

Literature-based cheminformatics for research in chemical toxicity

Nancy C. Baker

Leidos

Contractor to the US EPA

2019 Spring ACS Annual Meeting

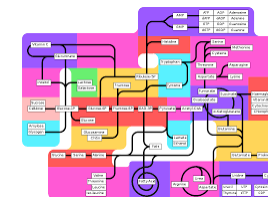
DISCLAIMER: This presentation does not necessarily reflect U.S. EPA policy.

What is literature-based cheminformatics?

- Tools to optimize literature tasks
- Why?
 - Literature is the largest source of information about chemicals and what they do
- Existing tools are amazing but not optimized to many tasks

Common chemical toxicity tasks

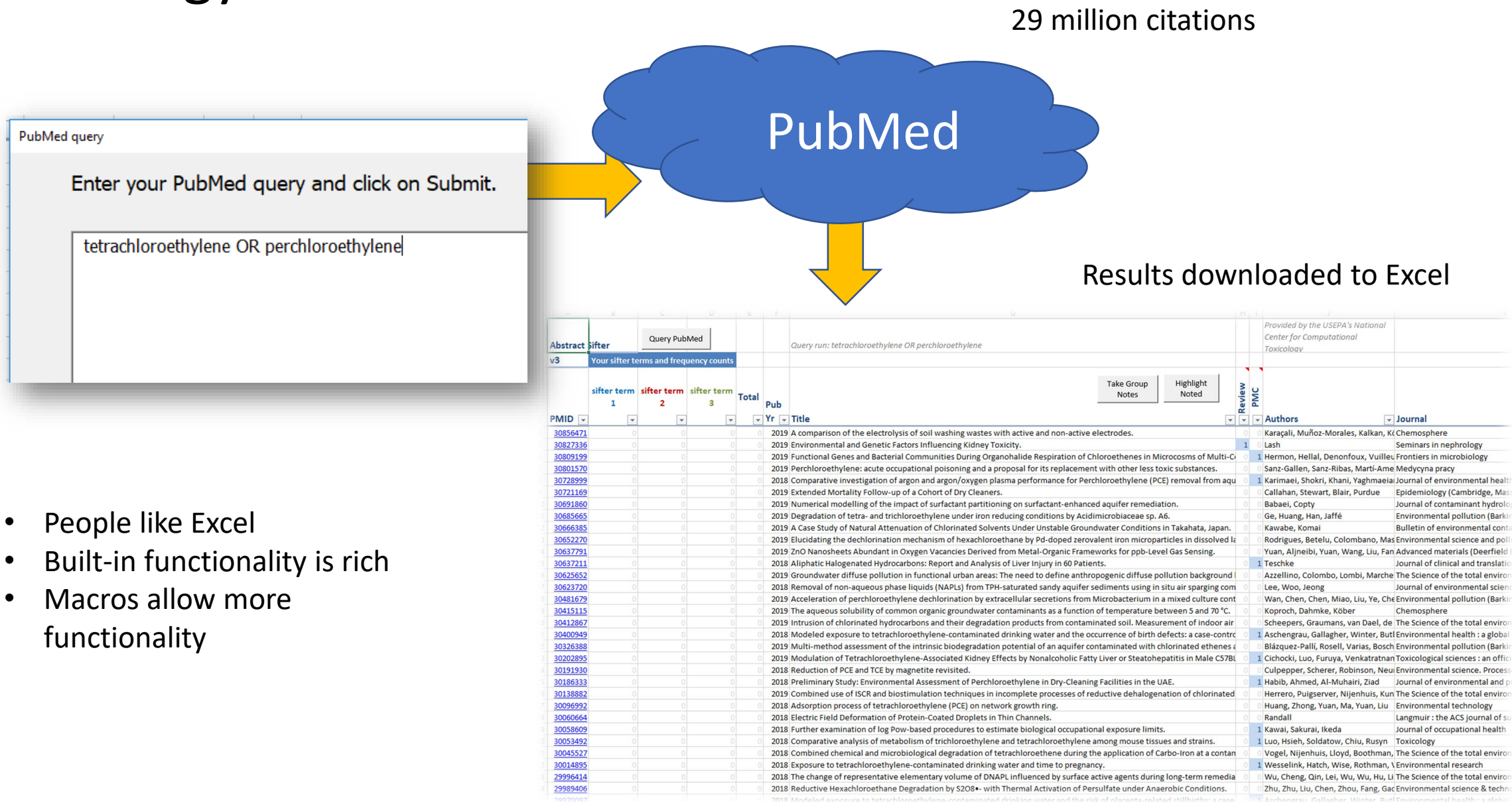
- One chemical
 - Deep dive – review literature for a chemical
 - Challenge: Can be thousands of articles, and only a few relevant
- Many chemicals
 - Overview to rank for prioritization
 - What do they have in common
- Mechanistic inquiry – by which mechanism (adverse outcome pathway) is a given chemical or set of chemicals acting
- Ad hoc quick lookup



Technology: Abstract Sifter

- In two implementations
 - Excel
 - Web version – EPA Comptox Chemicals Dashboard
- Note
 - This presentation at high-level
 - Detailed documentation available
 - Including user guide
 - Video tutorials
- Both tools publicly available now

Strategy



- People like Excel
- Built-in functionality is rich
- Macros allow more functionality

