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Appendix C

**Comparative LLNA: BrdU-ELISA, Traditional LLNA,
Guinea Pig, and Human Skin Sensitization Data**

**C1 LLNA: BrdU-ELISA, Traditional LLNA, Guinea Pig, and Human Results for
Substances Tested Using the LLNA: BrdU-ELISA (Alphanumeric Order).....C-3**

**C2 Comparison of Multiple LLNA: BrdU-ELISA Decision Criteria and
Traditional LLNA Results (Alphanumeric Order)C-17**

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Appendix C1

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LLNA: BrdU-ELISA, Traditional LLNA, Guinea Pig, and Human Results for

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Substances Tested Using the LLNA: BrdU-ELISA (Alphanumeric Order)

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62 **Appendix C-1 LLNA: BrdU-ELISA, Traditional LLNA, Guinea Pig, and Human Results for Substances Tested Using**
 63 **the LLNA: BrdU-ELISA (Alphanumeric Order)**
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Chemical Name	Veh. ¹	Highest Conc. Tested (%)	Highest SI	LLNA: BrdU Ref. ²	Trad. LLNA Result ³	GP Result	Human Result ⁴	Ref. Trad. LLNA ⁵	Ref. GP	Ref. Human ⁶	Skin Irritant?	Reference Skin Irritation
m-Aminophenol	AOO	25	3.06	Takeyoshi et al. 2007b	+ (5.7, 10%)	NA	+	ICCVAM 1999 (Gerberick et al. 2005)	ICCVAM 1999; GP was + nonstd	ICCVAM 1999	No at ≤ 5%	Basketter et al. 2007
Aniline	AOO	50	1.50	Takeyoshi et al. 2007b	+ (3.6, 100%) ⁷	+	+ (7/25 at 20%)	ICCVAM 1999 (Basketter et al. 1991)	ICCVAM 1999	ICCVAM 1999 (Kligman 1966)	No at ≤ 100% (GP); Irritant at 20% in humans	Basketter et al. 2007; Kligman 1966
p-Benzoquinone	AOO	1	6.90	Takeyoshi et al. 2004b; Takeyoshi et al. 2007b	+ (52.3, 2.5%)	+	+	ICCVAM 1999 (Gerberick et al. 2005)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 2.5%	Basketter et al. 2007
4-Chloroaniline	AOO	25	2.53	Takeyoshi et al. 2007b	+ (NA)	+	+	ICCVAM 1999	ICCVAM 1999	Basketter et al. 1999	No at 2.5%	Basketter and Scholes 1992
Cinnamic aldehyde	AOO	50	3.97	Takeyoshi et al. 2007b	+ (18.4, 25%) ⁸	+	+	ICCVAM 1999 (Basketter et al. 1992)	ICCVAM 1999	ICCVAM 1999	Mild irritant at 100%	ECETOC 1995
<i>trans</i> -Cinnamaldehyde	AOO	10	5.90	Takeyoshi et al. 2005	+ (13.1, 25%)	NA	NA	Gerberick et al. 2005	NA	NA	NA	NA
<i>trans</i> -Cinnamaldehyde	AOO	10	4.11	Kojima et al. 2008 5	+ (13.1, 25%)	NA	NA	Gerberick et al. 2005	NA	NA	NA	NA
<i>trans</i> -Cinnamaldehyde	AOO	10	3.50	Kojima et al. 2008 4	+ (13.1, 25%)	NA	NA	Gerberick et al. 2005	NA	NA	NA	NA
<i>trans</i> -Cinnamaldehyde	AOO	10	3.37	Kojima et al. 2008 2	+ (13.1, 25%)	NA	NA	Gerberick et al. 2005	NA	NA	NA	NA

Chemical Name	Veh. ¹	Highest Conc. Tested (%)	Highest SI	LLNA: BrdU Ref. ²	Trad. LLNA Result ³	GP Result	Human Result ⁴	Ref. Trad. LLNA ⁵	Ref. GP	Ref. Human ⁶	Skin Irritant?	Reference Skin Irritation
Citral	AOO	50	16.35	Takeyoshi et al. 2007b; Takeyoshi et al. 2005	+ (20.5, 20%)	+	+	ICCVAM 1999 (Basketter et al. 1991)	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.5%	Basketter et al. 2007
Citral	AOO	10	1.84	Takeyoshi et al. 2007b; Takeyoshi et al. 2005	+ (20.5, 20%)	+	+	ICCVAM 1999 (Basketter et al. 1991)	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.5%	Basketter et al. 2007
Cyclamen aldehyde	AOO	100	1.97	Takeyoshi et al. 2007b	+ (5.2, 50%)	NA	- (0/64, 4%)	Gerberick et al. 2005	NA	Basketter et al. 2005	Yes, at 100%	ECETOC 1995
4,5'-Diallyl-2'-hydroxy-2,3'-dimethoxyphenyl ether (DHEB)	AOO	20	7.30	Takeyoshi et al. 2004a	NA	+	NA	NA	Takeyoshi et al. 2004a	NA	NA	NA
Diethyl phthalate (Phthallic acid diethylester)	AOO	50	0.88	Takeyoshi et al. 2007b	- (1.5, 100%)	-	+ (HPTA)	ICCVAM 1999 (Gerberick et al. 2005)	Klecak et al. 1977	ICCVAM 1999	No at ≤ 100%	ECETOC 1995
2,2'-Dihydroxyl-3,3'-dimethoxy-5,5'-diallyl-biphenyl (DHEA)	AOO	30	2.30	Takeyoshi et al. 2004a	NA	-	NA	NA	Takeyoshi et al. 2004a	NA	NA	NA
Dimethylisophthalate	AOO	50	1.26	Takeyoshi et al. 2007b	- (1, 25%)	-	-	ICCVAM 1999 (Basketter and Scholes 1992)	ICCVAM 1999	Basketter et al. 1999	NA	NA
Diphenylcyclopropanone	AOO	2	19.10	Takeyoshi et al. 2005; Takeyoshi et al. 2007b	+ (NA)	NA	+	ICCVAM 1999	NA	ICCVAM 1999	NA	NA
Diphenylcyclopropanone	AOO	10	9.34	Takeyoshi et al. 2005	+ (NA)	NA	+	ICCVAM 1999	NA	ICCVAM 1999	NA	NA

