

Table 1 The list of compounds assayed in this study
-Glycols / Glycol ethers- (continued)

	Compounds	Cas No
Glycols/Glycol ethers		
31	1,2-Propanediol 1-monomethyl ether 2-acetate	108-65-6
32	1,2-Dimethoxyethane	110-71-4
33	Bis(2-methoxyethyl)ether	111-96-6
34	1,2-Bis(2-methoxyethoxy)ethane	112-49-2
35	Ethylene glycol diethyl ether	629-14-1
36	Diethylene glycol diethyl ether	112-36-7
37	Bis(2-butoxyethyl)ether	112-73-2
38	Dipropylene glycol dimethyl ether	111109-77-4
39	2-Ethoxyethanol	110-80-5
40	2-(2-Ethoxyethoxy)ethanol	111-90-0
41	1-Ethoxy-2-propanol	1569-02-4
42	2-Propoxyethanol	2807-30-9
43	Diethylen glycol	111-46-6
44	Dipropylen glycol	110-98-5
45	1,3-Butanediol	107-88-0
46	2-Ethyl-1,3-hexanediol	94-96-2
47	2-Butyl-2-ethyl-1,3-propanediol	115-84-4
48	2,4-diethyl-1,5-pentanediol	57987-55-0
49	2-n-Butoxyethyl acetate	112-07-2
50	2-(2-n-Butoxyethoxy)ethyl acetate	124-17-4

Table 2 EC₅₀ values for the hTRPV1 and hTRPA1 activation by glycol ethers.

	hTRPV1		hTRPA1	
	EC ₅₀ (μM)	Maximum Activation	EC ₅₀ (μM)	Maximum Activation
Ethylene glycol monohexyl ether	-	-	-	-
Diethylene glycol monohexyl ether	-	-	-	-
Ethylene glycol mono 2-ethylhexyl ether	186(148-233)	0.2(0.2-0.2)	193(172-217)	1.2(1.1-1.3)
Diethylene glycol mono 2-ethylhexyl ether	63(49-80)	0.6(0.6-0.6)	198(174-225)	1.2(1.1-1.3)

Maximum Activation ; Ratio to positive control

**Table 3 The list of compounds assayed in this study
–Aliphatic alcohols–**

	Compounds	Cas No
Aliphatic alcohols		
1	2-Ethyl-1-hexanol	104-76-7
2	1-Hexanol	111-27-3
3	3-Hexanol	623-37-0
4	1-Heptanol	111-70-6
5	3-Heptanol	589-82-2
6	1-Octanol	111-87-5
7	3-Octanol	20296-29-1
8	3-Methyl-3-octanol	5340-36-3
9	Tetrahydrolinalool	78-69-3
10	1-Nonanol	143-08-8
11	3-Nonanol	624-51-1
12	1-Decanol	112-30-1
13	3-Decanol	1565-81-7
14	Tetrahydrogeraniol,3,7-dimethyl-1-octanol	106-21-8
15	(-)-b-Citronellol	106-22-9
16	Geraniol	106-24-1
17	Nerol	106-25-2
18	Dihydrolinalool	18479-51-1
19	Linalool	78-70-6

Table 4 EC₅₀ values for the hTRPV1 and hTRPA1 activation by aliphatic alcohols.

	hTRPV1		hTRPA1	
	EC ₅₀ (μM)	Maximum Activation	EC ₅₀ (μM)	Maximum Activation
1-Hexanol	529 (411-682)	0.4 (0.3-0.5)	-	-
3-Hexanol	-	-	-	-
1-Heptanol	299 (230-388)	0.8 (0.7-0.9)	-	-
3-Heptanol	-	-	-	-
1-Octanol	36 (31-41)	0.8 (0.7-0.8)	172 (133-222)	(1)
3-Octanol	428 (320-573)	0.6 (0.5-0.7)	190 (164-220)	(1)
1-Nonanol	14 (12-15)	0.8 (0.7-0.9)	88 (64-120)	1.0 (0.9-1.1)
3-Nonanol	146 (112-189)	0.5 (0.4-0.6)	81 (50-132)	1.3 (1.0-1.5)
1-Decanol	21 (18-25)	0.8 (0.8-0.9)	-	-
3-Decanol	55 (36-85)	0.5 (0.4-0.5)	66 (54-81)	0.9 (0.8-0.9)
3-Methyl-3-octanol	-	-	197 (169-231)	1.1 (1.0-1.2)

Table 4 EC₅₀ values for the hTRPV1 and hTRPA1 activation by aliphatic alcohols (*continued*).

