Fig. 8 Product ion spectra of putative SFO-3`-$N^2$-dG (A) and SFO-3`-N^6-dA (B). The cone voltages and collision energies were set at 15 V and 20-60 eV in the positive ion mode, respectively.

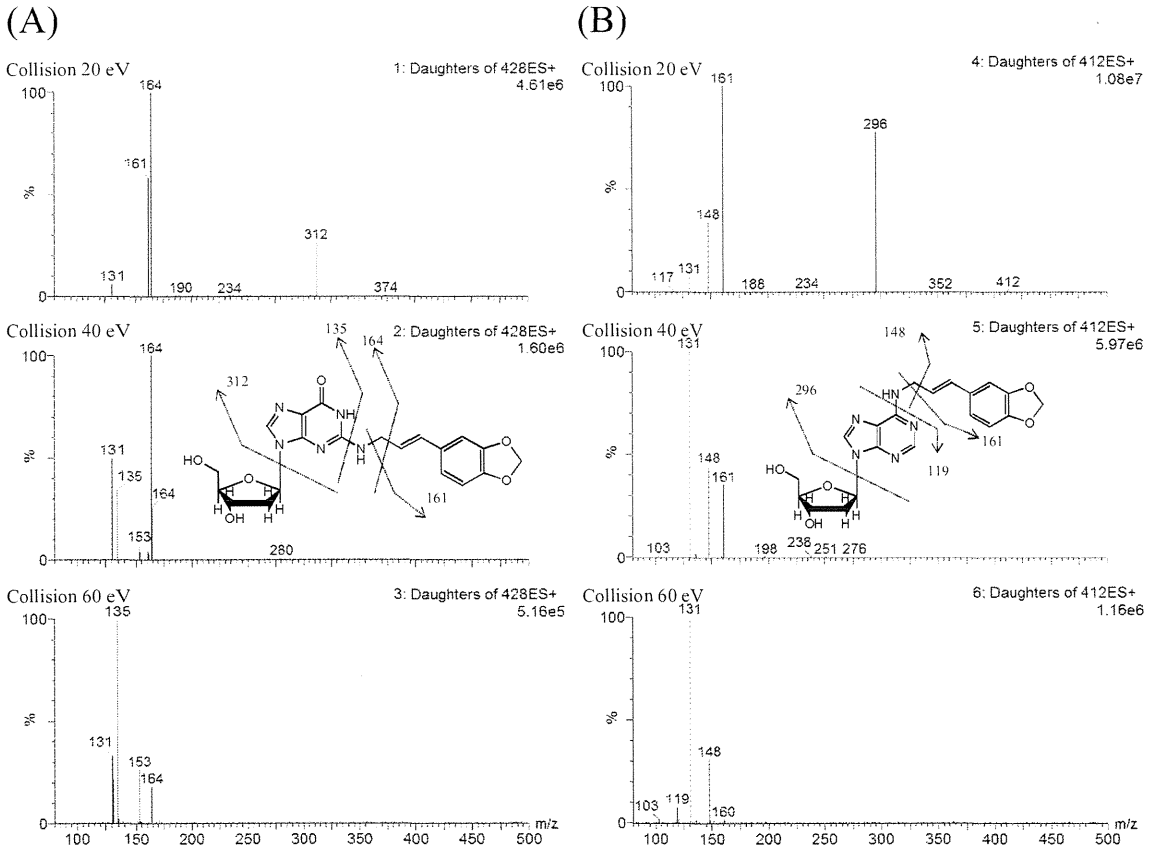

Fig. 9 DNA adductome maps of Liver (A) and kidney (B) of rats treated with Alz for 4 weeks. Black and orange spots are indicating control and Alz-treated rats, respectively.

