

APPENDIX C

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

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Appendix C-1 Comparative Performance of the LLNA: BrdU-FC, Traditional LLNA, (Alphanumeric Order) Guinea Pig, and Human Assays

Chemical Name	CASRN	LLNA: BrdU-FC Result ¹	Traditional LLNA Result ^{1,2}	Guinea Pig Studies Outcome ^{1,2}	Human Outcome ^{1,2}
2, 4-Dinitrochlorobenzene	97-00-7	+	+	+	+
2-Mercaptobenzothiazole	149-30-4	+/-	+	+	+
4-Aminobenzoic acid	150-13-0	-	-	-	+ ³
4-Aminophenol HCl	51-78-5	+	NA	NA	NA
4-Phenylenediamine	106-50-3	+	+	+	+
6-Methyl coumarin	92-48-8	-	-	-	+
Aniline	62-53-3	-	-	+	+
Benzalkonium chloride	8001-54-5	+	-	-	+ ⁴
Benzocaine	94-09-7	+/-	+/-	+	+ ⁵
Benzoic acid	65-85-0	-	-	-	-
Benzoyl peroxide	94-36-0	+	+	+	+
Chlorobenzene	108-90-7	-	-	-	- ⁶
Chlorpromazine +UVR	50-53-3	+	NA	NA	NA
Citral	5392-40-5	+	+	+	+
Cobalt chloride	7646-79-9	+	+	+	+
Copper chloride	7758-89-6	+	+	-	-
Croton oil	8001-28-3	+	NA	NA	NA
Diethylenetriamine	111-40-0	+	+	+	+
Diphenylcyclopropenone	886-38-4	+	+	NA	+
Ethylene glycol dimethacrylate	97-90-5	+	+	- ⁷	+
Ethylenediamine	107-15-3	+	+	+	+
Eugenol	97-53-0	+	+	+	+
Fluorescein isothiocyanate	27072-45-3	+	+	NA	NA
Formaldehyde	50-00-0	+	+	+	+ ⁸
Glycerol	56-81-5	-	-	-	-
Hexane	110-54-3	-	-	NA	-
Hexyl cinnamic aldehyde	101-86-0	+	+	+	+ ⁹

Chemical Name	CASRN	LLNA: BrdU-FC Result ¹	Traditional LLNA Result ^{1,2}	Guinea Pig Studies Outcome ^{1,2}	Human Outcome ^{1,2}
Hydrocortisone	50-23-7	-	-	NA	+
Isoeugenol	97-54-1	+	+	+	+
Isopropanol	67-63-0	-	-	-	+ ¹⁰
Isopropyl myristate	110-27-0	+	+	NA	-
Lactic acid	598-82-3	-	-	-	-?
Linalool	78-70-6	+	+	NA	+
Methyl salicylate	119-36-8	-	-	-	-
Nickel chloride	7718-54-9	-	-	+	+
Oxazolone	15646-46-5	+	+	+	+
Potassium dichromate	7778-50-9	+	+	+	+
Propylene glycol	57-55-6	-	-	-	+
Propylparaben	94-13-3	-	-	-	+
Pyridine	110-86-1	+	+	NA	+
Resorcinol	108-46-3	+	-	-	+
Salicylic acid	69-72-7	+/-	-	-	-
Sodium lauryl sulfate	151-21-3	+	+	-	-
Sulfanilamide	63-74-1	-	-	-	+
Tetrachlorosalicylanilide	1154-59-2	+	+	+	+ ¹¹
Trimellitic anhydride	552-30-7	+	+	+	+
Tween 80	9005-65-6	+	-	-	+
Xylene	1330-20-7	+	+	NA	-

Abbreviations: LLNA: BrdU-FC = Local lymph node assay with flow cytometry detection of bromodeoxyuridine; CASRN = Chemical Abstract Services Registry Number; LLNA = Local lymph node assay; NA = Not available (Data have been requested).