	hTRPV1		hTRPA1	
	EC ₅₀ (μM)	Maximum Activation	EC ₅₀ (μM)	Maximum Activation
Tetrahydrolinalool	107 (88-129)	0.4 (0.3-0.4)	102 (93-111)	1.0 (0.9-1.0)
Dihydrolinalool	184 (148-228)	0.4 (0.4-0.5)	256 (221-295)	1.0 (0.9-1.1)
Linalool	342 (279-420)	0.4 (0.4-0.5)	401 (362-444)	1.0 (0.9-1.0)
Tetrahydrogeraniol	15 (13-17)	0.7 (0.7-0.7)	71 (31-162)	0.7 (0.5-0.8)
(-)-b-Citronellol	20 (17-23)	0.7 (0.7-0.8)	136 (107-172)	0.9 (0.8-1.0)
Geraniol	34 (29-38)	0.6 (0.5-0.6)	211 (188-237)	0.9 (0.8-0.9)
Nerol	192 (130-285)	0.2 (0.2-0.3)	171 (142-205)	1.0 (0.9-1.1)
2-Ethyl-1-hexanol	468 (320-683)	0.4 (0.3-0.5)	172 (157-189)	1.1 (1.0-1.1)

Maximum Activation ; Ratio to positive control

**Table 5 The list of compounds assayed in this study
– Metal compounds-**

	Compounds	Cas No
	Metal compounds	
1	Copper chloride	7447-39-4
2	Zinc chloride	7646-85-7
3	Lead nitrate	10099-74-8
4	Cadmium chloride	10108-64-2
5	Mercuric chloride	7487-94-7
6	Methyl mercuric chloride	115-09-3
7	Arsenic trioxide	1327-53-3
8	Sodium arsenate heptahydrate	10048-95-0

Table 6 EC₅₀ values for the hTRPA1 activation by metal compounds.

	EC ₅₀ (μM)	Maximum Activation	Hill Slope
ZnCl ₂	7.7 (6.7 – 8.8)	0.59 (0.55 - 0.62)	2.3 (1.6 – 2.9)
CdCl ₂	0.95 (0.9- 1.1)	0.83 (0.80 - 0.85)	3 (2.3 – 3.7)
HgCl ₂	9.1 (8.5 – 9.8)	0.88 (0.85 - 0.91)	5.7 (4.6 – 6.8)
CH ₃ HgCl	4.4 (4.0 – 4.9)	0.76 (0.74 – 0.79)	2.3 (1.9 – 2.7)

Maximum Activation ; Ratio to positive control

**Table 7 The list of compounds assayed in this study
-Pyrethroids-**

	Compounds	Cas No
Pyrethroids		
1	Allethrin	584-79-2
2	Bifenthrin	82657-04-3
3	Baythroid (Cyfluthrin)	68359-37-5
4	Cypermethrin	52315-07-8
5	Cyphenothrin	39515-40-7
6	Deltamethrin	52918-63-5
7	Esfenvalerate	66230-04-4
8	Ethofenprox	80844-07-1
9	Flumethrin	69770-45-2
10	Imiprothrin	72963-72-5
11	Metofluthrin	240494-70-6
12	Phenothrin, Sumithrin	29002-80-2
13	Phthalthrin, Tetramethrin	7696-12-0
14	Prallethrin	23031-36-9
15	Profluthrin	223419-20-3
16	Pyrethrins	8003-34-7
17	Resmethrin	10453-86-8
18	Tefluthrin	79538-32-2
19	Transfluthrin	118712-89-3
20	Empenthrin	54406-48-3
21	Permethrin	52645-53-1

**Table 8 The list of compounds assayed in this study
-Neonicotinoids-**

Compounds		Cas No
Neonicotinoids		
1	Acetamiprid	135410-20-7
2	Clothianidin	210880-92-5
3	Dinotefuran	165252-70-0
4	Imidacloprid	138261-41-3
5	Nitenpyram	150824-47-8
6	Thiacloprid	111988-49-9
7	Thiamethoxam	153719-23-4

