Documentation of the Fields in the Supplementary Dataset on Survival and Dosing

There are two CPDB supplementary datasets which contain dosing and survival data from the general literature. These data have not been published in the Carcinogenic Potency Database (CPDB).

The main dataset "cpdb.supp.tab" (tab-separated) or "cpdb.supp.xls" (Excel) contains all the supplementary information except for information on "variable dosing" which is contained in the dataset, "cpdb.suppvary.tab" (tab-separated) or "cpdb.suppvary.xls" (Excel).

Each row in cpdb.supp.tab or cpdb.supp.xls represents a single dose-group (including control) for each experiment. "Variable dosing" contrasts with "regular dosing" in that the dose amount and/or the pattern of dosing or the route changed during the experiment. cpdb.suppvary.tab (or cpdb.suppvary.xls) is a small dataset, with only data on variable dosing. Each row in cpdb.suppvary.tab (or cpdb.suppvary.xls) is a dosing protocol within a dose-group.

Since there is a row in cpdb.suppvary.tab (or cpdb.suppvary.xls) for each dosing schedule, there will be more than one row for a dose-group in cpdb.suppvary.tab (or cpdb.suppvary.xls).

The field "idvary" links the cpdb.supp.tab and cpdb.suppvary.tab (or cpdb.supp.xls and cpdb.suppvary.xls) datasets. The field "varynum" indicates the order in which the doses were administered for each "idvary" number. Less than 20% of the experiments in cpdb.lit.tab (or cpdb.lit.xls) have variable dosing, and are included in cpdb.suppvary.tab (or cpdb.suppvary.xls).

Fields in the cpdb.supp.tab and cpdb.suppvary.tab (or cpdb.supp.xls and cpdb.suppvary.xls) datasets are described below. All fields are found in the cpdb.supp.tab (or cpdb.supp.xls) dataset except "varynum" which is only found in the cpdb.suppvary.tab (or cpdb.suppvary.xls) dataset. The only fields in the cpdb.suppvary.tab (or cpdb.suppvary.xls) dataset are: idvary, varynum, expdose, hrxpo, mlxpo, route, xpo, xpowk, and age.

Time units used throughout: the shortest unit reported in the published paper ("da": days, "wk": weeks, "mo": months, "yr": years).

There are many blanks throughout cpdb.supp.tab and cpdb.suppvary.tab (or cpdb.supp.xls and cpdb.suppvary.xls) because of varying experimental conditions and individual authors' choices about what to report.

Merging the cpdb.supp.tab dataset with cpdb.lit.tab dataset

The cpdb.supp.tab dataset can be linked to the cpdb.lit.tab dataset with a computer program with database capabilities (e.g. SAS) using the fields in common between them that define an experiment: chemcode, species, sex, strain, route, papernum. When merging these datasets, one should bear in mind that there is one row per experiment-tissue-tumor combination in cpdb.lit.tab and one row per dose-group within an experiment in cpdb.supp.tab; therefore one generally wants to remove extraneous rows before merging the datasets, i.e., each row in cpdb.lit.tab represents results for all dose groups in an experiment whereas in cpdb.supp.tab each row is a single dose group within an experiment. The cpdb.supp.tab dataset contains dosing and survival information that is pertinent to a whole experiment and not specific to tissue or tumor, whereas the cpdb.lit.tab dataset repeats the whole experiment information for each tissue and tumor. Therefore, one generally would want to ignore experimental information that is repeated for each tissue-tumor combination in cpdb.lit.tab before merging it with cpdb.supp.tab. One can accomplish this by sorting over the fields that define an experiment (chemcode, species, sex, strain, route, papernum), then selecting the first row of each experiment in cpdb.lit.tab before merging with cpdb.supp.tab.

cpdb.supp.tab and cpdb.suppvary.tab (or cpdb.supp.xls and cpdb.suppvary.xls)

Identification Information

cas	Chemical Abstracts Service Registry number
chemcode	The chemical three-letter-code
name	The chemical name
papernum	Identification number of the published paper. If papernum includes "m", "n", "o", etc. then a single paper includes more than one experiment that differs with respect to experiment or exposure length (including serial sacrifice experiments) or route of administration. If experiments using more than one strain are reported in a paper, no "m", "n" or "o" is used.
route	The route code: eat: diet wat: water gav: gavage inh: inhalation cap: capsule orl: oral, used for mouse experiments by Innes et al., gavage preweanling then diet ipj: intraperitoneal injection ivj: intravenous injection mix: rarely used. If more than one route used in a single experiment.
sex	f: female m: male b: both. Data are combined for males and females, only when that is how results are reported in pub-

	lished paper, and the author could not provide results separately for each sex after personal communication with us.
species	r: rats m: mice h: hamsters d: dogs n: prosimian: tree shrew or bush babies p: primate: rhesus or cynomolgus monkey
strain	the strain of test animal. See Appendix 1 in printed documentation and cpdb.strain.tab (or cpdb.strain.xls)

