1,1,1	1	0.64	29
171	<i>p</i> -ClC ₆ H ₄ –	C ₂ H ₅	H	HOCH ₂ CH ₂ –	1,1,3,3,2,2	1	0.96	29
172	5-Cl-2-HOC ₆ H ₃ –	H	H	H	2,2,2,-,-,-	0	-	1
173	<i>p</i> -BrC ₆ H ₄ –	CH ₃	H	HOCH ₂ CH ₂ –	1,3,3,3,2,1	1	1.42	29
174	<i>p</i> -BrC ₆ H ₄ –	C ₂ H ₅	H	HOCH ₂ CH ₂ –	1,1,3,3,1,1	1	1.57	29
175	5-Br-2-HOC ₆ H ₃ –	H	H	H	2,2,2,-,-,-	1	-	1
176	<i>p</i> -HOC ₆ H ₄ CH ₂ –	H	H	H	1,3,1,-,-,-	0	-	4
177	<i>m</i> -CF ₃ C ₆ H ₄ CH ₂ –	H	H	HOCH ₂ CH ₂ –	2,2,2,-,-,-	1	-	32
	hydantoins with ester / carboxylic acid substituents (1)							
178	C ₆ H ₅	CH ₃	H	HO ₂ CCH ₂ CH ₂ –	1,3,1,-,-,-	0	-	25
179	C ₆ H ₅	C ₂ H ₅	H	CH ₃ CO ₂ CH ₂ –	1,1,1,3,3,1	1	2.63	10
180	C ₆ H ₅	C ₂ H ₅	H	C ₂ H ₅ CO ₂ –	2,2,2,2,2,1	1	2.31	9
181	C ₆ H ₅	C ₂ H ₅	CH ₃ CO ₂ CH ₂ –	CH ₃	2,2,2,2,2,2	1	0.83	10
182	C ₆ H ₅	C ₂ H ₅	CH ₃ CO ₂ CH ₂ –	CH ₃ CO ₂ CH ₂ –	2,2,2,1,1,2	1	0.52	10
183	C ₆ H ₅	C ₂ H ₅	C ₂ H ₅ CO ₂ –	H	1,1,1,2,1,1	1	0.93	9

184	C ₆ H ₅	C ₆ H ₅	H	CH ₃ CO ₂ CH ₂ –	1,3,1,-,-,-	1	-	30
185	C ₆ H ₅	C ₆ H ₅	H	C ₂ H ₅ CO ₂ –	2,2,2,3,1,1	1	3.43	9
186	C ₆ H ₅	C ₆ H ₅	CH ₃ CO ₂ CH ₂ –	CH ₃ CO ₂ CH ₂ –	2,2,2,-,-,-	1	-	30
187	C ₆ H ₅	C ₆ H ₅	C ₂ H ₅ CO ₂ –	H	1,3,2,2,1,2	1	2.08	9
188	C ₆ H ₅	C ₆ H ₅	C ₂ H ₅ CO ₂ –	C ₂ H ₅ CO ₂ –	1,1,2,1,1,1	1	3.16	9
	hydantoins with halide substituents (1)							
189	<i>o</i> -FC ₆ H ₄ –	H	H	H	1,1,3,-,-,-	1	-	33
190	<i>p</i> -FC ₆ H ₄ –	H	H	H	1,3,3,-,-,-	1	-	33
191	<i>p</i> -FC ₆ H ₄ –	cyclo-C ₃ H ₅	H	H	2,2,1,-,-,-	1	-	5
192	<i>p</i> -FC ₆ H ₄ –	<i>m</i> -FC ₆ H ₄ –	H	H	2,2,1,-,-,-	1	-	33
193	<i>p</i> -FC ₆ H ₄ –	<i>p</i> -FC ₆ H ₄ –	H	H	2,2,1,-,-,-	1	-	33
194	<i>m</i> -CF ₃ C ₆ H ₄ –	C ₆ H ₅	H	H	1,1,2,-,-,-	1	-	34
195	<i>p</i> -CF ₃ C ₆ H ₄ –	C ₆ H ₅	H	H	2,2,2,-,-,-	1	-	34
196	<i>m</i> -CF ₃ C ₆ H ₄ –	<i>m</i> -CF ₃ C ₆ H ₄ –	H	H	2,2,2,-,-,-	0	-	34
197	<i>o</i> -ClC ₆ H ₄ –	H	H	H	1,1,1,-,-,-	0	-	1
198	<i>p</i> -ClC ₆ H ₄ –	H	H	H	1,1,1,-,-,-	1	-	1
199	<i>p</i> -ClC ₆ H ₄ –	CH ₃	H	H	2,2,1,1,1,1	1	-1.22	4
200	2,4-Cl ₂ C ₆ H ₃ –	H	H	H	2,2,2,-,-,-	0	-	1
201	3,4-Cl ₂ C ₆ H ₃ –	H	H	H	1,1,2,-,-,-	0	-	1
202	<i>p</i> -BrC ₆ H ₄ –	CH ₃	H	H	1,1,1,3,1,1	0	-1.84	4
203	<i>p</i> -BrC ₆ H ₄ –	cyclo-C ₃ H ₅	H	H	1,3,1,-,-,-	1	-	5
204	<i>p</i> -CF ₃ C ₆ H ₄ CH ₂ –	H	H	H	1,1,2,-,-,-	1	-	32
205	<i>m</i> -BrC ₆ H ₄ CH ₂ –	H	H	CH ₃	1,1,1,-,-,-	1	-	32
	miscellaneous substituents (1)							
206	C ₆ H ₅	H	H	<i>p</i> -NH ₂ SO ₂ C ₆ H ₄ –	2,2,2,2,2,2	1	-0.91	13
207	C ₆ H ₅	CH ₃	H	NH ₂ CO ₂ CH ₂ CH ₂ –	1,3,3,3,3,2	1	0.51	13
208	C ₆ H ₅	C ₂ H ₅	H	NH ₂ CO ₂ CH ₂ CH ₂ –	1,3,1,3,2,1	1	0.30	13
209	C ₆ H ₅	C ₂ H ₅	H	C ₂ H ₅ OCONHCH ₂ –	2,2,1,1,3,1	1	-0.07	13
210	C ₆ H ₅	C ₆ H ₅	H	N≡CCH ₂ CH ₂ –	1,1,1,-,-,-	0	-	25
211	CH ₃ SCH ₂ CH ₂ –	H	H	H	2,2,1,-,-,-	0	-	1

