

Fig. 5 Relationship between RSD of 3 product lots for mutagenic activity (TA98+S9) and tar yield on package

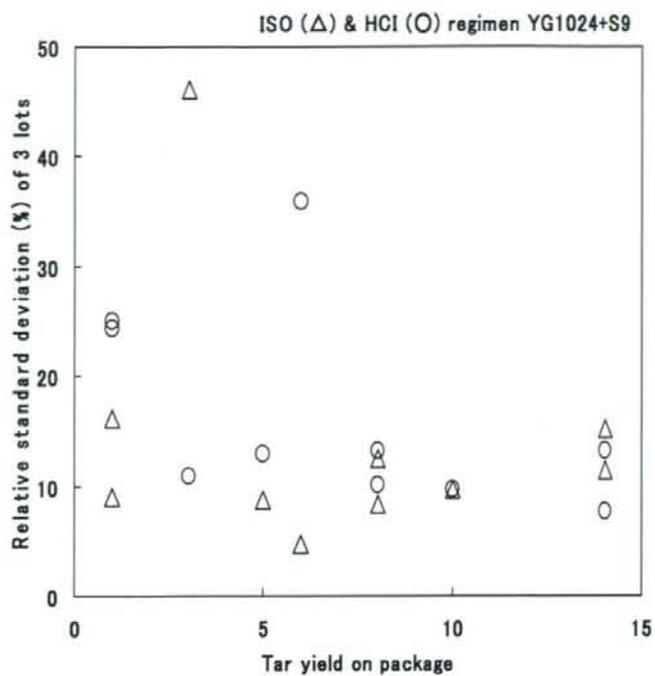


Fig. 6 Relationship between RSD of 3 product lots for mutagenic activity (YG1024+S9) and tar yield on package

Table 1 Cigarette samples tested

Brand name	Tar (mg/cig)	Nicotine (mg/cig)	Filter type (a)	Vent. Hole	Market Share (%)	Product lots
A PIANISSIMO One	1	0.1	P	2	1.6	I 01767019, II 01727027, III 01767P04
B MILD SEVEN ONE	1	0.1	DC	4	3.8	b I 35057P03, II 08237P16, III 35017P04
C MILD SEVEN EXTRA LIGHTS	3	0.3	DC	2	3.5	I 30817020, II 30817028, III 30747022
D Caster MILD	5	0.4	NC	2	2.9	I 01517022, II 29247P04, III 30847005
E MILD SEVEN LIGHTS	6	0.5	DC	2	7.7	I 01547016, II 01547008, III 01547012
F CABIN MILD	8	0.6	NC	1	1.9	I 37517P02, II 37537P02, III 37537P06
G MILD SEVEN LIGHTS	8	0.7	DC	1	7.3	I 30717026, II 01557P05, III 01567P04
H MILD SEVEN ORIGINAL	10	0.8	DC	1	6.0	I 29277023, II 01517006, III 01547028
I HOPE	14	1.1	P	0	1.4	I 371327027, II 371217P12, III 371227P09
J Seven Stars	14	1.2	DC	0	6.8	b I 37577026, II 37577P04, III 37587P15

