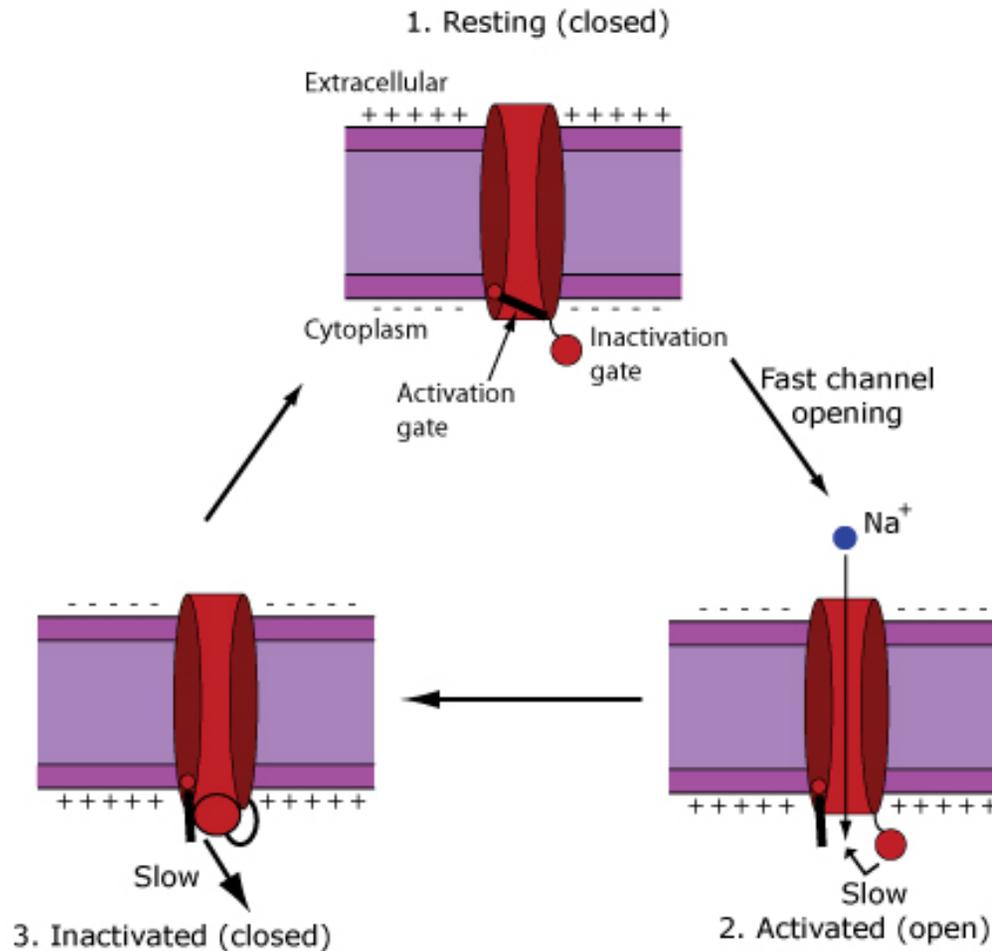


Molecular mechanisms
underlying LTP.

Sodium channels and refractory periods



Questions we ask ourselves when reading a paper

- What was the question?
- How did the authors try to answer it?
- Did they succeed in answering it?
(necessary and sufficient).
- What are the implications of this work?