¹+ = Sensitizer; - = Non-sensitizer; +/- = Equivocal (i.e., produced an equal number of divergent results when tested at least twice)

²Data from ICCVAM (1999) unless otherwise noted

³Kimber (1997)

⁴Basketter et al. (2003a)

⁵Poole et al. (1970)

⁶Schneider and Akkan (2004)

⁷Gerberick (1992)

⁸Kwan et al. (2003)

⁹Rasanen et al. (1999)

¹⁰Opdyke (1976)

¹¹Gad et al. (1986)

Appendix C-2 Performance of the LLNA: BrdU-FC vs. the Traditional LLNA (Sorted by Order of Traditional LLNA EC3 Value)

Substance Name	Traditional LLNA				LLNA: BrdU-FC	
	LLNA Result	EC3 (%)	N ¹	SI (Conc. Tested [%])	LLNA Result	EC3 (%)
Oxazolone	+	0.0034	NA	NA	+	NA
Tetrachlorosalicylanilide	+	0.04	NA	NA	+	NA
2, 4-Dinitrochlorobenzene	+	0.049	15	NA	+	NA
Diphenylcyclopropenone	+	0.05	1	NA	+	NA
4-Phenylenediamine	+	0.11	6	NA	+	NA
Potassium dichromate	+	0.11	6	NA	+	NA
Fluorescein isothiocyanate	+	0.143	1	NA	+	NA
Benzoyl peroxide	+	0.3	NA	NA	+	NA
Copper chloride	+	NA	NA	NA	+	NA
Formaldehyde	+	0.53	NA	NA	+	NA
Isoeugenol	+	1.53	31	NA	+	NA
Ethylenediamine	+	2.2	NA	NA	+	NA
Trimellitic anhydride	+	4.71	NA	NA	+	NA
Cobalt chloride	+	4.8	NA	NA	+	NA
Diethylenetriamine	+	5.8	NA	NA	+	NA
Sodium lauryl sulfate	+	8.08	NA	NA	+	NA
2-Mercaptobenzothiazole	+	9.8	2	NA	+/-	NA
Citral	+	9.8	2	NA	+	NA
Hexyl cinnamic aldehyde	+	9.9	15	NA	+	NA
Eugenol	+	10.1	22	NA	+	NA
Benzocaine	+/-	22	NA	NA	+/-	+
Ethylene glycol dimethacrylate	+	28	NA	NA	+	NA
Linalool	+	30	NA	NA	+	NA

Substance Name	Traditional LLNA				LLNA: BrdU-FC	
	LLNA Result	EC3 (%)	N ¹	SI (Conc. Tested [%])	LLNA Result	EC3 (%)
Isopropyl myristate	+	44	1	NA	+	NA
Aniline	-	63	2	NA	-	NA
Pyridine	+	72	NA	NA	+	NA
Xylene	+	95.8	NA	NA	+	NA
4-Aminophenol HCl	NA	NA	NA	NA	+	NA
Benzoic acid	-	NA	NA	NA	-	NA
Chlorpromazine +UVR	NA	NA	NA	NA	+	NA
Croton oil	NA	NA	NA	NA	+	NA
Hydrocortisone	-	NA	NA	NA	-	NA
Methyl salicylate	-	NA	NA	NA	-	NA
Propylene glycol	-	NA	NA	NA	-	NA
Propylparaben	-	NA	NA	NA	-	NA
4-Aminobenzoic acid	-	NC	NA	NA	-	NA
6-Methyl coumarin	-	NC	NA	NA	-	NA
Benzalkonium chloride	-	NC	NA	NA	+	NA
Chlorobenzene	-	NC	NA	NA	-	NA
Glycerol	-	NC	NA	NA	-	NA
Hexane	-	NC	NA	NA	-	NA
Isopropanol	-	NC	NA	NA	-	NA
Lactic acid	-	NC	NA	NA	-	NA
Nickel chloride	-	NC	NA	NA	-	NA
Resorcinol	-	NC	NA	NA	+	NA
Salicylic acid	-	NC	NA	NA	+/-	NA
Sulfanilamide	-	NC	NA	NA	-	NA
Tween 80	-	NC	NA	NA	+	NA

Abbreviations: CASRN = Chemical Abstract Services Registry Number; Conc. = Concentration; EC3 = Concentration at SI=3; LLNA = Local lymph node assay; LLNA: BrdU-FC = Local lymph node assay with flow cytometry detection of bromodeoxyuridine; NA = Not available (Data have been requested); NC = Not calculated; SI = Stimulation index.

+ = Sensitizer.

- = Nonsensitizer.

¹Number of values used to calculate mean.