212	CH ₃ SCH ₂ CH ₂ –	H	H	C ₆ H ₅	2,2,1,-,-,-	0	-	28
	hydantoins with benzilidene substituents (4)							
213	C ₆ H ₅ CH=	-	H	H	2,2,2,-,-,-	0	-	1
214	<i>o</i> -CH ₃ C ₆ H ₄ CH=	-	H	<i>p</i> -BrC ₆ H ₄ –	1,1,2,-,-,-	0	-	35
215	<i>p</i> -CH ₃ C ₆ H ₄ CH=	-	H	<i>p</i> -BrC ₆ H ₄ –	2,2,2,-,-,-	0	-	35
216	2,4-(CH ₃) ₂ C ₆ H ₄ CH=	-	H	C ₆ H ₅ –	2,2,1,-,-,-	0	-	36
217	2,4-(CH ₃) ₂ C ₆ H ₄ CH=	-	H	<i>p</i> -CH ₃ C ₆ H ₄ –	1,1,2,-,-,-	0	-	36
218	2,4-(CH ₃) ₂ C ₆ H ₄ CH=	-	H	<i>p</i> -BrC ₆ H ₄ –	1,1,2,-,-,-	0	-	35
219	<i>o</i> -CH ₃ OC ₆ H ₄ CH=	-	H	<i>p</i> -BrC ₆ H ₄ –	1,1,1,-,-,-	0	-	35
220	<i>m</i> -CH ₃ OC ₆ H ₄ CH=	-	H	<i>p</i> -BrC ₆ H ₄ –	2,2,2,-,-,-	0	-	35
221	2,3-(CH ₃ O) ₂ C ₆ H ₄ CH=	-	H	<i>p</i> -BrC ₆ H ₄ –	2,2,1,-,-,-	0	-	35
222	<i>p</i> -HOC ₆ H ₄ CH=	-	H	H	1,3,2,-,-,-	0	-	1
223	<i>m</i> -CH ₃ CONHC ₆ H ₄ CH=	-	H	C ₆ H ₅	1,1,1,-,-,-	0	-	36
224	<i>p</i> -CH ₃ CONHC ₆ H ₄ CH=	-	H	C ₆ H ₅	1,3,1,-,-,-	0	-	36
225	<i>p</i> -CF ₃ C ₆ H ₄ CH=	-	H	H	2,2,2,-,-,-	1	-	32
226	<i>m</i> -ClC ₆ H ₄ CH=	-	H	C ₆ H ₅ –	2,2,2,-,-,-	1	-	36
227	<i>m</i> -ClC ₆ H ₄ CH=	-	H	<i>p</i> -CH ₃ C ₆ H ₄ –	1,1,1,-,-,-	1	-	36
228	<i>m</i> -ClC ₆ H ₄ CH=	-	H	<i>p</i> -BrC ₆ H ₄ –	1,1,2,-,-,-	0	-	35
229	<i>p</i> -ClC ₆ H ₄ CH=	-	H	H	2,2,2,-,-,-	1	-	32
	2-thiohydantoins (2)							
230	H	H	H	CH ₂ =CHCH ₂ –	1,1,2,-,-,-	1	-	20
231	CH ₃	H	H	CH ₂ =CHCH ₂ –	2,2,2,-,-,-	1	-	20
232	C ₂ H ₅	H	H	CH ₂ =CHCH ₂ –	1,3,2,-,-,-	1	-	20
233	<i>n</i> -C ₃ H ₇	H	H	CH ₂ =CHCH ₂ –	2,2,1,-,-,-	1	-	20
234	<i>i</i> -C ₃ H ₇	H	H	CH ₂ =CHCH ₂ –	1,3,1,-,-,-	1	-	20
235	<i>n</i> -C ₄ H ₉	H	H	CH ₂ =CHCH ₂ –	1,1,2,-,-,-	1	-	20
236	<i>sec</i> -C ₄ H ₉	H	H	CH ₂ =CHCH ₂ –	1,3,1,-,-,-	1	-	20
237	<i>i</i> -C ₄ H ₉	H	H	H	2,2,2,-,-,-	1	-	20
238	<i>i</i> -C ₄ H ₉	H	H	CH ₃	1,1,1,-,-,-	1	-	20
239	<i>i</i> -C ₄ H ₉	H	H	C ₂ H ₅	1,3,1,-,-,-	1	-	20

