Abstract Submitted
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Docking ellipticine to the V-VI transmembrane domain of the Kv11.1 potassium channel DAWN LIPSCOMB, LORENZO BRANCALEON, Department of Physics and Astronomy, University of Texas at San Antonio, S. GENTILE, Department of Molecular Pharmacology and Therapeutics, Loyola University — Ellipticines such as 9-methoxy-N-2-methylellipticinium acetate (MMEA) and 9-hydroxy-N-2-methylellipticinium acetate (NMEA, Celiptium®) are antineoplastic drugs exerting their selective cytotoxicity against leukemia and endometrial carcinoma. Ellipticine's action is also related to severe physical side effects, but the link between undesired effects and pharmacological application is not well understood. We investigated the binding of Ellipticine derivatives with the Kv11.1 potassium ion channel using Autodock and revealed that hydroxyellipticinium derivatives provide binding configurations with Kv11.1, but the energy, location and estimated dissociation constant varied. The binding energy is as follows: Chloroceliptium (- 6.60 kcal/mol) > Celiptium (- 6.37 kcal/mol) > Methoxyceliptium (- 6.20 kcal/mol) > Datelliptium (-6.08 kcal/mol). The data shows that some configurations enable these molecules to bridge among channel subunits, thus potentially inhibiting the flow of ions.

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