

Prioritization: October 2011 Update

Oct. 12, 2011

Carcinogen Identification Committee Meeting

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Prioritization Process

- **Purpose** – to identify chemicals for evaluation by the CIC
- **Goal** – to focus the efforts of the CIC on chemicals that may pose significant hazards to Californians

*Prioritization is a **preliminary appraisal** of the evidence of hazard*



Prioritization Process

Tracking Database



Candidate Chemicals



Screens: Focused Literature Review

Chemicals Proposed for Committee Consideration



Consultation with the Committee on Chemicals for Review



OEHHA Selection of Chemicals for
Preparation of Hazard Identification Materials



Screening of Candidate Chemicals

1. Re-apply **Human Data Screen**
2. Apply **Animal Data Screen**
3. Conduct ***Preliminary Toxicological Evaluation*** of chemicals identified through these screens
4. Identify **Chemicals Proposed for CIC Consideration**



Animal Data Screen

- **Two or more positive*** animal cancer bioassays;
or
- **One positive** animal cancer bioassay, **with**
 - Malignant (or combined malignant and benign) tumors ***occurring to an unusual degree*** with regard to incidence, site or type of tumor or age at onset; **or**
 - Findings of ***tumors at multiple sites***; **or**
 - Evidence from a ***second animal study of benign tumors known to progress to malignancy***

*An increased incidence of malignant or combined malignant and benign tumors



Prioritization Process

Tracking Database



Candidate Chemicals



Screens: Focused Literature Review

Chemicals Proposed for Committee Consideration



Consultation with the Committee on Chemicals for Review



OEHHA Selection of Chemicals for
Preparation of Hazard Identification Materials



Screening of 380+ Candidate Chemicals

➤ 2009 ~50% complete: 38 chemicals to CIC

➤ 2010 ~75% complete: 27 chemicals to CIC

➤ 2011 100% complete: 39 chemicals to CIC

➤ Ongoing

➤ Screening of new additions to the Tracking Database

➤ Proposals of chemicals for CIC consideration

➤ Consultation with CIC



Some Chemicals Have Been *Grouped Together* for Consultation

- **Chloroalkyl Ethers**
- **Dibenzanthracenes & Dibenz[a,c]anthracene**
- **Dinitroaniline Pesticides & Prodiamine & Trifluralin**
- **N-methyl-N-Nitroso-1-alkylamines & the -Octanamine, -Decanamine, -Dodecanamine, -Tetradecanamine**
- **Topoisomerase II Inhibitors**
- **Triazole Antifungal Agents**



2009 & 2010 Chemical Prioritization*

High Priority

- Amphetamine & its salts
- Atrazine
- Clomiphene & its salts
- Diisononyl phthalate
- 2,6-Dimethyl-Nitrosomorpholine
- Haloperidol
- Methylphenidate & its salts
- N-Nitrosohexamethylenimine
- Omeprazole & its salts
- Pantoprazole & its salts
- PFOA & its salts & transformation & degradation precursors
- Rabeprozole & its salts

Medium Priority

- Acephtate
- Alpha-methyl styrene
- 11-Aminoundecanoic acid
- Aspartame
- Budesonide
- C.I. Acid Orange 3
- Decabromodiphenyl ether
- Dicofol
- Diethanolamine
- Furfural
- Gentian Violet
- Hydroquinone
- 4-Hydroxymethyl, 4-Methyl, & 4-Hydroxy benzenediazonium & their salts
- Malathion
- Methoxychlor
- Methyl ethyl ketoxime
- N-Methyl-N-formylhydrazine
- 3-Nitrofluoranthene
- N-Nitrosoanabasine
- PFOS & its salts & transformation & degradation precursors
- Permethrin
- Quinoxaline-1,4-dioxide compounds & Desoxycarbadox
- Tetrachlorvinphos
- Thiamethoxam

Low Priority

- 2-Amino-5-nitrothiazole
- Amitraz
- Anthanthrene
- Benoxacor
- 2-Biphenylamine & its salts
- 4-Chloro-*m*-phenylenediamine
- 2-Chloro-1,1,1-trifluoroethane
- Ciprofibrate
- D&C Yellow #11
- Decalin
- 2,6-Dichloro-*p*-phenylenediamine
- N,N-Diethylthiourea
- 1,3-Dinitropyrene
- Ethylnodiol diacetate
- Isoniazid
- 7-Methylbenz[*a*]anthracene
- Molybdenum trioxide
- Nitrofurantoin
- 5-Nitro-*o*-toluidine
- Phosmet
- Rock wool
- Triamterene
- Triclosan
- Triethanolamine
- Vinylidene chloride



2011: Chemicals for Prioritization (1)

