

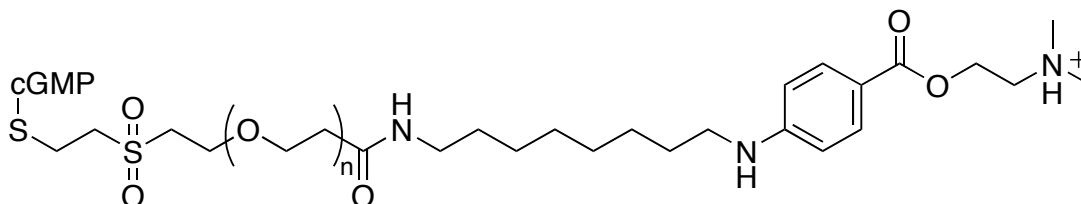
Progress Towards the Design and Synthesis of a Tetracaine Derivative as a Bifunctional Ion Channel Blocker

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Cyclic nucleotide-gated (CNG) ion channels are found in many tissues of the body. However, only those found in the retina and olfactory epithelium are well understood. In an attempt to gain a greater understanding of the physiological roles these channels play, we have designed a CNG channel blocker. In this research, we are synthesizing a derivative of tetracaine, a local anesthetic and a known nonselective moderate pore blocker of CNG channels. Past research has shown that increasing the hydrophobicity of the tail from a butyl to an octyl improved the potency by approximately 5 fold. Progress has been made on the synthesis of an amino-octyl tail with the eventual goal of creating a bifunctional blocker containing a cGMP moiety. The occupancy of the pore and an agonist binding site by the same molecule should increase the potency and specificity of the blocker.



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