Designing a “bait” for GABA receptors involved in memory and learning

As you heard during last month’s chalk talk, our group (Chambers Lab, Chemistry Department) is interested in developing molecular probes that will allow us to “spy” on neuronal receptors and help us understand how our brains store memories. One of the advantages of these probes is that we can target a specific type of receptor depending on the “bait” we incorporate in our probe. The focus of my work is in studying GABA (γ-aminobutyric acid) receptors, which are responsible for silencing neuronal communication. With the use of medicinal chemistry, we chose a known ligand (PWZ-029, Figure 1) as “bait” for a subtype of GABA receptors implicated in memory and learning.

![Figure 1 PWZ-029, a known ligand selective for a GABA receptor subtype implicated in memory and learning](image)

During my presentation, I will outline the rationale of choosing this ligand and of modifying it in a way that will allow us to couple it to the rest of the probe. Moreover, I will explain how we tested our modified ligand to make sure it still bound to receptors using patch clamp electrophysiology.