Today's papers

Post synaptic density

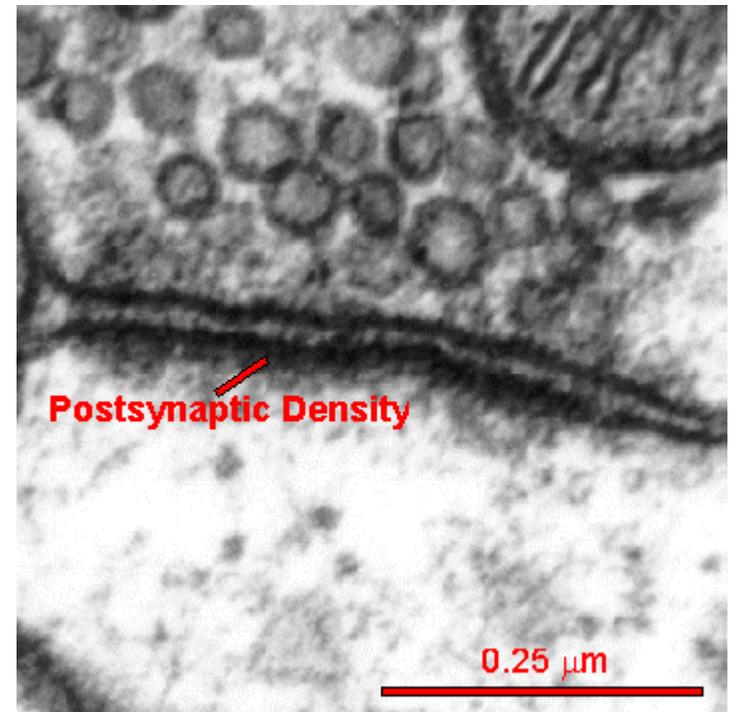
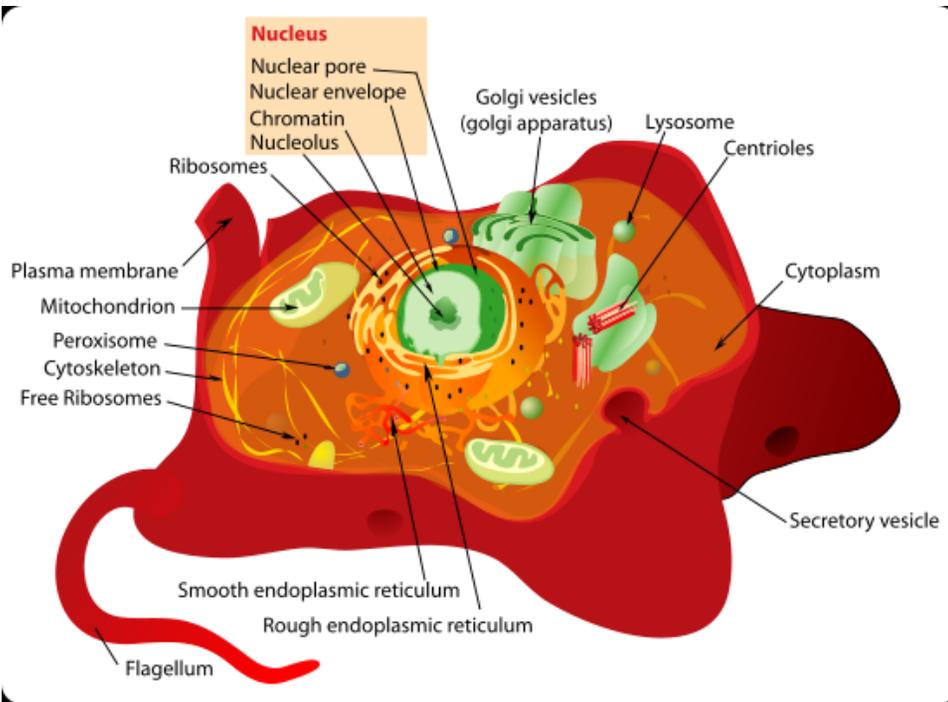


Image courtesy of Mariana Ruiz (<http://commons.wikimedia.org/>)

[synapses.clm.utexas.edu/
anatomy/chemical/psd.gif](http://synapses.clm.utexas.edu/anatomy/chemical/psd.gif)

