Midterm 4 Review
The number of hours you feel you have spent on NIA and COGS107a this Summer!!

89,526,124
"Tell me how you would prove that Golgi was right?"

Golgi should have done these experiments!!

Which experiment did Loewi do? Would that support Golgi or not?
Tell me all about them....
LAMBDA IS....

Tell me all about lambda...
what determines it?
Why do we care?
WHAT UP WITH ACETYLCHOLINE?

Receptor types?  Agonists & Antagonists  Where?

How am I made? And how am I broken down?

Transporters?
Quantal Analysis of EPSPs. The elementary unit of neurotransmitter release is the contents of a single synaptic vesicle. Vesicles each contain about the same number of transmitter molecules (several thousand); the total amount of transmitter released is some multiple of this number.

- **Channels closed**
- **Channels open**
- **No current flowing**
- Application of neurotransmitter to membrane patch

**FIGURE 5.18**
Consequently, the amplitude of the postsynaptic EPSP is some multiple of the response to the contents of a single vesicle. Stated another way, postsynaptic EPSPs at a given synapse are quantized; they are multiples of an indivisible unit, the quantum, which reflects the number of transmitter molecules in a single synaptic vesicle and the number of postsynaptic receptors available at the synapse.

At many synapses, exocytosis of vesicles occurs at some very low rate in the absence of presynaptic stimulation. The size of the postsynaptic response to this spontaneously released neurotransmitter can be measured electrophysiologically. This tiny response is a miniature postsynaptic potential, often called simply a mini. Each mini is generated by the transmitter contents of one vesicle. The amplitude of the postsynaptic EPSP evoked by a presynaptic action potential, then, is simply an integer multiple (i.e., $1\times$, $2\times$, $3\times$, etc.) of the mini amplitude.

Quantal analysis, a method of comparing the amplitudes of miniature and evoked PSPs, can be used to determine how many vesicles release neurotransmitter during normal synaptic transmission. Quantal analysis of transmission at the neuromuscular junction reveals that a single action potential in the presynaptic terminal triggers the exocytosis of about 200 synaptic vesicles, causing an EPSP of 40 mV or more. At many CNS synapses, in striking contrast, the contents of only a single vesicle are released in response to a presynaptic action potential, causing an EPSP of only a few tenths of a millivolt.

Look in CH5!
### Compare and Contrast Neurotransmitters

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<th>Amino Acids</th>
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Any questions?
You can find me at @username & user@mail.me

How does the xmtr get from synthesis to release and back?

I’m gonna be “docked” soon! Yippee!
SYNAPSE CLASSIFICATION
EPSP VS IPSP
What makes it so?

What about electrical EPSPs? → can they elicit an AP?
89,526,124 hours
That's a lot of time!

100%
Total learning!

185,244
And a lot of lab report figures