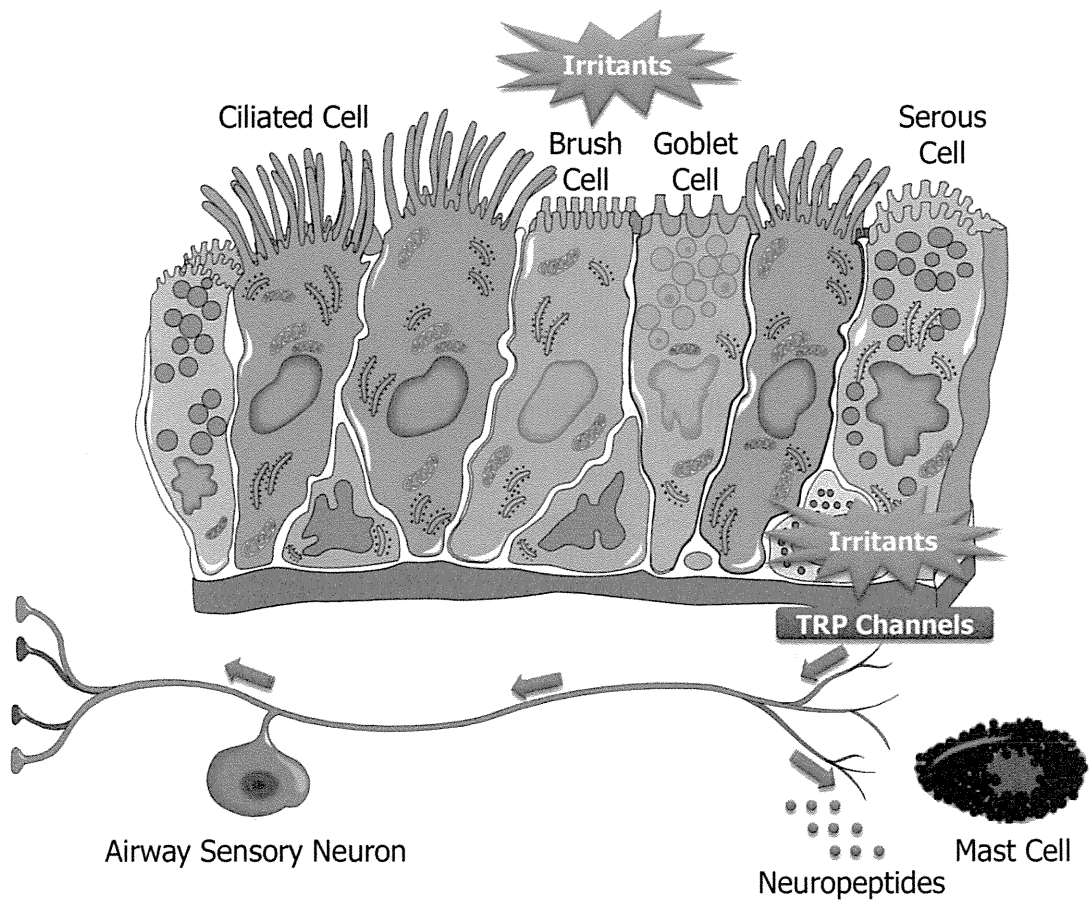
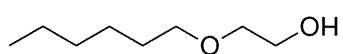
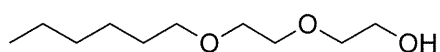


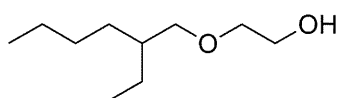
Fig. 1 Schematic presentation of airway hypersensitivity mediated by TRP ion channels.



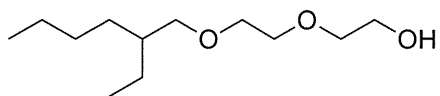
Ethylene glycol monohexyl ether



Diethylene glycol monohexyl ether



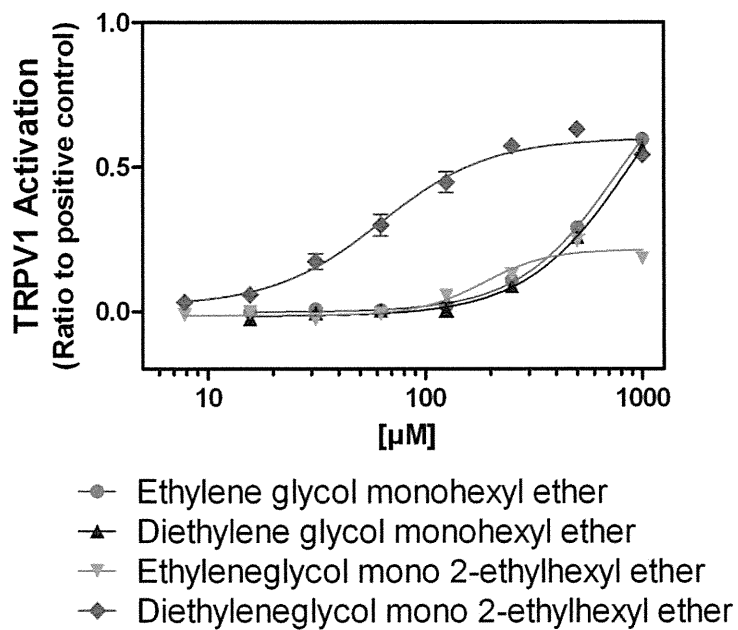
Ethyleneglycol mono 2-ethylhexyl ether



Diethyleneglycol mono 2-ethylhexyl ether

Fig. 2 Chemical structures of glycol ethers.

