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Eric Ezan, J Clin Toxicol 2016, 6:6(Suppl)
http://dx.doi.org/10.4172/2161-0495.C1.021

Pharmacokinetic studies of protein drugs and assessment of their metabolism

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Among the growing number of therapeutic proteins on the market, there is an emergence of bio-therapeutics designed from our comprehension of the physiological mechanisms responsible for their peripheral and tissue pharmacokinetics. Most of them have been optimized to increase their half-life through glycosylation engineering, polyethylene glycol conjugation or Fc fusion. However, our understanding of biological drug behaviors is still in its infancy compared to the huge amount of data regarding small molecular weight drugs accumulated over half a century. Unfortunately, therapeutic proteins share few resemblances with these drugs. For instance drug-targeted-mediated disposition, binding to glycoreceptors, lysosomal recycling, large hydrodynamic volume and electrostatic charge are typical critical characteristics that cannot be derived from our anterior knowledge of classical drugs. However, the numerous discoveries made in the last two decades have driven and will continue to drive new options in biochemical engineering and support the design of complex delivery systems. Most of these new developments will be supported by novel analytical methods for assessing *in vitro* or *in vivo* metabolism parameters.

Biography

Eric Ezan studied Biological Engineering at the University of Compiegne, France. After a first experience at the University of Waterloo (Ontario), he obtained a PhD degree at the University Paris V in Pharmacological Sciences (1989). He then joined the Institute Pasteur of Paris for two-year Post-doctoral experience. He was recruited by the CEA (Alternative Energies and Atomic Energy Commission) in 1991, where he became the Head of the Laboratory for Drug Metabolism at the CEA in 2000. This laboratory located at Saclay, south of Paris, is involved in the development of immunological methods and mass spectrometry for the discovery of biomarkers and quantification of small molecular weight drugs and biologicals for preclinical and clinical applications. The laboratory also became a leader in the use of mass spectrometry approaches for the detection biological weapons. In 2014, he joined the CEA Program for the development of health technology.

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