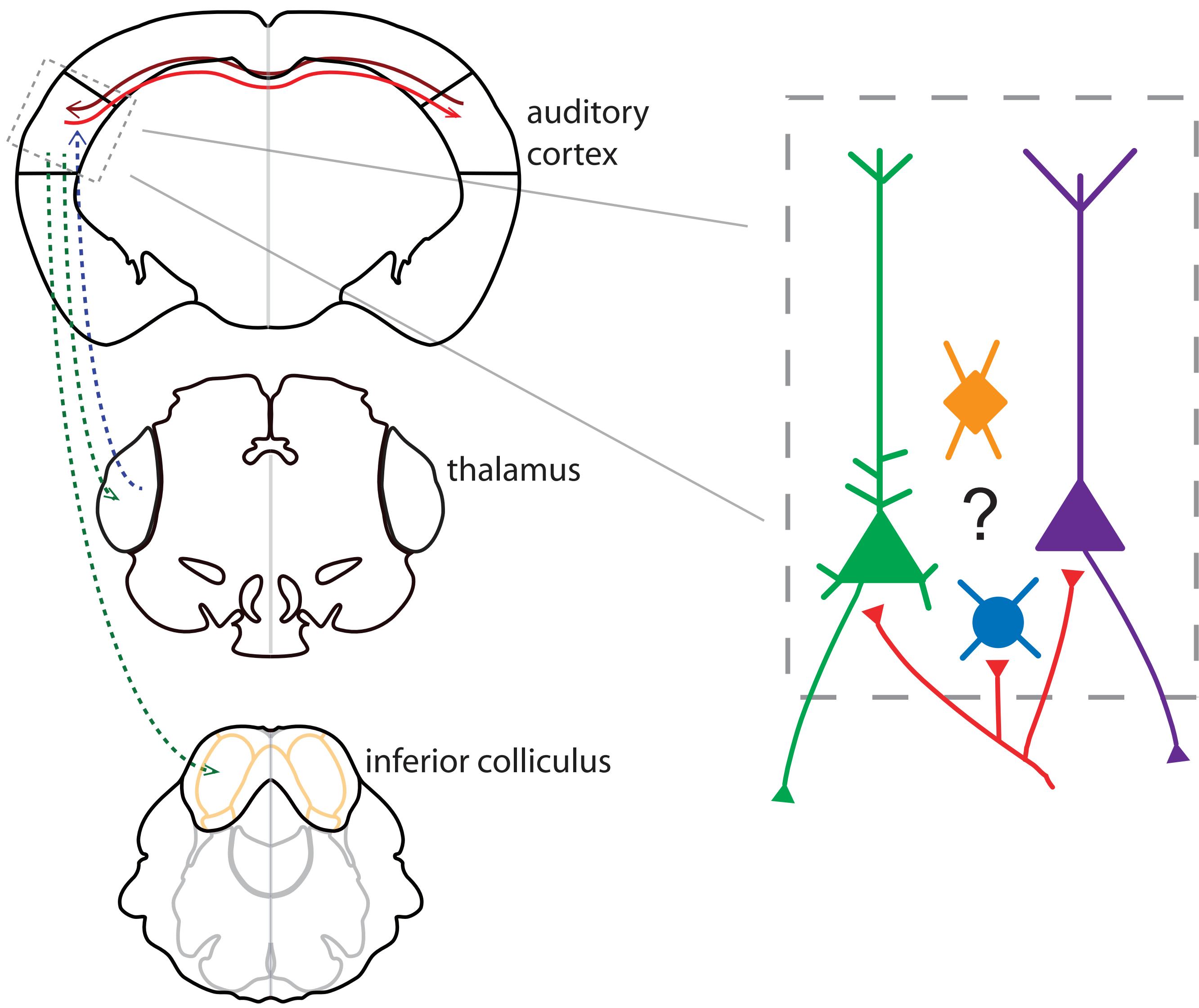




# 66 Organization of Thalamic and Callosal Synaptic Inputs to Projecting Neurons of the Auditory Cortex

