

# Technical Comment on RfD and Cancer Slope Factor Derivation

Lesa L. Aylward, Ph.D.  
Summit Toxicology, LLP

Comments to the EPA Science Advisory Board  
Dioxin Panel

July 13, 2010



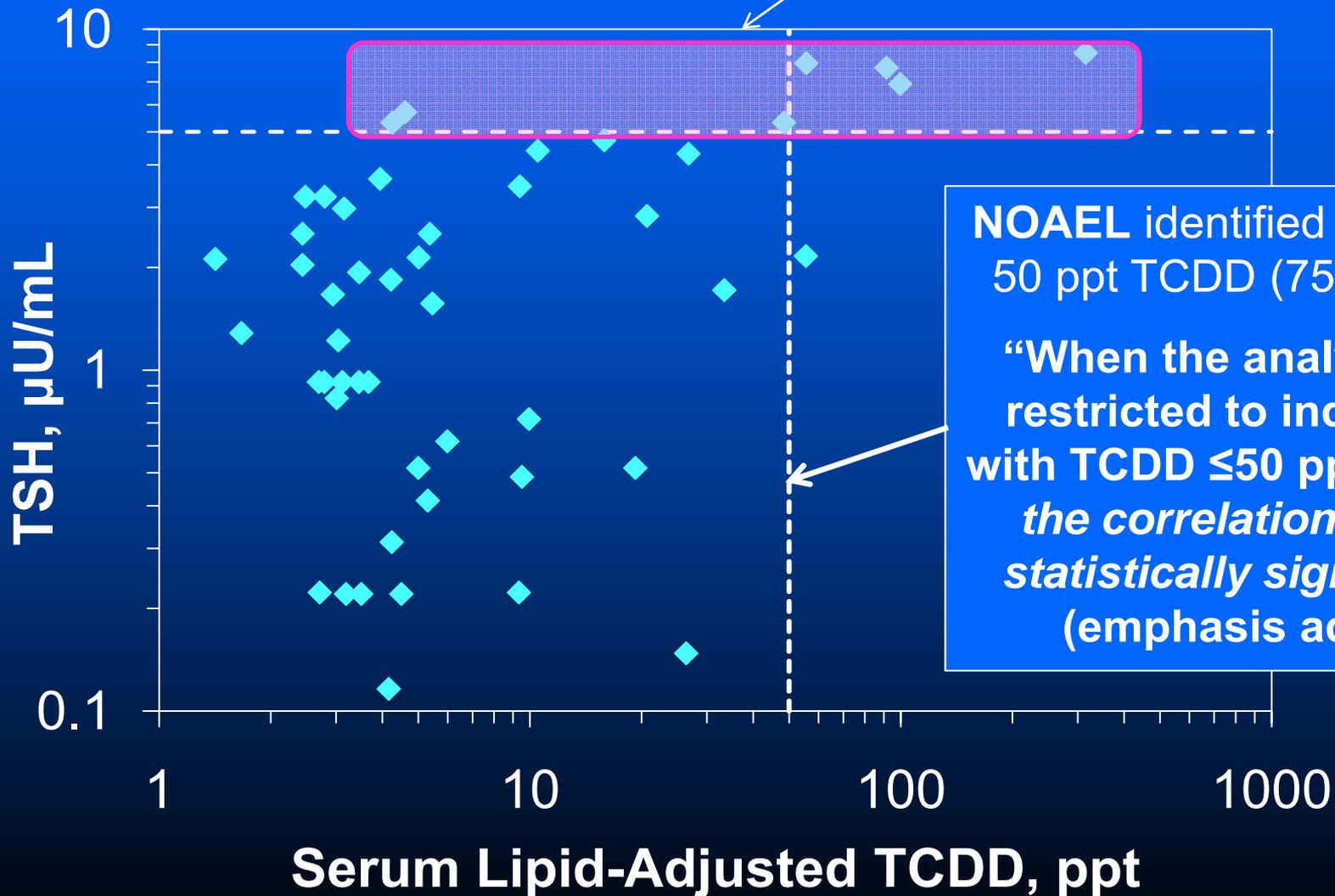
# Acknowledgement

- Comments offered on behalf of the Chlorine Chemistry Division of the American Chemistry Council