hTRPV1



hTRPA1

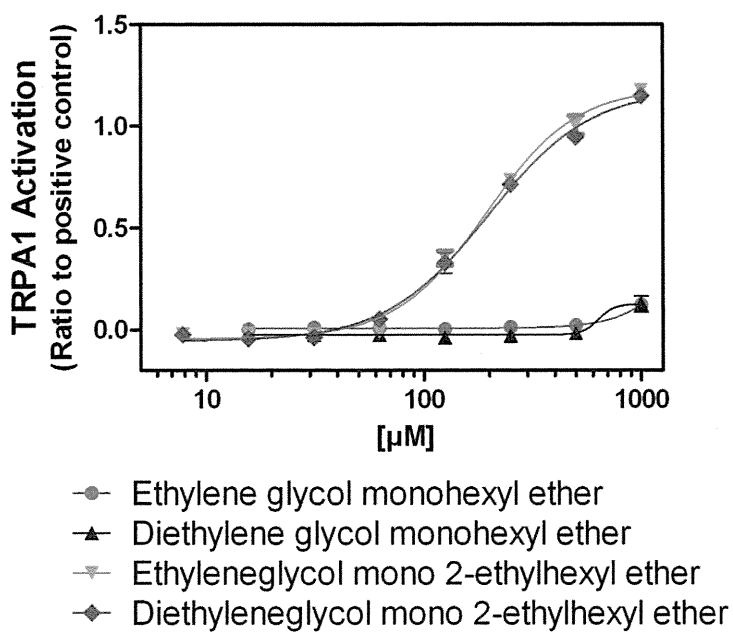


Fig. 3 Activation of hTRPV1 and hTRPA1 by glycol ethers.

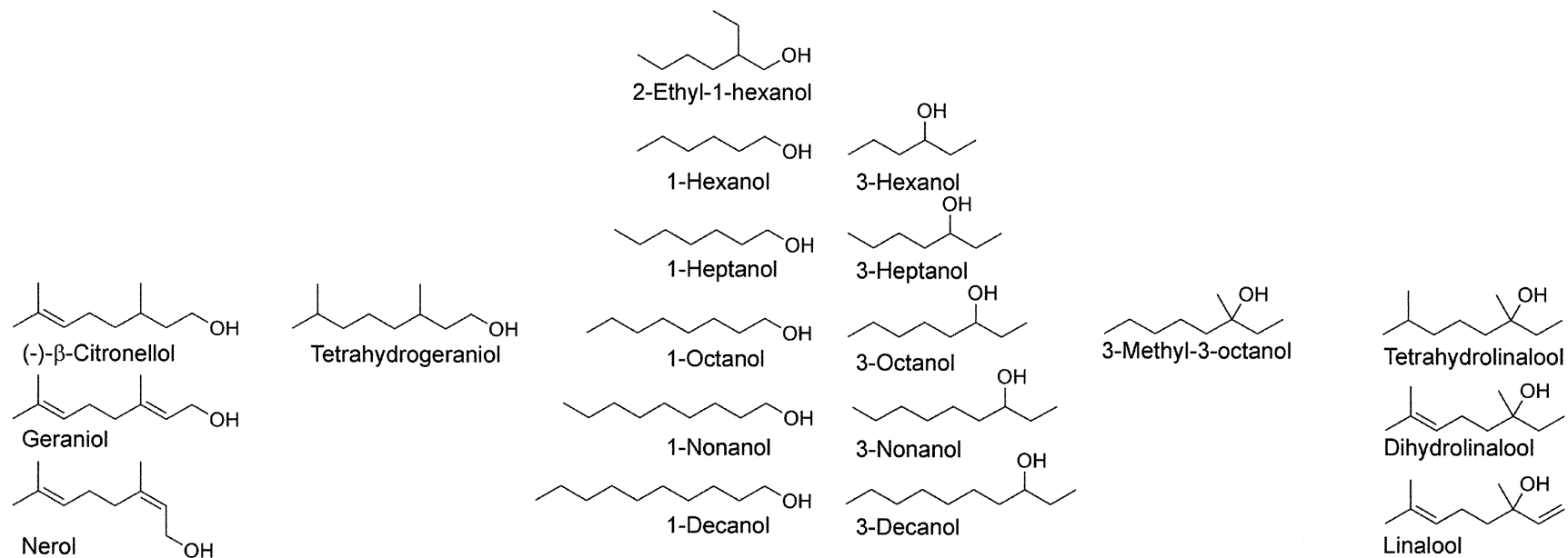
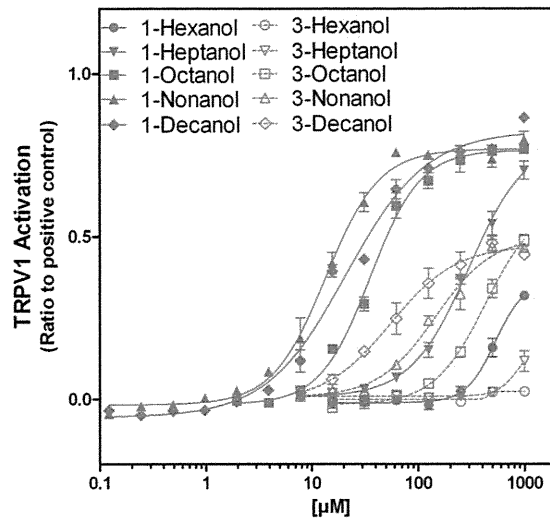