What
Excel
allows
us to
do

	A	B	C	D	E	F	G	H	I	J	K
1	Abstract	sifter	Query PubMed				Query run: tetrachloroethylene OR perchloroethylene			Provided by the USEPA's National Center for Computational Toxicology	
2	v3	Your sifter terms and frequency counts									
		sifter term 1	sifter term 2	sifter term 3	Total	Pub		Take Group Notes	Highlight Noted	Review PMC	
3	PMID					Yr	Title			Authors	Journal
4	30856471	0	0	0	0	2019	A comparison of the electrolysis of soil washing wastes with active and non-active electrodes.			Karaçali, Muñoz-Morales, Kalkan, K	Chemosphere
5	30827336	0	0	0	0	2019	Environmental and Genetic Factors Influencing Kidney Toxicity.			Lash	Seminars in nephrology
6	30809199	0	0	0	0	2019	Functional Genes and Bacterial Communities During Organohalide Respiration of Chloroethenes in Microcosms of Multi-C			Hermon, Hellal, Denonfoux, Vuilleu	Frontiers in microbiology
7	30801570	0	0	0	0	2019	Perchloroethylene: acute occupational poisoning and a proposal for its replacement with other less toxic substances.			Sanz-Gallen, Sanz-Ribas, Marti-Ame	Medycyna pracy
8	30728999	0	0	0	0	2018	Comparative investigation of argon and argon/oxygen plasma performance for Perchloroethylene (PCE) removal from aqu			Karimaei, Shokri, Khani, Yaghmaei	Journal of environmental health s
9	30721169	0	0	0	0	2019	Extended Mortality Follow-up of a Cohort of Dry Cleaners.			Callahan, Stewart, Blair, Purdue	Epidemiology (Cambridge, Mass.)
10	30691860	0	0	0	0	2019	Numerical modelling of the impact of surfactant partitioning on surfactant-enhanced aquifer remediation.			Babaei, Copty	Journal of contaminant hydrology
11	30685665	0	0	0	0	2019	Degradation of tetra- and trichloroethylene under iron reducing conditions by Acidimicrobiaceae sp. A6.			Ge, Huang, Han, Jaffé	Environmental pollution (Barking,
12	30666385	0	0	0	0	2019	A Case Study of Natural Attenuation of Chlorinated Solvents Under Unstable Groundwater Conditions in Takahata, Japan.			Kawabe, Komai	Bulletin of environmental contam
13	30652270	0	0	0	0	2019	Elucidating the dechlorination mechanism of hexachloroethane by Pd-doped zerovalent iron microparticles in dissolved la			Rodrigues, Betelu, Colombano, Mas	Environmental science and polluti
14	30637791	0	0	0	0	2019	ZnO Nanosheets Abundant in Oxygen Vacancies Derived from Metal-Organic Frameworks for ppb-Level Gas Sensing.			Yuan, Aljneibi, Yuan, Wang, Liu, Fan	Advanced materials (Deerfield Be
15	30637211	0	0	0	0	2018	Aliphatic Halogenated Hydrocarbons: Report and Analysis of Liver Injury in 60 Patients.			Teschke	Journal of clinical and translationa
16	30625652	0	0	0	0	2019	Groundwater diffuse pollution in functional urban areas: The need to define anthropogenic diffuse pollution background l			Azzellino, Colombo, Lombi, Marche	The Science of the total environm
17	30623720	0	0	0	0	2018	Removal of non-aqueous phase liquids (NAPLs) from TPH-saturated sandy aquifer sediments using in situ air sparging com			Lee, Woo, Jeong	Journal of environmental science :
18	30481679	0	0	0	0	2019	Acceleration of perchloroethylene dechlorination by extracellular secretions from Microbacterium in a mixed culture cont			Wan, Chen, Chen, Miao, Liu, Ye, Che	Environmental pollution (Barking,
19	30415115	0	0	0	0	2019	The aqueous solubility of common organic groundwater contaminants as a function of temperature between 5 and 70 °C.			Koproch, Dahmke, Köber	Chemosphere
20	30412867	0	0	0	0	2019	Intrusion of chlorinated hydrocarbons and their degradation products from contaminated soil. Measurement of indoor air			Scheepers, Graumans, van Dael, de	The Science of the total environm
21	30400949	0	0	0	0	2018	Modeled exposure to tetrachloroethylene-contaminated drinking water and the occurrence of birth defects: a case-control			Aschengrau, Gallagher, Winter, Butl	Environmental health : a global ac
22	30326388	0	0	0	0	2019	Multi-method assessment of the intrinsic biodegradation potential of an aquifer contaminated with chlorinated ethenes a			Blázquez-Pallí, Rosell, Varias, Bosch	Environmental pollution (Barking,
23	30202895	0	0	0	0	2019	Modulation of Tetrachloroethylene-Associated Kidney Effects by Nonalcoholic Fatty Liver or Steatohepatitis in Male C57BL			Cichocki, Luo, Furuya, Venkatratnan	Toxicological sciences : an official



Find very specific
text through sifting
(Main sheet)



Take notes and
tag articles
(Notes sheet)



Get an
overview
(Landscape
sheet)

Main sheet – query and get results

The image shows a spreadsheet with columns A through F. An orange circle highlights the 'Query PubMed' button in the top right corner of the spreadsheet area. Overlaid on the spreadsheet is a 'PubMed query' dialog box. The dialog box contains the text 'Enter your PubMed query and click on Submit.' and a 'Submit' button. Below this, the query 'tetrachloroethylene OR perchloroethylene' is entered. A 'Continue' dialog box is also overlaid on the PubMed query dialog, asking 'Your query has found 2198 records. Do you wish to continue?' with 'Yes' and 'No' buttons. The spreadsheet data includes a table with columns for 'PMID', 'sifter term 1', 'sifter term 2', and 'sifter term 3'. The data rows show various PMIDs and their corresponding sifter terms.

PMID	sifter term 1	sifter term 2	sifter term 3
30886018	0	0	
30847966	0	0	
30737695	0	0	
30736927	0	0	
30670843	0	0	
30528580	0	0	
30528216	0	0	
30506962	0	0	
30503062	0	0	
30486750	0	0	
30486050	0	0	
30486023	0	0	
30408484	0	0	
30362660	0	0	

2018 Cytochemical patterns of the peripheral
 2018 The evil eye effect: vertical pupils are p
 2018 A new species of Crocodile Newt Tyloto
 2018 Systematic revision of the living African
 2019 Assessing impacts of precocious steroid
 2019 Scaling of major organs in hatchling fem

Lots of rows – using Sifting to find what's relevant

	A	B	C	D	E	F	G	H	I	J	
1	Abstract Sifter		Query PubMed				Query run: tetrachloroethylene OR perchloroethylene			Provided by the USEPA's National Center for Computational Toxicology	
2	v3	Your sifter terms and frequency counts									
		sifter term 1	sifter term 2	sifter term 3	Total	Pub					
3	PMID					Yr	Title		Review	PMC	Authors
4	30856471	0	0	0	0	2019	A comparison of the electrolysis of soil washing wastes with active and non-active electrodes.	0	0		Karaçali, Muñoz-Morales, Kalkan, K
5	30827336	0	0	0	0	2019	Environmental and Genetic Factors Influencing Kidney Toxicity.	1	0		Lash
6	30809199	0	0	0	0	2019	Functional Genes and Bacterial Communities During Organohalide Respiration of Chloroethenes in Microcosms of Multi-C	0	1		Hermon, Hellal, Denonfoux, Vuilleu
7	30801570	0	0	0	0	2019	Perchloroethylene: acute occupational poisoning and a proposal for its replacement with other less toxic substances.	0	0		Sanz-Gallen, Sanz-Ribas, Martí-Ame
8	30728999	0	0	0	0	2018	Comparative investigation of argon and argon/oxygen plasma performance for Perchloroethylene (PCE) removal from aqu	0	1		Karimaei, Shokri, Khani, Yaghmaei
9	30721169	0	0	0	0	2019	Extended Mortality Follow-up of a Cohort of Dry Cleaners.	0	0		Callahan, Stewart, Blair, Purdue
10	30691860	0	0	0	0	2019	Numerical modelling of the impact of surfactant partitioning on surfactant-enhanced aquifer remediation.	0	0		Babaei, Copty
11	30685665	0	0	0	0	2019	Degradation of tetra- and trichloroethylene under iron reducing conditions by Acidimicrobiaceae sp. A6.	0	0		Ge, Huang, Han, Jaffé
12	30666385	0	0	0	0	2019	A Case Study of Natural Attenuation of Chlorinated Solvents Under Unstable Groundwater Conditions in Takahata, Japan.	0	0		Kawabe, Komai
13	30652270	0	0	0	0	2019	Elucidating the dechlorination mechanism of hexachloroethane by Pd-doped zerovalent iron microparticles in dissolved la	0	0		Rodrigues, Betelu, Colombano, Mas
14	30637791	0	0	0	0	2019	ZnO Nanosheets Abundant in Oxygen Vacancies Derived from Metal-Organic Frameworks for ppb-Level Gas Sensing.	0	0		Yuan, Aljneibi, Yuan, Wang, Liu, Fan
15	30637211	0	0	0	0	2018	Aliphatic Halogenated Hydrocarbons: Report and Analysis of Liver Injury in 60 Patients.	0	1		Teschke
16	30625652	0	0	0	0	2019	Groundwater diffuse pollution in functional urban areas: The need to define anthropogenic diffuse pollution background	0	0		Azzellino, Colombo, Lombi, Marche
17	30623720	0	0	0	0	2018	Removal of non-aqueous phase liquids (NAPLs) from TPH-saturated sandy aquifer sediments using in situ air sparging com	0	0		Lee, Woo, Jeong
18	30481679	0	0	0	0	2019	Acceleration of perchloroethylene dechlorination by extracellular secretions from Microbacterium in a mixed culture cont	0	0		Wan, Chen, Chen, Miao, Liu, Ye, Che
19	30415115	0	0	0	0	2019	The aqueous solubility of common organic groundwater contaminants as a function of temperature between 5 and 70 °C.	0	0		Koproch, Dahmke, Köber
20	30412867	0	0	0	0	2019	Intrusion of chlorinated hydrocarbons and their degradation products from contaminated soil. Measurement of indoor air	0	0		Scheepers, Graumans, van Dael, de
21	30400949	0	0	0	0	2018	Modeled exposure to tetrachloroethylene-contaminated drinking water and the occurrence of birth defects: a case-contr	0	1		Aschengrau, Gallagher, Winter, Butl

