



*Ceci n'est pas un nez*



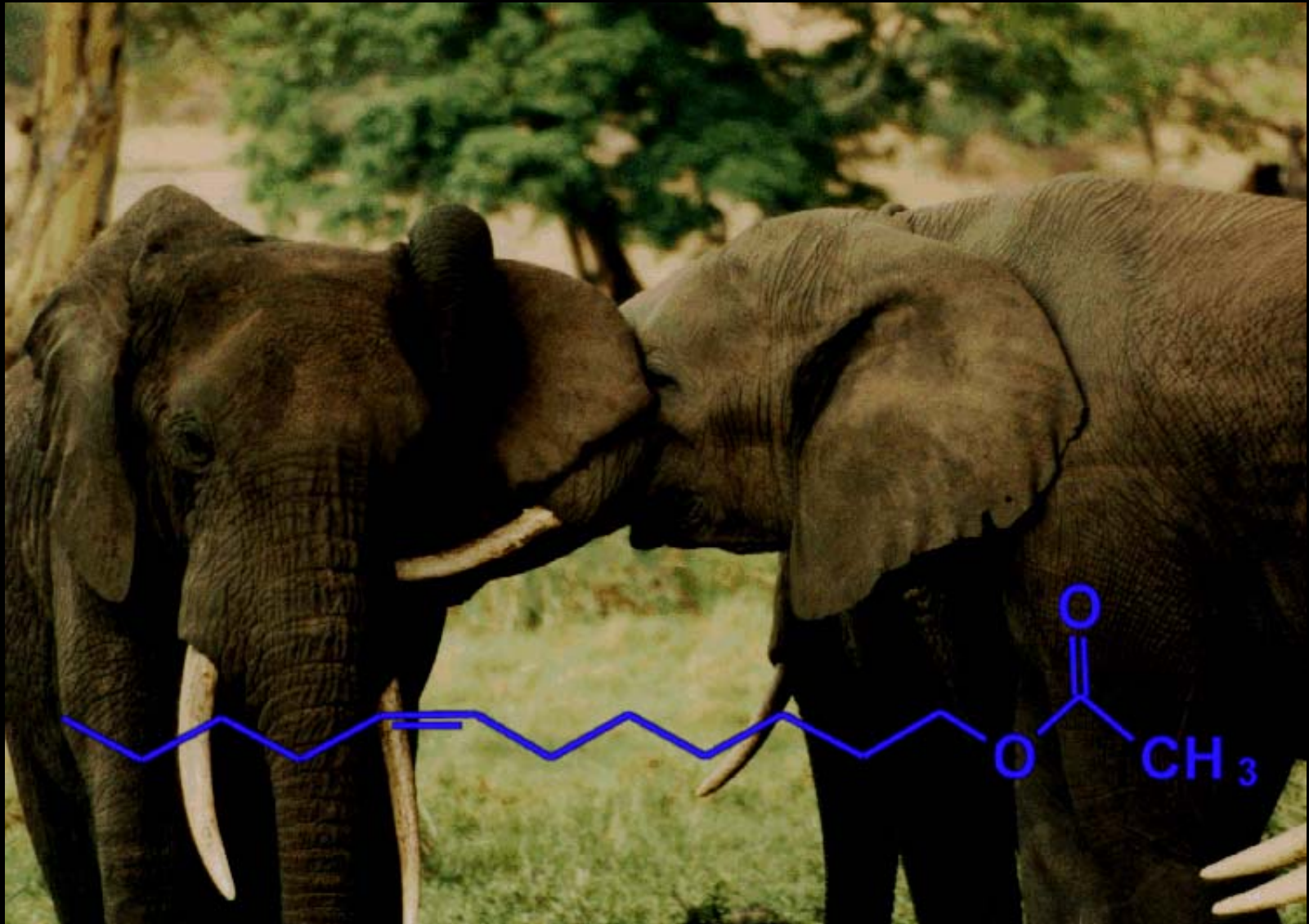








# Pheromone Elicits Discrete Behavior





Magnus



# Different Sensory Modalities Employ Receptor Repertoires of Vastly Different Size



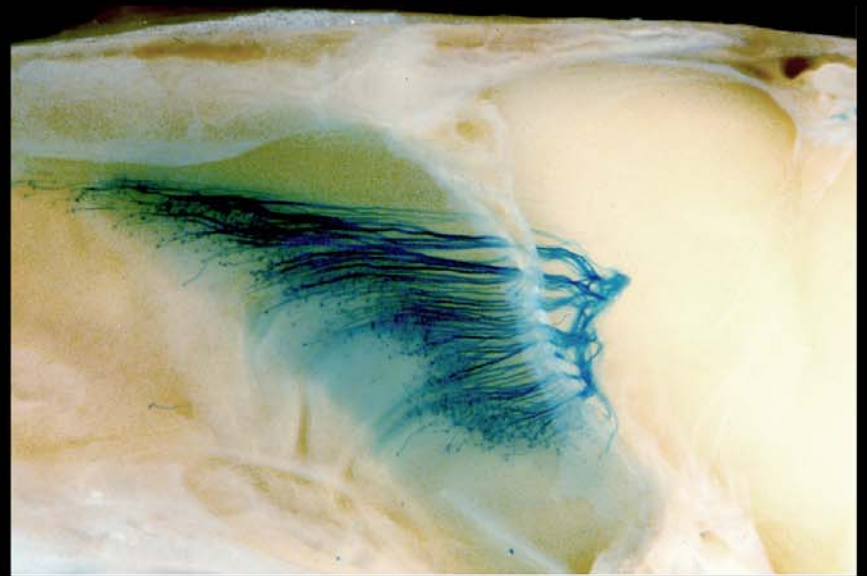
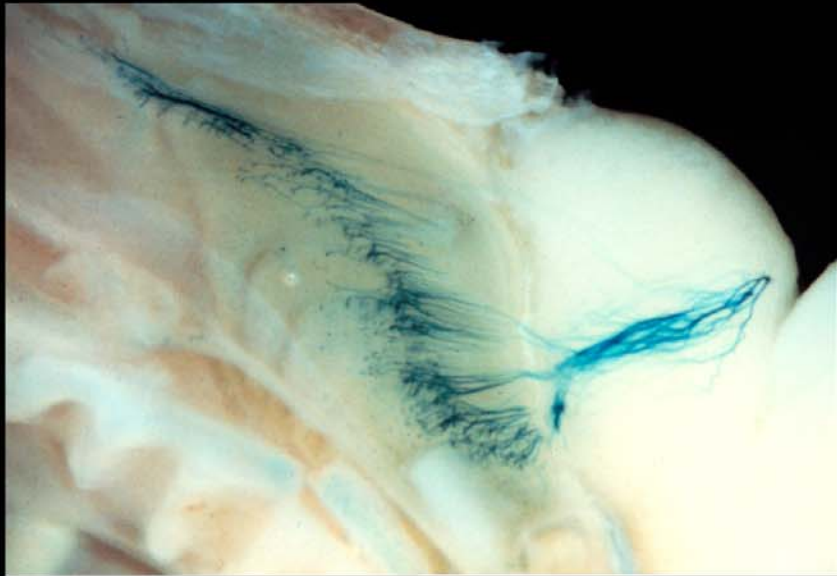
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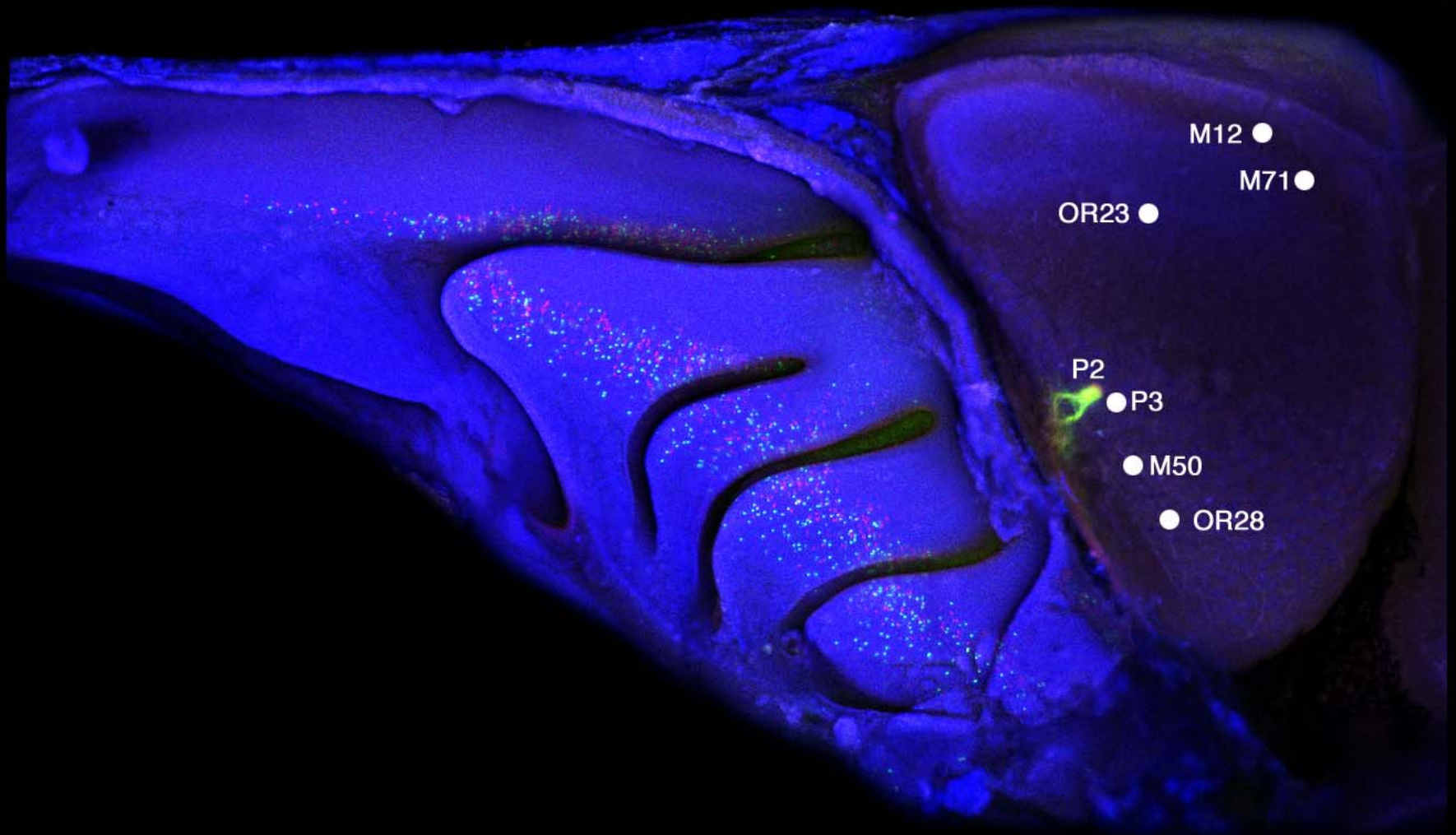
