

Background Frequencies for Chromosomal Aberrations

The data presented in table D-1 are not intended for direct comparisons of values obtained between laboratories; rather, they are meant to convey a sense of the range of normal background values for chromosomal aberrations reported in the literature.

The following abbreviations are used for culture media: D-Difco; E-Eagle's basal; [G-Gibco; H-Ham's F10; M-McCoy's 5A; T-TC 199; and 1640-RPMI 1640.

The following abbreviations are used for aberrations: (CTD-chromatid breaks; C—chromosome breaks;

R-rings; D-dicentrics; E-exchanges; Cu—"unstable" aberrations, according to Buckton, et al.; Cs—"stable" aberrations, according to Buckton, et al.; AC—abnormal cells. All values are percentages. Gaps are not included, except where noted otherwise. In some cases it has been necessary to recalculate the original data.

A continuous line covering more than one complex aberration indicates that the aberrations were combined in the resulting frequency.

Table D-1.—Background Frequencies for Chromosomal Aberrations

Reference	Number of subjects	Number of cells	Number of medium	Culture time(hr)	CTD	C	R	D	E	Cu	Cs	AC
Legator and Hollaender, 1975	75	2,291	?	?	6.72	1.48	0	0.17	0.17	—	—	6.07
Lubs and Samuelson, 1967	10	3,720	T	68-72	5.9	1.0	0.22	—	—	—	—	8.3
Littlefield and Goh, 1973	31	29,709	T	72	—	3.0	0	0.12	0.32	—	—	6.0
Mattei, et al., 1979	1,084	15,754	?	72	4.6	1.7	0.71	—	—	—	—	~7.0
Aula and von Koskull, 1976	1,299	25,980	?	72	—	—	—	—	—	—	—	1.8
Ayme, et al., 1976	524	7,653	?	72	2.4	1.4	0.81	—	—	—	—	4.7
Husgafvel-Pursiainen, et al., 1980	52	5,200	T	50	—	—	—	—	—	—	—	1.3-1.8
A Review, 1975	134	-13,400	?	56	—	—	0.18	—	0.80	—	—	1.08
Awa, et al., 1971	79	79,790	?	—	—	—	0.23	—	0.59	—	—	0.93
Honda, et al., 1969	10	1,000	?	46-50	2.7	0.4	0.1	0	0.1	0.4	0.2	~0.6 ^a
Brandom, et al., 1978a	20	20,000	M	~48	—	—	0.7-0.2	—	—	—	—	~0.9
Brandom, et al., 1978b	20	1,950	H	50 or 72	—	—	~0.2	—	—	—	—	~0.7
	68	7,406	—	—	—	—	0.65	—	—	—	—	~1.1
Brandom, et al., 1972	15	1,430	M	50 & 72	0.9	0.2	0	0	0	—	—	1.1
Lloyd, et al., 1972	316	23,200	E	48	—	—	—	0.078	—	—	—	—
Bauchinger, et al., 1980	11	12,700	H	48	—	—	0.02	—	—	—	—	—
Burgdorf, et al., 1977	44	?	T	72	—	—	—	—	—	—	—	0.3
Nordenson, et al., 1978	13	1,312	T	72	0.4	0.1	—	—	—	—	—	1.6
Tough and Brown, 1965	5	500	?	40-50	—	—	—	—	—	0.6	0.4	—
	38	38,140	—	—	—	—	—	—	—	0.6	0.8	—
Tough, et al., 1979	5	500	?	40-50	—	—	—	—	—	0.6	0.8	—
	6	600	—	—	—	—	—	—	—	1.67	0.5	—
	5	500	—	—	—	—	—	—	—	0.4	0.4	—
Forni, et al., 1971a	34	34,340	?	68-70	—	—	—	—	—	0.49	0.04	—
Forni, et al., 1971b	34	34,340	?	68-70	—	—	—	—	—	0.61	0.09	—
Picciano, 1979b	44	8,000	varied	72	1.1	0.35	0.06	—	—	—	—	1.4
Watanabe, et al., 1980	7	279	T	72	—	—	—	—	—	—	—	2.5
Kucerova, et al., 1977	35	5,054	?	56-58	0.97	0.28	—	—	0.18	—	—	1.37
Sram, et al., 1980	34	3,400	?	56-68	—	—	—	—	—	—	—	2.06
	21	2,100	—	—	—	—	—	—	—	—	—	1.33
Picciano, 1979a	75	15,000	varied	72	2.15	0.51	0.08	—	—	—	—	2.38
Mitelman, et al., 1980	18	3,600	?	72	1.6 ^b	—	—	—	—	—	—	2.9
Shiraishi and Yosida, 1972	6	300	1640	72	—	—	—	—	—	—	—	~0.67
Deknudt, et al., 1973	5	1,800	H	45-48	0.11	0.33	0	—	—	—	—	?
O'Riordan and Evans, 1974	31	3,100	H	45-48	4.46	0.42	—	—	—	—	—	?
Deknudt and Leonard, 1975	12	2,400	H	48	—	—	—	—	—	—	—	0.67
Bui, et al., 1975	4	356	?	48 & 72	—	—	—	—	—	—	—	6.0
	3	297	—	—	—	—	—	—	—	—	—	4.7