Dose Information

The dosing information from the published paper in cpdb.supp.tab (or cpdb.supp.xls) and cpdb.suppvary.tab (or cpdb.suppvary.xls) is used with the standard values in Table 1 to calculate the dose in mg/kg/day. This is reported in calcdose.

calcdose	Appears for each dose level, and values are in mg/kg/day calculated by using the information in cpdb.supp.tab and cpdb.suppvary.tab (or cpdb.supp.xls and cpdb.suppvary.xls) and the calculated standard values described in Table 1. Dose values for experiments where exposure time is shorter than experiment time, are daily-dose rate averaged over the length of experiment.
dosing	The type of dosing: control, regular, variable or total control dose: 0 mg/kg/day regular dosing: amount and schedule of dosing is fixed and regular. variable dosing: the dose amount and/or the route and/or the dosing pattern is changed during the experiment. total dose: used rarely; used for a set of experiments on nitrosamines where animal intake of water (the route) was low, or for semi-synthetic diets.
hrxpo	Hours/exposure: For inhalation exposures, number of hours per day that animals are in the dosing chamber.
idvary	The identification number that links the cpdb.supp.tab and cpdb.suppvary.tab (or cpdb.supp.xls and cpdb.suppvary.xls) datasets. This is 0 for control, regular or total dosing. I.e., only experiments with variable dosing have an idvary value.
mlxpo	ml/exposure: For gavage and injection routes, milliliters per exposure when dose is given in mg/ml in the published paper.
molwt	Reported only for inhalation tests or tests for which the dose is reported in moles/liter. Molecular weight is used to calculate the dose in mg/kg/day. Otherwise "R".
paprdose	The dose in units reported in the published paper. Possible units are: % mg/kg_eat mg/kg_weight mg mg/ml moles/liter ppm gm gm/kg_weight These dose values are used to calculate the dose in mg/kg/day using the standard values in Table 1.
variable	The number of variable doses. It is 0 for control, regular or total dosing.
varynum	The number of the dose in the cpdb.suppvary.tab (or cpdb.suppvary.xls) dataset. This indicates the order of variable doses for a single dose group. This is 0 for control, regular or total dosing.
xpo	Exposure length. The period of time during which the chemical was administered, e.g. if the animal is exposed once per week for 80 weeks, the exposure length is 80 weeks.
xpowk	Exposures/week: Number of times per week of exposure. For dietary administration, *ad libitum* feeding is 7 times per week.
xpt	Duration of the experiment to terminal sacrifice.

Survival Information

started	Animals per group at start. This may differ from effective number, which is number alive at first tumor (or if not reported, then number examined). Serial sacrifice experiments have a "k" in the note field of cpdb.lit.tab (or cpdb.lit.xls) and an "m", "n" or "o" in the papernum field. They are only reported when they meet the inclusion rules and results are reported separately for each preselected sacrifice group, excluding animals that died naturally.
lastdth	Last death: The length of time on test of the last survivor in the group. A range may be reported if the

	last death could not be precisely determined. If the only time reported in the published paper is "life" then "104life" is given here for rodents, 11 years for dogs and 20 years for monkeys.
finished	Number alive in the dose group at the end of the experiment. If all animals were allowed to die spontaneously rather than killed at sacrifice, then "0" is given here.
effectiv	Effective number. Either: (1) the number of animals alive at the time of the first tumor, or if that is not reported, then (2) the number of animals examined histopathologically.
meansurv	Mean survival: Often not reported in the published paper. Units are time on test, not age.
medsurv	Median survival: Often not reported in published paper. Units are time on test, not age. Sometimes only a range is possible. This is often derived from a graph in the published paper.
tbamean	Mean survival of the tumor-bearing animals in the dose group. Rarely reported in published paper.
tbamed	Median survival of the tumor-bearing animals in the dose group. Rarely reported in published paper.
age	Age at first dose, or for variable dosing, the age at which each dose began. If weanling is all that is reported in published paper, 6 weeks is assumed for rats, mice, and hamsters.