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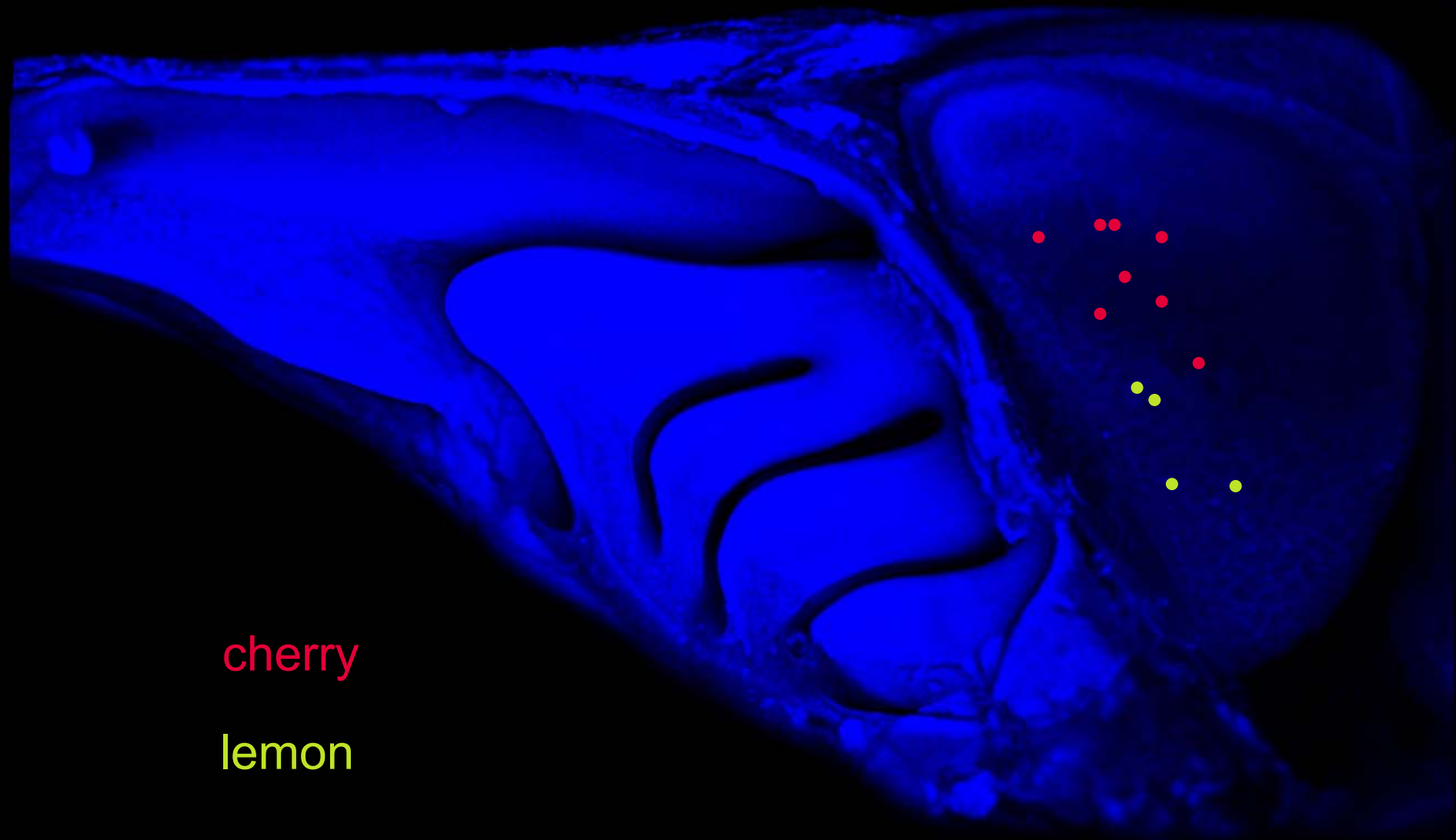
900



# Olfactory Sensory Map



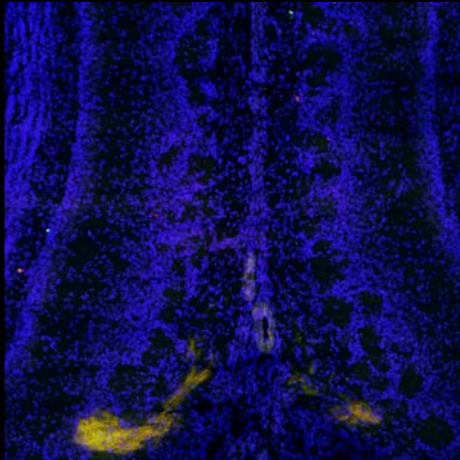
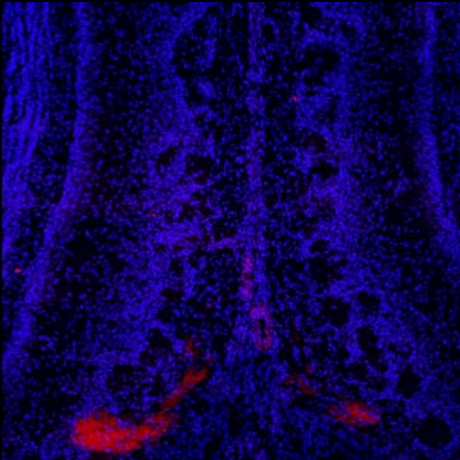
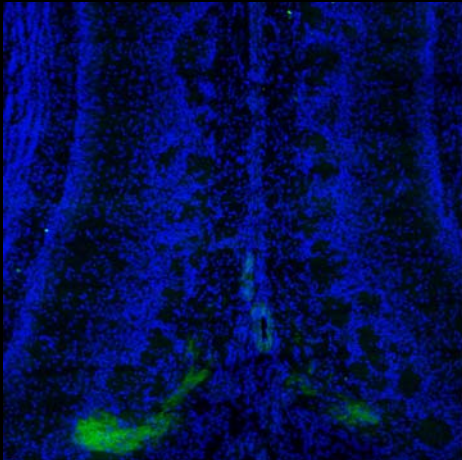
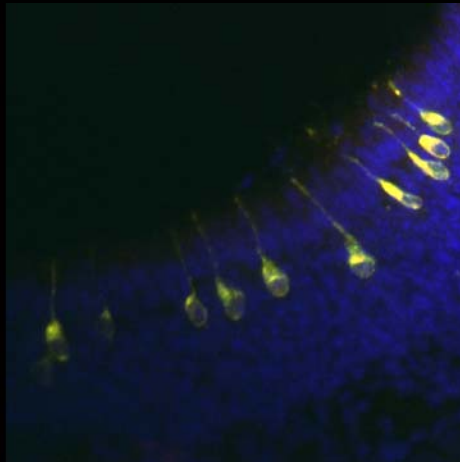
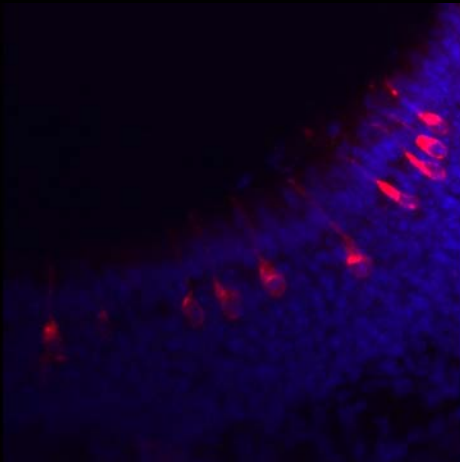
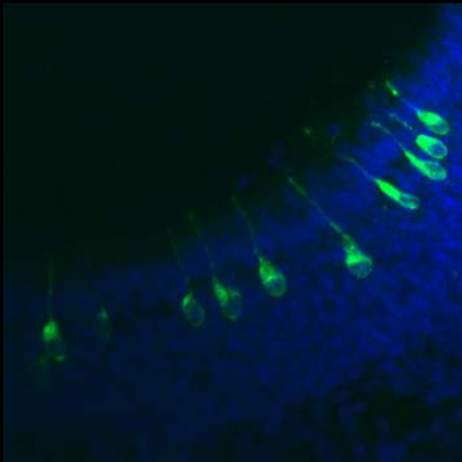
# Odor Quality Encoded By Spatial Pattern of Activation



