

Mutagenic responses in the Xenometrix Ames MPF PENTA I assay compared to published Ames plate incorporation data

Compound	CAS Nr.	S9	Ames MPF					Ames plate incorporation (published data)					
			TA98	TA1537	TA100	TA1535	E.coli Combo	TA98	TA1537	TA100	TA1535	E.coli	
9-aminoacridine x HCl x H ₂ O	52417-22-8	-	neg	pos	neg	neg	neg	neg	pos	neg	neg	neg	neg ^a
2-aminoanthracene	613-13-8	+	pos	pos	pos	pos	pos	pos	pos	pos	pos	pos	pos ^b
N4-aminocytidine ^c	57294-74-3	-	neg	neg	pos	pos	pos	pos	neg	neg	pos	pos	pos
5-azacytidine	320-67-2	-	neg	neg	neg	neg	neg	neg	neg	neg	neg/pos	w+	X
		+	pos	neg	neg	pos	?	neg	neg	neg/?/pos	pos		X
Benzo(a)pyrene	50-32-8	+	pos	pos	pos	neg	pos	pos	pos	pos	pos	neg/?	
Cumene hydroperoxide	80-15-9	-	neg	pos	pos	neg	pos	pos	neg	neg	neg/w+	neg	pos ^d
		+	neg	neg	w+	neg	pos	pos	neg	neg/?/pos	neg/?/w+/pos	neg	pos ^d
Cyclophosphamide	6055-19-2	+	neg	neg	pos	pos	?	?	neg	neg	pos	pos	
Danthron	117-10-2	+	neg	pos	neg	neg	neg	neg	neg ^e	pos ^e	neg ^e	neg ^e	neg ^d
Formaldehyde	50-00-0	-	pos	neg	pos	neg	pos	pos	neg/?/pos	neg	neg/?/w+/pos	neg	pos ^{d,f}
Glutaraldehyde	111-30-8	-	w+	neg	pos	neg	pos	pos	neg	neg	neg/?/pos	neg	pos ^g
		+	neg	neg	w+	neg	?	?	neg/?	neg	?/pos	neg	
ICR-191	17070-45-0	-	pos	pos	pos	?	pos	pos	pos ^h	pos ^h	pos ^h	neg ^h	
6-mercaptopurine	6112-76-1	+	neg	neg	neg	pos	neg	neg	neg	Z	neg	pos	
Methyl methanesulfonate	66-27-3	-	neg	neg	pos	pos	pos	pos	neg/?	neg/pos	pos	?/pos	pos ^b
Pyrene	129-00-0	-	neg	w+	neg	neg	neg	neg	neg	neg	neg	neg	neg
		+	pos	pos	?	neg	n.d.	n.d.	neg/?/pos	?/w+/pos	neg/?/pos	neg	neg/?/pos
2-nitrofluorene	607-57-8	-	pos	pos	w+	neg	neg	neg	pos ^a	pos ^a	pos ^a	neg ^a	neg ^j
4-nitroquinoline-N-oxide	56-57-5	-	pos	pos	pos	pos	pos	pos	pos ⁱ	pos ⁱ	pos ⁱ	pos ⁱ	pos ^k
		+	pos	pos	pos	pos	pos	pos	pos	pos ⁱ	pos ⁱ	pos ⁱ	pos ⁱ
Streptonigrin	3930-19-6	-	neg	neg	neg	neg	pos	pos	neg ^l	neg ^l	neg ^l	neg ^l	pos ^{d,l}

neg = negative; pos = positive, ? = equivocal, w+ = weak positive, neg/pos = conflicting published results n.d. = not determined

x = -S9;pos, +S9 ?/w+ in TA104 (NTP results)

Z = neg in strain TA97

Most references originate from the NTP Database, containing in part several studies per compound (last accessed Dec 1, 2009):

http://ntp-apps.niehs.nih.gov/ntp_tox/index.cfm?fuseaction=ntpsearch.searchhome&crumbspot=1

Additional references:

^a MacMahon et al. Cancer Research 39 (1979), 682-693

^b Sommers, Ch. J. Agric. Food Chem. 51 (2003), 6367 - 6370

^c Negishi, K. et al. Nucleic Acids Research Vo. 11, Nr. 15(1983), 5223 - 5233

^d Wilcox, P. et al. Mutagenesis 5, vol.3 (1990), 285 - 291

^e NTP Report on Carcinogens Background. Document for Danthron. Final march 1999

^f Watanabe, K. et al. Mutation Research 361 (1996), 143 - 155

^g Watanabe, K. et al. Mutation Research 412 (1998), 17 - 31

^h Skopek, T.R. et al. Proc. Natl. Acad. Sci. USA (1978), 4465 - 4469

^j Araki, A. et al. Journal of UOEH 30, No.2 (2008), 133 - 145

ⁱ Bridges B.A. et al. Progress in Mutation Research, Vol 1, Chapter 6 (1981) 49-67

^k US FDA/CFSAN Redbook 2001

^l Maron, D.M. and Ames, B.N. Mutation Research 113 (1983), 173 - 215

Overall concordance (mutagenic yes/no): 100% (17/17)

Strain concordance (equivocal and conflicting published results have been ignored)

	-/+ S9	no S9	with S9
TA98:	86% (12/14)	90% (9/10)	88% (7/8)
TA1537:	100% (14/14)	82% (9/11)	100% (7/7)
TA100:	100% (12/12)	100% (8/8)	100% (6/6)
TA1535:	93% (13/14)	90% (9/10)	100% (9/9)
E.coli:	100% (12/12)	100% (10/10)	100% (4/4)