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Pharmacokinetics Evaluation is a Powerful Tool for Medicinal Chemistry

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Editorial

The therapeutic success of treatment of diseases is intimately dependent on the pharmacological bases that allow a rational, scientific and careful choice of the correct medicine. The action of a drug to a human or other animal can be divided in the following phases: pharmaceutical, pharmacokinetics and pharmacodynamics.

Pharmacokinetics comprises process of absorption, distribution, metabolism and, excretion of pharmaceutical drugs (ADME). The therapeutic activity or eventually toxicity concerned to a respective drug is directly linked to the permanence of the active principle in the organism. Accordingly, pharmacokinetics is of paramount importance to establish a profile of a drug and consequently to elect the better pharmaceutical formulation for administration in the body.

Therefore, medicinal chemistry increasingly focuses attention on drug metabolism and pharmacokinetics (DMPK) as being essential to orient chemists to design a biological active compound. The medicinal chemist is currently conscious that is very significant to understand how a substance interacts in biological models. From these studies he/she can adjust the topology and functional groups of a specific bioactive compound in order to amplify biological activity and/or reduce undesired side effects.

It is also obviously crucial to verify the type of biological fate of an administered compound so as to evaluate the mechanism of chemical changes it will experience. Many times, the actual active principle is significantly different from its prodrug and it might be necessary a refined understanding of is action in the organism. On the other hand, the compound may suffer considerable transformations, which could implicate in a complete revision of its use as a valuable pharmaceutical agent.

Because of all the above-mentioned factors the results of research directed to drug pharmacokinetics field as published by Pharmacokinetics and Experimental Therapeutics turn out to be important tools to support an interdisciplinary effort in drug discovery.

The more researchers acquire knowledge in this area, the more compounds will be wisely planned to be more specific and cause less toxicity. Consequently, drug discovery will be less costly since it is possible to eliminate many trial and error experiments in the medicinal chemistry laboratories.

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