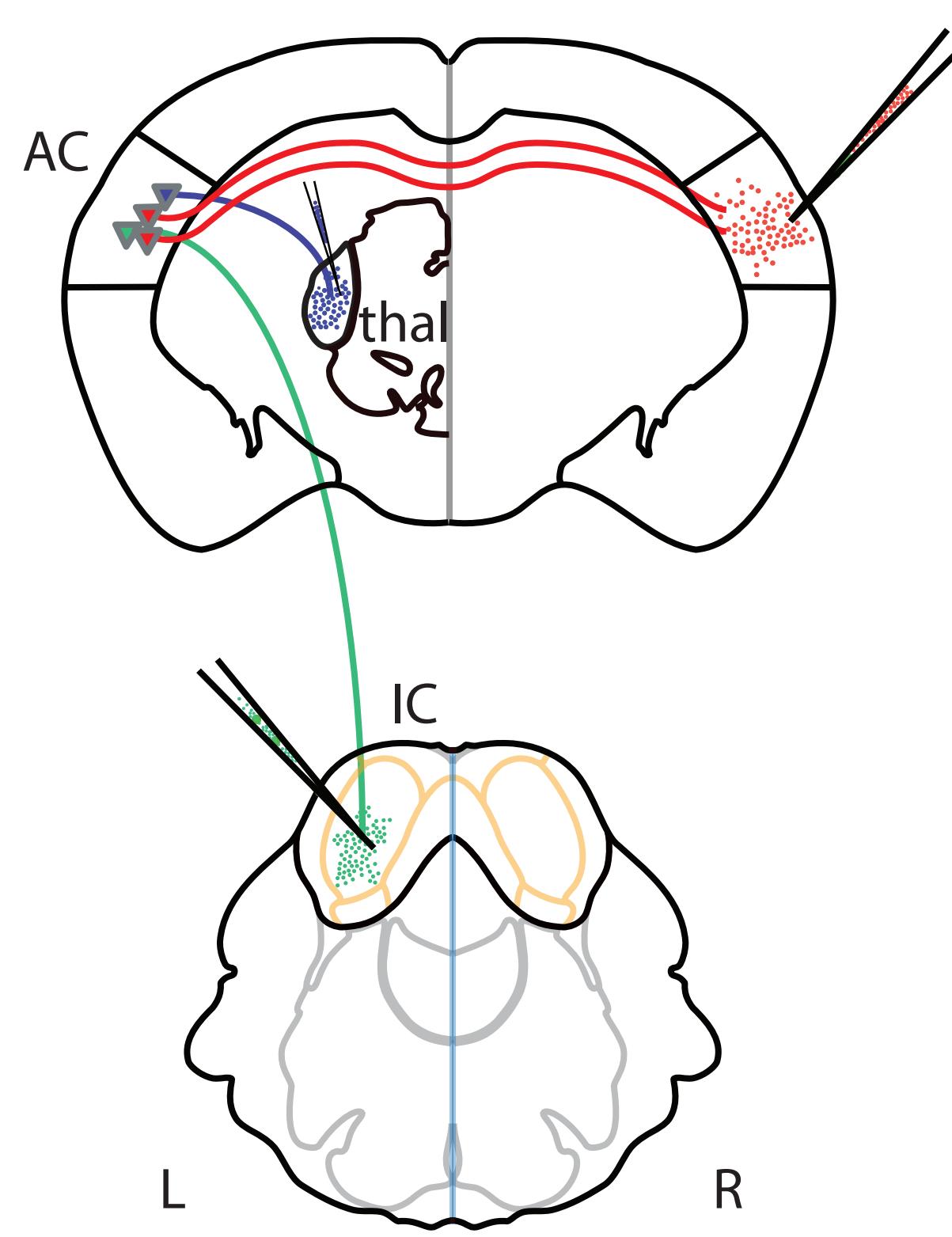
(Alexander Flyax, Crystal Rock, and Alfonso Apicella. UTSA, Department of Biology, Neuroscience Institute)