Chemical Name	Veh. ¹	Highest Conc. Tested (%)	Highest SI	LLNA: BrdU Ref. ²	Trad. LLNA Result ³	GP Result	Human Result ⁴	Ref. Trad. LLNA ⁵	Ref. GP	Ref. Human ⁶	Skin Irritant?	Reference Skin Irritation
2,4-Dinitrochlorobenzene	AOO	1	4.30	Kojima et al. 2008 1	+ (43.9, 0.25%)	+	+	ICCVAM 1999 (Kimber et al. 1995)	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.1%	Basketter et al. 2007
2,4-Dinitrochlorobenzene	AOO	1	8.37	Kojima et al. 2008 2	+ (43.9, 0.25%)	+	+	ICCVAM 1999 (Kimber et al. 1995)	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.1%	Basketter et al. 2007
2,4-Dinitrochlorobenzene	AOO	0.3	6.26	Kojima et al. 2008 3	+ (43.9, 0.25%)	+	+	ICCVAM 1999 (Kimber et al. 1995)	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.1%	Basketter et al. 2007
2,4-Dinitrochlorobenzene	AOO	1	5.50	Kojima et al. 2008 4	+ (43.9, 0.25%)	+	+	ICCVAM 1999 (Kimber et al. 1995)	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.1%	Basketter et al. 2007
2,4-Dinitrochlorobenzene	AOO	0.3	18.80	Kojima et al. 2008 5	+ (43.9, 0.25%)	+	+	ICCVAM 1999 (Kimber et al. 1995)	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.1%	Basketter et al. 2007
2,4-Dinitrochlorobenzene	AOO	1	4.83	Kojima et al. 2008 6	+ (43.9, 0.25%)	+	+	ICCVAM 1999 (Kimber et al. 1995)	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.1%	Basketter et al. 2007
2,4-Dinitrochlorobenzene	AOO	1	12.98	Kojima et al. 2008 7	+ (43.9, 0.25%)	+	+	ICCVAM 1999 (Kimber et al. 1995)	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.1%	Basketter et al. 2007
2,4-Dinitrochlorobenzene	AOO	2	17.90	Takeyoshi et al. 2005	+ (43.9, 0.25%)	+	+	ICCVAM 1999 (Kimber et al. 1995)	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.1%	Basketter et al. 2007
2,4-Dinitrochlorobenzene	AOO	2	6.84	Takeyoshi et al. 2006; Takeyoshi et al. 2007b	+ (43.9, 0.25%)	+	+	ICCVAM 1999 (Kimber et al. 1995)	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.1%	Basketter et al. 2007
Eugenol	AOO	10	3.18	Takeyoshi et al. 2005	+ (17, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	ICCVAM 1999	No at ≤ 25%	Basketter et al. 2007
Eugenol	AOO	30	3.30	Takeyoshi et al. 2004a	+ (17, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	ICCVAM 1999	No at ≤ 25%	Basketter et al. 2007
Eugenol	AOO	30	3.83	Takeyoshi et al. 2007a	+ (17, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	ICCVAM 1999	No at ≤ 25%	Basketter et al. 2007

Chemical Name	Veh. ¹	Highest Conc. Tested (%)	Highest SI	LLNA: BrdU Ref. ²	Trad. LLNA Result ³	GP Result	Human Result ⁴	Ref. Trad. LLNA ⁵	Ref. GP	Ref. Human ⁶	Skin Irritant?	Reference Skin Irritation
Eugenol	AOO	50	12.30	Takeyoshi et al. 2005	+ (17, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	ICCVAM 1999	No at ≤ 25%	Basketter et al. 2007
Eugenol	AOO	50	3.10	Takeyoshi et al. 2006	+ (17, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	ICCVAM 1999	No at ≤ 25%	Basketter et al. 2007
Eugenol	AOO	50	7.09	Kojima et al. 2008 7	+ (17, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	ICCVAM 1999	No at ≤ 25%	Basketter et al. 2007
Eugenol	AOO	50	3.17	Kojima et al. 2008 2	+ (17, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	ICCVAM 1999	No at ≤ 25%	Basketter et al. 2007
Eugenol	AOO	50	3.18	Kojima et al. 2008 6	+ (17, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	ICCVAM 1999	No at ≤ 25%	Basketter et al. 2007
Eugenol	AOO	50	17.70	Takeyoshi et al. 2007b	+ (17, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	ICCVAM 1999	No at ≤ 25%	Basketter et al. 2007
Formaldehyde	ACE	10	16.59	Kojima et al. 2008 5	+ (11.9, 25%)	+	+	ICCVAM 1999 (Kimber et al. 1991)	ICCVAM 1999	ICCVAM 1999	No at ≤ 2%	Basketter et al. 2007
Formaldehyde	ACE	10	4.40	Kojima et al. 2008 1	+ (11.9, 25%)	+	+	ICCVAM 1999 (Kimber et al. 1991)	ICCVAM 1999	ICCVAM 1999	No at ≤ 2%	Basketter et al. 2007
Formaldehyde	ACE	10	1.97	Kojima et al. 2008 6	+ (11.9, 25%)	+	+	ICCVAM 1999 (Kimber et al. 1991)	ICCVAM 1999	ICCVAM 1999	No at ≤ 2%	Basketter et al. 2007
Glutaraldehyde	AOO	1	28.64	Kojima et al. 2008 5	+ (18, 2.5%) ⁹	+	+	Hilton et. al 1998 (Gerberick et al. 2005)	Gad et al. 1986	Schneider and Akkan 2004	NA	NA
Glutaraldehyde	AOO	1	3.72	Kojima et al. 2008 1	+ (18, 2.5%) ⁹	+	+	Hilton et. al 1998 (Gerberick et al. 2005)	Gad et al. 1986	Schneider and Akkan 2004	NA	NA
Glutaraldehyde	AOO	1	2.25	Kojima et al. 2008 6	+ (18, 2.5%) ⁹	+	+	Hilton et. al 1998 (Gerberick et al. 2005)	Gad et al. 1986	Schneider and Akkan 2004	NA	NA