240	<i>i</i> -C ₄ H ₉	H	H	<i>n</i> -C ₃ H ₇	1, 3, 2, -, -, -, -	1	-	20
241	<i>i</i> -C ₄ H ₉	H	H	CH ₂ =CHCH ₂ -	2, 2, 3, -, -, -, -	1	-	20
242	<i>i</i> -C ₄ H ₉	H	H	<i>n</i> -C ₄ H ₉	2, 2, 2, -, -, -, -	1	-	20
243	<i>i</i> -C ₄ H ₉	H	H	<i>i</i> -C ₄ H ₉	2, 2, 2, -, -, -, -	1	-	20
244	<i>i</i> -C ₄ H ₉	H	H	<i>n</i> -C ₆ H ₁₃	1, 3, 2, -, -, -, -	1	-	20
245	<i>n</i> -C ₆ H ₁₃	H	H	CH ₂ =CHCH ₂ -	2, 2, 2, -, -, -, -	1	-	20
246	C ₆ H ₅	C ₆ H ₅	H	H	2, 2, 2, 1, 1, 2	1	2.37	37
247	C ₆ H ₅	C ₆ H ₅	H		1, 1, 1, -, -, -, -	0	-	23
248	C ₆ H ₅	C ₆ H ₅	H		1, 3, 1, -, -, -, -	1	-	24
249	CH ₃ SCH ₂ CH ₂ -	H	C ₆ H ₅	H	1, 1, 1, -, -, -, -	0	-	28
	2-iminohydantoins (3)							
250	CH ₃	H	C ₆ H ₅ CH ₂ CO ₂ -	H	1, 3, 1, -, -, -, -	1	-	38
251	CH ₃	CH ₃	C ₆ H ₅ CH ₂ CO ₂ -	H	1, 3, 3, -, -, -, -	1	-	38
252	C ₂ H ₅	H	C ₆ H ₅ CH ₂ CO ₂ -	H	1, 1, 1, -, -, -, -	1	-	38
253	<i>n</i> -C ₃ H ₇	H	C ₆ H ₅ CH ₂ CO ₂ -	H	1, 3, 1, -, -, -, -	1	-	38
254	<i>i</i> -C ₃ H ₇	H	C ₆ H ₅ CH ₂ CO ₂ -	H	1, 3, 3, -, -, -, -	1	-	38
255	CH ₂ CH=CH ₂ -	H	C ₆ H ₅ CH ₂ CO ₂ -	H	2, 2, 2, -, -, -, -	1	-	38
256	<i>n</i> -C ₄ H ₉	H	C ₆ H ₅ CH ₂ CO ₂ -	H	1, 1, 1, -, -, -, -	0	-	38
257	<i>sec</i> -C ₄ H ₉	H	C ₆ H ₅ CH ₂ CO ₂ -	H	1, 3, 1, -, -, -, -	1	-	38
258	<i>i</i> -C ₄ H ₉	H	C ₆ H ₅ CH ₂ CO ₂ -	H	1, 1, 1, -, -, -, -	1	-	38
259	CH ₃ SC ₂ H ₄ -	H	C ₆ H ₅ CH ₂ CO ₂ -	H	2, 2, 2, -, -, -, -	0	-	38
260	N ₂ NCOC ₂ H ₄ -	H	C ₆ H ₅ CH ₂ CO ₂ -	H	2, 2, 2, -, -, -, -	0	-	38
261	C ₆ H ₅ CH ₂ SCH ₂ -	H	C ₆ H ₅ CH ₂ CO ₂ -	H	2, 2, 2, -, -, -, -	0	-	38
	spirohydantoins (5)							
262		-	H	H	2, 2, 2, -, -, -, -	0	-	1
263		-	H	H	2, 2, 2, -, -, -, -	0	-	1

