1st Interprofessional Nano Training School

Cutting Edge Approaches for the Risk Assessment and Management of Nano-(bio)materials: From the Lab to the Market

H2020 BIORIMA-GRACIOUS-NanoInformaTIX Training School

List of relevant references, publications and sources

Session 1 – Hazard to Human Health & Environment

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Donaldson K, Poland CA, Murphy FA, MacFarlane M, Chernova T, Schinwald A. (2013). Pulmonary toxicity of carbon nanotubes and asbestos - similarities and differences. Adv Drug Deliv Rev. 65(15):2078-86.

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Poland CA, Duffin R, Kinloch I, Maynard A, Wallace WA, Seaton A, Stone V, Brown S, Macnee W, Donaldson K. (2008) Carbon nanotubes introduced into the abdominal cavity of mice show asbestos-like pathogenicity in a pilot study. Nat Nanotechnol. 2008 Jul;3(7):423-8

OECD (2016). GUIDANCE DOCUMENT ON THE REPORTING OF DEFINED APPROACHES TO BE USED WITHIN INTEGRATED APPROACHES TO TESTING AND ASSESSMENT Series on Testing & Assessment No. 255. ENV/JM/MONO(2016)28.

Session 2 – Fate & Exposure Assessment

Som, C., Berges, M., Chaudhry, Q., Dusinska, M., Fernandes, T. F., Olsen, S. I., Nowack, B. (2010). The importance of life cycle concepts fort he development of safe nanoproducts.Toxicology 269, 160-169.

Nowack, B., Brouwer, C., Geertsma, R. E., Eugens, E. H. W., Ross, B. L., Toufektsian, M. C., Wejnhoven, S. W. P., Aitken, R. J. (2013). Analysis of the occupationl, consumer and environmental exposure to engineered nanomaterial used in 10 technology sectors. Nanotoxicology 7(6):1152-1156.

Session 3 – Nanomedicine: from the lab to the market

Salvati et al, 2013, Transferrin-functionalized nanoparticles lose their targeting capabilities when a biomolecule corona adsorbs on the surface, Nature Nanotechnology.

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Halappanavar et al., 2018, Promise and peril in nanomedicine: the challenges and needs for integrated systems biology approaches to define health risk, WIREs Nanomed Nanobiotechnol, doi: 10.1002/wnan.1465.

Session 4 – Modelling

Transcriptomics data preprocessing and analysis

Marwah, V. S., Scala, G., Kinaret, P. A. S., Serra, A., Alenius, H., Fortino, V., & Greco, D. (2019). eUTOPIA: solUTion for Omics data PreprocessIng and Analysis. Source code for biology and medicine, 14(1),.

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Serra, A., Letunic, I., Fortino, V., Handy, R. D., Fadeel, B., Tagliaferri, R., & Greco, D. (2019). INSIdE NANO: a systems biology framework to contextualize the mechanism-of-action of engineered nanomaterials. Scientific reports, 9(1), 179.

QSAR modeling

Mikolajczyk et al. Zeta Potential for Metal Oxide Nanoparticles: A Predictive Model Developed by a Nano-Quantitative Structure–Property Relationship Approach, Chem. Mater. 2015, 27, 7, 2400-2407

Mikolajczyk et al. Nano-QSAR modeling for ecosafe design of heterogeneous TiO2-based nano-photocatalysts, Environ. Sci.: Nano, 2018, 5, 1150-1160

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Recommended software

R

RStudio software

Eutopia software: instruction on how to install it can be found here: https://github.com/Greco-Lab/eUTOPIA

INfORM software: instruction on how to install it can be found here: https://github.com/Greco-Lab/INfORM

Latex system libraries

Java

Session 5 – Grouping & Read Across Approaches

Lamon, L. et al. Grouping of nanomaterials to read-across hazard endpoints: from data collection to assessment of the grouping hypothesis by application of chemoinformatic techniques. Part. Fibre Toxicol. 15, 37 (2018).

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Mech A. et al. Insights into possibilities for Grouping and Read-Across for Nanomaterials in EU Chemicals Legislation. Nanotoxicology: 1-23 (2018). doi: 10.1080/17435390.2018.1513092.

eNanoMapper database:
https://apps.ideaconsult.net/nanodata/index.html (https://search.data.enanomapper.net/nanoreg/)

Session 6 – Risk Assessment & Management Strategies

https://sunds.gd/

https://temas.taglab.ch/SbDimplementation/index.php?p=home

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