Verification of Virtual Screening Results for 5-HT\textsubscript{6} Receptor in \textit{In Vitro} Experiments.

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There are a lot of data indicating pro-cognitive properties and potential therapeutic activity of 5-HT\textsubscript{6} receptor ligands which can be beneficial, among others, in Alzheimer’s disease [1], schizophrenia [2] and depression [3]. In the present work we used virtual screening (VS) of an in house (Department of Medicinal Chemistry) library of over 1000 compounds to identify active 5-HT\textsubscript{6} receptor agents. In silico studies began with the development of homology models of transmembrane domain of 5-HT6 receptor; next, the Support Vector Machine (SVM) method was applied to fingerprint representation of compounds library for preselection of derivatives; and finally 505 agents selected by SVM were docked to the developed homology models. As a result of VS more than 200 compounds with potential 5-HT\textsubscript{6} receptor activity were identified. The VS results were verified in \textit{in vitro} experiments and K\textsubscript{i} values for a selected group of 33 structurally related compounds (in which VS indicated 8 active ligands) were measured.

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