Table 1. Standard Values For Dose Calculation: Animal Lifespans, Weights, And Intake By Diet, Water, And Inhalation[A]

Experimental Animal	Sex	Standard lifespan (year)[b]	Weight (kg)[c]	Food (g)[c]	Food as % body weight/day	Water (mL/ day)[d]	Inhalation volume (L/min)[e]
Rodents							
Mouse	Male	2	0.03	3.6	12.00		0.03
	Female	2	0.025	3.25	13.00		0.03
Rat	Male	2	0.5	20	4.00		0.10
	Female	2	0.35	17.5	5.00		0.10
Hamster	Male	2	0.125	11.5	9.20		0.06
	Female	2	0.110	11.5	10.45		0.06
Monkeys							
Cynomolgus (*Macaca fascicularis*)	Both	20					
Rhesus (*Macaca mulatta*)	Both	20					
Prosimians							
Bush babies (*Galago crassicaudatus*)	Both	10					
Tree shrews (*Tupaia glis*)	Both	4.5					
Dog	Both	11	16	400			

[a]Although values sometimes vary depending on the source, those given here are within reasonable limits of those usually found in the published literature. No value is given when this information was not necessary for our dose calculation.

[b]Rat and mouse: based on NCI trichloroethylene bioassay (NCI, 1976); hamster: data of Williams (1976); nonhuman primates: data of S. M. Sieber (Laboratory of Chemical Pharmacology, NCI, National Institute of Health, Bethesda, MD), personal communication; bush babies: ages adapted from Dittmer (1973); tree shrews: data of D. J. Reddy (Northwestern University, Chicago, IL), personal communication; dog: data of M. S. Redfearn (Division of Animal Resources, University of California, Berkeley), personal communication.

[c]Rat and mouse: based on NCI trichloroethylene bioassay (NCI, 1976); hamster and dog: data of D. Brooks (University of California, Davis), personal communication.

[d]Mouse, rat and dog: data from NIOSH (Sweet, 1993); hamster: data from Hoeltge, Inc.

[e]Mouse: data of Sanockij (1971); rat: data of Baker *et al.* (1979); hamster: data of Guyton (1947).

LIST OF LITERATURE EXPERIMENTS IN CPDB THAT ARE NOT INCLUDED IN THESE FILES. INPUTS WERE BY LIFETABLE.

Aromatic amine studies, paper #381 (Weisburger;jept,2,325-356;1978/pers.comm./Russfield 1973):

Chemical
benzoguanamine
4-chloro-4´-aminodiphenylether
1-chloro-2,4-dinitrobenzene
1-chloro-2-nitrobenzene
1-chloro-4-nitrobenzene
4-chloro-*o*-toluidine.HCl
2,4-diaminotoluene.2HCl
dicyclopentadiene dioxide
2,5-dimethoxy-4´-aminostilbene
m-phenylenediamine.2HCl
o-phenylenediamine.2HCl
3,3´,4,4´-tetraaminobiphenyl.4HCl
tetrafluoro-*m*-phenylenediamine.2HCl
m-toluidine.HCl
o-toluidine.HCl
p-toluidine.HCl
2,4,6-trichloroaniline
2,4,5-trimethylaniline.HCl
2,4,6-trimethylaniline.HCl
2,4-xylidine.HCl
2,5-xylidine.HCl

Other papers:

Chemical	Paper
2-acetylaminofluorene	2034
benzotrichloride	2187
caffeine	2270
capsaicin	2039
formaldehyde	1566
methyl *tert*-butyl ether	2243
4,4´-methylene-bis(2-chloroaniline).2HCl	191
N-nitrosodiethylamine	2259
N-nitrosodimethylamine	2259
tamoxifen citrate	2250
2,3,7,8-tetrachlorodibenzo-*p*-dioxin	366
2,3,7,8-tetrachlorodibenzo-*p*-dioxin	377

NCI Monkey experiments, papers 2003 and 2004 (Adamson,ossc,129-156;1982/Thorgeirsson 1994/Dalgard 1997/Thorgeirsson&Seiber pers.comm.):

Chemical
2-acetylaminofluorene
2,7-acetylaminofluorene
adriamycin
aflatoxin B_1
arsenate, sodium
azathioprine
cycasin and methylazoxymethanol acetate
cyclamate, sodium
cyclophosphamide
DDT
N,*N*-dimethyl-4-aminoazobenzene
IQ
melphalan
3´-methyl-4-dimethylaminoazobenzene
N-methyl-*N*´-nitro-*N*-nitrosoguanidine
3-methylcholanthrene
N-nitroso-*N*-methylurea
N-nitrosodiethylamine
N-nitrosodimethylamine
N-nitrosodipropylamine
N-nitrosopiperidine
procarbazine.HCl
saccharin, sodium
sterigmatocystin
urethane