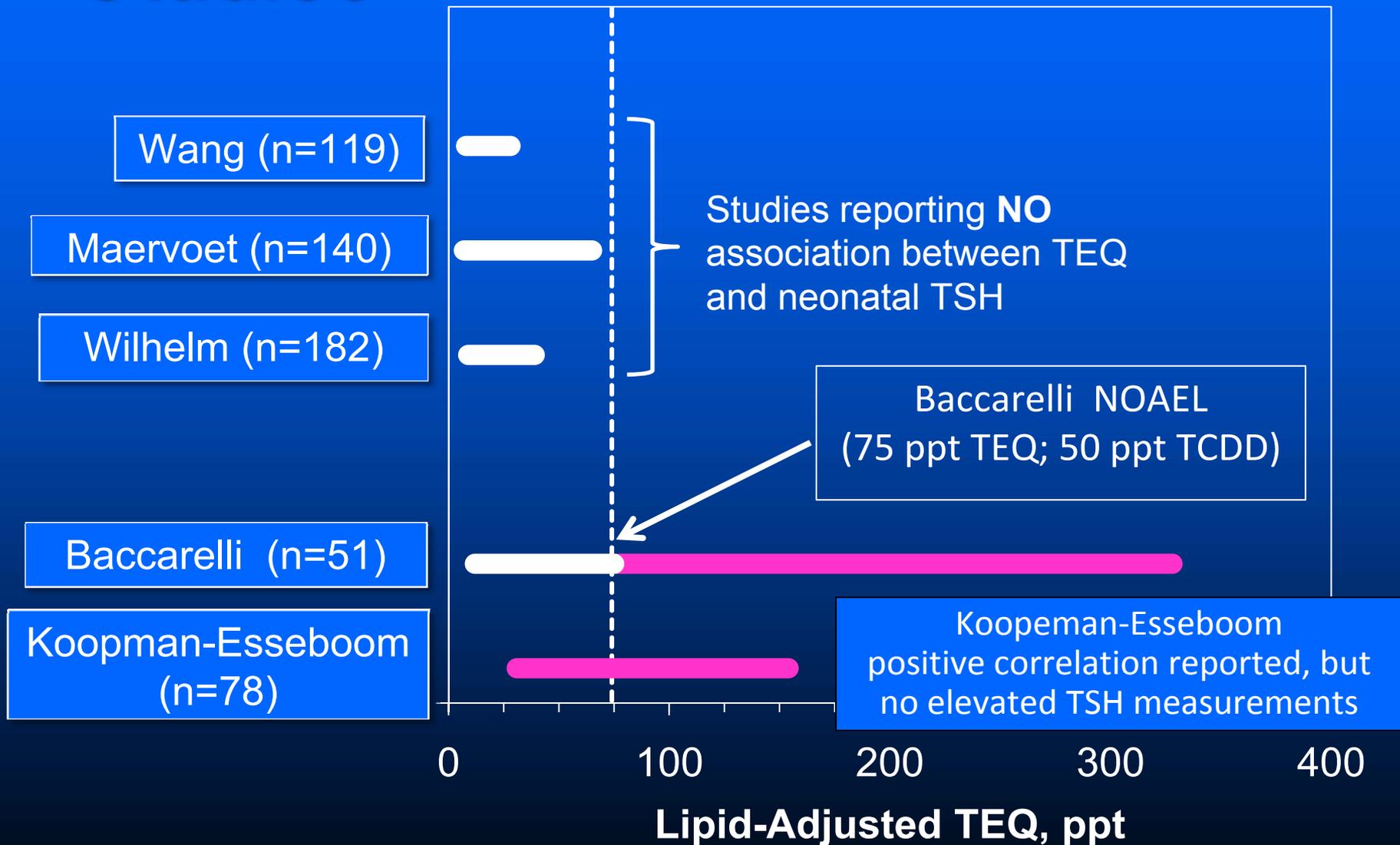
# Comments on RfD Derivation

# Baccarelli et al. 2008, TSH v. TCDD

"LOAEL" identified by EPA: Geometric mean TCDD for all with TSH >5  $\mu$ U = 39 ppt TCDD



