



Nanosafety Cluster Meeting,
Karolinska Institutet , 14th September
2016



**Karolinska
Institutet**

WG1: Materials: ENP synthesis and characterisation Management

Chair: Sergio Moya (Nanosolutions)

CoChair: Rune Karlsson (Nanodefine)

Participants:

Hans Marvin (NanoDefine)

Rudolf Reuther (NanoDefine)

Douglas Gilland (NanoMile)

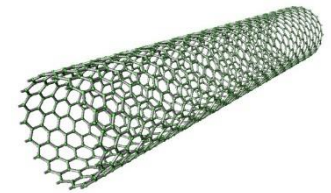
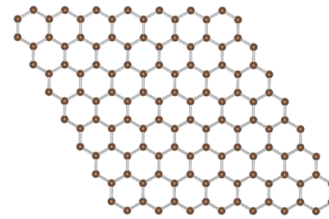
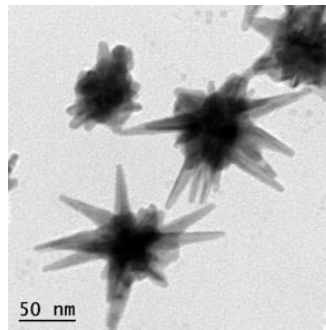
Wolfgang Parak (FutureNanoNeeds)

WG1: Materials

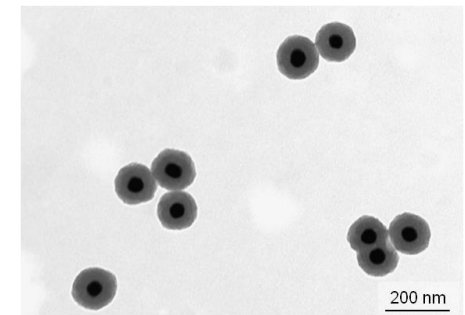
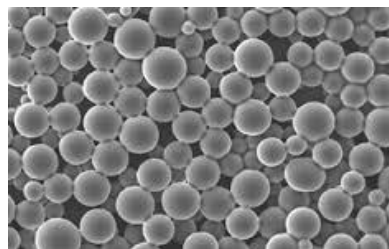
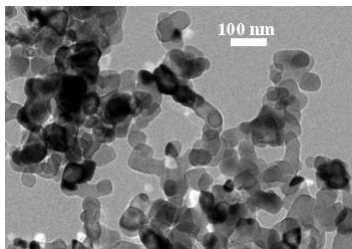
- **Provide a forum for discussion on the advances in the synthesis characterization of Nanoparticles and Nanomaterials relevant for nanosafety Studies**
- **Work/discuss on definition/classification/grouping of nanomaterials/advances materials**
- **Help to identify what set of properties/metrics are needed for the proper description of regarding their toxicological endpoints and for the classification of nanomaterials**
- **Help to identify and define reference materials for nanosafety studies**
- **Coordinate activities related to the synthesis/characterization of materials among EU projects and other initiatives**

WG1: Materials Clasification

Classification by dimensionality / shape / morphology

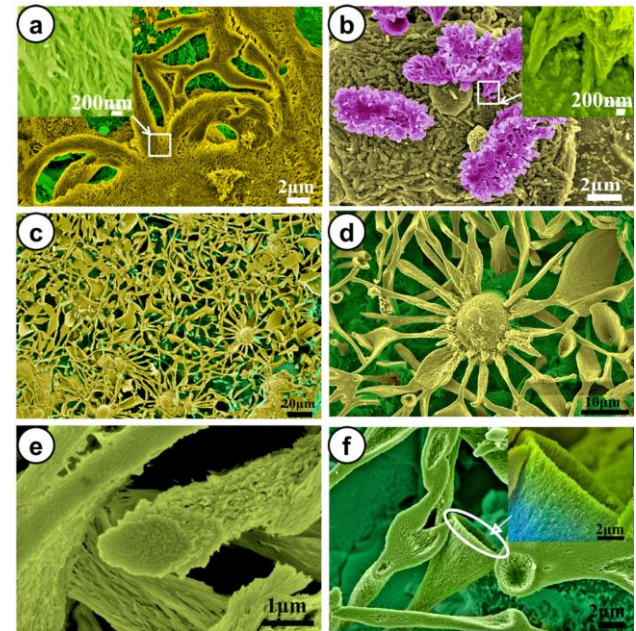
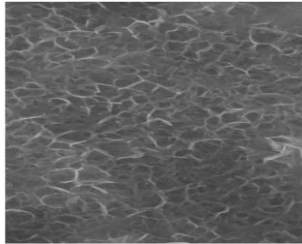


Classification by composition / chemistry

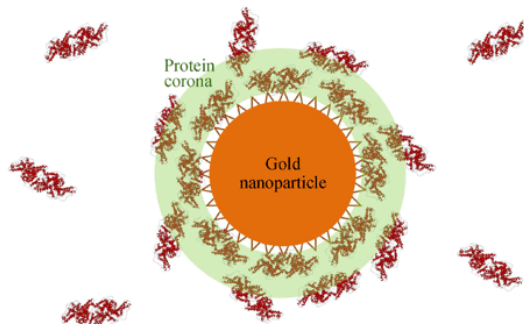


WG1: Materials Clasification

Classification by complexity / functionality



Classification by biointerface



WG1: Materials: Physical Chemistry Characterization

A full understanding of the key descriptors for characterising ENM along with validated methods to identify and quantify ENMs in complex matrices is vital in order to identify crucial parameters relevant for risk assessment.

General strategies: size, shape, charge, aggregation, chemistry, surface chemistry/area, concentration in a formulation, dustiness, etc.

Different methodologies for different ENMs . i.e size: TEM for carbon/metal; SEM/AFM for organic; zeta potential for metal/organic, no meaning for carbon; crystalline phase for metals; redox potential for metal

Agreed reference states for NM characterization, libraries of reference materials, and a framework for understanding later generation NMs

WG1: Materials: Reference Materials

- Reference Materials:

ENMs with defined physico-chemical characteristics for nanosafety studies

Discussion going on how to identify these references

Besides chemistry of the nanomaterials: physical state, inclusion in a matrix, formulation, if a suspension or an aerosol

Compilation of reference materials of different projects by Nanovalid

WG1: Materials: Meetings

- NanoDefine hosted the 2nd NSC Synergy Workshop in Brussels on 2nd February 2016 (Discussion on exchanging protocols, reference materials, etc)
- Joint Nanomile Nanosolutions meeting Stockholm, 12-13 September 2016 (Comparison on different approaches for selection of materials)

WG1: Materials: On going Activities

- - Continue with the reviewing of literature to identify which physical chemistry properties are priority for risk assessment of ENPs; search on new developments on material science that could be of interest for the nanosafety community.
- - Continue searching literature and propose discussion on the physico chemical characterization issues related to 2nd to 4th generation nanomaterials in a nanosafety context.
- - Continue with the compilation of the list of characterisation techniques that are under validation with the aim of being established as reference methods.
- - Promote discussion among the participants in the WG and with other WGs within the cluster on issues related to the materials in the perspective of nanosafety evaluation.
- - Foster discussion on materials issues in the nanotoxicological field within the scientific community.