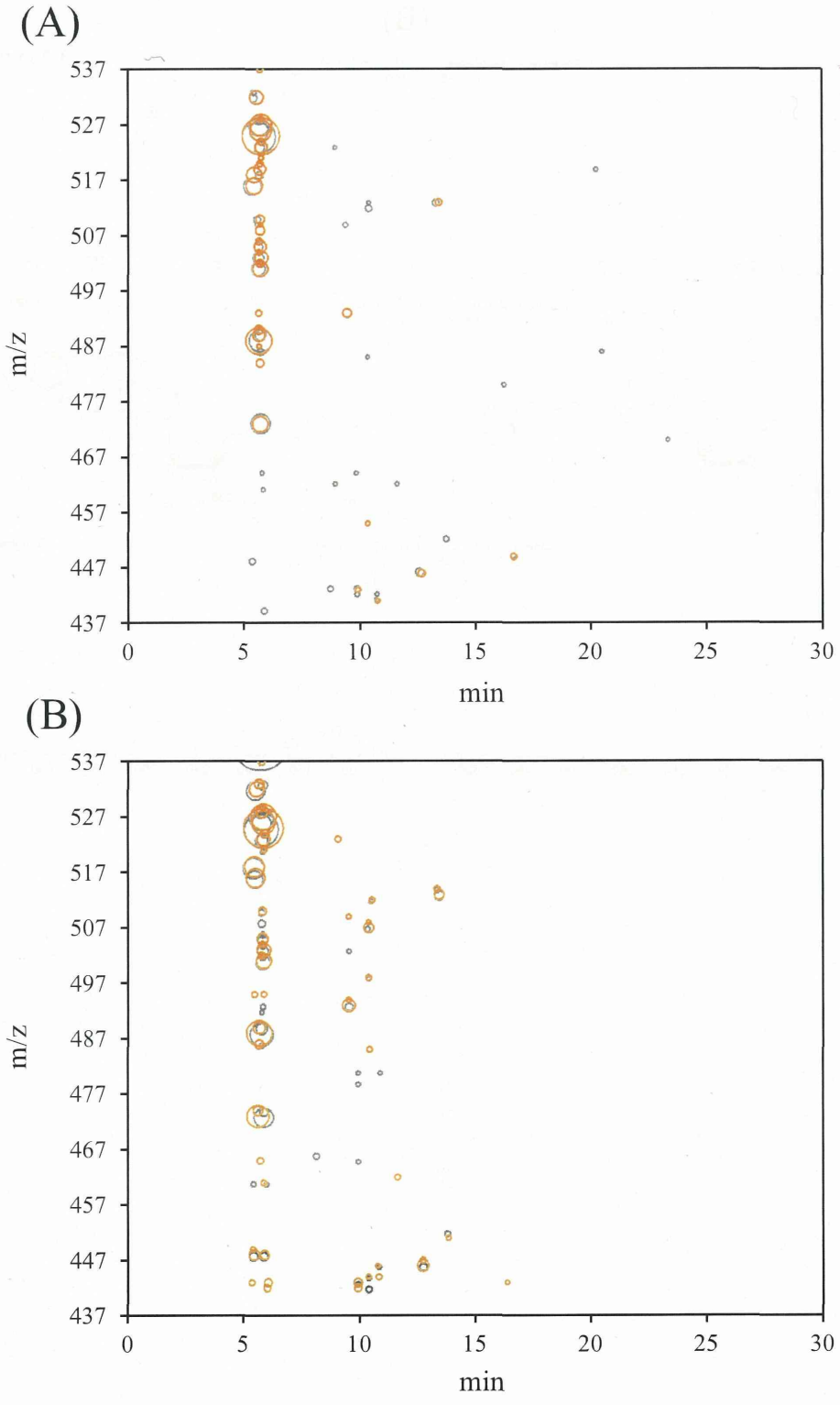

Table 1 Final body and organ weights

Item/group	Control	IQ	SFO	Alz
No. of animals	5	5	5	5
Body weight (g)	182.7 ± 15.4	204.7 ± 18.0	181.3 ± 11.7	184.2 ± 8.7
Absolute weight (g)				
Lung	0.76 ± 0.06	0.85 ± 0.06	0.76 ± 0.04	0.76 ± 0.05
Liver	7.14 ± 1.11	7.72 ± 1.05	10.24 ± 0.70**	6.63 ± 0.19
Relative weight (g/100g b.w.)				
Lung	0.41 ± 0.02	0.42 ± 0.04	0.42 ± 0.02**	0.41 ± 0.02
Liver	3.89 ± 0.28	3.76 ± 0.19	5.65 ± 0.15**	3.60 ± 0.10**