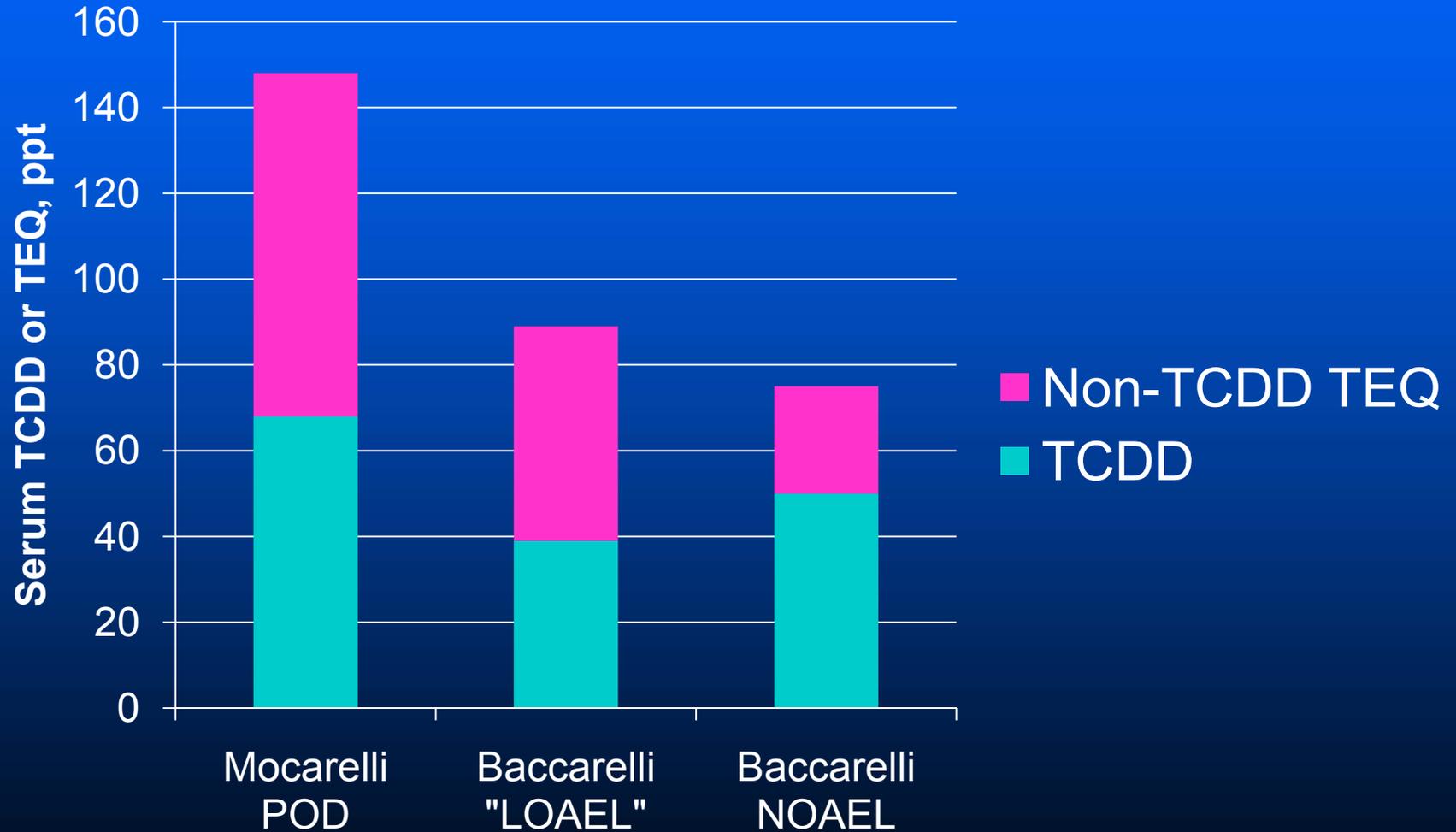
# NOAEL Supported by Many Studies



# PBPK Model for Children

- PBPK model used does not accurately reproduce elimination of TCDD in children
  - Omits key elimination mechanism
  - Model results contrary to data on elimination rates in Seveso children (Kerger et al. 2006)
- Underestimates intake rates required to attain POD concentrations in children
  - Relevant to assessment based on Mocarelli et al. 2008