2198 citations downloaded
in 35 seconds

Sifter terms to find things fast

	A	B	C	D	E	F	G
1	Abstract Sifter		Query PubMed			Query run	
2	v3	Your sifter terms and frequency counts					
		dose	mg/kg	ppm	Total	Pub	
3	PMID				Yr	Title	
4	12778199	35	2	0	37	1983	Carcinog
5	12778204	26	0	0	26	1983	Carcinog
6	12748687	20	4	1	25	1986	NTP Toxi
7	11803702	17	13	0	30	1999	NTP tech
8	12844153	15	4	0	19	1977	Bioassay
9	12209189	10	0	11	21	1993	NTP tech
10	28973375	10	2	0	12	2017	Editor's F
11	12748718	9	0	11	20	1986	NTP Toxi
12	17267091	9	1	0	10	2007	Impact o
13	8870953	8	3	0	11	1996	Bone ma
14	7783250	8	3	0	11	1995	A multid
15	16291521	8	0	0	8	2005	Physiolo
16	24910396	7	0	0	7	2014	Differen

If looking for animal studies ... try:

Rats
Mice
Toxic
Liver
Hepato
Brain
Lung

Enter terms (strings of characters) of interest in the Sifter cells.

Automatically the Sifter counts the occurrences of that term in the title, abstract, and key words.

Here Excel built-in sorting and filtering is really useful!

Double-click on row to see the abstract

A		B		D
1	Abstract with highlights	<div><div><-- Main</div><div>Add Note</div><div>See Notes --></div><div>Like this?</div></div>		
2	Article:	12844153		PubYr
4	Title:	Bioassay of tetrachloroethylene for possible carcinogenicity.		1977
	Title and Abstract:	<p>Bioassay of tetrachloroethylene for possible carcinogenicity. Abstract: Title: The bioassay of U.S.P.-grade tetrachloroethylene for possible carcinogenicity was conducted using Osborne-Mendel rats and B6C3F1 mice. Tetrachloroethylene in corn oil was administered by gavage at either of two dosages to groups of 50 male and 50 female animals of each species, 5 days a week, over a period of 78 weeks followed by an observation period of 32 weeks for rats and 12 weeks for mice. Initial dosage levels for the chronic bioassay were selected on the basis of a preliminary subchronic toxicity test. Subsequent dosage adjustments were made during the course of the chronic bioassay. The high and low time-weighted average dosages of tetrachloroethylene in the chronic study were 941 and 471 mg/kg/day for the male rats, 949 and 474 mg/kg/day for the female rats, 1,072 and 536 mg/kg/day for the male mice, and 772 and 386 mg/kg/day for the female mice. For each species, 20 animals of each sex were placed on test as vehicle controls. These animals were gavaged with corn oil at the same time that dosed animals were gavaged with tetrachloroethylene mixtures. Twenty animals of each sex were placed on test as untreated controls for each species. These animals received no gavage treatments. No significant increased incidence of neoplastic lesions was observed in treated rats. In both dosed and control rats, respiratory disease was observed with increasing frequency for the latter part of the first year until termination of the bioassay. Lesions indicative of pneumonia were observed in nearly all rats at necropsy. A high incidence of toxic nephropathy was observed in treated rats. Toxic nephropathy was noted in rats that died early in the study (as early as week 20 for male rats and week 28 for female rats). Mortality of rats was dose-related. Fifty percent of the high dose males had died by week 44 and 50 percent of the high dose females had died by week 66. In both male and female mice, administration of tetrachloroethylene was associated with a significantly increased incidence of hepatocellular carcinoma. Hepatocellular carcinomas were observed in 2/17 (12 percent) untreated control males, 2/20 (10 percent) vehicle control males, 32/49 (65 percent) low dose males, 27/48 (56 percent) high dose males, 2/20 (10 percent) untreated control females, 0/20 vehicle control females, 19/48 (40 percent) low dose females, and 19/48 (40 percent) high dose females. Hepatocellular carcinomas metastasized to the kidney in one untreated control male and to the lung in three low dose males, one low dose female, and one high dose female. Toxic nephropathy, similar to that observed in rats, was also observed in treated but not control mice. Fisher exact tests indicated a highly significant increased incidence of</p>		

Colorization makes it easy to read.

Sifting – to find things Not of interest

A		A	B	C	D	E	F	G
1	Abstract Sifter	1	Abstract Sifter	Query PubMed				Query run: tetrachloroethylene OR perchloroethylene
2	v3	2	v3	Your sifter terms and frequency counts				
3	PMID	3	PMID	tetrachlo	dose	dechlor	Total	Pub Title
4	20044880	10	10664879	13	0	2	15	1999 Tetrachloroethene-dehalogenating bacteria.
12	24659585	11	26766361	12	0	1	13	2016 The effects of co-contaminants and native wetland sediments on the
18	3415356	20	9385143	10	0	4	14	1997 Comparative studies on tetrachloroethene reductive dechlorination
23	10735522	27	23995945	9	0	2	11	2013 Functional genotyping of Sulfurospirillum spp. in mixed cultures allo
28	18949603	38	12831046	8	0	13	21	2003 Reductive dechlorination of carbon tetrachloride and tetrachloroethy
35	21218043	40	8663199	8	0	2	10	1996 Purification and characterization of tetrachloroethene reductive deh
37	2604842	60	15959725	7	0	5	12	2005 Biochemical and molecular characterization of a tetrachloroethene d
43	21292730	61	11995827	7	0	3	10	2001 Product distribution during transformation of multiple contaminants
58	2284811	62	11976751	7	0	1	8	2002 Tetrachloroethene reductive dehalogenase of Dehalospirillum multi
107	2614324	64	9082914	7	0	3	10	1996 Studies on tetrachloroethene respiration in Dehalospirillum multivoi
109	2555973	67	2403257	7	0	4	11	1990 Tetrachloroethene transformation to trichloroethene and cis-1,2-dicl
110	434285	68	6859849	7	0	1	8	1983 Transformations of 1- and 2-carbon halogenated aliphatic organic con
117	19298226	76	10797233	6	0	5	11	2000 ATR-FTIR sensor development for continuous on-line monitoring of c
128	17113267	83	22961902	6	0	1	7	2012 Impact of vitamin B12 on formation of the tetrachloroethene reducti
161	16451857	84	22503214	6	0	1	7	2012 Successful microcosm demonstration of a strategy for biodegradati
166	8618253	85	22115467	6	0	12	18	2012 Dechlorination of chlorinated hydrocarbons by bimetallic Ni/Fe imm
169	2626148	86	21243405	6	0	8	14	2011 Reductive dechlorination of tetrachloroethene by a stepwise catalysi
190	3424996	92	16715399	6	0	3	9	2006 Anaerobic bioremediation of groundwater containing a mixture of 1,
201	7205186	93	15984786	6	0	5	11	2005 Enhanced dechlorination of chlorinated methanes and ethenes by ch
203	2131978	94	15746376	6	0	3	9	2005 Characterization of hydrogenase and reductive dehalogenase activiti
208	15666472	97	12708306	6	0	4	10	2003 [Degradation of volatile chlorinated aliphatics by zero-valent iron].
241	2131979	103	9171062	6	0	3	9	1997 Isolation of a bacterium that reductively dechlorinates tetrachloroetl

