

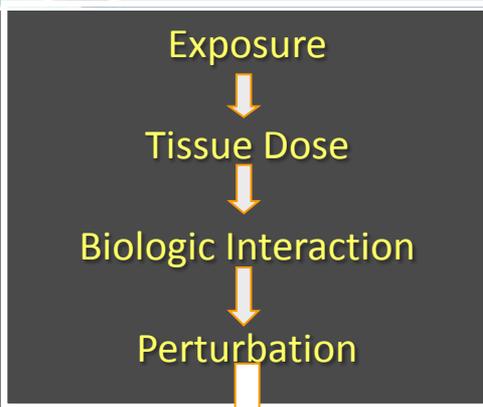
Afternoon Session:

Workshop on  
Understanding and Interpreting  
Biomonitoring Results

Biomonitoring California, March 17, 2011

# New Toxicity Testing Paradigm

## NAS, 2007



**Biologic Inputs**

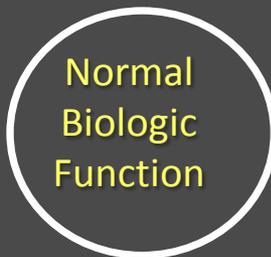
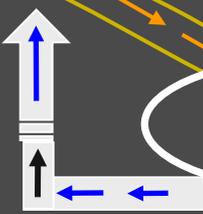
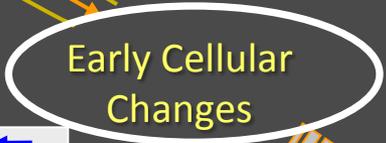


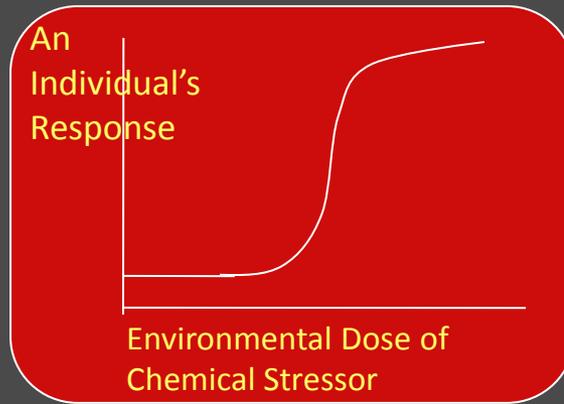
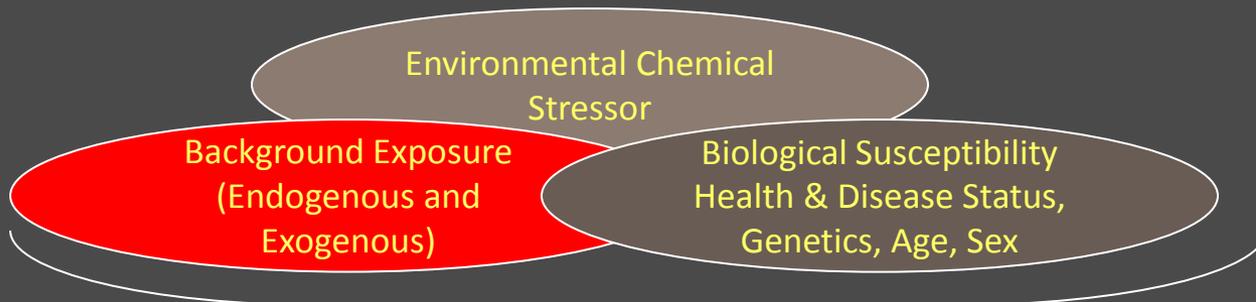
Figure caption:  
“...when the host is unable to adapt due to underlying nutritional, genetic, disease, or life-stage status, biologic function is compromised resulting in toxicity and disease.”



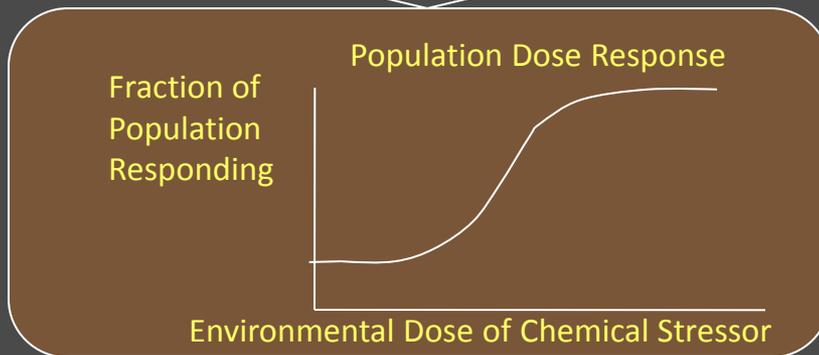
**Adaptive Stress Responses**



**Morbidity and Mortality**



Heterogeneity in Background Exposure and Susceptibility



A chemical's risk is determined by:

