

CS2-1 Retrometabolic Drug Design: Principles and Recent Advances

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The principles, methods of use, and first applications of Retrometabolic Drug Design (RMDD) were put forward some 30 years ago. The basic strategies involve a specific combination of structure-activity (SAR) and structure-metabolism (SMR) relationships. A successful combination allows the incorporation of specific deactivation (soft drugs) or activation (chemical-enzymatic targeting systems) metabolic (preferentially hydrolytic) transformation properties into the new molecules. Various design approaches will be exemplified by comparing different types of soft drugs within a pharmacological class, such as anticholinergics or corticosteroids, such as Loteprednol Etabonate, which is on the market for more than 10 years. Some of the design rules were incorporated into a computer program, which generates full virtual libraries of metabolites and soft drugs, which can be ranked on isosteric-isoelectronic-metabolism basis. General RMDD strategies are now used worldwide and some examples of recent developments will be reviewed.