

NanoReg2 Grouping Approach

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There is a vast and expanding array of Manufactured Nanomaterials (MNMs) that have unique physico-chemical properties. The safety assessment of all those MNMs is time consuming, uneconomical and unethical. Read-across and grouping approaches are used to predict and characterize hazards from substances with structural similarity for which there is not enough experimental data. The EU Horizon 2020 NanoReg2 project has focused to establish MNM grouping strategies in order to tests its applicability for predicting hazard in an explorative read-across approach. The strategy builds on the Marina approach (what they are, where they go, what they do) and extends it on including physical hazards and ecotoxicity and using in vitro strategies for establishing groups. NanoReg2 selected a panel of three cases studies (TiO₂, ZnO and SiO₂) different endpoints. Lack of data was the more pressing problem and a gap filling exercise undertaken, moreover, several physicochemical parameters from the different MNMs were characterized not only as pristine materials but also in biological media in order to assess the specific interactions between MNMs and proteins. NanoReg2 approach also included computational tools during the process. In this presentation, the grouping approach developed as well as all the lessons learnt within this project will be explained for the contribution of future upcoming studies and strategies.

Acknowledgment

NanoReg2 has received funding from the European Union's Horizon 2020 research and innovation programme under grand agreement no. 646221



Figure 1: Schematic overview of the NanoReg2 grouping approach.