Chemical Name	Veh. ¹	Highest Conc. Tested (%)	Highest SI	LLNA: BrdU Ref. ²	Trad. LLNA Result ³	GP Result	Human Result ⁴	Ref. Trad. LLNA ⁵	Ref. GP	Ref. Human ⁶	Skin Irritant?	Reference Skin Irritation
Glutaraldehyde	AOO	2	14.60	Takeyoshi et al. 2005; Takeyoshi et al. 2007b	+ (18, 2.5%) ⁹	+	+	Hilton et. al 1998 (Gerberick et al. 2005)	Gad et al. 1986	Schneider and Akkan 2004	NA	NA
Glutaraldehyde	AOO	10	15.50	Takeyoshi et al. 2005; Takeyoshi et al. 2007b	+ (18, 2.5%) ⁹	+	+	Hilton et. al 1998 (Gerberick et al. 2005)	Gad et al. 1986	Schneider and Akkan 2004	NA	NA
Glycerol	None	50	1.29	Takeyoshi et al. 2007b	- (1.1, 100%) ¹⁰	-	-	ICCVAM 1999 (Gerberick et al. 2005)	ICCVAM 1999	ICCVAM 1999	NA	NA
Hexane	AOO	100	1.76	Takeyoshi unpublished 2009	- (2.2, 100%)	NA	- (0/25, 100%)	ICCVAM 1999 (Gerberick et al. 2005)	NA	ICCVAM 1999 (Kligman 1966)	Yes at 100%	Kligman 1966
Hexane	AOO	10	0.73	Takeyoshi et al. 2005	- (2.2, 100%)	NA	- (0/25, 100%)	ICCVAM 1999 (Gerberick et al. 2005)	NA	ICCVAM 1999 (Kligman 1966)	Yes at 100%	Kligman 1966
Hexane	AOO	50	1.89	Takeyoshi et al. 2005	- (2.2, 100%)	NA	- (0/25, 100%)	ICCVAM 1999 (Gerberick et al. 2005)	NA	ICCVAM 1999 (Kligman 1966)	Yes at 100%	Kligman 1966
Hexyl cinnamic aldehyde	AOO	50	3.60	Takeyoshi et al. 2003	+ (20, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	5.90	Takeyoshi et al. 2005	+ (20, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	3.64	Takeyoshi et al. 2006	+ (20, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	2.72	Takeyoshi et al. 2006	+ (20, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007

Chemical Name	Veh. ¹	Highest Conc. Tested (%)	Highest SI	LLNA: BrdU Ref. ²	Trad. LLNA Result ³	GP Result	Human Result ⁴	Ref. Trad. LLNA ⁵	Ref. GP	Ref. Human ⁶	Skin Irritant?	Reference Skin Irritation
Hexyl cinnamic aldehyde	AOO	50	3.02	Takeyoshi et al. 2007b	+ (20, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	3.40	Kojima et al. 2008 1	+ (20, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	2.07	Kojima et al. 2008 PC 1-1	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	6.11	Kojima et al. 2008 PC 1-2	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	3.43	Kojima et al. 2008 PC 1-3	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	5.15	Kojima et al. 2008 PC 2-2	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	2.52	Kojima et al. 2008 PC 2-3	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	2.87	Kojima et al. 2008 3	+ (20, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	3.34	Kojima et al. 2008 PC 3-1	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	3.54	Kojima et al. 2008 PC 3-2	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	2.18	Kojima et al. 2008 PC 3-3	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	3.34	Kojima et al. 2008 4	+ (20, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	2.69	Kojima et al. 2008 PC 4-1	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007

Chemical Name	Veh. ¹	Highest Conc. Tested (%)	Highest SI	LLNA: BrdU Ref. ²	Trad. LLNA Result ³	GP Result	Human Result ⁴	Ref. Trad. LLNA ⁵	Ref. GP	Ref. Human ⁶	Skin Irritant?	Reference Skin Irritation
Hexyl cinnamic aldehyde	AOO	50	3.17	Kojima et al. 2008 2 PC 4-2	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	6.58	Kojima et al. 2008 PC 4-3	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	13.50	Kojima et al. 2008 5	+ (20, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	12.46	Kojima et al. 2008 PC 5-1	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	4.24	Kojima et al. 2008 PC 5-2	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	6.07	Kojima et al. 2008 PC 5-3	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	3.27	Kojima et al. 2008 6	+ (20, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	5.30	Kojima et al. 2008 PC 6-1	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	2.41	Kojima et al. 2008 PC 6-2	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	2.52	Kojima et al. 2008 PC 6-3	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	3.84	Kojima et al. 2008 7	+ (20, 50%)	+	+	ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	6.86	Kojima et al. 2008 PC 7-1	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hexyl cinnamic aldehyde	AOO	50	4.39	Kojima et al. 2008 PC 7-2	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007

Chemical Name	Veh. ¹	Highest Conc. Tested (%)	Highest SI	LLNA: BrdU Ref. ²	Trad. LLNA Result ³	GP Result	Human Result ⁴	Ref. Trad. LLNA ⁵	Ref. GP	Ref. Human ⁶	Skin Irritant?	Reference Skin Irritation
Hexyl cinnamic aldehyde	AOO	50	4.78	Kojima et al. 2008 PC 7-3	+ (20, 50%)			ICCVAM 1999 (Loveless et al. 1996)	ICCVAM 1999	Basketter et al. 1999	No at ≤ 10%	Basketter et al. 2007
Hydroxy-citronellal	AOO	100	1.30	Takeyoshi et al. 2007b	+ (8.5, 100%)	+	+ (14/73, 20%)	ICCVAM 1999 (Gerberick et al. 2005)	ICCVAM 1999	ICCVAM 1999 (Marzulli and Maibach 1980)	No at ≤ 50%	Basketter et al. 2007
4-[1-Hydroxy-2-(2-methoxy-4-propenyl-phenoxy)-propyl]-2-methoxy-phenol (Synonym: □-O-4-Dilignol)	AOO	30	1.19 ⁸	Takeyoshi et al. 2007a	NA	-	NA	NA	Takeyoshi et al. et al. 2007a	NA	NA	NA
2-Hydroxypropyl-methacrylate	AOO	50	1.13	Takeyoshi et al. 2007b	- (1.3, 50%)	-	+(case study, 0.1%)	ICCVAM 1999 (Gerberick et al. 2005)	ICCVAM 1999	Bjorkner 1984	No at ≤ 10%	Scholes et al. 1992
Isoeugenol	AOO	10	8.40	Takeyoshi et al. 2005	+ (31, 5%)	+	+	ICCVAM 1999 (Basketter and Cadby 2004)	ICCVAM 1999	ICCVAM 1999	No at ≤ 5%	Basketter et al. 2007
Isoeugenol	AOO	10	2.40	Takeyoshi et al. 2006; Takeyoshi et al. 2007b	+ (31, 5%)	+	+	ICCVAM 1999 (Basketter and Cadby 2004)	ICCVAM 1999	ICCVAM 1999	No at ≤ 5%	Basketter et al. 2007
Isoeugenol	AOO	30	6.73	Takeyoshi et al. 2007a	+ (31, 5%)	+	+	ICCVAM 1999 (Basketter and Cadby 2004)	ICCVAM 1999	ICCVAM 1999	No at ≤ 5%	Basketter et al. 2007
Isopropanol	AOO	50	2.22	Kojima et al. 2008 1	- (1.7, 50%) ⁸	-	+(case study, 0.001%)	ICCVAM 1999 (Gerberick et al. 2005)	ICCVAM 1999	Kwon et al. 2003	No at ≤ 100%	ECETOC 1995