Table D-1.—Background Frequencies for Chromosomal Aberrations—Continued

Reference	Number of subjects	Number of cells	of Culture medium	Culture time(hr)	CTD	C	R	D	E	Cu	Cs	AC
Bauchinger, et al., 1976	15	1,650	H	48	0.2	—	0.26	—	—	—	—	0.47
Forni, et al., 1976	11	1,075	T	68-70	—	—	—	—	—	—	—	4.88C
Deknudt, et al., 1977	20	3,000	H	48	—	—	—	—	—	—	—	2.53 ^c
O'Riordan, et al., 1978	13	1,243	H	45-48	0.08	—	—	—	—	0.8	0.02	—
Forni, et al., 1980	12	1,130	T	48	—	—	—	—	—	0.08	—	—
Maki-Paakkanen, et al., 1981	12	1,200	?	7	—	—	—	—	—	—	—	2.0
Funes-Cravioto, et al.,	42	4,200	T	72	—	—	—	—	—	—	—	4.76
Maki-Paakkanen, et al., 1980	16	3,200	?	72	—	—	—	—	—	—	—	2.4
Hogstedt, et al., 1981	15	1,500	T	50	—	—	—	—	—	—	—	1.6
Thiess, et al., 1981	21	2,100	T	70-72	—	—	—	—	—	—	—	1.4
Ducatman, et al., 1975	10	500	G	65-68	—	—	—	—	—	0.3	2.9	—
Purchase, et al., 1976	19	1,900	D	48 or 72	—	—	—	—	—	0.53	0.10	—
	5	500			—	—	—	—	—	0.50	0	—
Szentesi, et al., 1976	49	2,523	?	48	—	—	—	—	—	0.35	—	—
	44	2,988			—	—	—	—	—	0.56	—	—
Hansteen, et al., 1975	16	1,600	?	48	—	—	—	—	—	—	—	1.79
	32	3,200	?		—	—	—	—	—	—	—	2.33
Fleig and Thiess, 1978,	20	2,000	?	?	—	—	—	—	—	—	—	2.1
Kucerova, et al., 1979	8	800	?	?	—	—	—	—	—	—	—	1.8
Anderson, et al., 1980,	6	600	D	48 & 72								1.33
	8	800										1.17
		565										1.0
												0.38
Kirkland, et al., 1978	17	1,700	T	48	—	—	—	—	—	—	—	3.47
	19	1,900			—	—	—	—	—	—	—	2.47
Meretoja, et al., 1981	5	500	T	64-66	—	—	—	—	—	—	—	1.8
Hogstedt, et al., 1980	7	1,400	M	72	—	—	—	—	—	—	—	2.5
Bauchinger, 1981	22	11,000	H	48	—	0.16	0.05	—	0.09	—	—	—
Waksvik, et al., 1981	10	1,000	H	48	—	0.3	—	—	—	—	—	—
Verschaeve, et al., 1976	7	651	T	72	—	—	—	—	—	—	—	8.5
Thiess and Fleig, 1978	18	1,800	?	70-72	—	—	—	—	—	—	—	2.0
Cervenka and Thorn, 1974	10	1,594	T	72	—	—	—	—	—	—	—	1.38
Hook, et al., 1974	11	398	?	72	—	—	—	—	—	—	—	0.8
	4	288			—	—	—	—	—	—	—	1.4

^aExcluding CTD and C.

^bIncludes only breaks and exchanges

^cGaps Included.

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Appendix D references

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