

TOX-OER MOOC: learning toxicokinetics and liver as target organ of xenobiotics

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Abstract:

TOX-OER (Learning Toxicology through Open Educational Resources) is an Erasmus+ Action KA2 Project, involving seven European countries, which aims to develop an international Massive Open Online Course (MOOC) on Toxicology. Its purpose is to enhance digital integration in learning, teaching, training and youth work at various levels by developing scientific, pedagogical, informative and formative materials. TOX-OER MOOC platform is already available online (<https://toxoyer.com/>), being the MOOC in English and all partner-country languages in a continuing construction process.

The MOOC is organized into seven modules: General Concepts; Pharmacotoxicokinetics; Main Groups of Xenobiotics; Environmental Pollutants; Target Organ Toxicity and Biomarkers; Environmental Toxicology; and Patents and Patent Application. They constitute a total of 31 ECTS and include an introduction to the module, video lessons, intermediate evaluation or active online learning activities, text based learning resources, a final evaluation test and bibliography.

The Pharmacotoxicokinetics module (6 ECTS) includes 4 topics: ADMET, Membrane and Transport Mechanisms; Membrane Transporters and BBB; Absorption, Distribution, Excretion; and Xenobiotic Metabolism. The module dedicated to liver toxicity (2 ECTS) described hepatic physiology/structure, and their tight relationship with hepatotoxic mechanisms, namely those related to intrinsic and idiosyncratic (allergic and non-allergic) xenobiotic-induced hepatotoxicity as well as direct and indirect mechanisms of toxicity. A section related to clinical manifestation of hepatotoxicity and biomarkers of liver damage is also included.

The presentation will demonstrate the interest of this pedagogical tool for the Toxicology Education process, not only in the classroom but also in any computer of the world.

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