Keeping track of what you find

- Notes
- Adds rows to the Notes sheet

Taking notes

First select the rows

Then click here

	A	B	C	D	E	F	G	H	I	J
1	Abstract Sifter	Query PubMed					Query run: tetrachloroethylene OR perchloroethylene			Provided by the US Center for Computational Toxicology
2	v3	Your sifter terms and frequency counts								
		tetrachloro	dose	rat	Total	Pub				
3	PMID				Yr	Title				Authors
4	12748718	25	9	20	54	1986 NTP Toxicology and Carcinogenesis Studies of Tetrachloroethylene (Perchloroethylene) (CAS No. 127-18-4) in F344/N Rats	0	0		
5	7131586	14	4	1	19	1982 Cardiopulmonary toxicity of tetrachloroethylene.	0	0		Kobayashi, Hutche
7	15147	13	1	1	15	1976 [Metabolism of tetrachloroethylene in guinea pigs (author's transl)].	0	0		Sakamoto
11	7726643	11	6	7	24	1995 Induction of rat liver drug-metabolizing enzymes by tetrachloroethylene.	0	0		Hanioka, Jinno, Toy
20	3296316	9	2	4	15	1986 Differences in rat liver enzyme-altered foci produced by chlorinated aliphatics and phenobarbital.	1	0		Story, Meierhenry,
21	6874093	9	1	0	10	1983 Health surveillance of workers exposed to tetrachloroethylene in dry-cleaning shops.	0	0		Lauwerys, Herbran
25	12778199	8	35	18	61	1983 Carcinogenesis Studies of 1,1,1,2-Tetrachloroethane (CAS: 630-20-6) in F344/N Rats and B6C3F1 Mice (Gavage Studies).	0	0		
26	12844153	8	15	15	38	1977 Bioassay of tetrachloroethylene for possible carcinogenicity.	0	0		
27	2361581	8	2	4	14	1990 Dose-dependent cytotoxicity of chlorinated hydrocarbons in isolated rat hepatocytes.	0	0		Dahlström-King, Co
28	4057308	8	1	0	9	1985 Acute tetrachloroethylene poisoning--blood elimination kinetics during hyperventilation therapy.	0	0		Köppel, Arndt, Arei
29	6857689	8	1	5	14	1983 Tetrachloroethylene: balance and tissue distribution in male Sprague-Dawley rats by drinking-water administration.	0	0		Frantz, Watanabe
40	19892777	7	2	0	9	2010 DNA damage detected by the alkaline comet assay in the liver of mice after oral administration of tetrachloroethylene.	0	0		Cederberg, Henriks
41	8215591	7	1	1	9	1993 Cancer risk and tetrachloroethylene-contaminated drinking water in Massachusetts.	0	0		Aschengrau, Ozonc
42	4096155	7	1	1	9	1985 [Tetrachloroethylene: effect of low concentrations of 1,1,2,2-tetrachloroethylene (perchloroethylene) on organisms in the	0	0		Marth, Stünzner, Bi
55	3732662	6	6	8	20	1986 The subchronic toxicity of tetrachloroethylene (perchloroethylene) administered in the drinking water of rats.	0	0		Hayes, Condie, Bor
56	2586542	6	2	0	8	1989 Clastogenicity evaluation of seven chemicals commonly found at hazardous industrial waste sites.	0	0		Sandhu, Ma, Peng,
57	1828122	6	1	3	10	1991 Potentiating effects of chlorinated hydrocarbons on carbon tetrachloride toxicity in isolated rat hepatocytes and plasma m	0	0		Kefalas, Stacey
58	3113093	6	1	0	7	1987 Effects of trichloroethylene, tetrachloroethylene and dichloromethane on soil biomass and microbial counts.	0	0		Kanazawa, Filip
84	8459786	5	2	4	11	1993 Assessment of behavioral effects of tetrachloroethylene using a set of time-series analyses.	0	0		Motohashi, Miyaza
85	2124380	5	2	4	11	1990 Chronic inhalation effects of tetrachloroethylene on hepatic and renal microsomal electron transport components and del	0	0		Soni, Nomiya, N
86	12948058	5	1	0	6	2003 H2 consumption during the microbial reductive dehalogenation of chlorinated phenols and tetrachloroethene.	0	0		Mazur, Jones, Tebe
87	12868798	5	1	0	6	2002 Concordance across species in the reproductive and developmental toxicity of tetrachloroethylene.	1	0		Beliles

Enter tag, note, color flag. Notes and tags are whatever you want them to be.

Abstract Sifter

Query PubMed

Query run: tetrachloroethylene OR perchloroethylene

view

MC

	A	B	C	D	E	F	G	H	I	J
1	Abstract Sifter	Query PubMed					Query run: tetrachloroethylene OR perchloroethylene			Provided by the USEPA's National Center for Computational Toxicology
2	v3	Your sifter terms and frequency counts								
3	PMID	tetrachloro	dose	rat	Total	Pub Yr	Title			
4	12748718	25	9	20	54	1986	NTP Toxicology			
5	7131586	14	4	1	19	1982	Cardiopulmonary			
7	15147	13	1	1	15	1976	[Metabolism of			
11	7726643	11	6	7	24	1995	Induction of rat			
20	3296316	9	2	4	15	1986	Differences in			
21	6874093	9	1	0	10	1983	Health surveill			
25	12778199	8	35	18	61	1983	Carcinogenesis			
26	12844153	8	15	15	38	1977	Bioassay of tet			
27	2361581	8	2	4	14	1990	Dose-depende			
28	4057308	8	1	0	9	1985	Acute tetrachlo			
29	6857689	8	1	5	14	1983	Tetrachloroeth			
40	19892777	7	2	0	9	2010	DNA damage d			
41	8215591	7	1	1	9	1993	Cancer risk and			
42	4096155	7	1	1	9	1985	[Tetrachloroet			
55	3732662	6	6	8	20	1986	The subchronic			
56	2586542	6	2	0	8	1989	Clastogenicity			
57	1828122	6	1	3	10	1991	Potentiating ef			
58	3113093	6	1	0	7	1987	Effects of trich			
84	8459786	5	2	4	11	1993	Assessment of			
85	2124380	5	2	4	11	1990	Chronic inhalation effects of tetrachloroethylene on hepatic and renal microsomal electron transport components and del	0	0	Soni, Nomiya, Nomiya
86	12948058	5	1	0	6	2003	H2 consumption during the microbial reductive dehalogenation of chlorinated phenols and tetrachloroethene.	0	0	Mazur, Jones, Tebes-Steven

GroupNotes

Enter a comment or note for the selected articles:

Tag:

Rat dose studies

Note:

Tags and Notes are whatever you want them to be.

