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 incoroporation (published data)				
			TA98	TA1537	TA100	TA1535	E.coli Combo	TA98	TA1537	TA100	TA1535	E.coli
9-aminoacridine x HCl x H_2O	52417-22-8	-	neg	pos	neg	neg	neg	neg	pos	neg	neg	neg [a]
2-aminoanthracene	613-13-8	+	pos	pos	pos	pos	pos	pos	pos	pos	pos	pos [b]
N4-aminocytidine [c]	57294-74-3	-	neg	neg	pos	pos	pos	neg	neg	pos	pos	pos
5-azacytidine	320-67-2	-	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	neg/?	
Cumene hydroperoxide	80-15-9	-	neg	pos	pos	neg	pos	neg	neg	neg/w+	neg	pos [d]
	80-15-9	+	neg	neg	w+	neg	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 [e]	pos [e]	neg [e]	neg [e]	neg [d]
Formaldehyde	50-00-0	-	pos	neg	pos	neg	pos	neg/?/pos	neg	neg/?/w+/pos	neg	pos [d,f]
Glutaraldehyde	111-30-8	-	w+	neg	pos	neg	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 [h]	pos [h]	pos [h]	neg [h]	
6-mercaptopurine	6112-76-1	+	neg	neg	neg	pos	neg	neg	Z	neg	pos	
Methyl methanesulfonate	66-27-3	-	neg	neg	pos	pos	pos	neg/?	neg/pos	pos	?/pos	pos [b]
Pyrene	129-00-0	-	neg	w+	neg	neg	neg	neg	neg	neg	neg	neg
		+	pos	pos	?	neg	n.d.	neg/?/pos	?/w+/pos	neg/?pos	neg	neg/?/pos
2-nitrofluorene	607-57-8	-	pos	pos	w+	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 [i]	pos [i]	pos [i]	pos [i]	pos [k]
		+	pos	pos	pos	pos	pos	pos [i]	pos [i]	pos [i]	pos [i]	pos [k]
Streptonigrin	3930-19-6	-	neg	neg	neg	neg	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:

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