LTP mechanics I

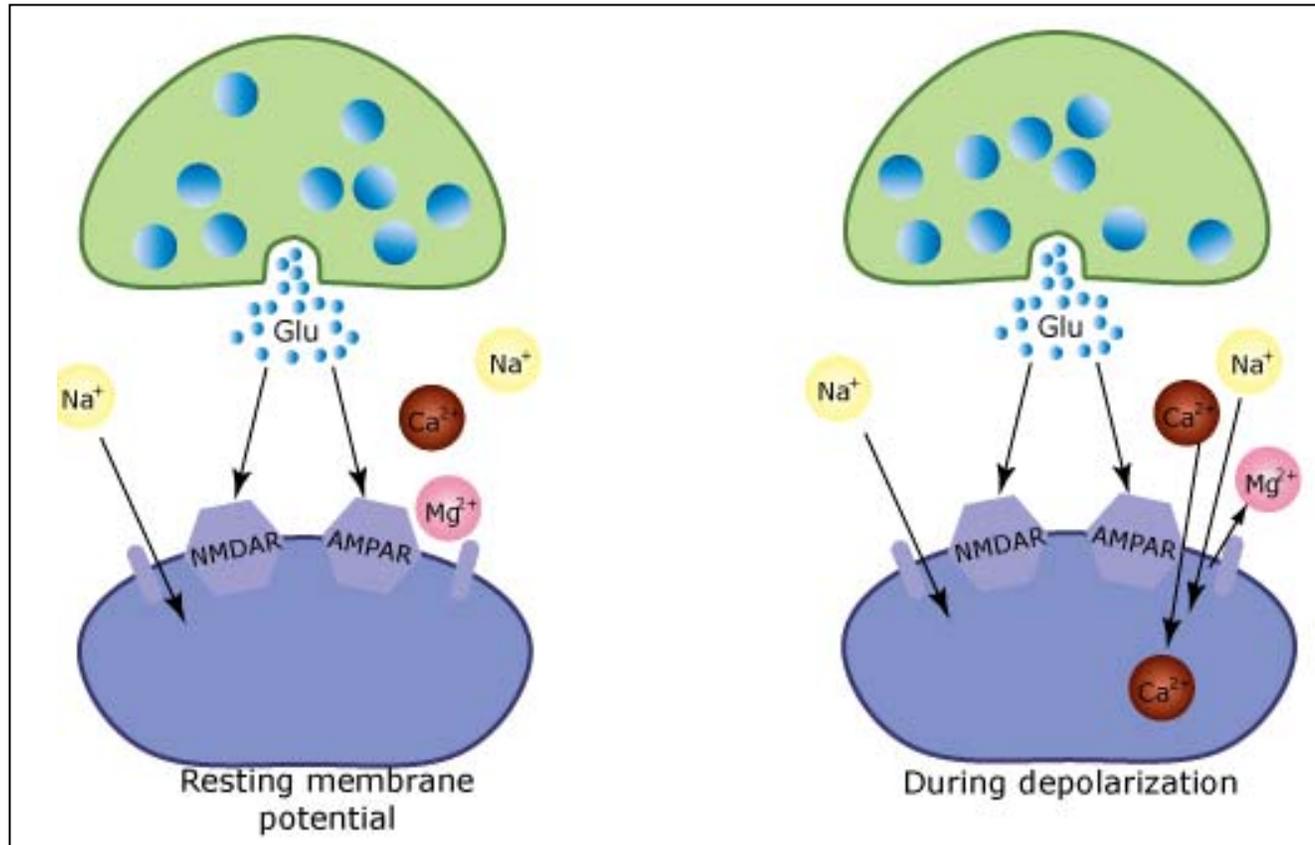


Figure by MIT OpenCourseWare

LTP mechanics II

