



## **Community of Research for Exposure through Product Life**

### **Co-Chairs**

- **Richard Canady, ILSI Research Foundation,  
Washington, DC, USA**
- **Martie van Tongeren, IOM, Edinburgh, UK**

# Plan to initiate the CoR

(proposed at 2012 EU-US CoR workshop in Helsinki)

- Provide an online platform for sharing information about
  - Research projects
  - Methods
  - Funding opportunities
- Convene experts on topics within the theme, to
  - Build collaborations
  - Share emerging findings
  - Build knowledge

# Why is it hard to select methods?

- Detection, characterization, and risk evaluation of nanomaterials can be highly ***context dependent***
  - *Form in composites, release mechanism, media, concentration, etc.*
- Choice of methods depends on the goal of the measurement
- There are few standard methods (??)
  - So everyone chooses their own path, leading to chaotic data from a risk assessor's perspective

## ***Specific proposal at Helsinki:***

***Develop a resource to share information and convene experts about methods to measure at specific life cycle stages.***

*Addressing this need is **critical** to understanding real risk of ENP.*

## ***Needs as of Helsinki:***

- Data generation and database maintenance
  - Who hosts, pays, maintains?
  - How to coordinate with other CoRs?
  - How do we promote efficient gathering and availability?
- Data sets and experts
  - What kinds of data and experts are needed, where are they, how do we get access?
  - Structural components of the data sets – what elements are needed

# Progress

- Draft by Kim Guzman (RTI International)
  - To provide a platform to share measurement and analytical methods
  - Facilitate communication between groups/projects
  - Application of ontology and user friendly web portal
- Identifying initial candidate data bases
  - Nanomaterial Registry (mainly US) / NanoHub (mainly EU)

# Exposure breakout session

- **Goal:** Help us fill in the proposal by
  - Making it realistic so that it is useful soon
  - Finding partners and data sets to make it happen
- **Process:** Answer the charge questions
  - What does the risk assessor need to assess a spill?
  - What does a methods developer have to offer the risk assessor now?
  - What data structures, tools and approaches are available to take advantage of
  - What is the best path forward to helping the risk assessor?

# Joint Database & Exposure section

*The breakout questions are:*

**Can the risk assessor and the researcher find useful information for their needs above in an existing database (other than a general literature search)?**

**What is a logical path to developing such a database (or user interface)?**

# Joint session with Database CoR

- Discussion around a scenario of a spill with ENMs
- Risk assessor gets a call on Friday night



# Discussion

- Database or market place of measurement and analytical methods
- Context is important. Framing
- Decision trees, flows, procedures
- Issues around methods (between lab differences; sampling methods)
- Make use of existing resources for emergency responses
- Modify / add to existing procedures
- .....

# Exposure through Product Life

Danielle Devoney, a risk assessor with the US Environmental Protection Agency

***The breakout question is:***

***What are your decision needs when (in the next 6 months) you are told of a nano material release in the environment near a population, and what data or methods do you need to address them?***

# Site Risk Assessment:

- What is the nature and extent of contamination?
- What are the environmental levels?
- Are there exposure pathways to human or ecological receptors?
- What are the expected/likely exposure levels?
- Are health effects likely at the expected exposure levels?

# Possible Considerations

- Develop analytical methods for environmental media which provide metric consistent with health effects data.
- Alternatively – use environmental analytical methods on representative health studies to provide the data for association of the health effects to metrics appropriate for environmental samples.
- As health effects data evolve, evaluate analytical sensitivity to ensure detection of nanomaterials in the environment is adequate to support risk assessment.

# Possible Considerations

- Where surrogates or markers are used to measure nanomaterials, consider interference from environmental matrices.
- Where possible define the physical characteristic of the nanomaterial which results in the biological activity/health effect and quantify the exposures in a relevant manner (determinates of toxicity).

# Exposure measurement methods section

*The breakout question is:*

*How would you answer a request from a risk manager at a company to demonstrate that a release from their facility is not a risk to human health?*

Denise Mitrano (EMPA)

- NANOMILE project
- release from consumer products/weathering

Jean Yves Bottero (CEREGE)

- SERANADE
- release/weathering

# Summary

- Both presentation addressed release, transformation and aging
- Main conclusions
  - Complexity
  - Release/transformation/fate processes are scenario dependent

# Structure of database/market place

- Decision tree, based on Scenario
  - ENMs
  - Product
  - Activity
  - Environment
  - Concern
- Resource on available measurement and analytical methods
  - Advantages & Limitations
- Measurement strategies
- Interpretation