# Non-TCDD TEQ

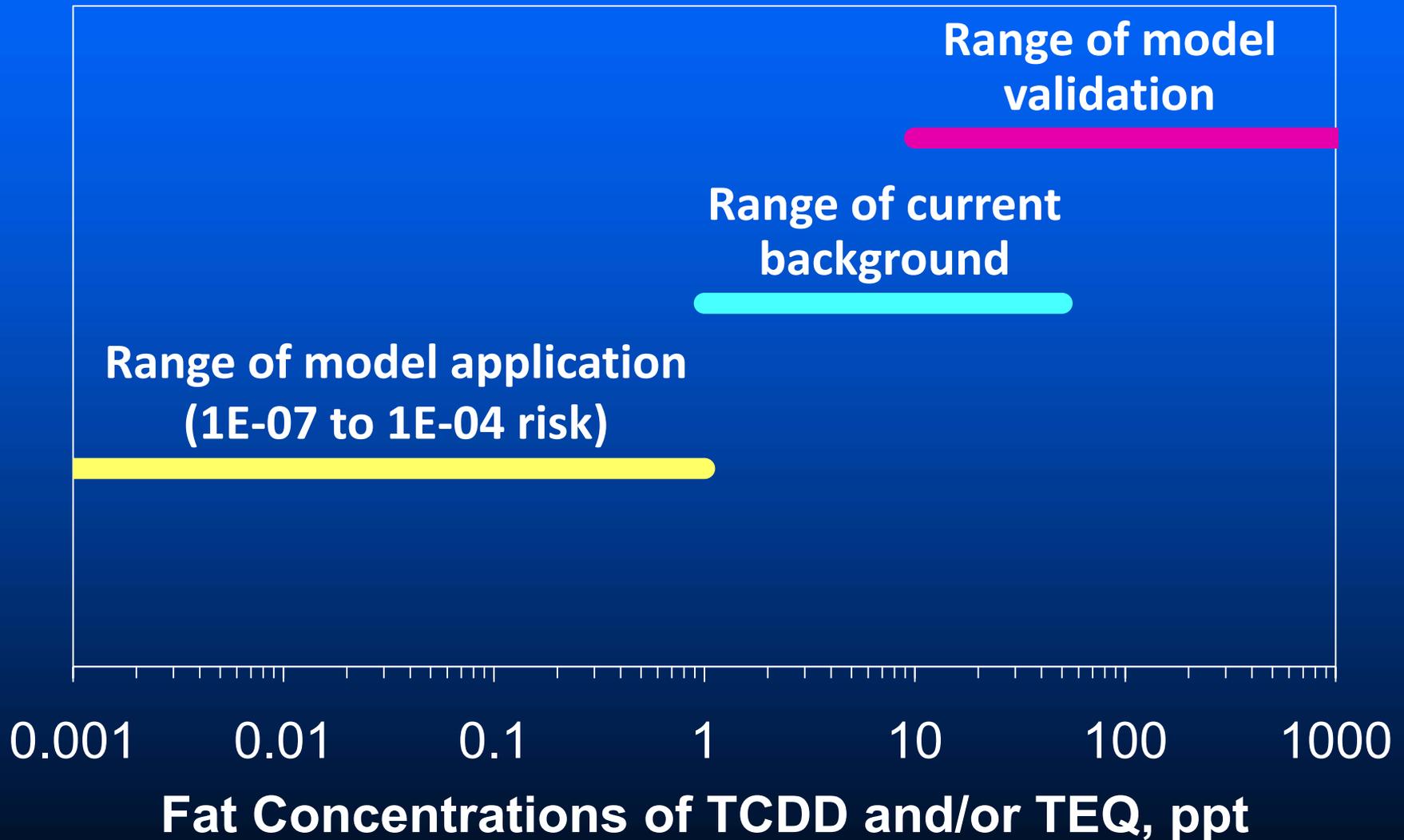


# Cancer Slope Factor Derivation

# Selection of Regression Coefficient

- Cheng et al. (2006) -multiple models of exposure-response relationship
- EPA choice: steepest regression coefficient
  - “Trimmed” analysis – omits 5% highest exposure records
  - Nearly 200-fold greater than corresponding “untrimmed” analysis
- This is an “Upper Bound” on slope from this dataset – no justification for going to 95%CI

# PBPK Model Application



Thank you for the opportunity  
to offer comments