Fig. 4 Chemical structures of aliphatic alcohols.

hTRPV1



hTRPA1

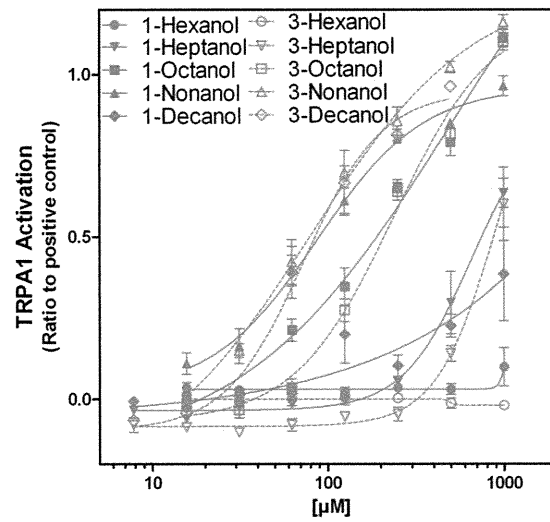
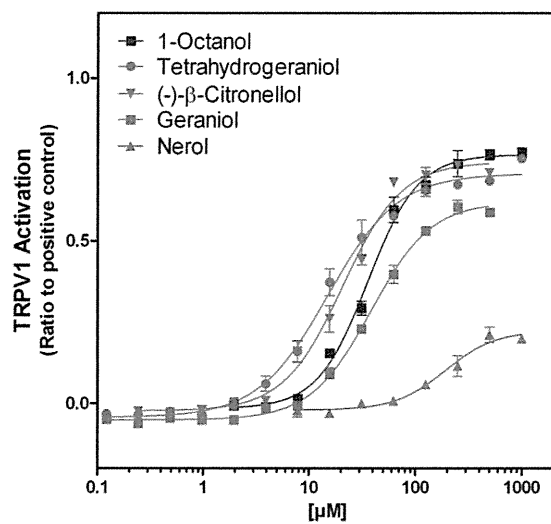


Fig. 5 Activation of hTRPV1 and hTRPA1 by C6-C10 aliphatic alcohols.

hTRPV1



hTRPA1

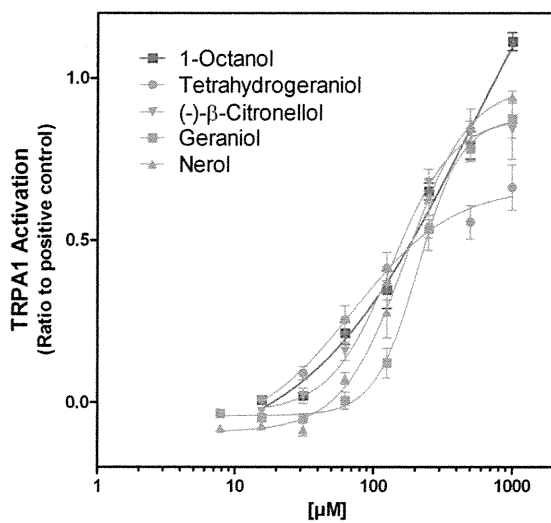
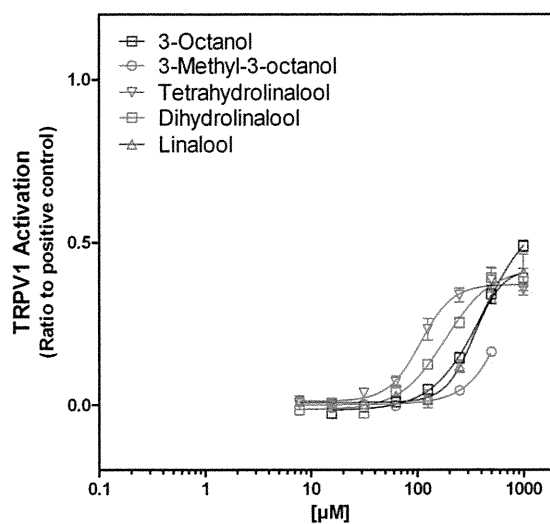