☒ Yes
 ☐ No
 ☐ Maybe

OK

What the Notes sheet looks like ...

A		B	C	D	F		G	H	I		J	K	N
My Notes							<--Back		Highlight Noted PMIDs	Export	Note: Feel free to delete rows after Row 2, but not columns. Some sample Notes may be displayed.		
		yes	no	maybe									
PMID				Tag	Note	PubYr	Title	Authors	Journal	When Noted			
3732662	1	0	0	Rat dose studies		1986	The subchronic toxicity of tetrachloroethylene (perchloroethylene) administered in the drinking water	Hayes, Condie, Borzelleca	Fundamental and applied toxicology	3/19/2019 15:03			
8459786	1	0	0	Rat dose studies		1993	Assessment of behavioral effects of tetrachloroethylene using a set of time-series analyses.	Motohashi, Miyazaki, Takano	Neurotoxicology and teratology	3/19/2019 15:03			
2124380	1	0	0	Rat dose studies		1990	Chronic inhalation effects of tetrachloroethylene on hepatic and renal microsomal electron transport	Soni, Nomiya, Nomiya	Toxicology letters	3/19/2019 15:03			
12778199	1	0	0	Rat dose studies		1983	Carcinogenesis Studies of 1,1,1,2-Tetrachloroethane (CAS: 630-20-6) in F344/N Rats and B6C3F1 Mice (Gavage Studies).		National Toxicology Program technical report	3/19/2019 15:03			
12844153	1	0	0	Rat dose studies		1977	Bioassay of tetrachloroethylene for possible carcinogenicity.		National Cancer Institute carcinogenesis studies	3/19/2019 15:03			

	A	B	C	D	E	F	G	H	I
1	Abstract Sifter		Query PubMed				Query run: tetrachloroethylene OR perchloroethylene		Provided by Center for Toxicology
2	v3	Your sifter terms and frequency counts							
		tetrachloro	dose	dry-clean	Total	Pub		Take Group Notes	Highlight Noted
3	PMID					Yr	Title	Review	PMC
4	11911491	1	7	0	8	2002	Chronic toxicity of a mixture of chlorinated alkanes and alkenes in ICR mice.	0	0
5	19464572	2	6	0	8	2009	Contribution of trichloroacetic acid to liver tumors observed in perchloroethylene (perc)-exposed mice.	0	0
6	30202895	2	5	0	7	2019	Modulation of Tetrachloroethylene-Associated Kidney Effects by Nonalcoholic Fatty Liver or Steatohepatitis in Male C57BL/6J Mice.	1	0
7	19101834	1	2	0	3	2008	Final report on the safety assessment of Trichloroethane.	0	0
8	28148637	4	1	0	5	2017	Impact of Nonalcoholic Fatty Liver Disease on Toxicokinetics of Tetrachloroethylene in Mice.	1	0
9	12778199	8	35	0	43	1983	Carcinogenesis Studies of 1,1,1,2-Tetrachloroethane (CAS: 630-20-6) in F344/N Rats and B6C3F1 Mice (Gavage Studies).	0	0
10	12844153	8	15	0	23	1977	Bioassay of tetrachloroethylene for possible carcinogenicity.	0	0
11	2361581	8	2	0	10	1990	Dose-dependent cytotoxicity of chlorinated hydrocarbons in isolated rat hepatocytes.	0	0
12	3732662	6	6	0	12	1986	The subchronic toxicity of tetrachloroethylene (perchloroethylene) administered in the drinking water of rats.	0	0
13	8459786	5	2	0	7	1993	Assessment of behavioral effects of tetrachloroethylene using a set of time-series analyses.	0	0
14	2124380	5	2	0	7	1990	Chronic inhalation effects of tetrachloroethylene on hepatic and renal microsomal electron transport components and del	0	0
15	7992032	2	0	11	13	1994	Indoor exposure to perchloroethylene (PCE) in individuals living with dry-cleaning workers.	0	0
16	11843196	2	0	10	12	2002	An evaluation of retrofit engineering control interventions to reduce perchloroethylene exposures in commercial dry-clea	0	0
17	28085652	0	0	9	9	1999	Residual Perchloroethylene in Dry-Cleaned Acetate: The Effect of Pressing and Extent of Inter-Dry-Cleaner Variability.	0	0
18	22538166	2	0	8	10	2012	Colloidal interactions in liquid CO2--a dry-cleaning perspective.	1	0
19	1824329	10	0	7	17	1991	Effect of dry-cleaned clothes on tetrachloroethylene levels in indoor air, personal air, and breath for residents of several N	0	0
20	19298226	5	0	7	12	2009	A first French assessment of population exposure to tetrachloroethylene from small dry-cleaning facilities.	0	0
21	11843197	2	0	7	9	2002	Effects of retrofit emission controls and work practices on perchloroethylene exposures in small dry-cleaning shops.	0	0
22	2924758	4	0	6	10	1989	Residual tetrachloroethylene in dry-cleaned clothes.	0	0
23	9353538	14	0	5	19	1996	Internal and external tetrachloroethene exposure of persons living in differently polluted areas of Northrhine-Westphalia	0	0
24	30186333	2	0	5	7	2018	Preliminary Study: Environmental Assessment of Perchloroethylene in Dry-Cleaning Facilities in the UAE.	1	0
25	21898565	2	0	5	7	2011	Quantification of perchloroethylene residues in dry-cleaned fabrics.	0	0
26	23898811	0	1	5	6	2000	Kidney and liver biomarkers in female dry-cleaning workers exposed to perchloroethylene.	0	0

Highlighted:

Helps with article triage: what have I evaluated ... what did I think.

Demo Case study

- (Pretend) use case was to identify rodent dose studies and categorize all

Summary : fast and easy way to triage and organize the literature on a chemical.

- Pivot table built from Notes sheet to summarize

	A	B	C	D	E
1	Tetrachloroethylene/perchloroethylene triage				
2					
3	Tag	Maybe	No	Yes	
4	Breathing/air	8	0	0	
5	Chemistry	0	142	0	
6	Cytotox	7	0	0	
7	Dechlorination	0	99	0	
8	Degradation	0	348	0	
9	Dry cleaning	0	227	0	
10	Embryotoxicity	1	0	0	
11	Exposure	0	123	0	
12	General effects	4	0	0	
13	Groundwater	0	45	0	
14	Identification	0	10	0	

22	Not English	0	249	0	
23	Occupational	0	106	0	
24	PBPK	10	0	0	
25	Rats	0	0	127	
26	Rats/mice	0	0	1	
27	Remediation	0	85	0	
28	Soil	0	16	0	
29	Testing	1	0	0	
30	Ther use	0	7	0	
31	Various	0	75	0	
32	Water	2	0	0	
33	Grand Total	89	1866	243	2198
34					

