

Pharmacology and Safety Pharmacology

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Abstract: Principles and Applications of Primary, Secondary and Safety Pharmacology

During the drug discovery process, three(3) types of pharmacology studies are conducted; primary, secondary and safety pharmacology studies. Primary pharmacodynamic studies aim at investigating the mode of action and/or effects of a substance in relation to its desired therapeutic target. Secondary pharmacodynamic studies aimed at investigating the mode of action and/or effects of a substance not related to its desired therapeutic target, whereas safety pharmacology studies aimed at investigating the potential undesirable pharmacodynamics effects of a substance on physiological functions in relation to exposure in the therapeutic range and above. The webinar will focus on the principles of pharmacology, the different types of drug receptor families (ie, ion channels, GPCRs, kinases, nuclear receptors, transporters) and ligands (eg, agonists, antagonists) and the application of pharmacology principles to *in vivo* studies. Furthermore, the webinar will review the rationale behind the need for optimal nonclinical Safety and Secondary Pharmacology testing; the evolution of Safety and Secondary Pharmacology over the two decades; its impact on drug discovery and development; the value of adopting an integrated risk assessment approach; the translation of nonclinical findings to humans and finally the future challenges and opportunities facing these disciplines.