a) P: plain, DC: dual charcoal, NC: neo charcoal

b) Shares include box type package

Table 2 Chemical analysis and mutagenicity of 10 major cigarettes in Japan

Cigarette	Regimen	Lot	Crude tar mg/cig	Water mg/cig	Nicotine mg/cig	Tar mg/cig	Mutagenicity (revertants per cigarette)						
							TA100		TA98		YG1024		
							-S9	+S9	-S9	+S9	-S9	+S9	
A	ISO	I	1.57	0.40	0.20	0.97	neg	neg	(285)	1870	neg	9900	
		II	1.59	0.40	0.19	1.00	neg	neg	neg	946	neg	8400	
		III	1.67	0.50	0.20	0.96	neg	neg	neg	2050	neg	9810	
	HCl	I	21.59	4.80	0.90	15.89	neg	(2700)	1770	10800	(950)	42600	
		II	22.57	5.90	0.89	15.78	(3410)	3500	neg	10900	(1200)	70100	
		III	21.78	4.80	0.88	16.10	neg	2290	neg	9520	1420	53500	
	B	ISO	I	1.52	0.28	0.18	1.06	neg	neg	neg	1620	neg	11300
			II	1.63	0.20	0.18	1.25	neg	neg	neg	1130	(261)	8580
			III	1.89	0.60	0.22	1.07	(1170)	neg	neg	2070	neg	11700
HCl		I	20.15	6.40	0.90	12.85	neg	3670	(786)	8520	(866)	46400	
		II	18.40	4.20	0.96	13.24	(1930)	(1380)	neg	7400	neg	74400	
		III	19.99	6.50	1.04	12.45	(1500)	(3520)	neg	8960	1080	55500	
C		ISO	I	3.62	0.71	0.29	2.61	(1010)	1510	neg	4990	neg	26100
			II	3.89	0.70	0.34	2.85	neg	1110	neg	2760	neg	24000
			III	3.40	0.60	0.32	2.47	(401)	(404)	neg	2000	neg	9340
	HCl	I	26.10	7.38	1.14	17.58	(3470)	(2710)	neg	10900	neg	66100	
		II	24.91	8.60	1.19	15.12	(1790)	(3260)	neg	11200	(1350)	74500	
		III	24.20	8.40	1.50	14.30	(1450)	(5200)	1190	8860	neg	59900	
	D	ISO	I	7.12	1.49	0.53	5.10	neg	839	379	3920	neg	22700
			II	5.75	1.00	0.43	4.32	neg	(1520)	neg	3520	759	27100
			III	5.62	0.90	0.44	4.29	neg	(798)	neg	5080	neg	24500
HCl		I	26.88	9.74	1.36	15.78	neg	(3390)	(1320)	9060	(1320)	44500	
		II	28.46	10.10	1.23	17.13	(2620)	(3530)	neg	6570	neg	44700	
		III	28.80	10.40	1.27	17.13	3690	(3600)	neg	8840	neg	55400	

Table 2 (Continued)

Cigarette	Regimen	Lot	Crude tar mg/cig	Water mg/cig	Nicotine mg/cig	Tar mg/cig	Mutagenicity (revertants per cigarette)						
							TA100		TA98		YG1024		
							-S9	+S9	-S9	+S9	-S9	+S9	
E	ISO	I	7.60	1.30	0.58	5.72	neg	1550	647	7880	588	36200	
		II	7.36	1.00	0.48	5.87	neg	(964)	neg	5930	2310	38200	
		III	7.12	1.10	0.51	5.51	1040	1560	641	9200	591	39800	
	HCl	I	35.40	9.86	1.42	24.12	(2940)	5450	(1520)	14000	neg	77700	
		II	33.71	10.90	1.31	21.50	neg	(3910)	2360	10300	neg	137000	
		III	32.85	10.80	1.47	20.58	neg	(3680)	neg	12400	(1540)	75600	
	F	ISO	I	10.89	2.10	0.66	8.13	(1700)	1800	(426)	10700	neg	43100
			II	9.90	1.80	0.61	7.49	(841)	1480	neg	7920	3290	47500
			III	10.16	1.90	0.63	7.64	(2340)	2510	691	12300	813	50900
HCl		I	34.64	11.32	1.49	21.83	(2770)	5680	(1320)	16600	neg	93000	
		II	32.61	10.60	1.36	20.65	(2380)	5190	neg	15600	neg	113000	
		III	30.43	10.40	1.52	18.51	(2010)	5930	2370	18400	neg	109000	
G		ISO	I	10.38	1.60	0.70	8.08	neg	2450	(667)	8170	(435)	39900
			II	10.11	1.60	0.61	7.90	neg	(2370)	neg	5230	3080	47900
			III	9.95	1.70	0.68	7.58	neg	(1740)	1220	11000	746	51100
	HCl	I	34.17	11.22	1.56	21.39	(2700)	(2560)	(1570)	16200	neg	77000	
		II	32.31	11.70	1.41	19.20	(6080)	(3680)	(2170)	11600	neg	81200	
		III	35.39	12.60	1.58	21.20	(3010)	(5170)	1980	14100	neg	98200	
	H	ISO	I	12.37	1.70	0.90	9.77	(2490)	(2720)	863	11200	neg	45700
			II	11.99	1.50	0.67	9.83	neg	(1270)	neg	6980	neg	53200
			III	12.18	1.50	0.78	9.90	4560	3170	1240	12700	938	55000
HCl		I	39.31	13.30	2.00	24.01	(3500)	(5500)	2010	16100	neg	96900	
		II	39.57	13.80	1.68	24.08	neg	(5220)	(3050)	15000	neg	91100	
		III	37.54	10.70	1.76	25.08	(2480)	(8970)	neg	17900	neg	110000	

Table 2 (Continued)

