

## **The HEROIC project: coordinated efforts towards the harmonization and cross-fertilization of human and environmental risk assessment of chemical substances**

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Today, human risk assessment (HRA) and environmental risk assessment (ERA) are typically separated. There is a lack of mutual understanding between experts and data from toxicological and ecotoxicological studies are not readily accessible by risk assessors of the two disciplines. The need for RA will continue to increase (e.g. REACH or toxicity of mixtures) along with budget restrictions and political and public pressure to reduce the number of animal tests. Therefore more cost effective, predictive and rapid tests for high quality sustainable RA are needed, including a better exploitation of existing data.

The HEROIC project – a coordination action of the 7<sup>th</sup> FP – will provide a platform for networking among all the relevant stakeholders in the RA value chain and will provide them with the most relevant background information to contribute to the development of harmonised approaches which meet the challenges of RA. The project will enable the improvement and harmonisation of tools and methods in RA, by exploring how data generated in ecotoxicology and human toxicology can be applied across disciplines for integrated RA, and develop a framework for integrated methodologies and approaches for RA. This will increase transparency in RA and allow better risk communication to maintain public trust and to give unambiguous guidance for improved risk management.

HEROIC starts with a comprehensive landscaping exercise to identify common methodological and data needs in current human and environmental risk assessment practices. We will then evaluate existing *in-vivo*, *in-vitro* and *in-silico* methods for hazard and exposure assessment. The selection process ranks and weights data based on their reliability and relevance and uses a Weight-of-Evidence approach to integrate such information to develop an Integrated Testing Strategy (ITS) for decision making. A dedicated web portal called "Tox-Hub" that presents information from diverse sources and that functions as a central point of access to the most relevant toxicological and ecotoxicological information will be created. A diverse range of dedicated activities is planned for information, dissemination, capacity building and communication.

These coordinating activities will result in enhanced sharing of knowledge, building consensus and development of clear, easily understood, transparent and unambiguous integrated RA procedures.

**keywords:** human risk assessment, environmental risk assessment, integrated testing strategies, data mining