**: $p<0.01$ vs. Control group

Table 2 Summary of DNA adductome analysis

Chemicals	Organ	m/z	Retention time (min)	Peak area	Presumed adducts	Ionized type
IQ	Liver	464	12.8	2975786	IQ-C8-dG	$[M+H]^+$
		486	12.8	4149	IQ-C8-dG	$[M+Na]^+$
		480	12.8	22327	Not identified	
		448	12.5	79915	IQ-N^6-dA	$[M+H]^+$
		464	11.2	19961	IQ-N^2-dG	$[M+H]^+$
	Kidney	464	12.7	624525	IQ-C8-dG	$[M+H]^+$
		448	12.4	16552	IQ-N^6-dA	$[M+H]^+$
SFO	Liver	428	12.4	123041	SF-3'-C8-dG	$[M+H]^+$
		388	14.9	55236	SF-3'-N^4-dC	$[M+H]^+$
		428	15.0	61049	SF-1'-N^2-dG	$[M+H]^+$
		428	15.6	7327868	SF-3'-N^2-dG	$[M+H]^+$
		450	15.6	393398	SF-3'-N^2-dG	$[M+Na]^+$
		444	15.7	18291	Not identified	
		412	17.5	2555634	SF-3'-N^6-dA	$[M+H]^+$
	Kidney	428	15.7	47422	SF-3'-N^2-dG	$[M+H]^+$
		412	17.5	17966	SF-3'-N^6-dA	$[M+H]^+$

Table 3 *gpt* mutant frequencies in the livers of *gpt* delta rats treated with IQ, SFO and Alz for 4 weeks

Treatment	Animal No.	Cm^R colonies (x 10^5)	6-TG^R and Cm^R colonies	Mutant frequency (x 10^{-5})	Mean±SD
Control	1	9.5	2	0.21	0.76 ± 0.36
	2	9.1	5	0.55	
	3	7.7	8	1.03	
	4	9.3	6	0.65	
	5	9.7	13	1.34	
IQ	6	7.1	39	27.43	23.02 ± 3.60**
	7	9.5	39	20.54	
	8	12.3	45	18.32	
	9	8.3	40	24.15	
	10	6.1	30	24.69	
SFO	11	6.1	10	1.63	1.88 ± 0.86
	12	5.0	7	1.41	
	13	5.2	9	1.72	
	14	3.7	12	3.21	
	15	4.9	7	1.43	
Alz	16	6.9	7	1.01	0.73 ± 0.20
	17	8.6	5	0.58	
	18	8.7	8	0.92	
	19	8.9	4	0.45	
	20	8.5	6	0.71	

**: $p<0.01$ vs. Control

Table 4 Spi$^-$ mutant frequencies in the livers of *gpt* delta rats treated with IQ, SFO and Alz for 4 weeks

Treatment	Animal No.	Plaques within XL-1 Blue MRA ($\times 10^5$)	Plaques within WL95 (P2)	Mutant frequency (x 10^{-5})	Mean±SD
Control	1	15.7	5	0.32	0.43 ± 0.13
	2	13.5	8	0.59	
	3	12.1	6	0.50	
	4	10.9	5	0.46	
	5	14.8	4	0.27	
IQ	6	6.1	47	7.68	7.41 ± 1.42 **
	7	6.0	36	6.02	
	8	8.6	51	5.93	
	9	5.8	53	9.20	
	10	5.0	41	8.21	
SFO	11	6.7	3	0.45	0.82 ± 0.51
	12	9.5	16	1.69	
	13	8.4	4	0.48	
	14	4.3	3	0.69	
	15	3.9	3	0.78	
Alz	16	8.1	7	0.86	0.50 ± 0.26
	17	9.8	5	0.51	
	18	9.1	5	0.55	
	19	9.5	4	0.42	
	20	13.3	2	0.15	