Chemical Name	Veh. ¹	Highest Conc. Tested (%)	Highest SI	LLNA: BrdU Ref. ²	Trad. LLNA Result ³	GP Result	Human Result ⁴	Ref. Trad. LLNA ⁵	Ref. GP	Ref. Human ⁶	Skin Irritant?	Reference Skin Irritation
Isopropanol	AOO	50	0.98	Kojima et al. 2008 3	- (1.7, ⁸ 50%) ⁸	-	+ (case study, 0.001%)	ICCVAM 1999	ICCVAM 1999	Kwon et al. 2003	No at ≤ 100%	ECETOC 1995
Isopropanol	AOO	50	1.57	Kojima et al. 2008 4	- (1.7, ⁸ 50%) ⁸	-	+ (case study, 0.001%)	ICCVAM 1999	ICCVAM 1999	Kwon et al. 2003	No at ≤ 100%	ECETOC 1995
Isopropanol	AOO	50	0.94	Kojima et al. 2008 5	- (1.7, ⁸ 50%) ⁸	-	+ (case study, 0.001%)	ICCVAM 1999	ICCVAM 1999	Kwon et al. 2003	No at ≤ 100%	ECETOC 1995
Isopropanol	AOO	50	2.04	Kojima et al. 2008 6	- (1.7, ⁸ 50%) ⁸	-	+ (case study, 0.001%)	ICCVAM 1999	ICCVAM 1999	Kwon et al. 2003	No at ≤ 100%	ECETOC 1995
Isopropanol	AOO	50	1.01	Kojima et al. 2008 7	- (1.7, ⁸ 50%) ⁸	-	+ (case study, 0.001%)	ICCVAM 1999	ICCVAM 1999	Kwon et al. 2003	No at ≤ 100%	ECETOC 1995
Isopropanol	AOO	100	0.92 ⁷	Takeyoshi et al. 2007b	- (1.7, ⁸ 50%) ⁸	-	+ (case study, 0.001%)	ICCVAM 1999	ICCVAM 1999	Kwon et al. 2003	No at ≤ 100%	ECETOC 1995
Isopropyl myristate	AOO	50	4.20	Takeyoshi et al. 2005; Takeyoshi et al. 2007b	+ (3.4, 100%)	NA	- (0/25)	Ryan et al. 2000 (Gerberick et al. 2005)	NA	Opdyke 1976	No at ≤ 100%	ECETOC 1995
Isopropyl myristate	AOO	10	1.10	Takeyoshi et al. 2005; Takeyoshi et al. 2007b	+ (3.4, 100%)	NA	- (0/25)	Ryan et al. 2000 (Gerberick et al. 2005)	NA	Opdyke 1976	No at ≤ 100%	ECETOC 1995

Chemical Name	Veh. ¹	Highest Conc. Tested (%)	Highest SI	LLNA: BrdU Ref. ²	Trad. LLNA Result ³	GP Result	Human Result ⁴	Ref. Trad. LLNA ⁵	Ref. GP	Ref. Human ⁶	Skin Irritant?	Reference Skin Irritation
Lactic acid	DMSO	50	2.53	Kojima et al. 2008 7	- (2.2, 25%)	-	- (no data)	ICCVAM 1999 (Gerberick et al. 2005)	ICCVAM 1999	Basketter et al. 1999	Slightly irritating at 10%	Cosmetic Ingredient Review Panel 1998
Lactic acid	DMSO	50	1.89	Kojima et al. 2008 4	- (2.2, 25%)-	-	- (no data)	ICCVAM 1999 (Gerberick et al. 2005)	ICCVAM 1999	Basketter et al. 1999	Slightly irritating at 10%	Cosmetic Ingredient Review Panel 1998
Lactic acid	DMSO	50	1.80	Kojima et al. 2008 3	- (2.2, 25%)-	-	- (no data)	ICCVAM 1999 (Gerberick et al. 2005)	ICCVAM 1999	Basketter et al. 1999	Slightly irritating at 10%	Cosmetic Ingredient Review Panel 1998
Linalool	AOO	100	1.45 ⁷	Takeyoshi unpublished 2009	+ (8.3, 100%)	NA	-	Gerberick et al. 2005	NA	Basketter et al. 2001	Mild irritant at 100%	ECETOC 1995
2-Mercaptobenzo-thiazole	DMF	50	1.62 ¹¹	Takeyoshi et al. 2007b	+ (8.6, 10%)	+	+ (5/24, 10%)	ICCVAM 1999 (Ryan et al. 2000)	ICCVAM 1999	ICCVAM 1999 (Kligman 1966)	No at ≤ 10%	Basketter et al. 2007
Methyl salicylate	AOO	50	1.44	Kojima et al. 2008 1	- (2.9, 20%)	-	-	ICCVAM 1999 (Kimber et al. 1995)	ICCVAM 1999	ICCVAM 1999	Irritant at 10%	Gerberick et al. 2002
Methyl salicylate	AOO	50	1.44	Kojima et al. 2008 2	- (2.9, 20%)	-	-	ICCVAM 1999 (Kimber et al. 1995)	ICCVAM 1999	ICCVAM 1999	Irritant at 10%	Gerberick et al. 2002
Methyl salicylate	AOO	50	1.40	Kojima et al. 2008 3	- (2.9, 20%)	-	-	ICCVAM 1999 (Kimber et al. 1995)	ICCVAM 1999	ICCVAM 1999	Irritant at 10%	Gerberick et al. 2002

