Daly et al, 1989

Guidelines/Criteria	
Reference:	Daly HB, Hertzler DR, Sargent DM. 1989. Ingestion of environmentally contaminated Lake Ontario salmon by laboratory rats increases avoidance of unpredictable aversive nonreward and mild electric shock. Behav Neurosci 103(6):1356-1365.
***In vivo* Study Type** Route of Administration Species & age of animals	Four 20 day behavioural studies Diet Male sprague-Dawley rats (43-109 days old in the four experiments)
Study Duration	20 days
Type of Mixture Binary >2 components Similar acting or dissimilar What Mode of Action was investigated?	 No Lake Ontario or ocean salmon (used as the control) were included in the diet. Both Nothing specific
Parameters/End points Measured Target organs/Critical effects Pharmacological changes or adverse effects	 Preference for predictability E-maze test, passive avoidance and conditioned suppression test after 20 days on treated diet Depends on magnitude of effects
Individual Components Characterisation of individual compounds Name, exact chemical name, CAS no. Were dose responses established for individual components? Were no effect levels established? Were doses below the NO(A)ELs investigated?	 None N/A No No N/A
Mixtures Investigated Number of dose levels How does the mixture make-up compare to individual components? (e.g. low dose) equivalents used?) No. of technical replicates per exposure condition (*in vitro*) No. of animals per dose group (*in vivo*)	 One The diet included 30% salmon. Different groups were fed salmon from the Pacific (control) or Lake Ontario. 8
Observations/Findings	The rats fed Lake Ontario salmon developed a preference for predictable food rewards more quickly than rats fed ocean salmon. Mild electric shocks suppressed response to food more inc rats fed Lake Ontario salmon compared to rats fed ocean salmon. The authors conclude that the results are consistent with Lake Ontario fed groups having increased reactivity to adverse events.
Overall opinion (e.g. sufficient numbers of groups investigated, group sizes adequate, observations reproducible, low dose levels used investigated)	 When so few variables are measured it makes it hard to put the results into context of the overall state of health of the rats. However, the effect on behaviour seems real. The explanation is not clear.