## 1. Introduction

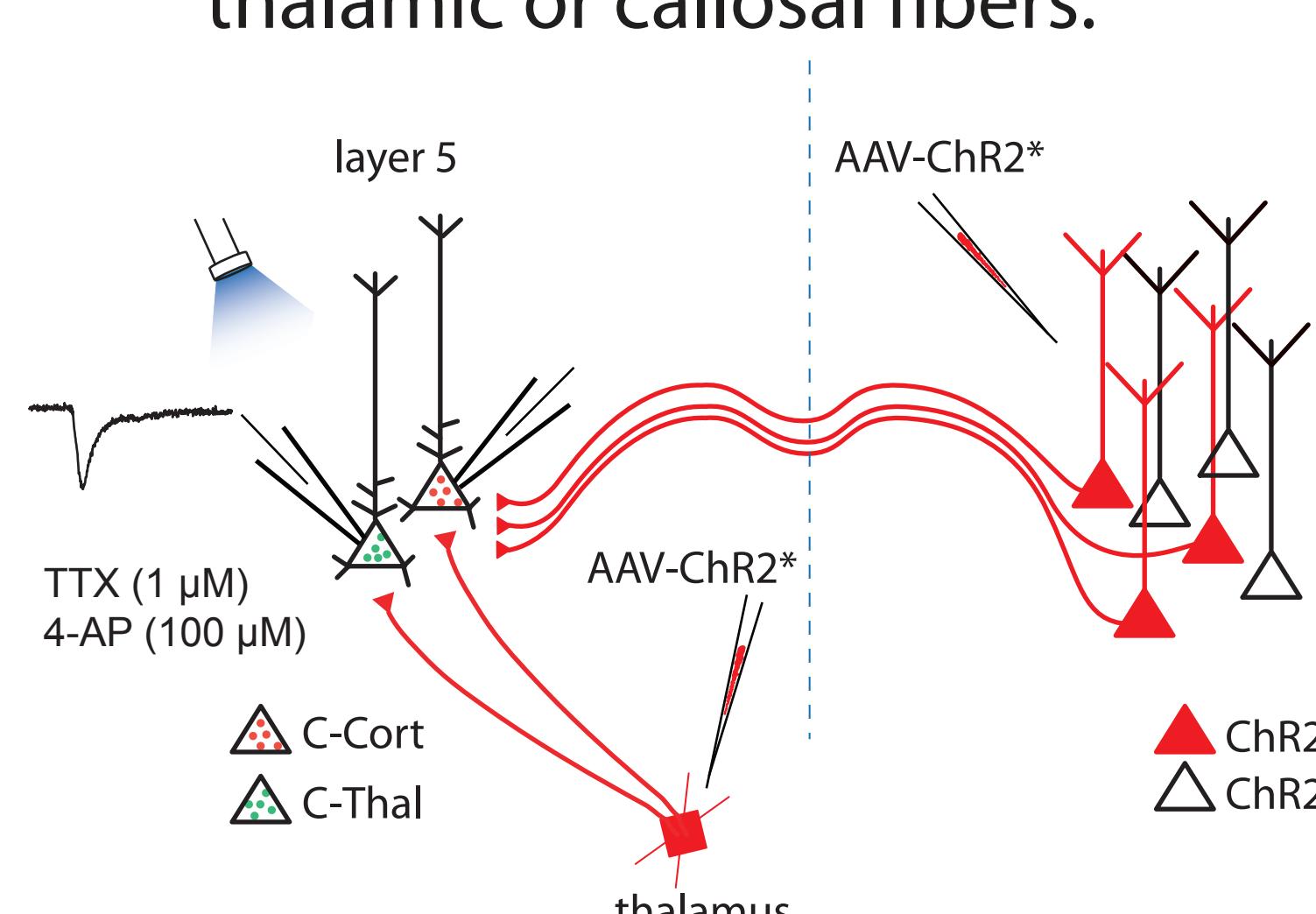


## 2. Methods

retrograde labeling of layer 5 projecting neurons:



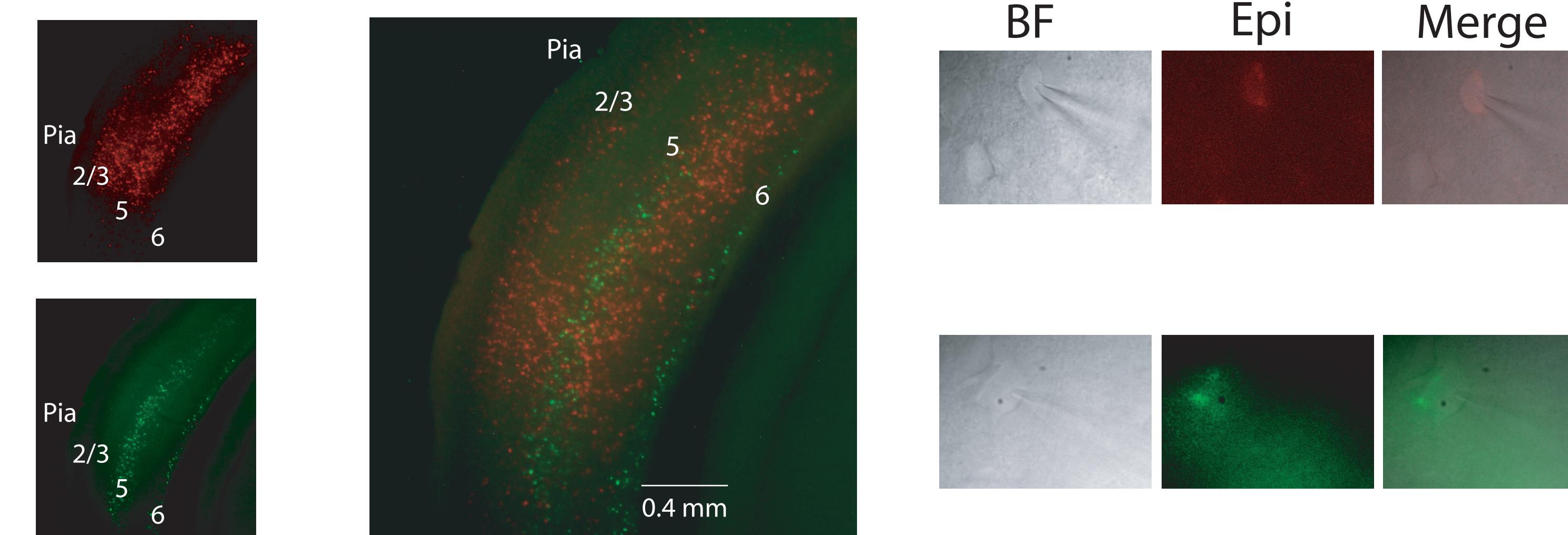
recording of synaptic events from optogenetically activated thalamic or callosal fibers:



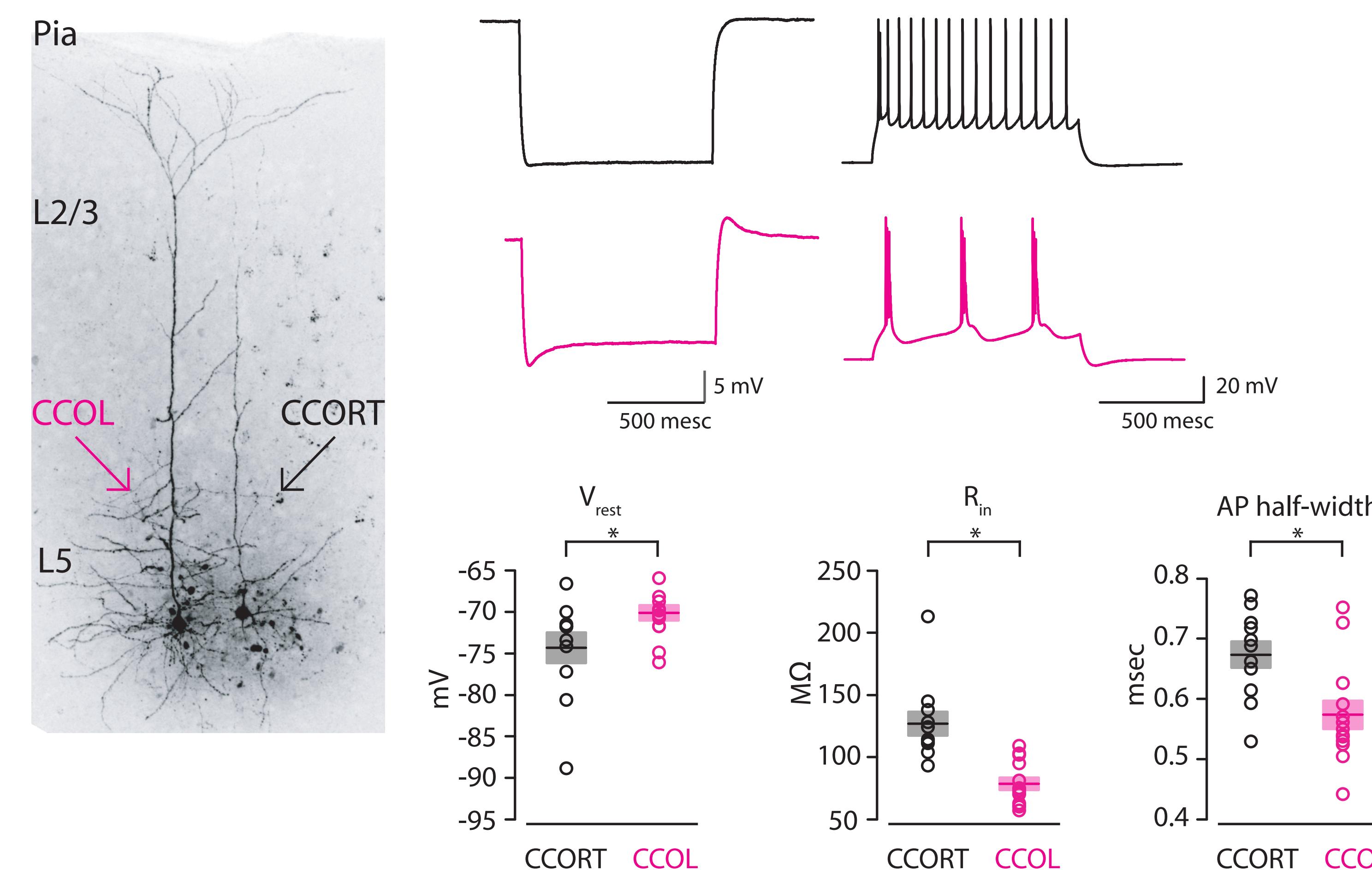
\* stereotaxic injection of channelrhodopsin into either the right auditory cortex or the left thalamus