- Level of exposure
- Background endogenous and exogenous exposures
- Biological susceptibility

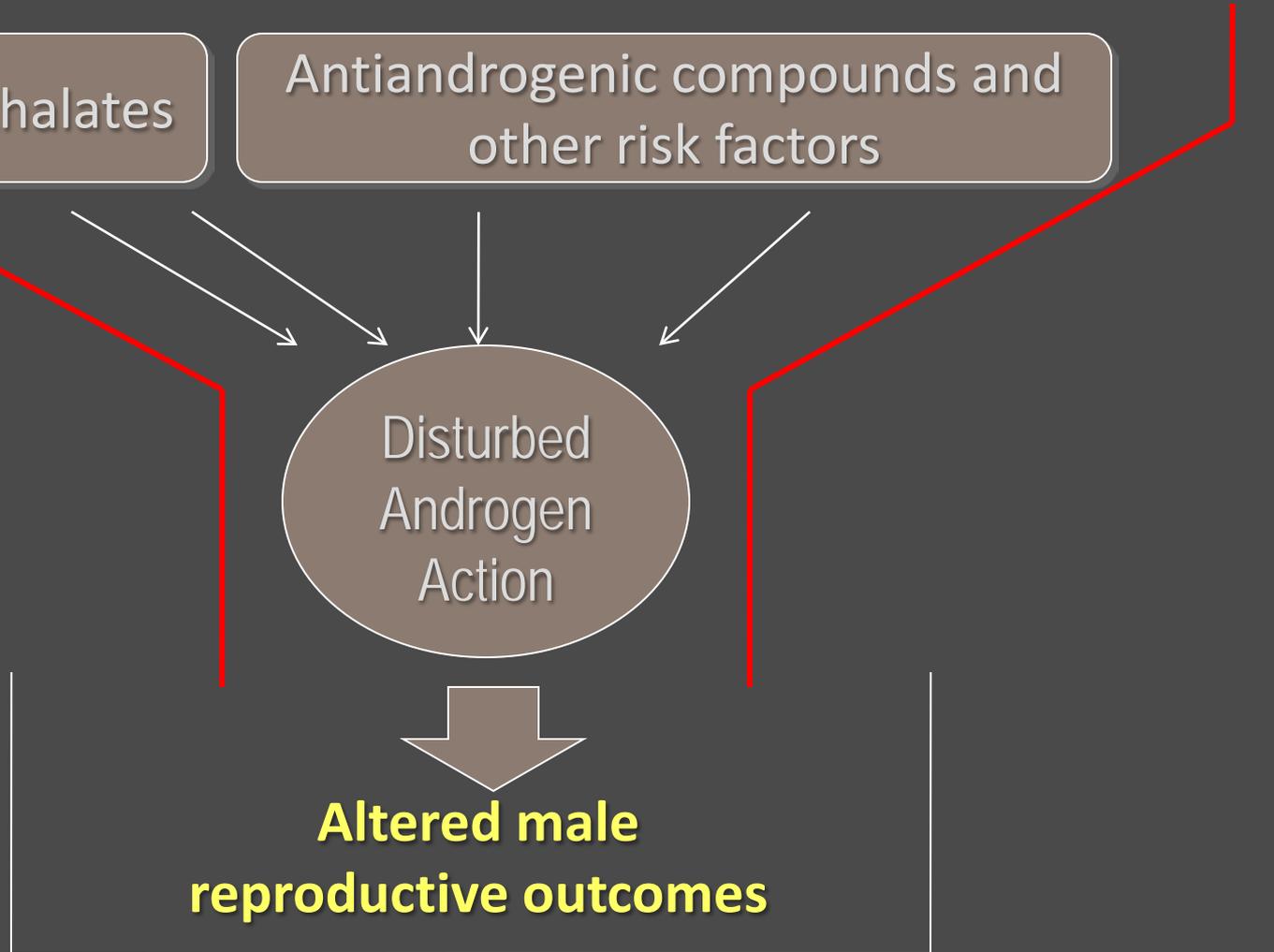
# Multiple Exposures Leading to Common Adverse Outcomes

Phthalates

Antiandrogenic compounds and  
other risk factors

Disturbed  
Androgen  
Action

**Altered male  
reproductive outcomes**



# Afternoon Session: Workshop on Understanding and Interpreting Biomonitoring Results

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- Lesa Aylward, Summit Toxicology
- Dale Hattis, Clark University
- Amy Kyle, UC Berkeley