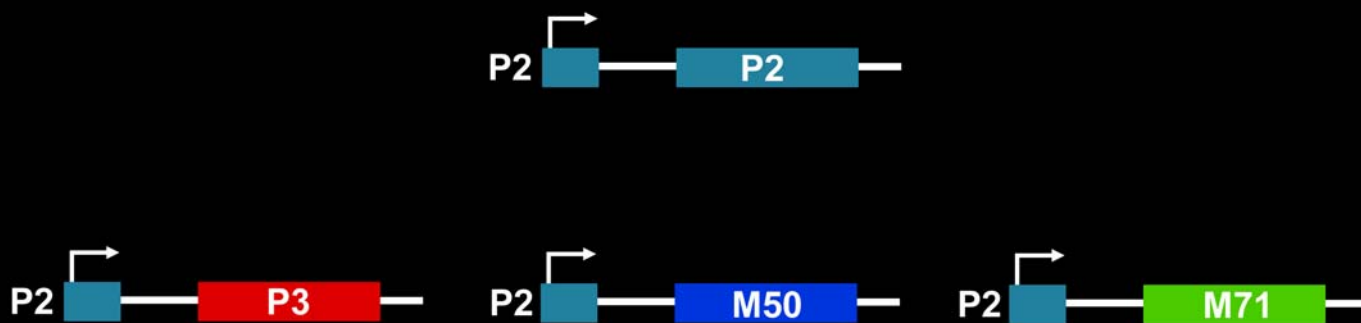
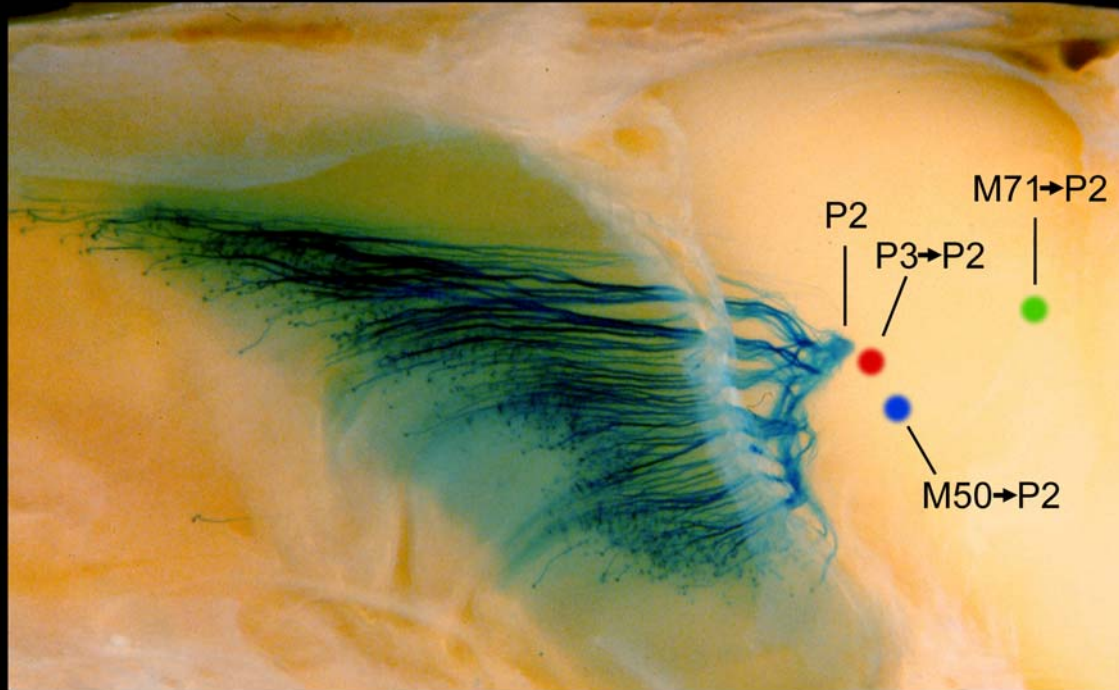
# MOR28 Protein is Present in the Axon Terminal

