

Applying Nanotoxicology – A non-toxicologist's point of view

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Stakeholder's Interests

Interest of producers

- ▶ Using nanomaterials and concealing it from the public (fear of negative image)
- ▶ Using nanomaterials but not knowing it (dependence of subcontractors)
- ▶ Using nanomaterials and emphasizing this property (active marketing)

Interest of toxicologists

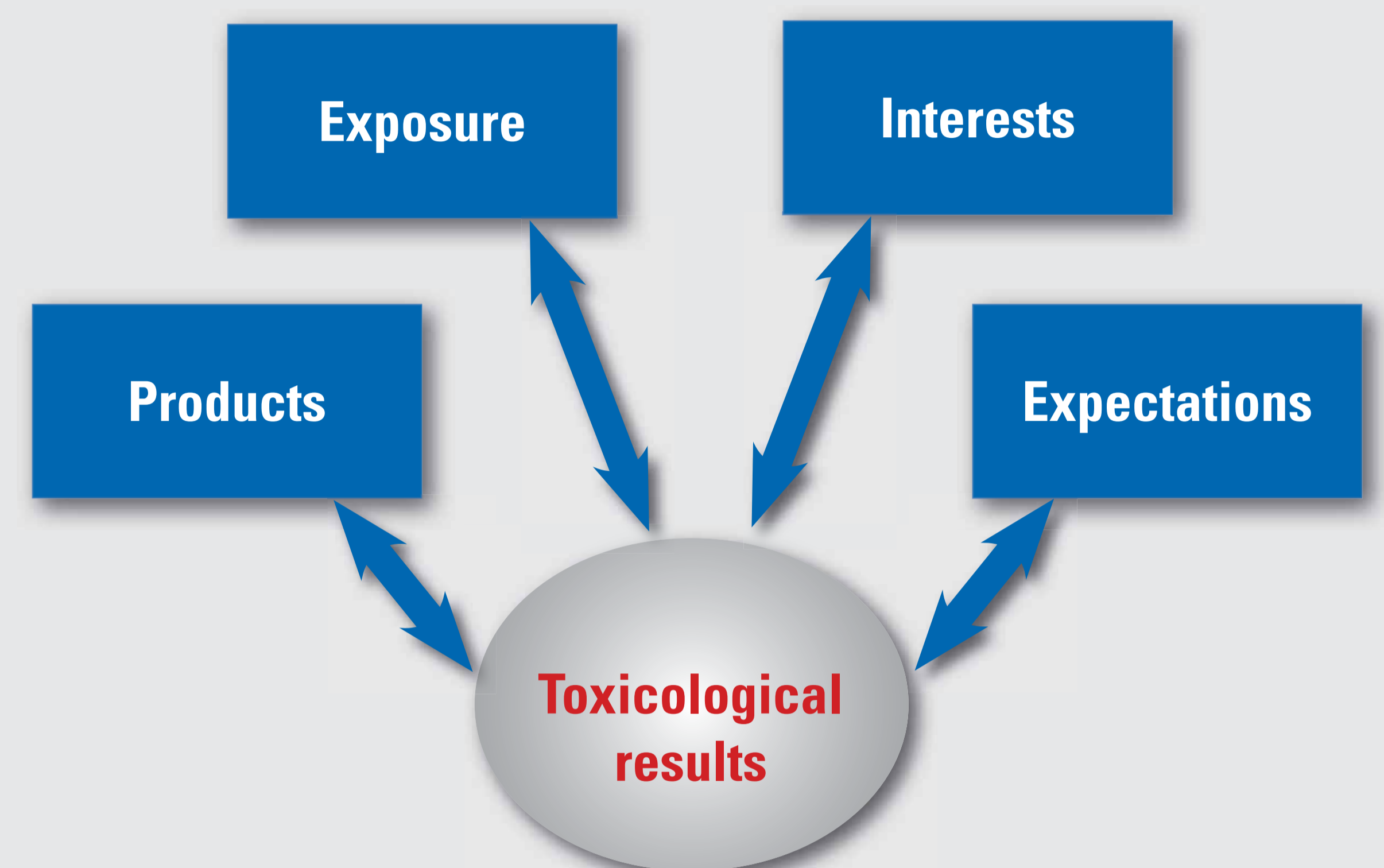
- ▶ Are nanomaterials characterized sufficiently?



Interest of customers

- ▶ Are the warranted characteristics really existent?
- ▶ Is the application "safe"?

Main Problem



Transfer of toxicological results to products containing nanomaterials is not unique, but depends on different possible exposures and different expectations and interests.

Relevant exposure scenarios with respect to products

Possible releases of nanomaterial?

- ▶ Nanomaterials are usually not occurring in form of free particles in products.
- ▶ One has to ask how they can be released due to external impacts, e.g. heat, abrasion followed by inhalation and/or oral or dermal contact of the product with body fluids (sweat, saliva).
- ▶ The "paradigm" that nanomaterial "fixed in a matrix" is harmless might then be questionable.

Proposal: Combination of existing test procedures with subsequent measurement of nanomaterials!

- ▶ Exposure of product to artificial light at high temperatures (ISO 105-B06);
 - ▶ Resistance to artificial sweat (ISO 105-E04; E DIN 53160-2);
 - ▶ Resistance to artificial saliva (DIN 53160-1; DIN 19738)
 - ▶ Abrasion (DIN EN 60068-2-70 / IEC 68-2-70)
- } Problem: Different definitions of artificial body fluids

Hierarchy of safety relevant properties for nanoparticles