Chemical Name	Veh. ¹	Highest Conc. Tested (%)	Highest SI	LLNA: BrdU Ref. ²	Trad. LLNA Result ³	GP Result	Human Result ⁴	Ref. Trad. LLNA ⁵	Ref. GP	Ref. Human ⁶	Skin Irritant?	Reference Skin Irritation
2-Methoxy-4-(7-methoxy-3-methyl-5-propenyl-2,3-dihydro-benzofuran-2yl)-phenol (Synonym: Dehydroiisoeugenol)	AOO	30	5.37	Takeyoshi et al. 2007a	NA	+	NA	NA	Takeyoshi et al. et al. 2007a	NA	NA	NA
Nickel sulfate	DMSO	10	2.58	Kojima et al. 2008 3	+ (3.1, 5%)	+	+	Ryan et al 2002	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.15%	Basketter and Scholes 1992
Nickel sulfate	DMSO	10	4.53	Kojima et al. 2008 4	+ (3.1, 5%)	+	+	Ryan et al 2002	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.15%	Basketter and Scholes 1992
Nickel sulfate	DMSO	10	2.66	Kojima et al. 2008 7	+ (3.1, 5%)	+	+	Ryan et al 2002	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.15%	Basketter and Scholes 1992
1,4-Phenylene-diamine	AOO	2	11.70	Takeyoshi et al. 2005; Takeyoshi et al. 2007b	+ (26.4, 1%)	+	+	ICCVAM 1999 (Gerberick et al. 2005)	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.5%	Basketter et al. 2007
1,4-Phenylene-diamine	AOO	10	14.70	Takeyoshi et al. 2005; Takeyoshi et al. 2007b	+ (26.4, 1%)	+	+	ICCVAM 1999 (Gerberick et al. 2005)	ICCVAM 1999	ICCVAM 1999	No at ≤ 0.5%	Basketter et al. 2007
Propylene glycol	AOO	10	1.2	Takeyoshi et al. 2005	- (1.6, 100%) ¹²	-	+(HPTA)	ICCVAM 1999 (Gerberick et al. 2005)	ICCVAM 1999	ICCVAM 1999	NA	NA
Propylene glycol	AOO	50	1.57	Takeyoshi et al. 2005	- (1.6, 100%) ¹²	-	+(HPTA)	ICCVAM 1999 (Gerberick et al. 2005)	ICCVAM 1999	ICCVAM 1999	NA	NA

Chemical Name	Veh. ¹	Highest Conc. Tested (%)	Highest SI	LLNA: BrdU Ref. ²	Trad. LLNA Result ³	GP Result	Human Result ⁴	Ref. Trad. LLNA ⁵	Ref. GP	Ref. Human ⁶	Skin Irritant?	Reference Skin Irritation
Propylene glycol	AOO	50	0.87 ¹³	Takeyoshi et al. 2006; Takeyoshi et al. 2007b	- (1.6, 100%) ¹²	-	+ (HPTA)	ICCVAM 1999 (Gerberick et al. 2005)	ICCVAM 1999	ICCVAM 1999	NA	NA
Trimellitic anhydride	AOO	10	7.85	Takeyoshi unpublished 2009	+ (4.6, 25%)	+	NA	ICCVAM 1999 (Gerberick et al. 2005)	ICCVAM 1999	NA	No at ≤ 10%	Basketter and Scholes 1992

Abbreviations: ACE = Acetone; AOO = Acetone: olive oil (4:1); DMF = *N,N*-dimethyl formamide; DMSO = Dimethyl sulfoxide; LLNA: BrdU-ELISA = Murine local lymph node assay with enzyme-linked immunosorbent assay detection of bromodeoxyuridine; CASRN = Chemical Abstract Services Registry Number; Conc. = Concentration; GP = Guinea pig; LLNA = Murine local lymph node assay; NA = Not available; nonstd = non-standard; PC = Positive control (the numbers after PC represent the laboratory that performed the test and then the order of the test); Ref. = Reference; SI = Stimulation index; Trad. = Traditional; Veh. = Vehicle.

+ = Sensitizer; - = Non-sensitizer

¹ Applies to both traditional LLNA and LLNA: BrdU-ELISA unless otherwise noted.

² Number after Kojima et al. 2008 represents the laboratory that submitted the test.

³ Numbers in parentheses indicate the maximum SI and the highest concentration tested.

⁴ Information in parentheses provides the evidence for the human result; usually as incidence of a positive human response at the challenge concentration.

⁵ Reference in parentheses applies to the maximum SI and the highest concentration tested, if it is different from the reference for the traditional LLNA result.

⁶ Reference in parentheses applies to the evidence for the human result if different from the sensitizer/nonsensitizer outcome.

⁷ Maximum SI occurred at 50%.

⁸ Maximum SI occurred at 10%.

⁹ Vehicle for the traditional LLNA was acetone.

¹⁰ Maximum SI occurred at 25%. Vehicle for the traditional LLNA was *N,N*-dimethyl formamide.

¹¹ Maximum SI occurred at 12.5%.

¹² Vehicle for the traditional LLNA was distilled water.

¹³ Maximum SI occurred at 2% and 10%.

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Appendix C2
Comparison of Multiple LLNA: BrdU-ELISA Decision Criteria and
Traditional LLNA Results (Alphanumeric Order)

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111 **Appendix C-2 Comparative Performance of Various LLNA: BrdU-ELISA SI Values and Traditional LLNA Tests**
 112 **(Alphanumeric Order)**

Chemical Name	CASRN	Highest Conc. Tested (%)	Highest SI	≥95 % CI	≥3 SD	≥2 SD	Stats.	SI ≥ 5.0	SI ≥ 4.5	SI ≥ 4.0	SI ≥ 3.5	SI ≥ 3.0	SI ≥ 2.5	SI ≥ 2.0	SI ≥ 1.5	SI ≥ 1.3	SI ≥ 1.0	Ref. BrdU-ELISA ¹	Trad. LLNA Result	Ref. Trad. LLNA
m-Aminophenol	591-27-5	25	3.06	+	+	+	+	-	-	-	-	+	+	+	+	+	+	Takeyoshi et al. 2007b	+	ICCVAM 1999
Aniline	62-53-3	50	1.50	+	-	+	-	-	-	-	-	-	-	-	+	+	+	Takeyoshi et al. 2007b	+	ICCVAM 1999
p-Benzoquinone	106-51-4	1	6.90	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2004b; Takeyoshi et al. 2007b	+	ICCVAM 1999
4-Chloroaniline	106-47-8	25	2.53	+	+	+	+	-	-	-	-	-	+	+	+	+	+	Takeyoshi et al. 2007b	+	ICCVAM 1999
Cinnamic aldehyde	104-55-2	50	3.97	+	+	+	+	-	-	-	+	+	+	+	+	+	+	Takeyoshi et al. 2007b	+	ICCVAM 1999
<i>trans</i> -Cinnamaldehyde	14371-10-9	10	5.90	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2005	+	Gerberick et al. 2005
<i>trans</i> -Cinnamaldehyde	14371-10-9	10	4.11	+	+	+	+	-	-	+	+	+	+	+	+	+	+	Kojima et al. 2008 5	+	Gerberick et al. 2005
<i>trans</i> -Cinnamaldehyde	14371-10-9	10	3.50	+	+	+	+	-	-	-	+	+	+	+	+	+	+	Kojima et al. 2008 4	+	Gerberick et al. 2005
<i>trans</i> -Cinnamaldehyde	14371-10-9	10	3.37	+	+	+	+	-	-	-	-	+	+	+	+	+	+	Kojima et al. 2008 2	+	Gerberick et al. 2005
Citral	5392-40-5	50	16.35	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2007b; Takeyoshi et al. 2005	+	ICCVAM 1999
Cyclamen aldehyde	103-95-7	100	1.97	+	+	+	+	-	-	-	-	-	-	-	+	+	+	Takeyoshi et al. 2007b	+	Basketter et al. 2005
4,5'-Diallyl-2'-hydroxy-2,3'-dimethoxyphenyl ether (DHEB)	NA	20	7.30	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2004a	NA	NA

