**Virtual Screening of Active Ligands from Natural Compounds as Anti-Asthma Candidates using the PAF-r Protocol and Rupatadine as Lead Compound**

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**Abstract.** Structural-based virtual screening of natural compounds has been carried out using the Platelet-activating factor receptor (PAF-r) protocol, a receptor that plays a role in asthma. This study aims to determine natural compounds that have specific activity as candidates for antiasthma drugs. The construction of the protocol used the PAF-r crystal structure obtained from the Protein Data Bank (code: 5zkp) and the lead compound in the form of an antagonistic ligand using a rupatadine compound. Internal validation of the protocol by re-docking the ligand a thousand times resulted in an RMSD value of 0.508 Å. Retrospective validation of the protocol yielded an F-measure value of 0.77, precision, and accuracy of 0.83 and 0.75, respectively. The results showed that from the one hundred and ten thousand data compounds scanned, 12 compounds were identified to have activity against PAF-r. Compounds with ZINC ID: ZINC000002092355 are recommended as the best compounds based on their bond stability.

**Keyword:** anti-asthma, virtual screening, natural compounds, PAF-r, rupatidine