Problem Set #5

1) In class, we learned about three phosphorylation states of GluR1. What are they (what sites are phosphorylated at each one)? At which site does LTP appear to induce phosphorylation? Describe an experiment that showed this.

2) Describe evidence from electrophysiology that CaMKII can lead to insertion of GluR1 at the synapse?

3) The responses of what cells in the brain are affected in the homozygous stargazin mutant? What is the effect on the AMPA current in these cells? What is the effect on the NMDA current? One experiment stained for the GluR4 subunit in the stargazin mutant. What was the finding and how could it relate to the changes in current in this mutant?

4) Describe the apparent functional dissociation between PSD95 and Stargazin.

5) How does Stargazin affect the channel kinetics of the AMPA receptor?