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INTRODUCING A NEW CONCEPT 'INTEGRATED' FOR INTEGRATING ACTIVITY, ADME, TOXICITY AND PROPERTY

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Insilico screening and drug design is recently focused not only on pharmacological activity but ADME, toxicity and physicochemical properties. This will soon become the main trend and a very essential approach for achieving a "fail-safe" drug development.

In this paper, a new drug development related concept "Integrated" is defined and proposed. This concept provides a way of evaluating various pharmacological properties (activity, ADME, toxicity) and physicochemical properties, all at the same time during the process of virtual in silico screening and in silico drug design.

Two different application examples of this concept on in silico screening, 'Integrated in silico screening', and on in silico drug design ,'Integrated in silico drug design', are discussed on this paper. Used sample compounds are endocrine disrupting chemicals. Evaruating and predicting properties are carcinogenicity, mutagenicity, CYP3A4 Inhibition and Aqueous Solubility.

Result of integrated in silico screening clarified and extract one strong correlations between endocrine disrupting property and CYP3A4 metabolizing properties. By the approach of integrated in silico drug design, an endocrine disrupting compound (Trifluralin) was modified and detoxificated.

Detailed information about the predictive models, sample data, predictive results and compound simulation conditions will be discussed in the poster presentation.