α2-adrenergic receptors belong to the family of GPCRs that respond to epinephrine and norepinephrine to mediate the stress response. A variety of drugs target α2 receptors, some intentionally (such as anesthetics), others unintentionally (in the case of some α-blockers or). Using new developments in the method for Membstruk and MSCDock, a plausible structure prediction for α2a had been obtained, and a norepinephrine binding site predicted. This binding site includes several residues shown to be important in mutagenesis studies, and may provide insight into the transition between the active and inactive states of the receptor. Comparison of this binding site to the previously predicted β2, β1, α1a adrenergic binding sites may assist rational design of potent and selective drugs.