Cytoplasmic

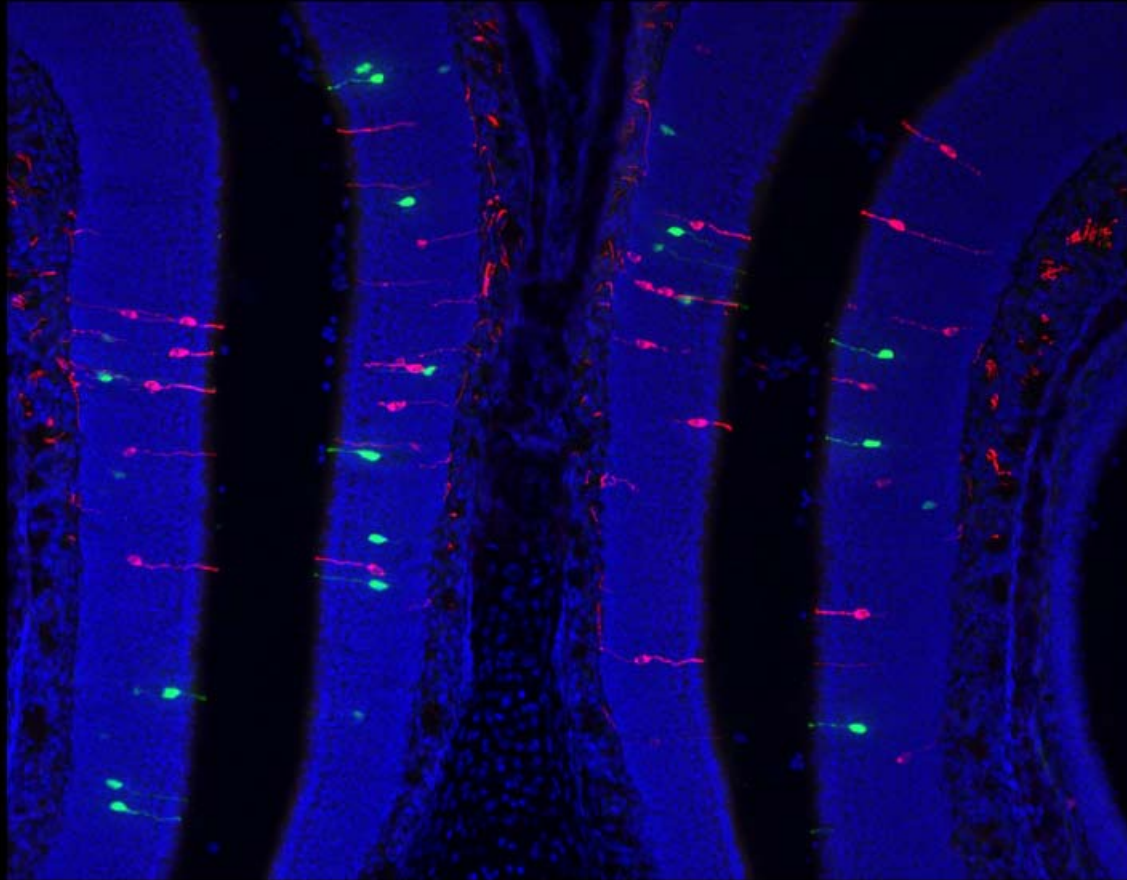
Extracellular



# Receptor Governs Formation Of The Olfactory Sensory Map



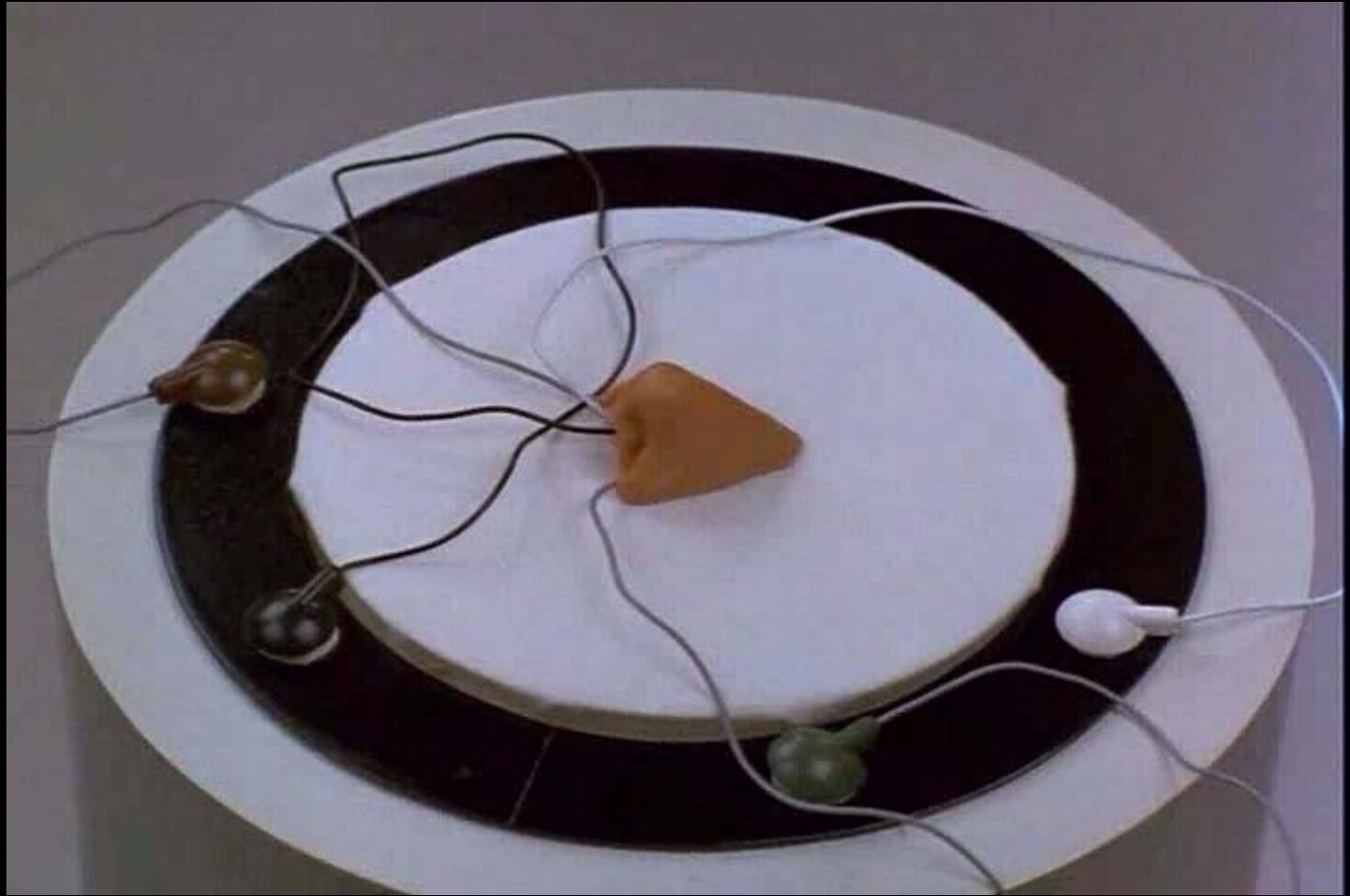
# Singular Expression of OR Genes



Genotype:

— **P2 i $\tau$ lacZ** — Endogenous

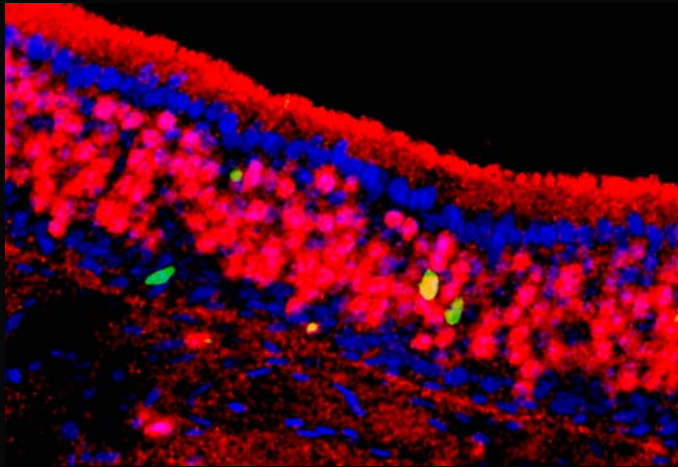
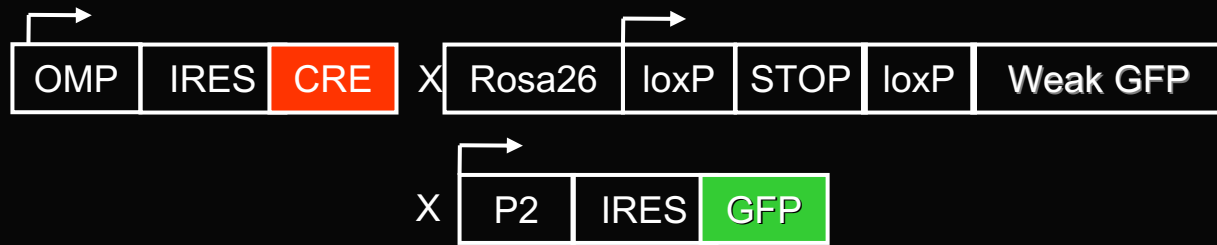
— **P2 iGFP** — Transgene



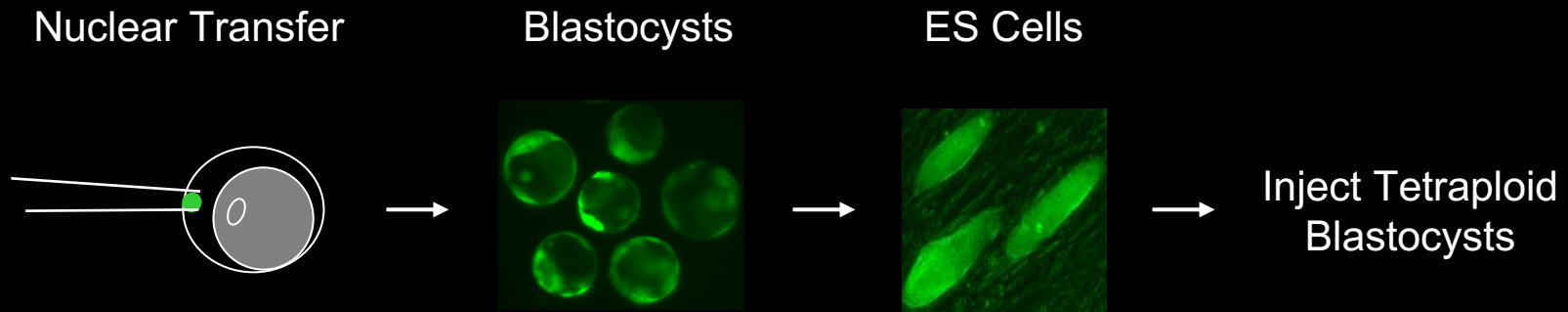




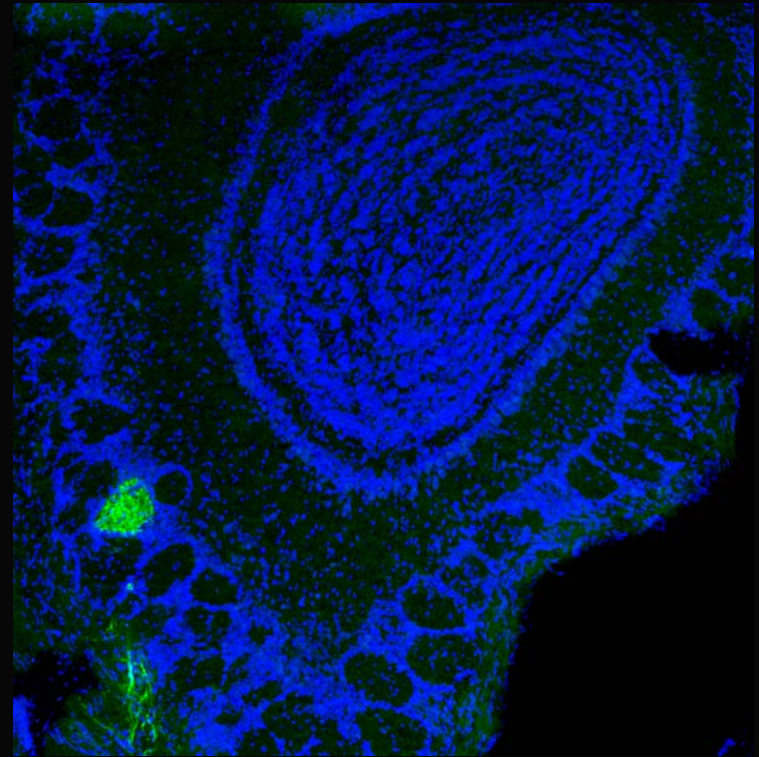
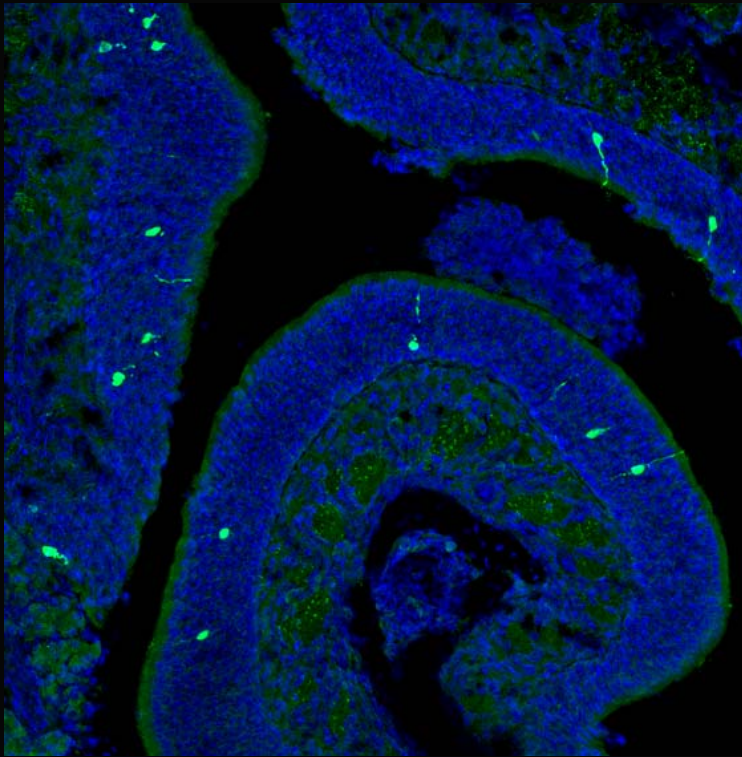
# Cloning mice from a P2 sensory neuron nucleus