264		-	H	H	2,2,2,-,-,-	1	-	22
265		-	H	H	2,2,2,-,-,-	1	-	22
266		-	H	H	2,2,3,-,-,-	1	-	22
267		-	H	CH ₃	1,1,3,-,-,-	1	-	22
268		-	H	C ₂ H ₅	2,2,3,-,-,-	1	-	22
269		-	H	<i>n</i> -C ₄ H ₉	1,3,3,-,-,-	1	-	22
270		-	H	<i>n</i> -C ₆ H ₁₃	2,2,2,-,-,-	1	-	22
271		-	<i>n</i> -C ₄ H ₉	H	1,1,3,-,-,-	1	-	22
272		-	H	H	1,3,3,-,-,-	1	-	22
273		-	H	H	1,3,1,-,-,-	1	-	22
274		-	H	H	1,3,3,-,-,-	1	-	22

275		-	H	H	1,1,1,-,-,-	0	-	22
276		-	H	H	1,1,2,-,-,-	0	-	22
277		-	H	HOCH ₂ CH ₂ -	1,3,3,-,-,-	1	-	22
278		-	H	H	1,3,3,-,-,-	1	-	22
279		-	CH ₃	H	2,2,2,-,-,-	0	-	39
280		-	H	H	2,2,2,-,-,-	0	-	4
281		-	H	H	1,3,3,-,-,-	1	-	40
282		-	H	H	1,3,1,-,-,-	1	-	40

283		-	H	H	1,3,3,-,-,-	1	-	40
284		-	H	H	1,3,3,-,-,-	1	-	40
285		-	H	H	1,1,3,-,-,-	1	-	40
286		-	H		1,3,1,-,-,-	0	-	28
287		-	H	(C ₂ H ₅) ₂ NCH ₂ -	1,1,2,-,-,-	0	-	28

^a thienyl group

* Set membership key: 1=training set compound, 2=test set compound, 3=unused compound. Values are indicated in the sequence: RP cell set, SFGA cell set, SFGA distance metric set, QSAR cell set, QSAR distance metric set, QSAR by-activity set.

‡ Activities used for classification model development

Activities used for QSAR model development, expressed as $\ln(1/ED_{50})$ where ED_{50} is in mmol/kg.

† Numbers in parentheses after substituent categories correspond to scaffolds given below:

Notes

- 1) ED₅₀'s from ref. 9: ED₅₀ = 17 for **43** was used to scale other ED₅₀'s by 12/17 (0.7) to make them consistent with the average value for **43**. Scaling factors of 0.6 derived from **30** and 0.6 derived from **31** give similar corrections.
- 2) ED₅₀'s from ref. 10: ED₅₀ = 7.5 for **43** was used to scale other ED₅₀'s by 12/7.5 (1.6) to make them consistent with the average value of **43**. Scaling factors of 3.0 derived from **30** and 3.8 derived from **31** give corrections in the same direction.
- 3) ED₅₀'s from refs 9 and 10 for **30**, **31**, and **43** were used un-scaled in computing an average value from multiple sources.
- 4) ED₅₀'s for **44** from 9 (58) and 10 (5) agree with direction of corrections given above.
- 5) All ED₅₀ values given in notes 1,2,4 are those given in the original publications, expressed in mg/kg.
- 6) There are extensive tables of hydantoin and other anticonvulsants in refs 41,42.

2D QSAR models

c6-2D: $0.178 + 0.819 N_{\text{rot}} - 2.73 {}^3\kappa_{\alpha} - 5.11 Q_1 + 0.238 S_{\text{aaCH}} + 0.102 F_{\text{oct}} - 5.64 Q_5$

d6-2D: $11.1 - 1.37 {}^3\chi_{\text{c}} - 0.728 {}^3\kappa_{\alpha} + 0.124 S_{\text{aaCH}} + 9.04 Q_3 - 0.877 S_{\text{dssC}} - 9.23 Q_2$

b6-2D: $3.31 + 0.408 N_{\text{rot}} - 1.80 {}^3\kappa_{\alpha} + 0.151 S_{\text{aaCH}} + 0.441 S_{\text{aasC}} - 0.524 S_{\text{dssC}} + 7.01 Q_3$

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