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A new approach for constructing CYP2C9 pKi estimation scheme with ligand-receptor interaction effects

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High quality Quantitative Structure Activity Relationship (QSAR) models are important in the drug discovery process. In general, it depends on the researcher's target whether a model is the best for them. Therefore, drug researchers sometimes need to construct their original estimation scheme. StarDrop[1] can provide the powerful tool for producing original high quality QSAR model[2]. We attempted to get a novel high quality CYP2C9 pKi model by using StarDrop. StarDrop can produce 330 descriptors which consist of a total of 321 SMARTS based descriptors and 9 whole molecule properties but also add user's original descriptors. It is our purpose to find a new approach for constructing CYP2C9 pKi estimation scheme with ligand-receptor interaction effects. For getting the descriptors including these effects, we used the Field Point technology[3] of Cresset[4]. Field points are the local extrema of the electrostatic, van der Waals and hydrophobic potentials of the molecule. They can be thought of as extended pharmacophores, with the advantages that their position is directly calculated from the molecule's physical properties. We will present how to get the descriptors of Field Point pharmacophores and the details of our original models.

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