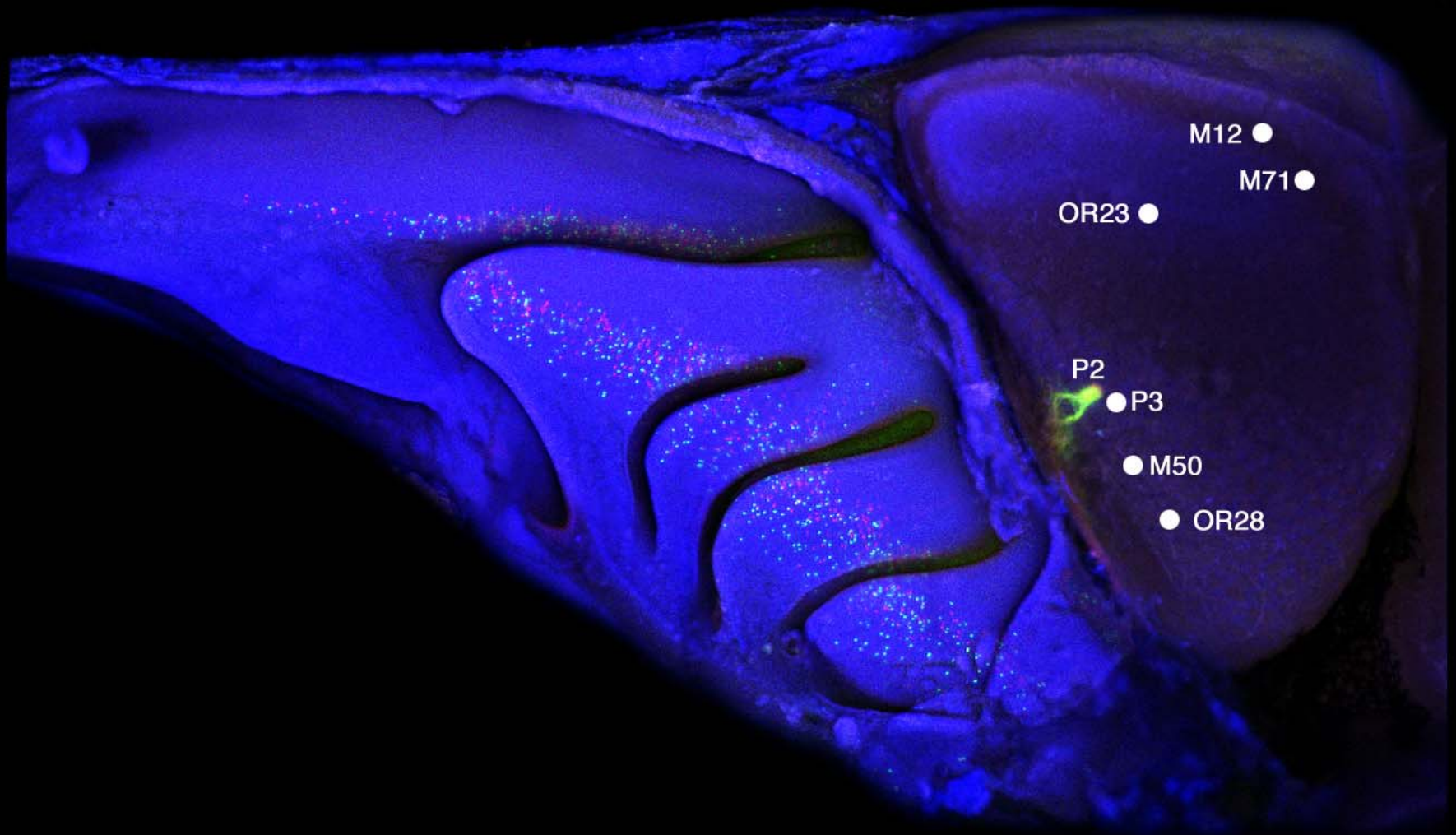
# Cloning mice from a sensory neuron nucleus