Common chemical toxicity tasks

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 - Challenge: Can be thousands of articles, and only a few relevant
- Many chemicals
 - Overview to rank for prioritization
 - What do they have in common
- Mechanistic inquiry – by which mechanism (adverse outcome pathway) is a given chemical or set of chemicals acting
- Ad hoc quick lookup

Landscape Sheet

	B	C	I	J
1	Landscape View			
2		<div>Update Article Counts</div>	<div>View / hide queries</div>	<div>Heat Map by column</div> <div>Heat Map by row</div>
3			zebrafish AND behavior	occupational exposure
4		Subject queries:	zebrafish / behavior	occ expo
5	Preferred Name	Chemical / Entity query		
6	PERC/PCE/perchloroethylene	Tetrachloroethylene[majr]	0	153
7	Tripropylene glycol	Tripropylene glycol OR 24800-44-0	0	5
8	Tetrachlorophthalic anhydride	Tetrachlorophthalic anhydride	0	8
9	Phthalic anhydride	Phthalic anhydride		
10	Linalool	Linalool		
11	Toluene 2,4-Diisocyanate	Toluene 2,4-Diisocyanate	0	361
12	TBBPA	Tetrabromobisphenol A OR TBBPA	9	21
13	TPHP	Triphenyl phosphate	5	17
14	BDE-100	2,2',4,4',6-Pentabromodiphenyl ether OR BDE-100 OR 189024-64-8	8	31
15				

(Toluene 2,4-Diisocyanate) AND (occupational exposure)

Sample queries sheet

	A	B	D
1	Sample Queries		Send queries to Landscape
2			<i>Note: these are starting points ... please expand and customize</i>
3	Category	Heading	Query (double-click to see how the query looks to PubMed)
4	Ecological	Algae	"algal bloom" OR eutrophication OR algae)
5	Epidemiology	Epi	epidemiology
6	Exposure	Dust exposure	environmental exposure AND dust
7	Exposure	Food exposure	environmental exposure AND food
8	Exposure	Water exposure	environmental exposure AND (water OR groundwater OR drinking water)
9	Emergency/disaster	Emergency / disaster	(emergency OR spill OR disaster or hurricane OR flood OR explosion OR forest fire OR wildfire OR climate ch
10	Mechanism	Oxidative stress	"oxidative stress" OR "free radicals" OR "reactive oxygen species" OR peroxides
11	Metabolism	Metabolism	(metabolism OR metabolite OR tissue distribution OR pharmacokinetics OR pharmacodynamics)
12	Methods	Analytical chemistry	"Chemistry Techniques, Analytical" OR analytical chemistry
13	Methods	Statistical	Statistics as Topic[mh] OR statistics OR statistical
14	Methods	In vitro	In Vitro Techniques[mh] OR cell culture or "in vitro"
15	Mixtures	Mixtures	(Drug synergism[mh] OR cocarcinogenesis OR pesticide synergists[mh] OR mixture[tiab] OR mixtures[tiab]
16	Medicine	Clinical trials	((clinical[Title/Abstract] AND trial[Title/Abstract]) OR clinical trial[Publication Type])
17	Medicine	Clinical trials in children	((children OR child OR infants) AND human) AND ((clinical[Title/Abstract] AND trial[Title/Abstract]) OR clini
18	Medicine	Obesity	(obesity OR obese OR adipose OR overweight Or adipogenesis OR adipose tissue)
19	Toxicity	Genetox	(dna/drug effects OR DNA Damage OR chromosome aberrations OR genotoxicity OR micronucleus OR DNA
20	Toxicity	Cancer	neoplasms or cancer
21	Toxicity	ReproTox	(reproduction AND (toxicity OR abnormal OR adverse effects))
22	Toxicity	NeuroTox	(neurotoxicity OR (Nervous system diseases and chemically induced) OR ((neurons OR brain OR behavior) A
23	Toxicity	DevTox	(toxicity OR congenital abnormalities OR Prenatal Exposure Delayed Effects) AND (fetus OR embryo OR emb
24	Toxicity	Skin sensitization	("allergic" AND "contact" And dermatitis) OR Dermatitis, Allergic Contact[mh]
25	Toxicity	Respiratory sensitisation	(Respiratory hypersensitivity OR respiratory sensitization OR Bronchial Hyperreactivity OR Respiration Diso
26	Use	Pharmaceutical	"therapeutic use" OR "therapeutic use"[subheading]" OR pharmacologic actions[mh] OR drug therapy
27	Use	Pesticide	pesticide OR insecticide OR rodenticide OR fungicide

To use sample queries

	A	B	D
1	Sample Queries		<i>Note: these are starting points ... please expand and customize</i>
2			
3	Category	Heading	Query (double-click to see how the query looks to PubMed)
16	Medicine	Clinical trials	((clinical[Title/Abstract] AND trial[Title/Abstract]) OR clinical trial[Publication Type])
17	Medicine	Clinical trials in children	((children OR child OR infants) AND human) AND ((clinical[Title/Abstract] AND trial[Title/Abstract]) OR clinical trial[Publication Type])
18	Medicine	Obesity	(obesity OR obese OR adipose OR overweight OR adipogenesis OR adipose tissue)
19	Toxicity	Genetox	(dna/drug effects OR DNA Damage OR chromosomal damage OR DNA Repair OR mutagenesis)
20	Toxicity	Cancer	neoplasms or cancer
21	Toxicity	ReproTox	(reproduction AND (toxicity OR abnormal OR adverse effects))
22	Toxicity	NeuroTox	(neurotoxicity OR (Nervous system diseases and chemical effects)) AND drug effects)
23	Toxicity	DevTox	(toxicity OR congenital abnormalities OR Prenatal Developmental Effects OR embryonic development)
24	Toxicity	Skin sensitization	("allergic" AND "contact" AND dermatitis) OR Dermatitis
25	Toxicity	Respiratory sensitisation	(Respiratory hypersensitivity OR respiratory sensitization OR Bronchial Hyperreactivity OR Respiration Disorders OR Respiratory Diseases)
26	Use	Pharmaceutical	"therapeutic use" OR "therapeutic use"[subheading] OR pharmacologic actions[mh] OR drug therapy
27	Use	Pesticide	pesticide OR insecticide OR rodenticide OR fungicide
28	Use	Cosmetics	cosmetics OR beauty
29	Use	Explosive Agents	Explosive Agents OR explosive OR explosives
30	Use	Food	food OR diet OR beverage OR nutrition
31	Use	Surface-acting	Antifoaming OR Anti-foaming OR detergent OR detergents OR soap OR detergent OR surfactant
32	Use	Dye/coloring	dye OR "coloring agent" OR pigment OR pigments
33	Use	Fertilizer	fertilizer OR fertilize
34	Use	Solvents	solvents OR solvent
35			

Send queries to Landscape

First select rows of interest, then click on this button.

Get the article counts

... then click
here->

Update Article Counts		View / hide queries	Heat Map by column	Heat Map by row						
					effects OR DNA Damage OR chromosome aberrations OR genotoxicity OR micronucl	neoplasms or cancer	(reproduction AND (toxicity OR abnormal OR adverse effects))	city OR (Nervous system diseases and chemically induced) OR ((neurons OR brain OR	OR congenital abnormalities OR Prenatal Exposure Delayed Effects) AND (fetus OR embryo	("allergic" AND "contact" And dermatitis) OR Dermatitis , Allergic Contact[mh]
Subject queries:										
Chemical / Entity query					Genetox	Cancer	ReproTox	NeuroTox	DevTox	Skin sensitization
▼					▼	▼	▼	▼	▼	▼
Tetrachloroethylene[majr]										
Tripropylene glycol OR 24800-44-0										
Tetrachlorophthalic anhydride										
Phthalic anhydride										
Linalool										
Toluene 2,4-Diisocyanate										
Tetrabromobisphenol A OR TBBPA										
Triphenyl phosphate										
2,2',4,4',6-Pentabromodiphenyl ether OR BDE-100 OR 189084-64-8										

First select the
cells of interest ...