Chemical Name	CASRN	Highest Conc. Tested (%)	Highest SI	≥95 % CI	≥ 3 SD	≥ 2 SD	Stats.	SI ≥ 5.0	SI ≥ 4.5	SI ≥ 4.0	SI ≥ 3.5	SI ≥ 3.0	SI ≥ 2.5	SI ≥ 2.0	SI ≥ 1.5	SI ≥ 1.3	SI ≥ 1.0	Ref. BrdU-ELISA ¹	Trad. LLNA Result	Ref. Trad. LLNA
Diethyl phthalate (Phthallic acid diethylester)	84-66-2	50	0.88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Takeyoshi et al. 2007b	-	ICCVAM 1999
2,2'-Dihydroxyl-3,3'-dimethoxy-5,5'-diallyl-biphenyl (DHEA)	NA	30	2.30	+	+	+	-	-	-	-	-	-	-	+	+	+	+	Takeyoshi et al. 2004a	NA	NA
Dimethyliso-phthalate	1454-93-4	50	1.26	-	-	-	-	-	-	-	-	-	-	-	-	-	+	Takeyoshi et al. 2007b	-	ICCVAM 1999
Diphenylcyclo-propenone	886-38-4	2	19.10	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2005; Takeyoshi et al. 2007b	+	ICCVAM 1999
2,4-Dinitrochlorobenzene	97-00-7	1	4.30	+	+	+	+	-	-	+	+	+	+	+	+	+	+	Kojima et al. 2008 1	+	ICCVAM 1999
2,4-Dinitrochlorobenzene	97-00-7	1	8.37	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 2	+	ICCVAM 1999
2,4-Dinitrochlorobenzene	97-00-7	0.3	6.26	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 3	+	ICCVAM 1999
2,4-Dinitrochlorobenzene	97-00-7	1	5.50	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 4	+	ICCVAM 1999
2,4-Dinitrochlorobenzene	97-00-7	0.3	18.80	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 5	+	ICCVAM 1999
2,4-Dinitrochlorobenzene	97-00-7	1	4.83	+	+	+	+	-	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 6	+	ICCVAM 1999
2,4-Dinitrochlorobenzene	97-00-7	1	12.98	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 7	+	ICCVAM 1999
2,4-Dinitrochlorobenzene	97-00-7	2	17.90	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2005	+	ICCVAM 1999
2,4-Dinitrochlorobenzene	97-00-7	2	6.84	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2006; Takeyoshi et al. 2007b	+	ICCVAM 1999

Chemical Name	CASRN	Highest Conc. Tested (%)	Highest SI	≥95 % CI	≥ 3 SD	≥ 2 SD	Stats.	SI ≥ 5.0	SI ≥ 4.5	SI ≥ 4.0	SI ≥ 3.5	SI ≥ 3.0	SI ≥ 2.5	SI ≥ 2.0	SI ≥ 1.5	SI ≥ 1.3	SI ≥ 1.0	Ref. BrdU-ELISA ¹	Trad. LLNA Result	Ref. Trad. LLNA
Eugenol	97-53-0	30	3.30	+	+	+	+	-	-	-	-	+	+	+	+	+	+	Takeyoshi et al. 2004a	+	ICCVAM 1999
Eugenol	97-53-0	30	3.83	+	+	+	+	-	-	-	+	+	+	+	+	+	+	Takeyoshi et al. 2007a	+	ICCVAM 1999
Eugenol	97-53-0	50	12.30	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2005	+	ICCVAM 1999
Eugenol	97-53-0	50	3.10	+	+	+	+	-	-	-	-	+	+	+	+	+	+	Takeyoshi et al. 2006	+	ICCVAM 1999
Eugenol	97-53-0	50	7.09	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 7	+	ICCVAM 1999
Eugenol	97-53-0	50	3.17	+	+	+	+	-	-	-	-	+	+	+	+	+	+	Kojima et al. 2008 2	+	ICCVAM 1999
Eugenol	97-53-0	50	3.18	+	+	+	+	-	-	-	-	+	+	+	+	+	+	Kojima et al. 2008 6	+	ICCVAM 1999
Eugenol	97-53-0	50	17.70	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2007b	+	ICCVAM 1999
Formaldehyde	50-00-0	10	16.59	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 5	+	ICCVAM 1999
Formaldehyde	50-00-0	10	4.40	+	+	+	+	-	-	+	+	+	+	+	+	+	+	Kojima et al. 2008 1	+	ICCVAM 1999
Formaldehyde	50-00-0	10	1.97	+	+	+	+	-	-	-	-	-	-	-	+	+	+	Kojima et al. 2008 6	+	ICCVAM 1999
Glutaraldehyde	111-30-8	1	28.64	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 5	+	Hilton et. al 1998
Glutaraldehyde	111-30-8	1	3.72	+	+	+	+	-	-	-	+	+	+	+	+	+	+	Kojima et al. 2008 1	+	Hilton et. al 1998
Glutaraldehyde	111-30-8	1	2.25	+	+	+	+	-	-	-	-	-	-	+	+	+	+	Kojima et al. 2008 6	+	Hilton et. al 1998