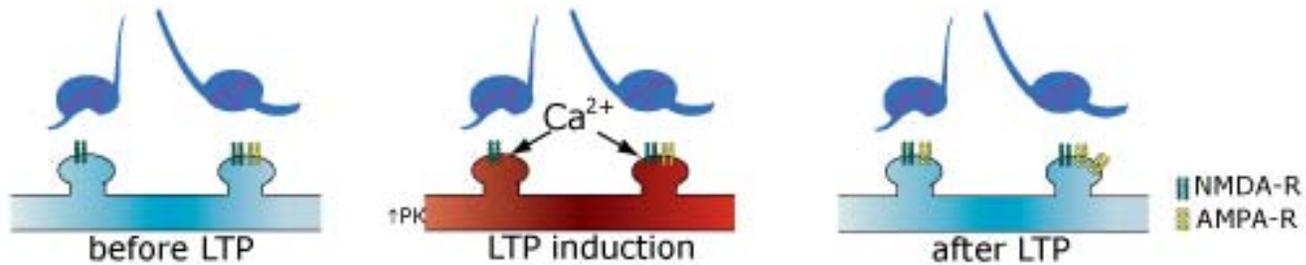
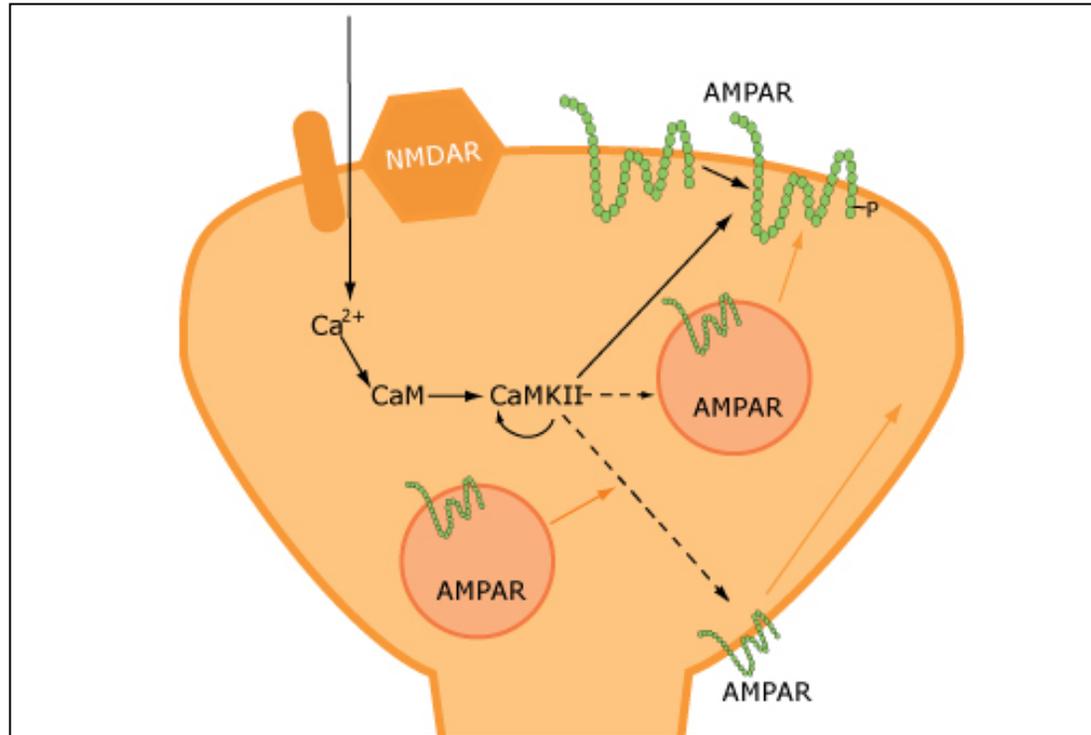
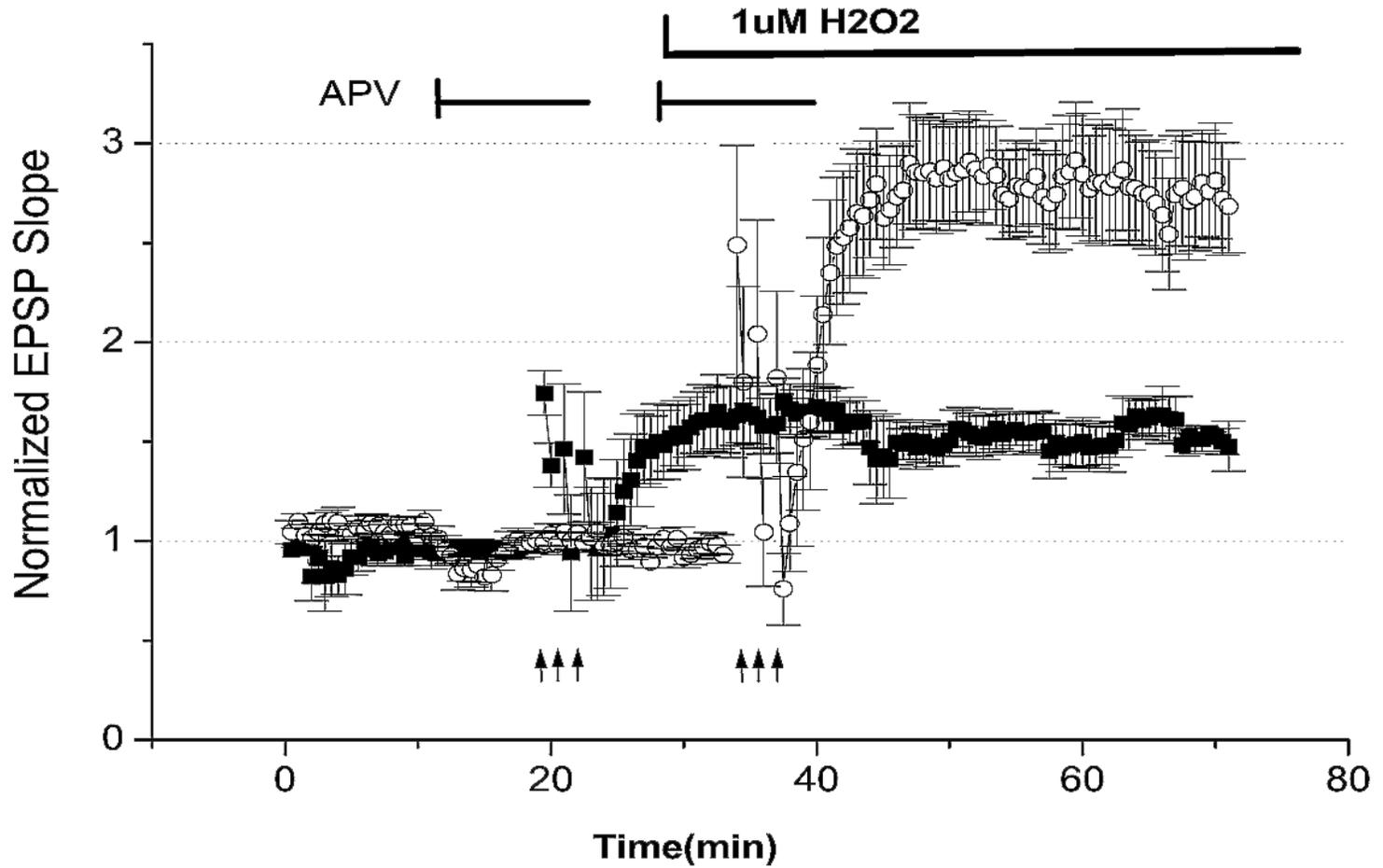