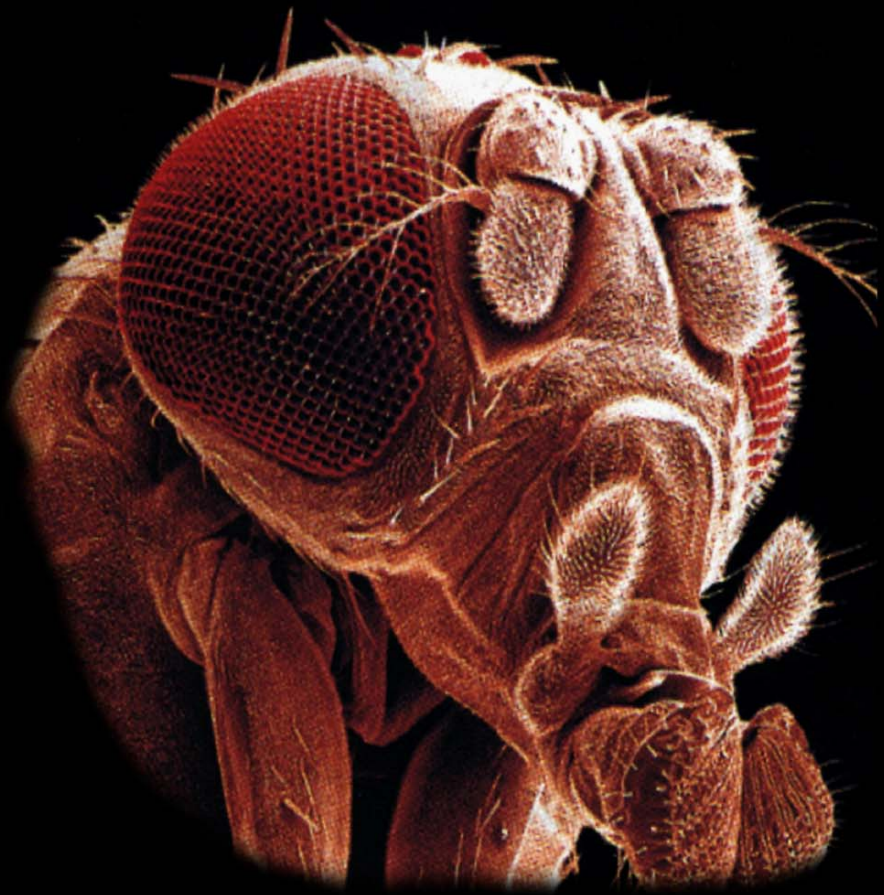


# Expression of the P2 IRES GFP allele in P2 clones

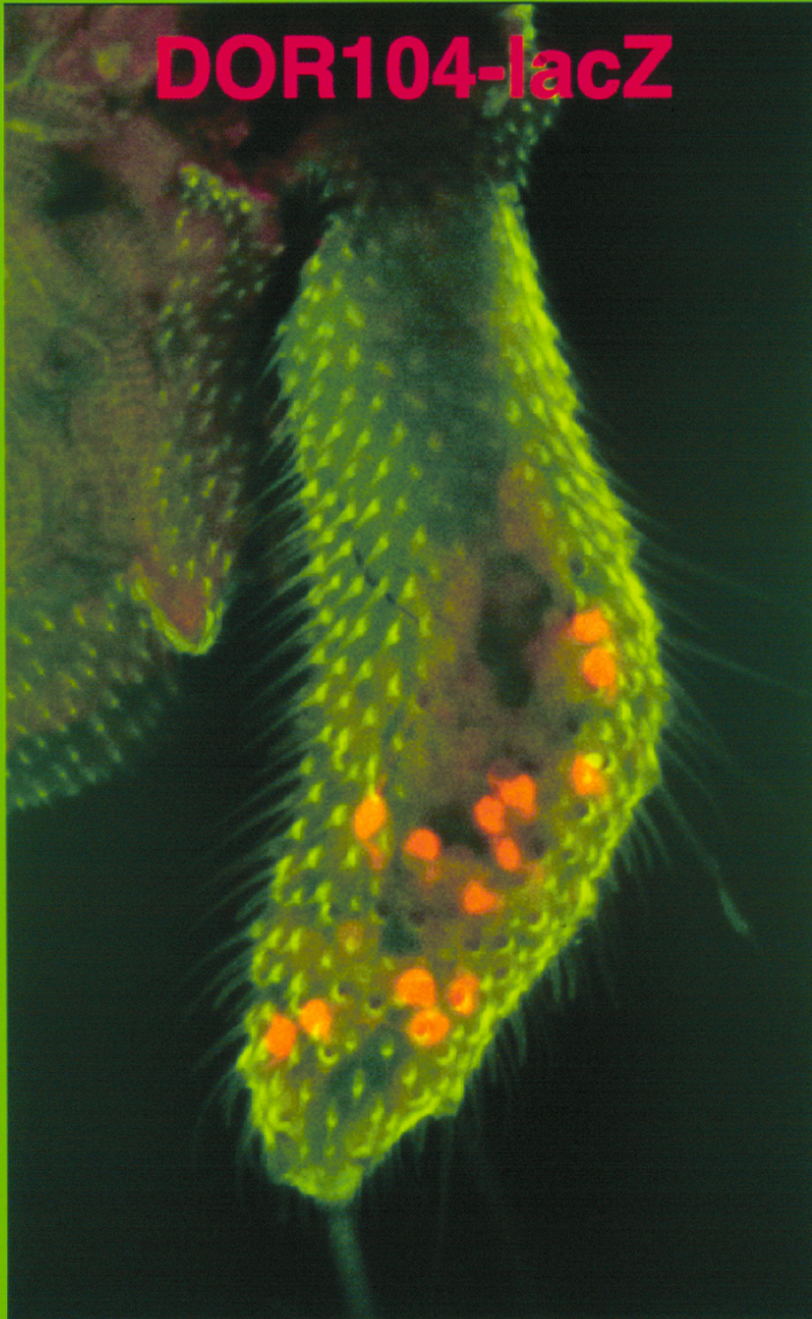


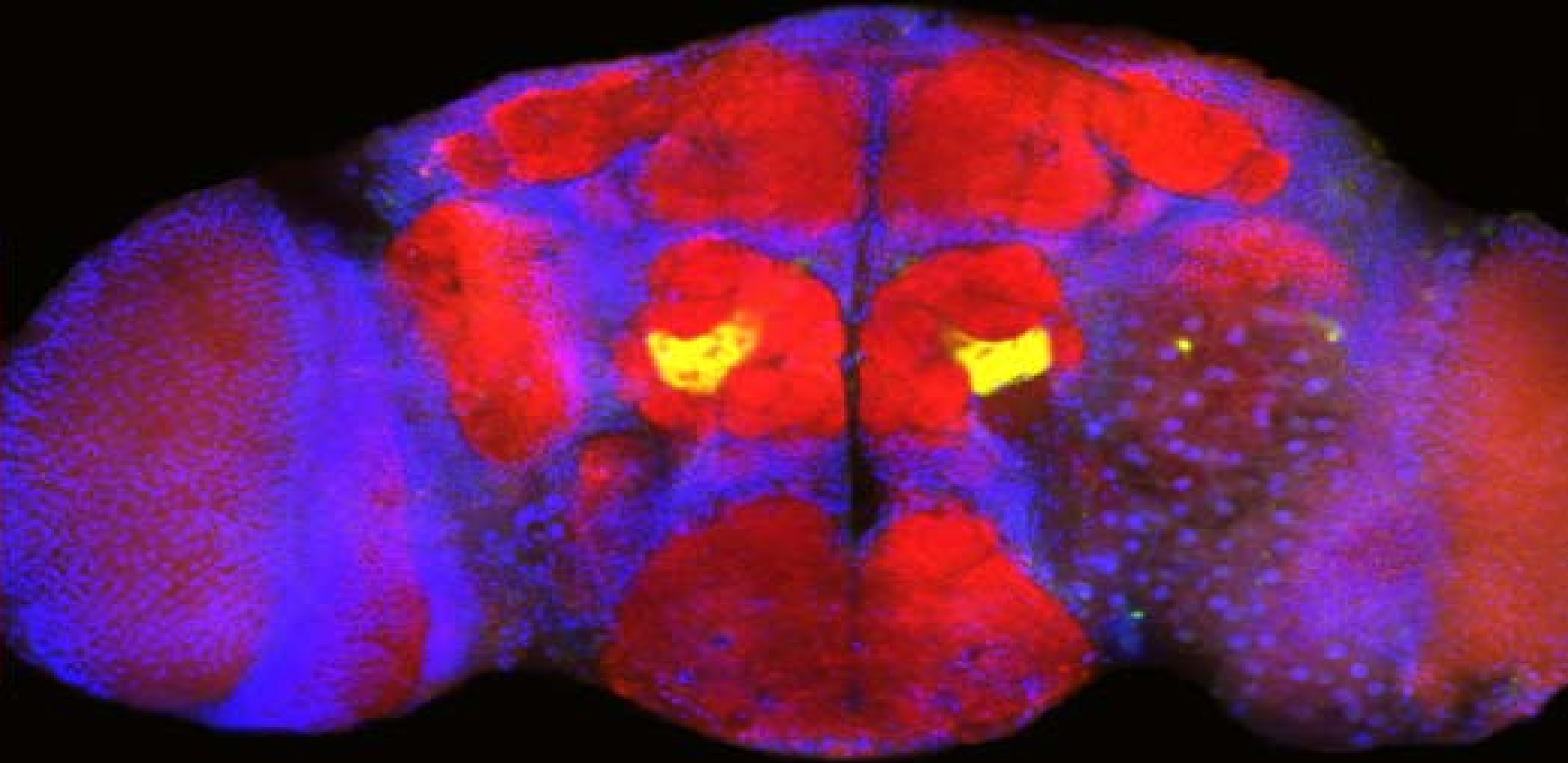
# Olfactory Sensory Map





**DOR104-lacZ**

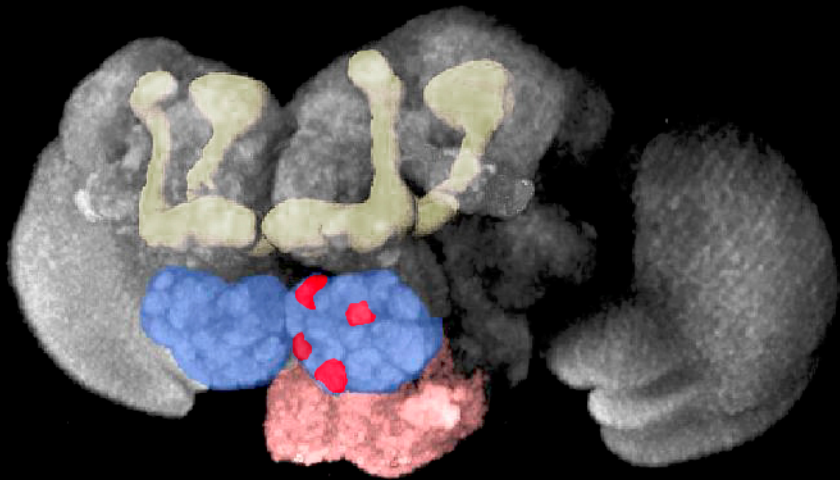




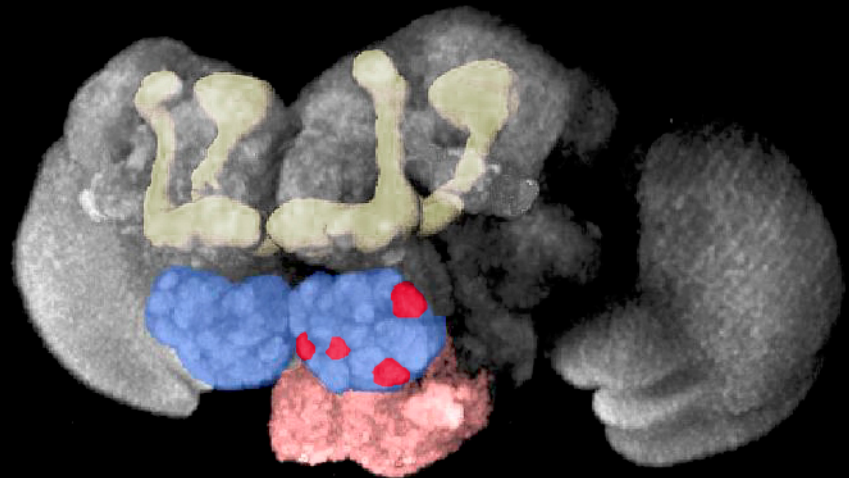
**An Olfactory Sensory Map in the Antennal Lobe**



