

Shen and Meyer Questions

1. What is the advantage of fluorescence imaging in biological application?
2. What is the advantage and disadvantage of GFP? Compare with other methods to detect the spatial distribution of a protein of interest.
3. What is the advantage and disadvantage of dissociated culture?
4. In Figure 1B, there are dots which has red color (positive with PSD-95) but not green. How can it happen?
5. In Figure 2B, what kind of experiment can you design to confirm that the loss of CaMKII spot is due to photobleaching of the GFP-CaMKII at synapse, not because the synaptic structure itself is lost?
6. There are many kinases which phosphorylate tyrosine, called tyrosine kinase as opposed to serine/threonine kinase, to which CaMKII belongs. If you want to block the phosphorylation by tyrosine kinase, into which amino acid can you change the tyrosine (hint look at the structure of different amino acids)? Also, can you design a phosphomimic mutation for tyrosine phosphorylation as in Figure 4F?
7. The authors interpret that CaMKII is detached from F-actin by stimulation in Figure 4A. But just from this figure, an alternative interpretation is also possible. What is such possibility? How do other figures rule out such possibility? Can you design a more direct experiment to rule out such possibility?