**: $p<0.01$ vs. Control

Table 5 *gpt* mutant frequencies in the kidneys of *gpt* delta rats treated with IQ, SFO and Alz for 4 weeks

Treatment	Animal No.	Cm^R colonies (x 10^5)	6-TG^R and Cm^R colonies	Mutant frequency (x 10^{-5})	Mean±SD (x 10^{-5})
Control	1	4.1	5	1.22	0.73 ± 0.41
	2	9.1	2	0.22	
	3	6.3	6	0.95	
	4	5.0	2	0.40	
	5	8.0	7	0.87	
IQ	6	6.1	29	4.74	7.04 ± 1.34 **
	7	9.9	78	7.88	
	8	7.1	54	7.59	
	9	6.5	52	7.97	
	10	4.3	30	7.02	
SFO	11	1.4	1	0.74	0.68 ± 0.39
	12	3.0	1	0.33	
	13	2.4	3	1.23	
	14	4.7	3	0.64	
	15	7.5	4	0.53	
Alz	16	0.7	2	2.96	1.40 ± 0.17
	17	4.9	8	1.63	
	18	3.6	5	1.39	
	19	6.8	9	1.32	
	20	8.8	11	1.25	

**: $p<0.01$ vs. Control

Table 6 Spi$^-$ mutant frequencies in the kidneys of *gpt* delta rats treated with IQ, SFO and Alz for 4 weeks

Treatment	Animal No.	Plaques within XL-1 Blue MRA ($\times 10^5$)	Plaques within WL95 (P2)	Mutant frequency (x 10^{-5})	Mean±SD
Control	1	11.9	5	0.42	0.26 ± 0.14
	2	12.0	2	0.17	
	3	11.1	1	0.09	
	4	8.5	2	0.24	
	5	7.7	3	0.39	
IQ	6	4.8	10	2.10	2.39 ±0.94**
	7	7.1	17	2.39	
	8	10.0	16	1.59	
	9	4.8	9	1.87	
	10	1.8	7	3.99	
SFO	11	2.5	1	0.40	0.37 ± 0.19
	12	7.2	3	0.42	
	13	7.2	2	0.28	
	14	8.3	1	0.12	
	15	7.9	5	0.63	
Alz	16	8.1	1	0.12	0.56 ± 0.52
	17	12.6	6	0.48	
	18	6.2	4	0.64	
	19	6.8	1	0.15	
	20	5.8	8	1.39	

**: $p<0.01$ vs. Control

Table 7 Mutation spectra in the livers of *gpt* delta rats treated with IQ, SFO and Alz for 4 weeks.

	Control	IQ	SFO	Alz
Base substitution				
Transversion				
GC-TA	0.11 ± 0.12	2.55 ± 0.47 **	0.77 ± 0.52 *	0.14 ± 0.05
GC-CG	0.09 ± 0.14	0.23 ± 0.14	0.17 ± 0.17	0.08 ± 0.13
AT-TA	0.02 ± 0.05	0.37 ± 0.14 **	0.04 ± 0.09	0.02 ± 0.05
AT-CG	0	0.13 ± 0.18	0	0
Transition				
GC-AT	0.30 ± 0.24	0.30 ± 0.25	0.40 ± 0.32	0.30 ± 0.22
AT-GC	0.05 ± 0.65	0.02 ± 0.04	0.35 ± 0.11 **	0.05 ± 0.06
Deletion				
Single bp	0.07 ± 0.10	0.92 ± 0.29 **	0.09 ± 0.13	0.10 ± 0.06
Over 2bp	0	0	0	0
Insertion	0	0.07± 0.12	0.05 ± 0.12	0
Complex	0	0	0	0

*,**: $p<0.05$, 0.01 vs. Control