# A Topographic Map of Odor Quality

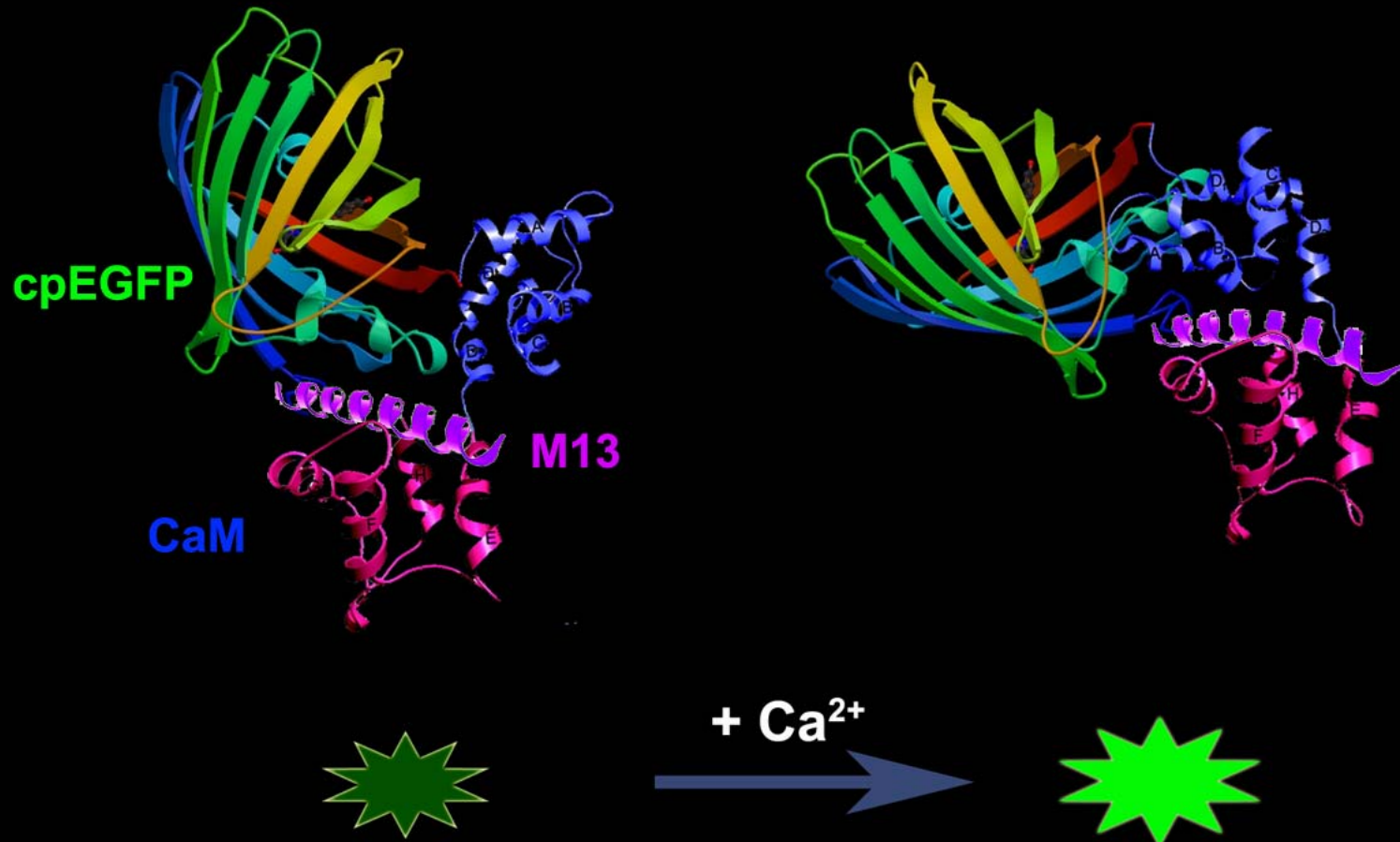


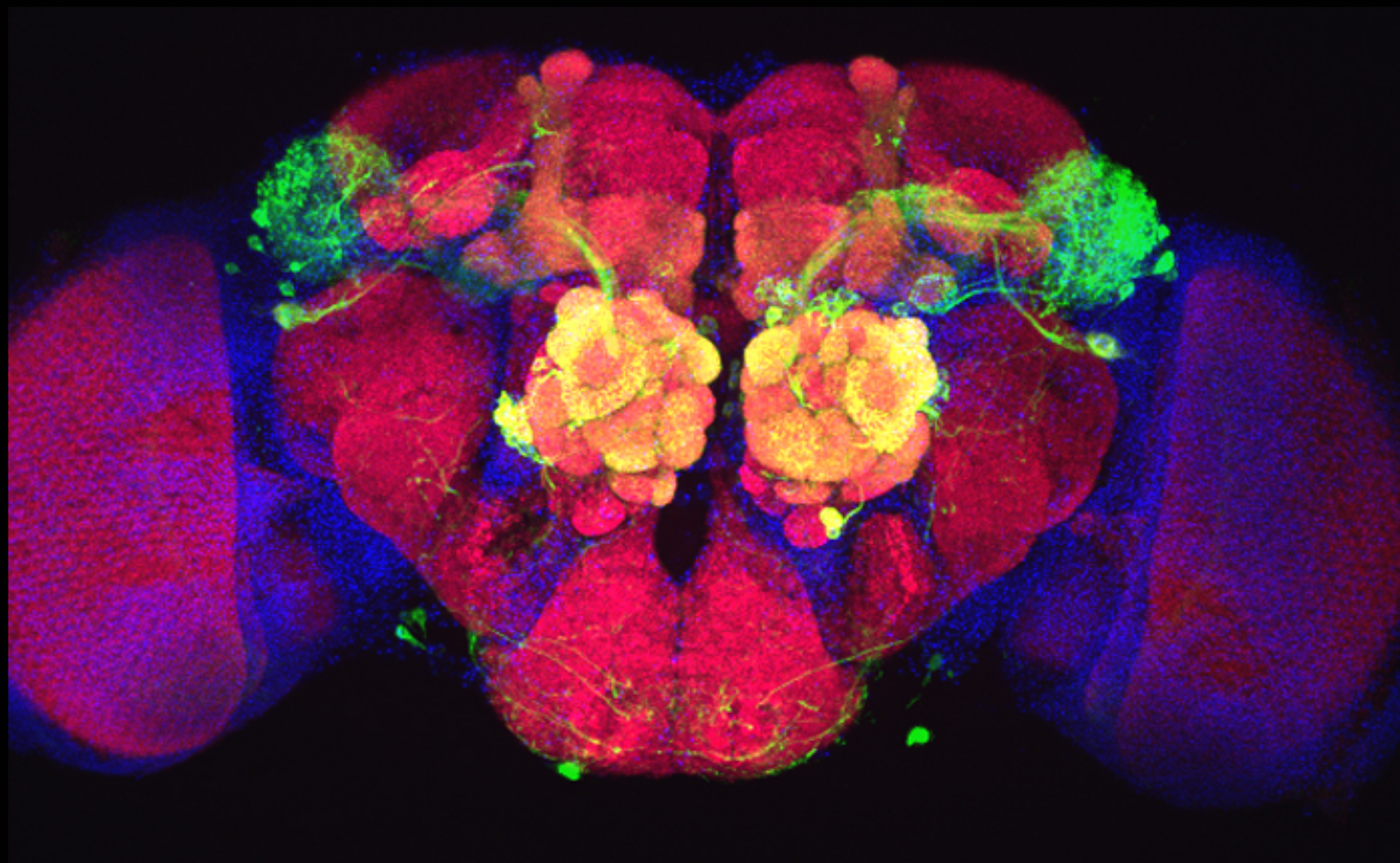
*banana*



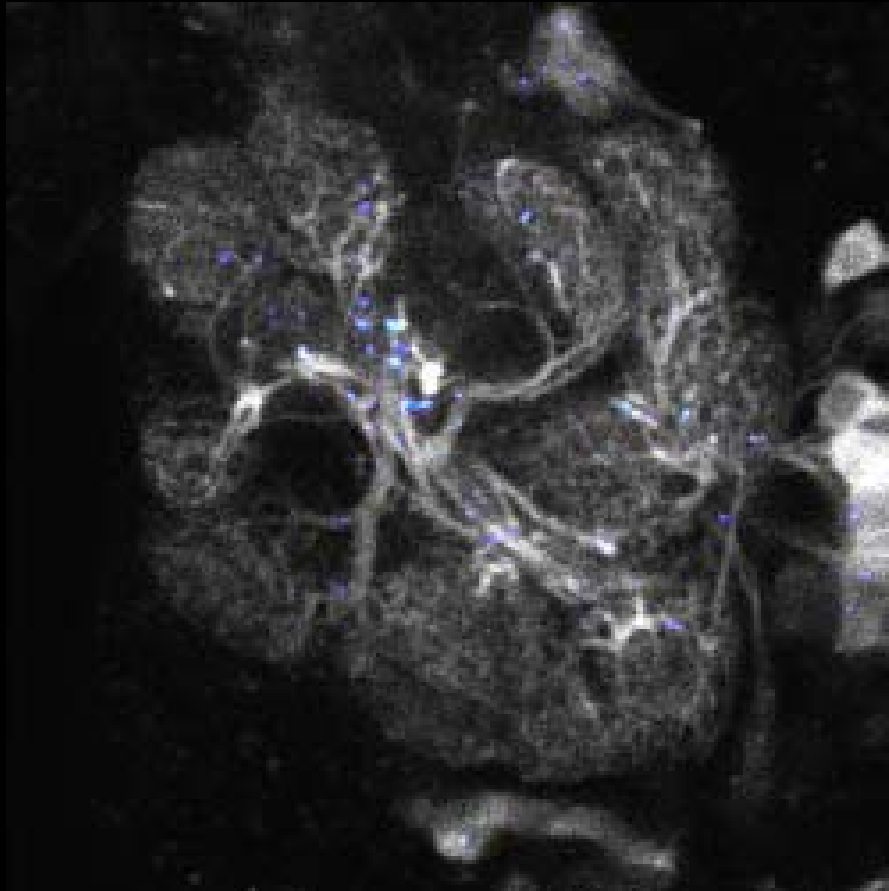
*cherry*

# G-CaMP: a Calcium Sensitive Fluorescent