Cigarette	Regimen	Lot	Crude tar mg/cig	Water mg/cig	Nicotine mg/cig	Tar mg/cig	Mutagenicity (revertants per cigarette)						
							TA100		TA98		YG1024		
							-S9	+S9	-S9	+S9	-S9	+S9	
I	ISO	I	17.78	4.83	0.99	11.95	neg	(2590)	(903)	8140	neg	40900	
		II	17.36	3.60	0.89	12.87	neg	(1580)	neg	5680	4500	50400	
		III	19.38	3.90	0.98	14.50	(2270)	(3020)	(969)	11200	(969)	49800	
	HCl	I	45.11	16.71	2.09	26.31	(3650)	neg	(1940)	14900	neg	74400	
		II	44.12	16.30	2.00	25.81	(2780)	(3310)	neg	12200	neg	84700	
		III	46.11	14.90	2.03	29.18	(4340)	(4890)	(4800)	14200	2540	85600	
	J	ISO	I	19.77	3.92	1.17	14.68	(3020)	(2690)	958	9290	(829)	46500
			II	18.43	2.60	0.96	14.87	neg	(3870)	neg	8050	6760	62000
			III	18.70	2.90	1.20	14.59	3100	(3520)	neg	9180	(1200)	50600
HCl		I	45.03	15.30	2.30	27.43	(3110)	(5900)	2070	14900	neg	73700	
		II	44.26	14.00	1.99	28.27	(3760)	(4380)	neg	11200	neg	94900	
		III	45.09	13.90	2.35	28.84	(4690)	(4920)	3340	15600	2980	80000	

Table 3 Average and standard deviation of nicotine, tar and mutagenic activity of 10 major cigarettes in Japan

Cigarette	Regimen	Nicotine (mg/cigarette)	Tar (mg/cigarette)	Mutagenic activity (revertants per cigarette)	
				TA98+S9	YG1024+S9
A	ISO	0.20 ± 0.01	0.98 ± 0.02	1620 ± 594	9370 ± 844
	HCI	0.89 ± 0.01	15.92 ± 0.16	10400 ± 751	55400 ± 13800
B	ISO	0.19 ± 0.03	1.13 ± 0.10	1610 ± 471	10500 ± 1700
	HCI	0.97 ± 0.07	12.84 ± 0.39	8290 ± 805	58800 ± 14300
C	ISO	0.32 ± 0.02	2.64 ± 0.19	3250 ± 1560	19800 ± 9120
	HCI	1.28 ± 0.19	15.66 ± 1.71	10300 ± 1280	66800 ± 7290
D	ISO	0.47 ± 0.06	4.57 ± 0.46	4170 ± 807	24800 ± 2180
	HCI	1.29 ± 0.07	16.68 ± 0.78	8160 ± 1380	48200 ± 6230
E	ISO	0.53 ± 0.05	5.70 ± 0.18	7670 ± 1650	38100 ± 1810
	HCI	1.40 ± 0.08	22.07 ± 1.84	12300 ± 1880	96600 ± 34600
F	ISO	0.63 ± 0.03	7.75 ± 0.34	10300 ± 2220	47200 ± 3910
	HCI	1.46 ± 0.08	20.33 ± 1.68	16900 ± 1430	105000 ± 10600
G	ISO	0.66 ± 0.05	7.85 ± 0.26	8140 ± 2900	46300 ± 5780
	HCI	1.52 ± 0.09	20.60 ± 1.22	14000 ± 2320	85500 ± 11300
H	ISO	0.78 ± 0.12	9.83 ± 0.06	10300 ± 2970	51300 ± 4950
	HCI	1.81 ± 0.17	24.39 ± 0.60	16300 ± 1510	99300 ± 9650
I	ISO	0.95 ± 0.06	13.11 ± 1.29	8350 ± 2790	47000 ± 5350
	HCI	2.04 ± 0.04	27.10 ± 1.82	13800 ± 1390	81600 ± 6220
J	ISO	1.11 ± 0.13	14.71 ± 0.14	8840 ± 684	53000 ± 8070
	HCI	2.21 ± 0.20	28.18 ± 0.71	13900 ± 2380	82900 ± 10900

### Ⅲ. 研究成果の刊行に関する一覧表

研究成果の刊行に関する一覧表

雑誌

発表者氏名	論文タイトル名	発表誌名	巻号	ページ	出版年
遠藤治	WHO TobReg 提言の解説～ TobaccoControl の論文の概要 と解説	日本禁煙医師連 盟通信	17	4-6	2008
Endo O, Matsumoto M, Inaba Y, Sugita K, Nakajima D, Goto S, Ogata H, Suzuki G	Nicotine, tar and mutagenicity of mainstream smoke generated by machine smoking with ISO and HCI regimens of major Japanese cigarette brands	Journal of Health Science	55	in press	2009