

# Update on CECBP Activities

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California Environmental Contaminant  
Biomonitoring Program  
Scientific Guidance Panel Meeting  
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# Overview

- Laboratory status
- Status of Request for Information (RFI)
- Environmental Health Tracking collaborations
- Community Study update (after break)

# New Laboratory Equipment

- All equipment ordered in 2008 has arrived, installation in progress



Hi Res GC/MS



ICP MS



LC tandem MS

# Increased Throughput (DTSC)

- Installed and tested new automated sample preparation equipment (Liquid Handlers)
- Working with CDC to optimize conditions
- New systems improve accuracy, precision and throughput

# Analytical Methods Development

- Much laboratory activity will include new methods development to analyze chemicals in blood and urine, including methods allowing for high throughput
- Chemicals selected for methods development will focus on SGP recommendations for “priority chemicals”
- However, some methods to be used in CECBP labs may be developed for related programs

# New Methods **Developed** (DTSC)

- New Brominated Flame Retardants
  - 1,2-Bis(2,4,6-tribromophenoxy)ethane (BTBPE)
  - 1,2-Dibromo-4-(1,2-dibromoethyl)cyclohexane (TBECH)
  - 2-Ethyl-1-hexyl-2,3,4,5-tetrabromobenzoate (TBB)
  - Hexabromocyclododecane (HBCD)
  - Pentabromoethylbenzene (PBEB)
  - 2,3-Dibromopropyl-2,4,6-tribromophenyl ether (DPTE)
  - Hexabromobenzene (HBB)
  - Pentabromotoluene (PBT)
  - Tetrabromobisphenol A (TBBPA)
  - Decabromodiphenylethane (DBDPE)
  - Bis(2-ethyl-1-hexyl) tetrabromophthalate (TBPH)

# New Methods **Developed** (DTSC)

- Hydroxy metabolites of:

- PCBs

- 4-OH-CB107

- 3-OH-CB153

- 4-OH-CB146

- 3'-OH-CB138

- 4'-OH-CB130

- 4-OH-CB187

- 3'-OH-CB180

- 4'-OH-CB172

- 4-OH-CB193

- PBDEs

- 2'-OH-BDE68

- 6-OH-BDE47

- 5-OH-BDE47

- 4'-OH-BDE49

- 5'-OH-BDE100

- 4'-OH-BDE103

- 5'-OH-BDE99

- 4'-OH-BDE101

- Phenols

- Triclosan

- Pentachlorophenol

- Pentabromophenol

# New Methods **to be Developed** (DTSC)

## •Perfluorinated compounds

- Perfluorooctanoic acid
- Perfluorooctane sulfonic acid
- Perfluorohexane sulfonic acid
- 2-(N-ethyl-perfluorooctane sulfonamido) acetic acid
- 2(N-Methyl-perfluooctane sulfonamido) acetic acid
- Perfluorodecanoic acid
- Perfluorobutane sulfonic acid
- Perfluoroheptanoic acid
- Perfluorononanoic acid
- Perfluoroundecanoic acid
- Perfluorododecanoic acid

# New Methods **to be developed** (CDPH)

- Dialkyl Phosphate (DAP) Metabolites
  - Dimethylphosphate (DMP)
  - Dimethylthiophosphate (DMTP)
  - Dimethyldithiophosphate (DMDTP)
  - Diethylphosphate (DEP)
  - Diethylthiophosphate (DETP)
  - Diethyldithiophosphate (DEDTP)
- Specific Organophosphate (OP) metabolites
  - 3,5,6-Trichloro-2-pyridinol (chlorpyrifos metabolite)
  - 2-Isopropyl-4-methyl-6-hydroxypyrimidine (diazinon metabolite)

# New Methods **to be developed** (CDPH)

- Environmental Phenols
  - Bisphenol A
  - 2,4,4'-Trichloro-2'-hydroxyphenyl ether (Triclosan)
  - 2-Hydroxy-4-methoxybenzophenone (Benzophenone-3)
  - methyl paraben
  - butyl paraben
- Phthalate Metabolites
  - Diethyl phthalate (DEP)
  - Dibutyl phthalate (DBP)
  - Benzylbutyl phthalate (BzBP)
  - Di-2-ethylhexyl phthalate (DEHP)
  - Di-n-octyl phthalate (DOP)

# New Methods **to be developed** (CDPH)

## Polycyclic Aromatic Hydrocarbons

- 3-hydroxyphenanthrene
- 6-hydroxychrysene
- 3-hydroxybenzo(a)pyrene
- 1-nitropyrene

## Metals

- Arsenic speciation in Urine
- Mercury speciation in Blood

# **CDC Request for Applications (RFA)**

- Preparing proposal in response to recent RFA issued by CDC for State Public Health Laboratories
  - Intended to increase capability and capacity of state public health laboratories to conduct biomonitoring
- Letter of Intent due March 9, 2009
- Application deadline – April 6, 2009
- Anticipated award date – August 31, 2009
- 5-year cooperative agreement, contingent on funding

# Laboratory Staff Training at CDC

- Staff training at CDC planned for June 2009
- Develop Standard Operating Procedures, test methods
- Fall 2009 – aim to begin analyses of archived (RFI) and other samples



**Questions/comments  
regarding Laboratory  
Status?**

# **Status of Request for Information (RFI)**

- Last SGP meeting – program was about to request additional information from researchers
- Since then, received supplemental information on specific analytes of interest, sample volumes, desired timeline for results, available resources
- Timeline for installation of equipment more prolonged than anticipated; lab resources somewhat more limited
- Tentative commitments to 4 projects

# **Tentative CDPH commitments for analyzing archived biospecimens**

- 300-500 urine samples for DAPs, chlorpyrifos,
  - UC Davis Childhood Autism Risks from Genetics and the Environment (CHARGE)
- 30 urine samples for phthalates and Bisphenol A
  - UC Davis Markers of Autism Risk in Babies – Learning Early Signs (MARBLES)
- 50 urine samples for phthalates and Bisphenol A
  - UC Berkeley Center for the Health Assessment of Mothers and Children of Salinas (CHAMACOS)

# **Tentative DTSC commitment for analyzing archived biospecimens**

- 230 serum samples for PBDEs, other BFRs, and Triclosan
  - Columbia University study of California men [participants' mothers' sera were analyzed previously (Child Health and Development Studies)]

# **Questions or Comments about RFI?**

# Collaborations with Environmental Health Tracking Program

## **Tulare County**

- Pesticide drift
- Analytes in urine
  - Nonspecific OP pesticide metabolites
  - Chlorpyrifos-specific metabolite (TCP)
- ~ 30 participants
- Monitoring
  - Urine analysis (EHLB)
  - Air monitoring (EHLB)
- Results Communication

## **Imperial County**

- Perchlorate water contamination
- Analytes in urine
  - Perchlorate
  - Selected heavy metals
- ~ 30 participants
- Monitoring
  - Urine analysis
  - Water analysis
  - Crop analysis (melons)
- Results Communication

# Environmental Health Tracking Projects: Key Collaborators

## **Tulare County (Pesticides)**

- NGOs
  - Pesticide Action Network of North America (PANNA)
  - Commonweal
  - El Quinto Sol (local CBO)
- County Health Dept
- Local Health Clinic

## **Imperial County (Perchlorate)**

- NGOs
  - Comité Civico del Valle
- Government
  - DTSC (water)
  - CDC (urine method validation and split samples)
  - CDPH Food and Drug Branch (melons)
- University of Arizona
  - Method validation for heavy metals in urine

**Questions or  
comments regarding  
CECBP's  
collaborations with  
Environmental Health  
Tracking Program?**