# Physiological maps curation guidelines: Enhancing knowledge integration and sharing through FAIR aligned structures

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The ONTOX's Physiological Maps Curation Guidelines (PMCG) aim to improve the curation efforts and documentation of the Physiological Maps (PMs) – a set of comprehensive representations of biological pathways and interactions in different organs, tissues, or cell types. The PMs have great potential in *in silico* toxicology, New Approach Methodologies, as well as in digital twin technologies. By integrating data from various sources, these maps can be used to benchmark Adverse Outcome Pathways, identify therapeutic targets, and visualize data, facilitating the potential development of personalized medicine.

The PMs require a collaborative effort from domain experts and biocurators, with standardized guidelines and comprehensive documentation ensuring compliance with the FAIR principles, facilitating their use by other projects, and ensuring interoperability between ONTOX tools and tasks. The modular structure of the PMs simplifies the review process, increasing engagement in curation tasks, and facilitates complex data visualization for stakeholders. The updated documentation on PMs is expected to enhance scientific reproducibility and accelerate potential usage of the maps and their respective ontologies. The architecture of PMs allows for the representation of physiological processes and events in a mechanistic and modularized manner, enabling the representation of complex interactions for each case-study (i.e., liver, kidney, and the developing brain). The structure provides a framework for integrating new data as it becomes available, ensuring that the maps remain up-to-date and accurate.

Ultimately, the PMCG resulted in a more organized and FAIR-aligned architecture for the PMs. The structure is expected to benefit the scientific community by improving data management, accessibility, and interoperability, and facilitating the integration of different physiological knowledge towards the completion of more comprehensive PMs, paving the way for the ONTOX ontologies.