## 3. Results

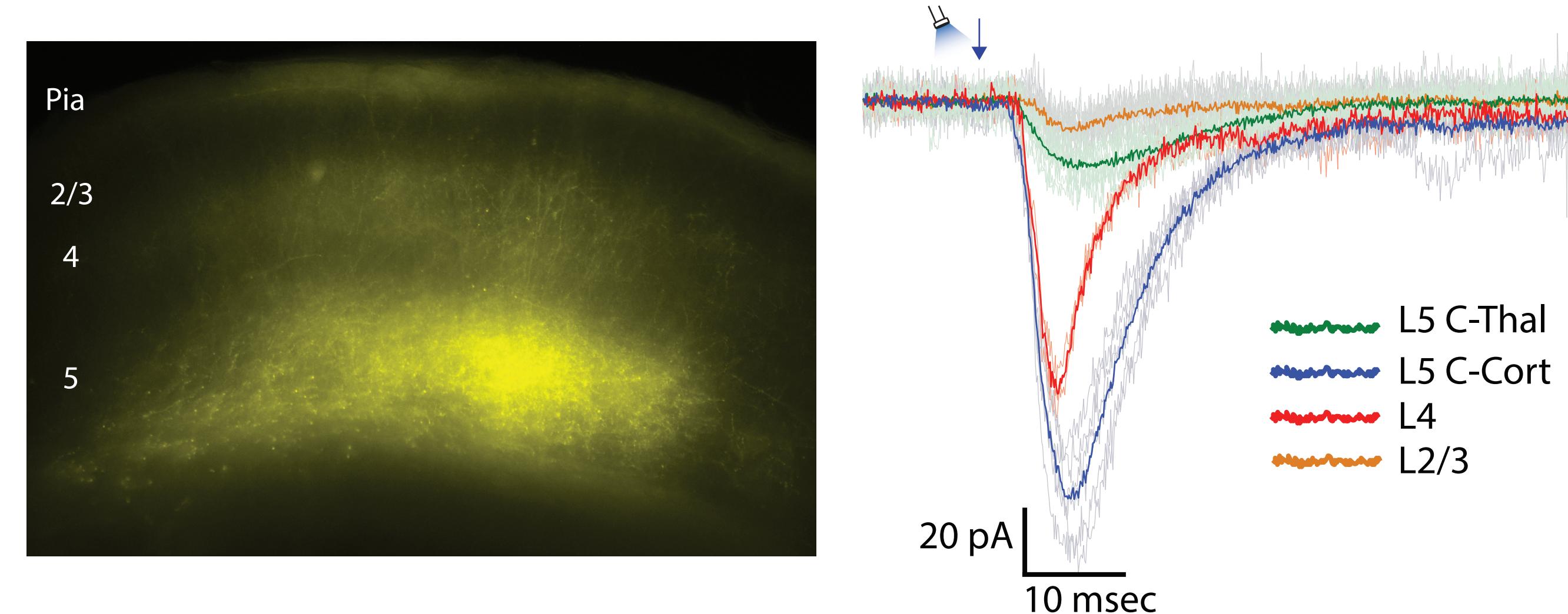
Injection of red beads into the right ACx and green beads into the left IC results in retrograde labeling of layer 5 projecting neurons:



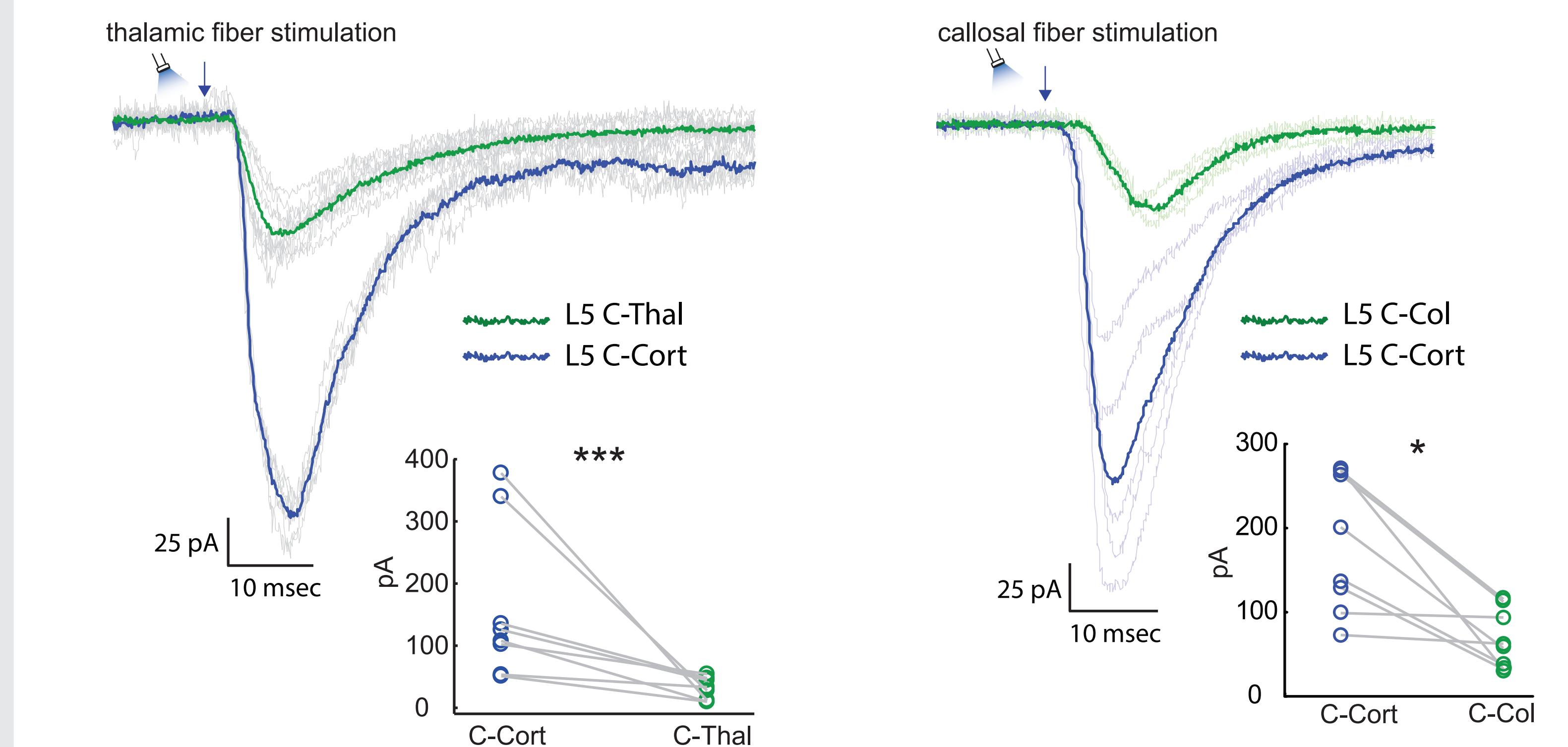
Cortico-cortical and cortico-collicular L5 pyramidal neurons exhibit distinct morphology, intrinsic physiological properties, and firing pattern:



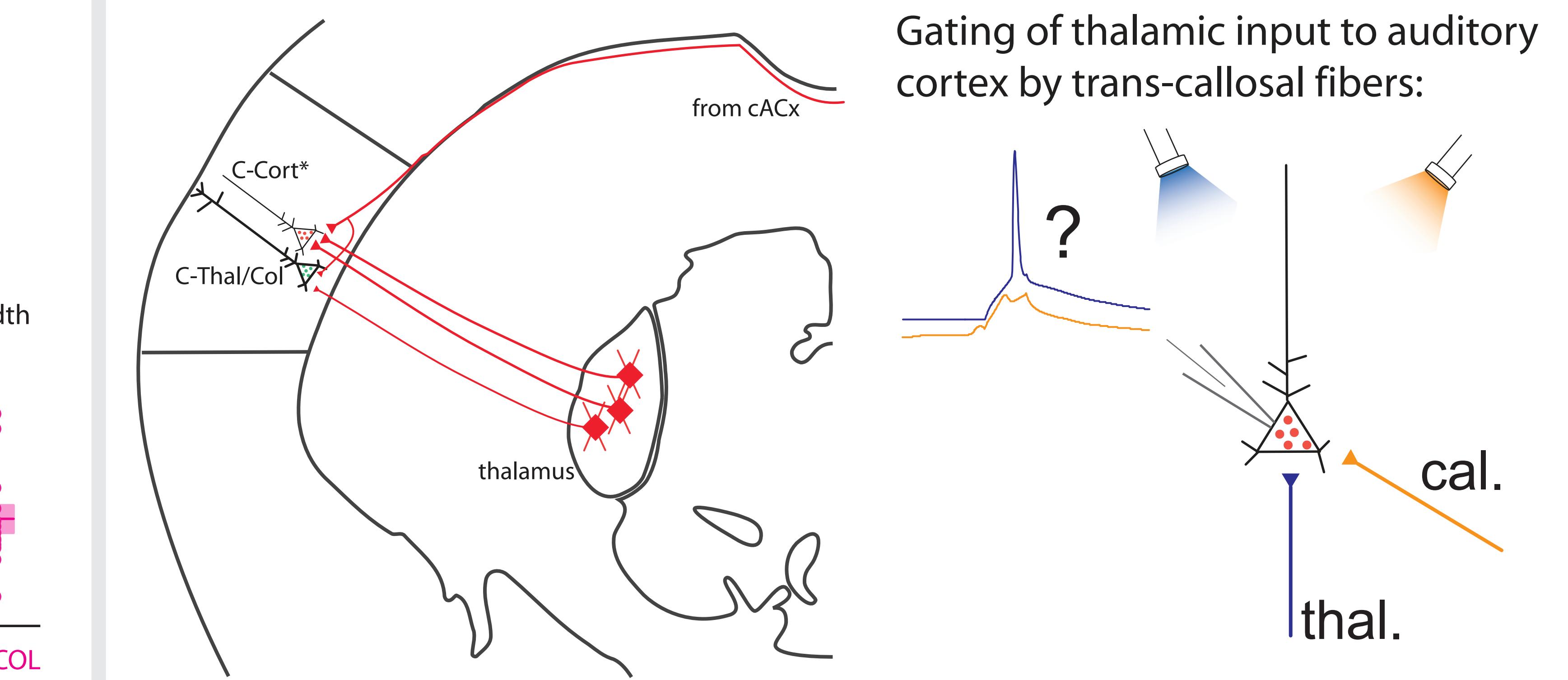
Photostimulation of ChR2+ thalamic axons results in monosynaptic EPSCs:



Thalamocortical and callosal fibers provide stronger monosynaptic input to cortico-cortical than to cortico-thalamic/cortico-collicular pyramidal neurons:



## 4. Summary and future directions:



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