Fig. 6 Activation of hTRPV1 and hTRPA1 by monoterpenic alcohols (1-OH).

hTRPV1



hTRPA1

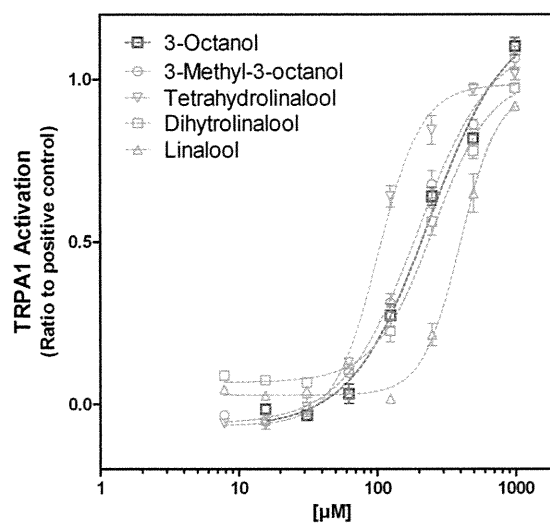
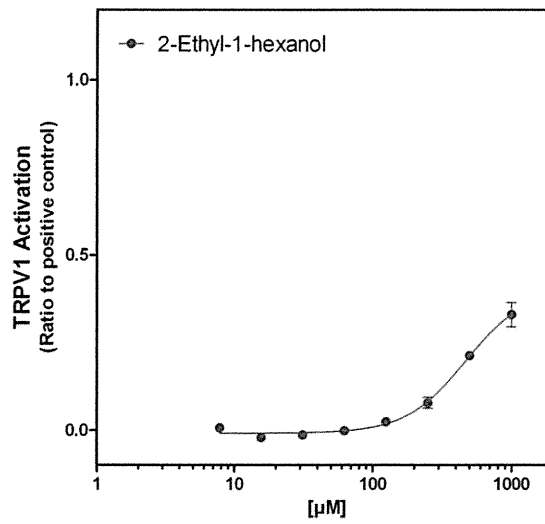


Fig. 7 Activation of hTRPV1 and hTRPA1 by monoterpene alcohols (3-OH).

hTRPV1



hTRPA1

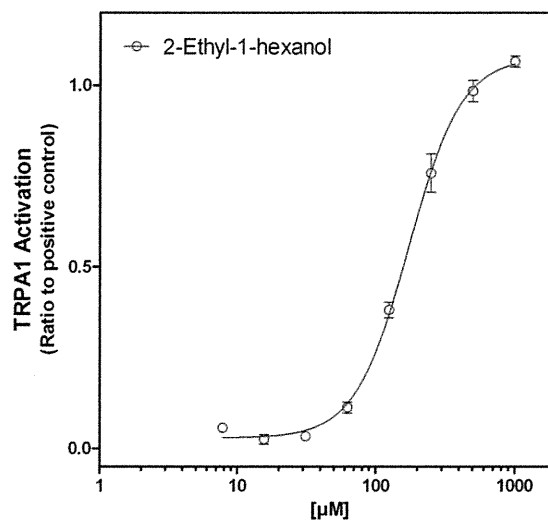
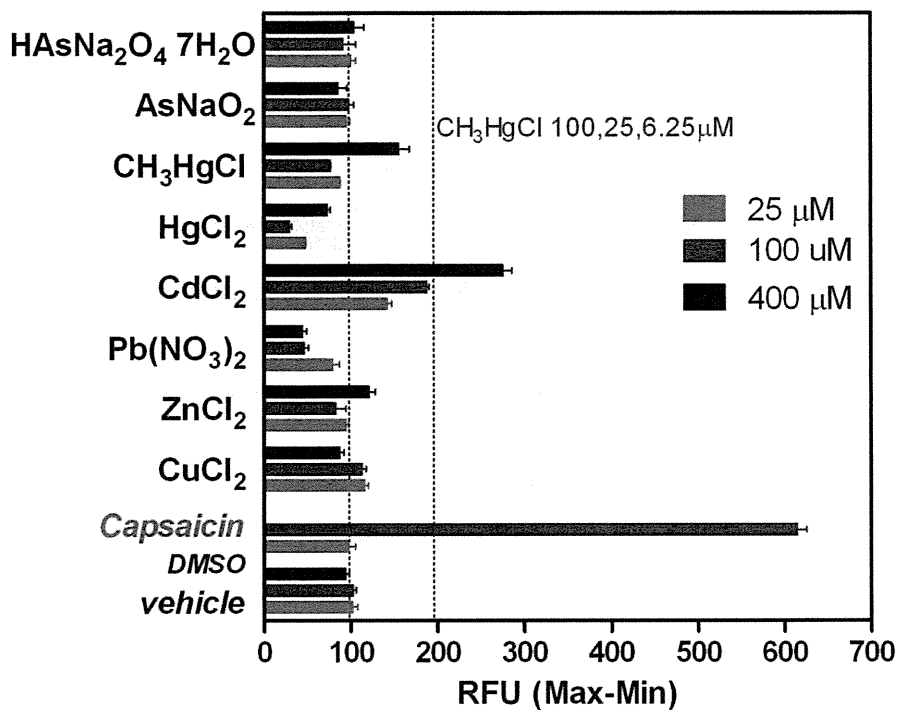