Queries built and counts retrieved

Update Article Counts	View / hide queries	Heat Map by column	Heat Map by row	effects OR DNA Damage OR chromosome	(reproduct ion AND	city OR (Nervous system diseases and	OR congenital abnormalities OR Prenatal	("allergic" AND "contact" And
-----------------------	---------------------	--------------------	-----------------	-------------------------------------	--------------------	--------------------------------------	---	-------------------------------

Summary : fast and easy way to get a bird's eye view of a set of chemicals and their effects.

Chemical / Entity query	Genetox	Cancer	ReproTox	NeuroTox	DevTox	Skin sensitization
Tetrachloroethylene[majr]	42	75	38	68	14	0
Tripropylene glycol OR 24800-44-0	4	3	0	0	0	5
Tetrachlorophthalic anhydride	1	0	0	1	0	0
Phthalic anhydride	16	50	4	36	6	40
Linalool	40	52	5	153	22	47
Toluene 2,4-Diisocyanate	62	33	6	40	2	44
Tetrabromobisphenol A OR TBBPA	15	46	44	75	53	0
Triphenyl phosphate	8	11	20	25	24	3
2,2',4,4',6-Pentabromodiphenyl ether OR BDE-100 OR 189084-64-8	10	28	74	82	58	0

Common chemical toxicity tasks

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- Ad hoc quick lookup

Pathway queries sheet

From Aopwiki.org

	A	B	C	D
1	Pathway Queries			Send queries to Landscape
2				
3	Header1: Pathway	Header2: KeyEvent	or	Query (double-click to see how the query looks to PubMed)
	p43	1mie		(Vascular Endothelial Growth Factor Receptor-2 OR Vascular Endothelial Growth Factor) AND (inhibition OR inhibit OR antagonism OR inhibitor OR antagonist)
	p43	2ke		((angiogenesis OR vasculogenesis) AND (reduce OR inhibit)) OR (Neovascularization, Physiologic AND (drug effects OR toxicity))
	p43	3ke		endothelium OR endothelial AND (damage OR impair OR impairment)
	p43	4ke		Blood circulation AND (drug effects AND toxicity)

AOPs

53	aop8	1mie		(Pregnane X Receptor OR NR1I2 protein) AND (activate OR activation OR agonism)
54	aop8	2ke		((thyroid hormone OR t3 OR t4) AND (brain or cortex or hippocampus))
55	aop8	3ke		(thyroid hormone OR t3 OR t4) AND (serum or blood or plasma) and (decrease OR inhibition OR down-regulate)
56	aop8	4ke		(glucuronyltransferase AND (upregulation OR agonism OR increase))
57	aop8	5ke		(glucuronide OR glucuronides) AND (increase OR upregulat*) AND (bile OR bilary OR urine OR excrete OR urinalysis)
58	aop8	6ke		((hippocampus AND (anatomy) and (development))
59	aop8	7ke		((hippocampus AND (physiology) and (development))
60	aop8	8ao		(cochlea AND drug effects) OR (ear AND drug effects) OR (Neurons, Afferent OR auditory hair cells OR organ of corti OR lateral line system[mh]) OR
58	aop8	6ke		((hippocampus AND (anatomy) and (development))
59	aop8	7ke		((hippocampus AND (physiology) and (development))
60	aop8	8ao		(cochlea AND drug effects) OR (ear AND drug effects) OR (Neurons, Afferent OR auditory hair cells OR organ of corti OR lateral line system[mh]) OR deafness OR hearing
61	IARC-KCC1	Adducts	Ad	(protein Adducts OR dna adducts OR epoxides OR quinones OR aldehydes
62	IARC-KCC2	Cancer	Car	(cancer OR neoplasms OR precancerous OR carcinogen OR carcinoma) AND (toxicity OR poisoning OR adverse effects)
63	IARC-KCC3	Cell immort	Cel	(cell immortalization OR cell division OR hayflick limit OR Aging/genetics OR Cellular Senescence)
64	IARC-KCC4	DNA	DN	(dna/drug effects OR DNA Damage OR chromosome aberrations OR genotoxicity OR micronucleus OR mutagenicity tests OR mutagens OR mutagenicity OR mutagenic o
65	IARC-KCC5	DNA break/r	DN	(topoisomerase OR DNA Repair/drug effects OR double-strand break repair)
66	IARC-KCC6	Epigenetics	Epi	(DNA methylation OR histone modification OR Histone Code OR Chromatin Assembly and Disassembly OR microRNAs OR Epigenesis, Genetic)
67	IARC-KCC7	Immunosup	Imr	(immunosuppressive OR immune system dysfunction)
68	IARC-KCC8	Inflammatio	Infl	(inflammation OR macrophages)
69	IARC-KCC9	Oxidative sti		(effects)
70	IARC-KCC10	Proliferation		(n, Pathologic)
71	IARC-KCC11	Receptors	R	

Key characteristics of carcinogens

Let's review what's there ...

Update Article Counts	View / hide queries	Heat Map by column	Heat Map by row									
				OR congenital abnormalities OR Prenatal Exposure Delayed Effects) AND (fetus	(Pregnane X Receptor OR NR112 protein) AND (activate OR activation	((thyroid hormone OR t3 OR t4) AND (brain or cortex or	hormone OR t3 OR t4) AND (serum or blood or plasma) and (decrease OR inhibition	(glucuronyl transferase AND (upregulation OR agonism	OR glucuronides) AND (increase OR upregulation) AND (bile OR biliary OR urine OR excrete	((hippocampus AND (anatomy) and	((hippocampus AND (physiology) and	AND drug effects) OR (ear AND drug effects) OR (Neurons, Afferent OR auditory hair cells

Summary : fast and easy way to get a bird's eye view of a set of chemicals and by which mechanisms and pathways they may act.

Toluene 2,4-Diisocyanate	2	0	0	0	0	0	0	0	40
Tetrabromobisphenol A OR TBBPA	53	0	17	4	0	0	1	1	3
Triphenyl phosphate	24	2	1	1	0	0	0	0	0
2,2',4,4',6-Pentabromodiphenyl ether OR BDE-100 OR 189084-64-8	58	2	11	6	3	0	0	5	2

Overview of Devtox

Developmental ototoxicity via AOP8?