Chemical Name	CASRN	Highest Conc. Tested (%)	Highest SI	≥95 % CI	≥ 3 SD	≥ 2 SD	Stats.	SI ≥ 5.0	SI ≥ 4.5	SI ≥ 4.0	SI ≥ 3.5	SI ≥ 3.0	SI ≥ 2.5	SI ≥ 2.0	SI ≥ 1.5	SI ≥ 1.3	SI ≥ 1.0	Ref. BrdU-ELISA ¹	Trad. LLNA Result	Ref. Trad. LLNA
Glutaraldehyde	111-30-8	2	14.60	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2005; Takeyoshi et al. 2007b	+	Hilton et al 1998
Glutaraldehyde	111-30-8	10	15.50	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2005; Takeyoshi et al. 2007b	+	Hilton et al 1998
Glycerol	56-81-5	50	1.29	+	-	+	+	-	-	-	-	-	-	-	-	-	+	Takeyoshi et al. 2007b	-	ICCVAM 1999
Hexane	110-54-3	100	1.76	+	-	-	+	-	-	-	-	-	-	-	+	+	+	Takeyoshi unpublished 2009	-	ICCVAM 1999
Hexane	110-54-3	50	1.89	+	+	+	+	-	-	-	-	-	-	-	+	+	+	Takeyoshi et al. 2005	-	ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	3.60	+	+	+	+	-	-	-	+	+	+	+	+	+	+	Takeyoshi et al. 2003	+	ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	5.90	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2005	+	ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	3.64	+	+	+	+	-	-	-	+	+	+	+	+	+	+	Takeyoshi et al. 2006	+	ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	2.72	+	+	+	+	-	-	-	-	-	+	+	+	+	+	Takeyoshi et al. 2006	+	ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	3.02	+	+	+	+	-	-	-	-	+	+	+	+	+	+	Takeyoshi et al. 2007b	+	ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	3.40	+	+	+	+	-	-	-	-	+	+	+	+	+	+	Kojima et al. 2008 1	+	ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	2.07	+	+	+	+	-	-	-	-	-	-	+	+	+	+	Kojima et al. 2008 PC 1-1		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	6.11	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 PC 1-2		ICCVAM 1999

Chemical Name	CASRN	Highest Conc. Tested (%)	Highest SI	≥95 % CI	≥ 3 SD	≥ 2 SD	Stats.	SI ≥ 5.0	SI ≥ 4.5	SI ≥ 4.0	SI ≥ 3.5	SI ≥ 3.0	SI ≥ 2.5	SI ≥ 2.0	SI ≥ 1.5	SI ≥ 1.3	SI ≥ 1.0	Ref. BrdU-ELISA ¹	Trad. LLNA Result	Ref. Trad. LLNA
Hexyl cinnamic aldehyde	101-86-0	50	3.43	+	+	+	+	-	-	-	-	+	+	+	+	+	+	Kojima et al. 2008 PC 1-3		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	5.15	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 PC 2-2		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	2.52	+	+	+	+	-	-	-	-	-	+	+	+	+	+	Kojima et al. 2008 PC 2-3		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	2.87	+	+	+	+	-	-	-	-	-	+	+	+	+	+	Kojima et al. 2008 3	+	ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	3.34	+	+	+	+	-	-	-	-	+	+	+	+	+	+	Kojima et al. 2008 PC 3-1		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	3.54	+	+	+	+	-	-	-	+	+	+	+	+	+	+	Kojima et al. 2008 PC 3-2		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	2.18	+	+	+	+	-	-	-	-	-	-	+	+	+	+	Kojima et al. 2008 PC 3-3		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	3.34	+	+	+	+	-	-	-	-	+	+	+	+	+	+	Kojima et al. 2008 4	+	ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	2.69	+	+	+	+	-	-	-	-	-	+	+	+	+	+	Kojima et al. 2008 PC 4-1		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	3.17	+	+	+	+	-	-	-	-	+	+	+	+	+	+	Kojima et al. 2008 PC 4-2		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	6.58	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 PC 4-3		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	13.50	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 5	+	ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	12.46	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 PC 5-1		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	4.24	+	+	+	+	-	-	+	+	+	+	+	+	+	+	Kojima et al. 2008 PC 5-2		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	6.07	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 PC 5-3		ICCVAM 1999

Chemical Name	CASRN	Highest Conc. Tested (%)	Highest SI	≥95 % CI	≥ 3 SD	≥ 2 SD	Stats.	SI ≥ 5.0	SI ≥ 4.5	SI ≥ 4.0	SI ≥ 3.5	SI ≥ 3.0	SI ≥ 2.5	SI ≥ 2.0	SI ≥ 1.5	SI ≥ 1.3	SI ≥ 1.0	Ref. BrdU-ELISA ¹	Trad. LLNA Result	Ref. Trad. LLNA
Hexyl cinnamic aldehyde	101-86-0	50	3.27	+	+	+	+	-	-	-	-	+	+	+	+	+	+	Kojima et al. 2008 6	+	ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	5.30	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 PC 6-1		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	2.41	+	+	+	+	-	-	-	-	-	-	+	+	+	+	Kojima et al. 2008 PC 6-2		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	2.52	+	+	+	+	-	-	-	-	-	+	+	+	+	+	Kojima et al. 2008 PC 6-3		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	3.84	+	+	+	+	-	-	-	+	+	+	+	+	+	+	Kojima et al. 2008 7	+	ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	6.86	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 PC 7-1		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	4.39	+	+	+	+	-	-	+	+	+	+	+	+	+	+	Kojima et al. 2008 PC 7-2		ICCVAM 1999
Hexyl cinnamic aldehyde	101-86-0	50	4.78	+	+	+	+	-	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 PC 7-3		ICCVAM 1999
Hydroxycitronellal	107-73-5	100	1.30	+	-	+	+	-	-	-	-	-	-	-	-	-	+	Takeyoshi et al. 2007b	+	ICCVAM 1999
4-[1-Hydroxy-2-(2-methoxy-4-propenyl-phenyloxy)-propyl]-2-methoxy-phenol (Synonym: □-O-4-Dilignol)	NA	30	1.19	-	-	-	-	-	-	-	-	-	-	-	-	-	+	Takeyoshi et al. 2007a	NA	NA
2-Hydroxypropyl-methacrylate	923-26-2	50	1.13	-	-	-	-	-	-	-	-	-	-	-	-	-	+	Takeyoshi et al. 2007b	-	ICCVAM 1999
Isoeugenol	97-54-1	10	8.40	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2005	+	ICCVAM 1999