Fig. 8 Activation of hTRPV1 and hTRPA1 by 2-ethyl-1-hexanol.

hTRPV1



hTRPV1

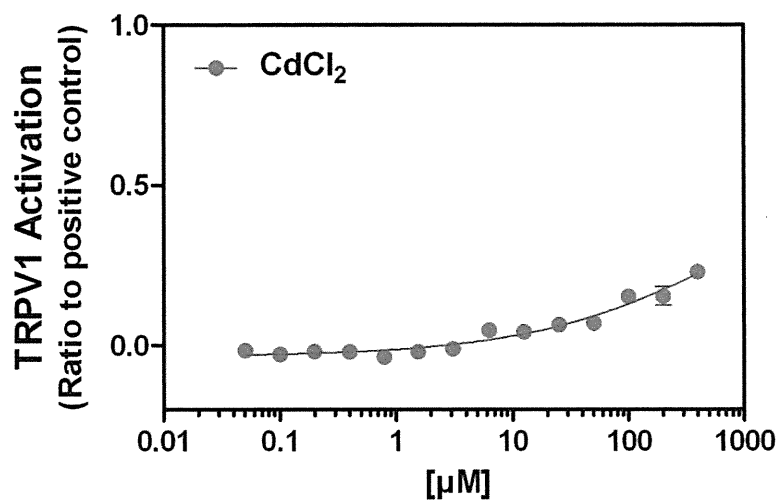
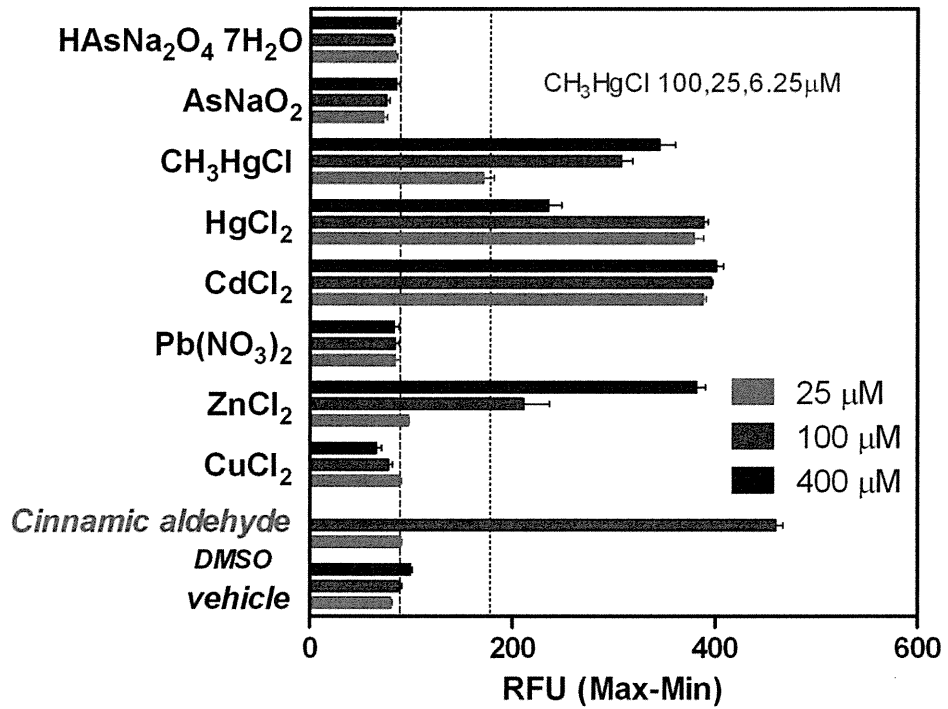