Common chemical toxicity tasks

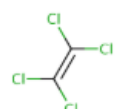
- One chemical
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EPA's other implementation of the sifter technology

EPA's Comptox Chemicals Dashboard

<https://comptox.epa.gov/dashboard>

The screenshot displays the EPA Comptox Chemicals Dashboard. The browser address bar shows the URL <https://comptox.epa.gov/dashboard>. The dashboard header includes the EPA logo and navigation links: Home, Advanced Search, Batch Search, Lists, Predictions, and Downloads. A secondary navigation bar contains various tool icons and links: My links, Wikis, Technical, PubMed, Google, Family, EMBL, 21 GIFs, ToxCast, UNC, and Chemistry Dashboard. The main content area features the EPA seal on the left and a search interface on the right. The search interface has three tabs: Chemicals (selected), Product/Use Categories, and Assay/Gene. A search bar contains the text "tetrachloroethylene". Below the search bar, two search results are visible: "Tetrachloroethylene" with DTXSID2021319 and "Tetrachloroethylene-13C1". The text "875 Thousand Chemicals" is displayed in the top right corner of the main content area.



Tetrachloroethylene

127-18-4 | DTXSID2021319

DETAILS

EXECUTIVE SUMMARY

PROPERTIES

ENV. FATE/TRANSPORT

HAZARD

► ADME

► EXPOSURE

► BIOACTIVITY

SIMILAR COMPOUNDS

GENRA (BETA)

RELATED SUBSTANCES

SYNONYMS

▼ LITERATURE

GOOGLE SCHOLAR

PUBMED ABSTRACT SIFTER

PUBCHEM ARTICLES

PUBCHEM PATENTS

PPRTV

IRIS

LINKS

COMMENTS

1) Select PubMed starting point query then 2) click on Retrieve.

Select a Query Term

Retrieve Articles

Select a Query Term

Hazard

Fate and Transport

Metabolism/PK/PD

Chemical Properties

Exposure

Mixtures

Male Reproduction

Androgen Disruption

Female Reproduction

GeneTox

Cancer

Clinical Trials

Embryo and embryonic development

Child (infant through adolescent)

Dust and Exposure

Food and Exposure

Water and Exposure

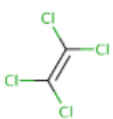
Algae

Disaster / Emergency

Abstract Sifter

Optionally, edit the query before retrieving.

"127-18-4" OR "Tetrachloroethylene"



Tetrachloroethylene
127-18-4 | DTXSID2021319
Searched by DSSTox Substance Id.

Abstract Sifter

1) Select PubMed starting point query then 2) click on Retrieve.

Exposure

Retrieve Articles

99 of 99 articles loaded...

Optionally, edit the query before retrieving.

("127-18-4" OR "Tetrachloroethylene") AND (exposure OR near-field OR far-field OR SHEDS[tiab] AND ENVIRONMENTAL MONITORING)



To find articles quickly, enter terms to sift abstracts.

occup

worker

expos

vapor

visual

Clear Terms

Download / Send to...



Download Sifter for Excel

Summary : fast and easy way to find specific literature about a chemical.

Clear Terms

	occup	worker	expos	vapor	visual	Total	PMID	Year	Title	Authors	Journal	Rev
<input type="checkbox"/>	0	3	0	0	0	3					and public health	
<input type="checkbox"/>	2	0	0	0	0	2						
<input type="checkbox"/>	0	0	0	0	0	0						
<input type="checkbox"/>	0	0	0	0	0	0						
<input type="checkbox"/>	4	0	0	0	0	4						
<input type="checkbox"/>	0	0	0	0	0	0						
<input type="checkbox"/>	0	0	0	0	0	0						
<input type="checkbox"/>	0	0	0	0	0	0						
<input type="checkbox"/>	0	0	0	0	0	0						
<input type="checkbox"/>	1	0	0	0	0	1						
<input type="checkbox"/>	1	0	0	0	0	1						
<input type="checkbox"/>	0	0	0	0	0	0						
<input type="checkbox"/>	0	1	1	0	0	2	25323406	2014	Measurements of chlorinated volatile organic compounds emitted from office printers and photocopiers.	Kowalska; Szewczyńska; Pośniak	Environmental science and pollution research inter...	
<input type="checkbox"/>	0	0	4	3	0	7	24195534	2013	Short duration needle trap sampling with gas chromatography analysis to determine nearly instantaneous concentrations of selec...	Strating; Juarez; Stevens; White; Smith	Journal of occupational and environmental hygiene	
<input type="checkbox"/>	3	7	6	0	0	16	24116666	2013	Biomonitoring study of dry cleaning workers using cytogenetic tests and the comet assay.	Everatt; Slapšytė; Mierauskienė; Dedonytė; Bakienė	Journal of occupational and environmental hygiene	

[Early effects of PCE exposure on visual function among dry cleaning workers].

BACKGROUND: A number of studies have shown a possible correlation between exposure to perchlorethylene (PCE) in dry cleaning workers and impairment of colour perception.

OBJECTIVES: to ascertain the possible presence of alterations in visual function in a group of workers exposed to current limit value levels of PCE.

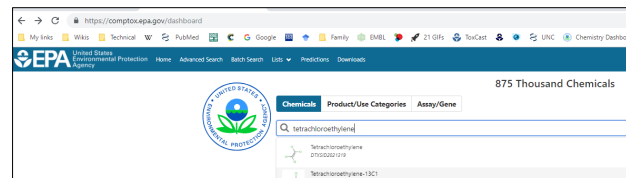
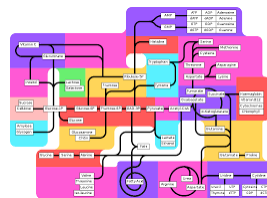
METHODS: The study was conducted on 38 workers exposed to PCE in 21 dry cleaning establishments in the district of Modena and 60 controls selected according to criteria of comparability. We measured exposure to PCE among the dry cleaning workers using environmental monitoring (mean exposure 16.9 mg/m3). Both groups then answered a medical history questionnaire and underwent the Ishihara test for evaluating exclusion criteria followed by Lanthony D15d and Visual Acuity in Contrast Reduced (VCS) tests to evaluate changes in visual function. The results of Lanthony's test were expressed using Index Confusion Chromatic (ICC).

RESULT: In the cases the average value of ICC was 1.28 (DS 0.21) and in the controls 1.15 (SD 0.21); the difference was statistically significant (p <0.01). The values of ICC tended to be worse in subjects engaged only in the washing phase, who also had higher levels of exposure to PCE (mean exposure 26.8 mg/m3). The values VCS for each frequency did not show, however, significant differences between the two groups.

CONCLUSIONS: On this basis, our data indicate that occupational exposure to PCE well below the current limit values may still be able to induce impairment of colour perception and that such levels are therefore not adequately protective, at least against these effects.

Summary: Common chemical toxicity tasks

- One chemical
- Many chemicals
- Mechanistic inquiry
- Ad hoc quick lookup



Things I didn't talk about

- Importing
- Exporting
- Log sheet
- Like this
- What's coming
 - Beyond PubMed
 - Pdf retrieval
 - Pie charts
 - Dashboard enhancements
 - More video tutorials

Availability

- The tools presented today are PUBLICLY AVAILABLE at this very moment.

<https://comptox.epa.gov/dashboard>

- Fastest way to get the Excel Abstract Sifter

<https://comptox.epa.gov/dashboard/downloads>

Acknowledgements

- Tom Knudsen and VTM group
- Antony Williams
- NCCT programming staff

Publications

Baker N, Knudsen T and Williams A. **Abstract Sifter: a comprehensive front-end system to PubMed** [version 1; referees: 2 approved]. *F1000Research* 2017, **6**(Chem Inf Sci):2164
(doi: [10.12688/f1000research.12865.1](https://doi.org/10.12688/f1000research.12865.1))

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Questions?

Thank you!