Chemical Name	Exposure				Human Data				Animal Data				Other Relevant Data					
	Widespread	High in frequent consumers	Limited / occupational	High in infrequent consumers	Analytical	Descriptive	Analytical: mixed / poorly defined	Case series / reports	Two or more studies	One study w/ unusual incidence, site/type, age at onset	One study and second study with benign tumors only	One study	Tumor-initiation / promotion or co-carcinogenicity	Genotoxicity	Carcinogenic metabolites	Structural similarity with tumorigens or P65 carcinogens	Hormonal activity / disruption	Other mechanistic studies
Abacavir and Its Salts		x							x				x		x			
Acetaminophen	x				x				x			x	x					x
Bisphenol A	x								x			x	x				x	x
Butyl Benzyl Phthalate	x								x			x	x				x	x
Butylated Hydroxytoluene	x								x			x	x		x			
C.I. Disperse Yellow 3	x								x				x		x			
Chloroalkyl Ethers	x				x			x				x	x		x			
Chloropicrin	x									x			x					
Clodinafop-Propargyl	x								x				x		x			x
Coumarin	x								x				x	x				
Dapsone		x			x			x	x			x	x		x			
Dibenzanthracenes and Dibenz[a,c]anthracene	x								x			x	x	x	x			
3,3'-Dichlorobenzidine-based Compounds Metabolized to 3,3'-Dichlorobenzidine			x				x		x				x	x	x			x
2,4-Dichlorophenoxyacetic acid and Its Salts and Esters	x				x				x				x				x	x



2011: Chemicals for Prioritization (2)

Chemical Name	Exposure				Human Data				Animal Data				Other Relevant Data					
	Widespread	High in frequent consumers	Limited / occupational	High in infrequent consumers	Analytical	Descriptive	Analytical: mixed / poorly defined exposure	Case series / reports	Two or more studies	One study w/ unusual incidence, site/type, age at onset	One study and second study with benign tumors only	One study	Tumor initiation / promotion or co-carcinogenicity studies	Genotoxicity	Carcinogenic metabolites	Structural similarity with tumorigens or P65 carcinogens	Hormonal activity / disruption	Other mechanistic studies
Dicloran	x									x			x		x			
Dinitroaniline Pesticides and Prodiamine and Trifluralin	x				x			x					x		x	x		
Entecavir		x						x					x		x			
Flonicamid	x							x					x		x			x
Fluazinam	x							x					x					
Hexythiazox	x									x			x					
Hydralazine and Its Salts		x			x		x	x					x					x
Isophosphamide		x						x					x		x			
Metofluthrin				x				x					x		x			x
Mixtures Containing Pentabromochlorocyclohexane	x									x			x					
N-Methyl-N-Nitroso-1-Alkylamines	x							x					x		x			
N-Nitroso-N-Methylaniline	x							x					x		x			
N-Methylpyrrolidone	x							x					x					
6-Nitrobenzimidazole			x					x					x		x			
Pentachloronitrobenzene	x							x					x					



2011: Chemicals for Prioritization (3)

Chemical Name	Exposure				Human Data				Animal Data				Other Relevant Data					
	Widespread	High in frequent consumers	Limited / occupational	High in infrequent consumers	Analytical	Descriptive	Analytical: mixed / poorly defined exposure	Case series / reports	Two or more studies	One study w/ unusual incidence, site/type, age at onset	One study and second study with benign tumors only	One study	Tumor initiation / promotion or co-carcinogenicity studies	Genotoxicity	Carcinogenic metabolites	Structural similarity with tumorigens or P65 carcinogens	Hormonal activity / disruption	Other mechanistic studies
Pimecrolimus and Tacrolimus		x			x			x	x					x				x
Pivalolactone			x						x					x		x		
Pyraflufen Ethyl	x								x					x				
Raloxifen and Its Salts		x			x				x					x		x		
Stavudine		x							x					x		x		
Thiophanate Methyl	x								x					x		x	x	
Topoisomerase II Inhibitors				x	x			x	x					x		x		x
Triazole Antifungal Agents	x								x					x		x		x
2,4,6-Trimethylaniline and Its Salts	x								x					x		x		
Tris(2-Ethylhexyl)Phosphate	x								x					x		x		





Chloroalkyl Ethers

Advise whether the *chemical group* should be considered for listing at a future meeting.



Dibenzanthracenes & Dibenz[a,c]anthracene

Advise whether the *chemical group*, or *dibenz[a,c]anthracene* alone, or *both* should be considered for listing at a future meeting.



Dinitroaniline Pesticides & Prodiamine & Trifluralin

Advise whether the *chemical group*, or *prodiamine* alone, or *trifluralin* alone, or *some combination* of these compounds should be considered for listing at a future meeting.



N-methyl-N-Nitroso-1-alkylamines & the -Octanamine, -Decanamine, -Dodecanamine, -Tetradecanamine

Advise whether the *chemical group*, or *MNOA* alone, or *MNDEA* alone, or *MNDodeA* alone, or *MNTA* alone, or *some combination* of these compounds should be considered for listing at a future meeting.



Topoisomerase II Inhibitors

Advise whether the *chemical group* should be considered for listing at a future meeting.



Triazole Antifungal Agents

Advise whether the *chemical group* or *any individual triazoles* should be considered for listing at a future meeting.