Chemical Name	CASRN	Highest Conc. Tested (%)	Highest SI	≥95 % CI	≥ 3 SD	≥ 2 SD	Stats.	SI ≥ 5.0	SI ≥ 4.5	SI ≥ 4.0	SI ≥ 3.5	SI ≥ 3.0	SI ≥ 2.5	SI ≥ 2.0	SI ≥ 1.5	SI ≥ 1.3	SI ≥ 1.0	Ref. BrdU-ELISA ¹	Trad. LLNA Result	Ref. Trad. LLNA
Isoeugenol	97-54-1	10	2.40	+	+	+	+	-	-	-	-	-	-	+	+	+	+	Takeyoshi et al. 2006; Takeyoshi et al. 2007b	+	ICCVAM 1999
Isoeugenol	97-54-1	30	6.73	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2007a	+	ICCVAM 1999
Isopropanol	67-63-0	50	2.22	+	-	+	+	-	-	-	-	-	-	+	+	+	+	Kojima et al. 2008 1	-	ICCVAM 1999
Isopropanol	67-63-0	50	0.98	-	-	-	-	-	-	-	-	-	-	-	-	-	+	Kojima et al. 2008 3	-	ICCVAM 1999
Isopropanol	67-63-0	50	1.57	-	-	-	-	-	-	-	-	-	-	-	+	+	+	Kojima et al. 2008 4	-	ICCVAM 1999
Isopropanol	67-63-0	50	0.94	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Kojima et al. 2008 5	-	ICCVAM 1999
Isopropanol	67-63-0	50	2.04	+	-	+	-	-	-	-	-	-	-	+	+	+	+	Kojima et al. 2008 6	-	ICCVAM 1999
Isopropanol	67-63-0	50	1.01	-	-	-	-	-	-	-	-	-	-	-	-	-	+	Kojima et al. 2008 7	-	ICCVAM 1999
Isopropanol	67-63-0	100	0.92	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Takeyoshi et al. 2007b	-	ICCVAM 1999
Isopropyl myristate	110-27-0	50	4.20	+	+	+	+	-	-	+	+	+	+	+	+	+	+	Takeyoshi et al. 2005; Takeyoshi et al. 2007b	+	Ryan et al. 2000
Lactic acid	598-82-3	50	2.53	+	+	+	+	-	-	-	-	-	+	+	+	+	+	Kojima et al. 2008 7	-	ICCVAM 1999
Lactic acid	598-82-3	50	1.89	+	-	+	+	-	-	-	-	-	-	-	+	+	+	Kojima et al. 2008 4	-	ICCVAM 1999
Lactic acid	598-82-3	50	1.80	+	-	+	-	-	-	-	-	-	-	-	+	+	+	Kojima et al. 2008 3	-	ICCVAM 1999

Chemical Name	CASRN	Highest Conc. Tested (%)	Highest SI	≥95 % CI	≥ 3 SD	≥ 2 SD	Stats.	SI ≥ 5.0	SI ≥ 4.5	SI ≥ 4.0	SI ≥ 3.5	SI ≥ 3.0	SI ≥ 2.5	SI ≥ 2.0	SI ≥ 1.5	SI ≥ 1.3	SI ≥ 1.0	Ref. BrdU-ELISA ¹	Trad. LLNA Result	Ref. Trad. LLNA
Linalool	78-70-6	100	1.45	+	-	-	-	-	-	-	-	-	-	-	-	+	+	Takeyoshi unpublished 2009	+	Gerberick et al. 2005
2-Mercaptobenzo-thiazole	149-30-4	50	1.62	+	+	+	-	-	-	-	-	-	-	-	+	+	+	Takeyoshi et al. 2007b	+	ICCVAM 1999
Methyl salicylate	119-36-8	50	1.44	+	-	+	-	-	-	-	-	-	-	-	-	+	+	Kojima et al. 2008 1	-	ICCVAM 1999
Methyl salicylate	119-36-8	50	1.44	-	-	-	-	-	-	-	-	-	-	-	-	+	+	Kojima et al. 2008 2	-	ICCVAM 1999
Methyl salicylate	119-36-8	50	1.40	+	-	-	-	-	-	-	-	-	-	-	-	+	+	Kojima et al. 2008 3	-	ICCVAM 1999
2-Methoxy-4-(7-methoxy-3-methyl-5-propenyl-2,3-dihydro-benzofuran-2yl)-phenol (Syn: Dehydrodi-isoeugenol)		30	5.37	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2007a	NA	NA
Nickel sulfate	10101-97-0	10	2.58	+	+	+	+	-	-	-	-	-	+	+	+	+	+	Kojima et al. 2008 3	+	Ryan et al 2002
Nickel sulfate	10101-97-0	10	4.53	+	+	+	+	-	+	+	+	+	+	+	+	+	+	Kojima et al. 2008 4	+	Ryan et al 2002
Nickel sulfate	10101-97-0	10	2.66	+	+	+	+	-	-	-	-	-	+	+	+	+	+	Kojima et al. 2008 7	+	Ryan et al 2002
1,4-Phenylene-diamine	106-50-3	2	11.70	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2005; Takeyoshi et al. 2007b	+	ICCVAM 1999
1,4-Phenylene-diamine	106-50-3	10	14.70	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi et al. 2005; Takeyoshi et al. 2007b	+	ICCVAM 1999

Chemical Name	CASRN	Highest Conc. Tested (%)	Highest SI	≥95% CI	≥3 SD	≥2 SD	Stats.	SI ≥ 5.0	SI ≥ 4.5	SI ≥ 4.0	SI ≥ 3.5	SI ≥ 3.0	SI ≥ 2.5	SI ≥ 2.0	SI ≥ 1.5	SI ≥ 1.3	SI ≥ 1.0	Ref. BrdU-ELISA ¹	Trad. LLNA Result	Ref. Trad. LLNA
Propylene glycol	57-55-6	50	1.57	+	-	+	-	-	-	-	-	-	-	-	+	+	+	Takeyoshi et al. 2005	-	ICCVAM 1999
Propylene glycol	57-55-6	50	0.87	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Takeyoshi et al. 2006; Takeyoshi et al. 2007b	-	ICCVAM 1999
Trimellitic anhydride	552-30-7	10	7.85	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Takeyoshi unpublished 2009	+	ICCVAM 1999

Abbreviations: BrdU-ELISA LLNA = Murine local lymph node assay with enzyme-linked immunosorbent assay detection of bromodeoxyuridine; BrdU = Bromodeoxyuridine CASRN = Chemical Abstract Services Registry Number; CI = Confidence interval (mean absorbance of any treatment group is greater than 95% confidence interval of vehicle control group mean); Conc. = Concentration; LLNA = Murine local lymph node assay; NA = Not available; PC = Positive control (numbers after PC designates laboratory and test number); Ref. = Reference; SD = Standard deviation (mean absorbance of any treatment group is greater than 2 or 3 SD for vehicle control group); SI = Stimulation index; Stats. = Statistics (analysis of variance for multiple dose groups or t-test to compare one treatment group to the vehicle control group); Trad. = Traditional.
 + = Sensitizer; - = Non-sensitizer
¹ Number after Kojima et al. 2008 represents the laboratory that submitted the test.

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