Fig. 9 Activation of hTRPV1 by metal compounds.

hTRPA1



hTRPA1

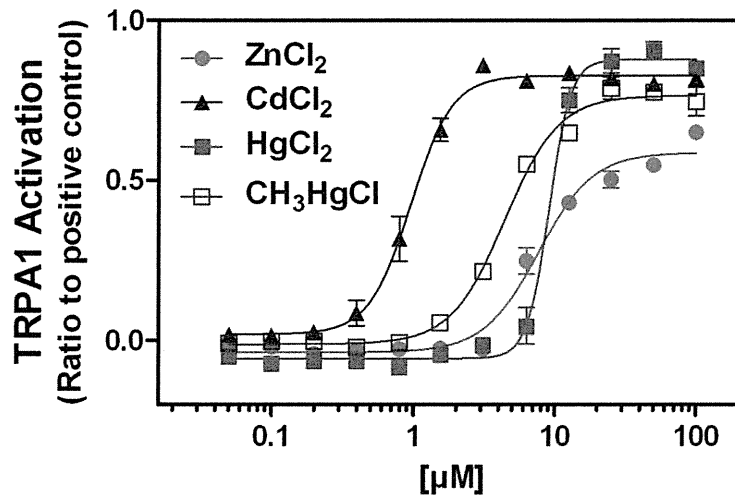
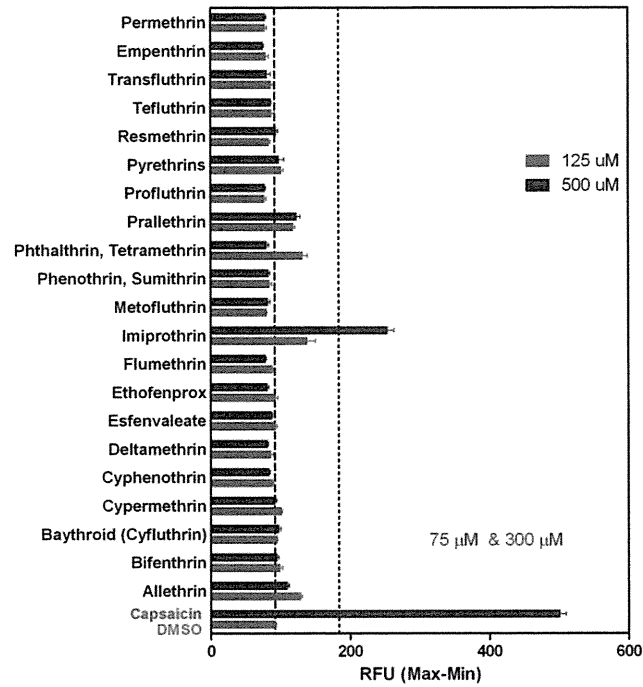


Fig. 10 Activation of hTRPA1 by metal compounds.

hTRPV1



hTRPA1

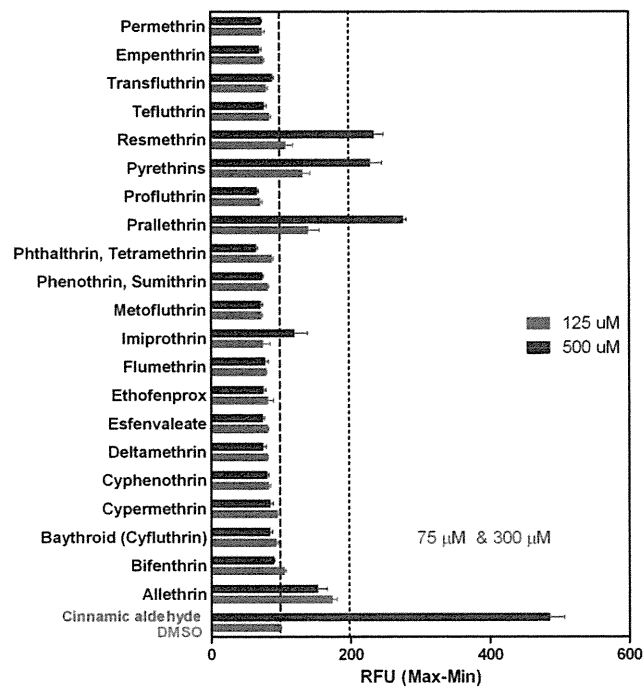


Fig. 11 Activation of hTRPV1 and hTRPA1 by pyrethroids.