Figure by MIT OpenCourseWare

Complicating the picture

- Calcium can enter the cell through other channels.
- Calcium entering the cell can do things other than LTP.

Non NMDA LTP

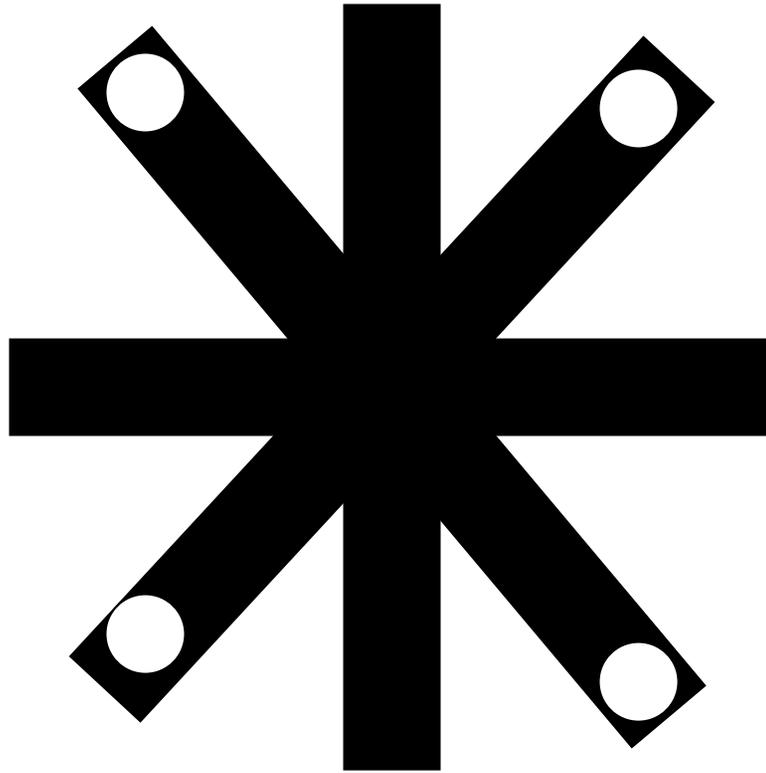


Adapted from Kamsler, A. and M. Segal. "Hydrogen Peroxide Modulation of Synaptic Plasticity." *J. Neurosci.* 23 (2003): 269-276

8 arm task

RM – reference memory – long term

WM – working memory – short term



Questions for next week

- Dudek and Bear – what are the characteristics shared by LTP and LTD?
- Borroni et al – in figure 5 – what is represented by the dark bars in panel A? and what in panel B?