Protein

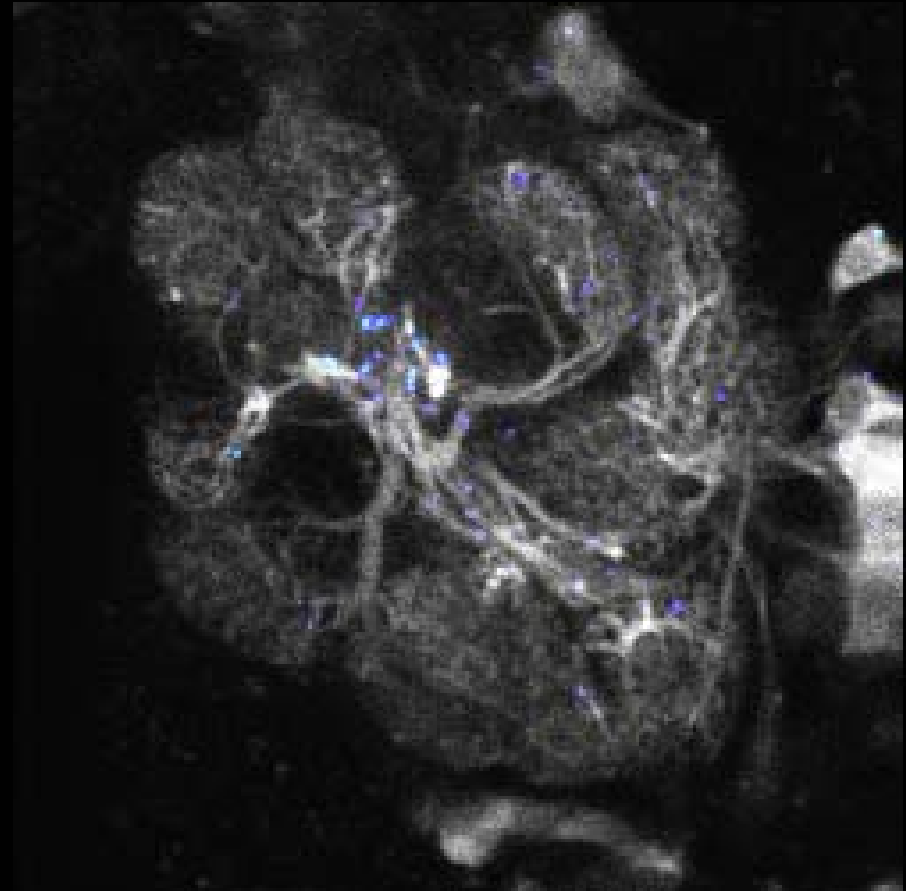




# Glomerular Response to Odor Stimulation at 2% SV

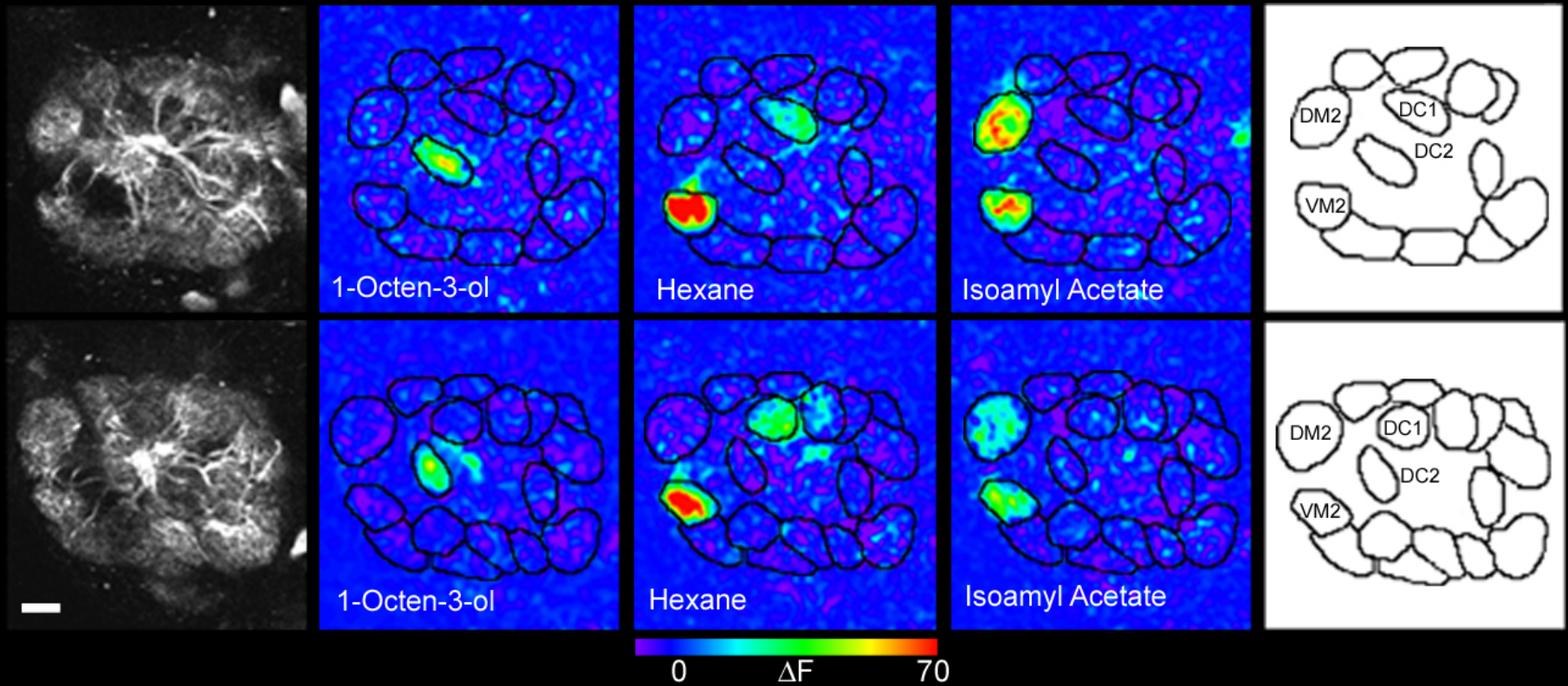


Ethyl hexanoate

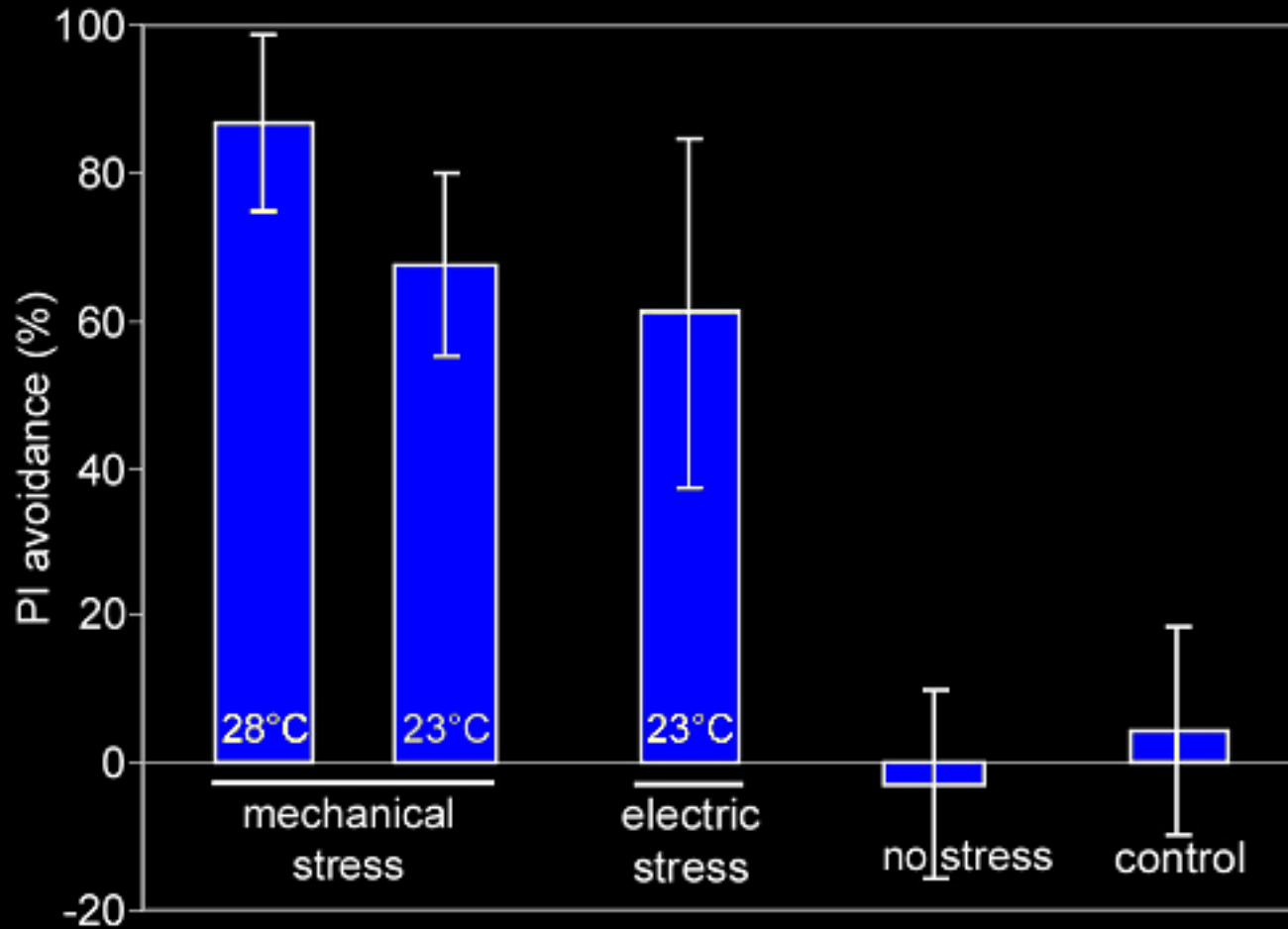


Isoamyl acetate

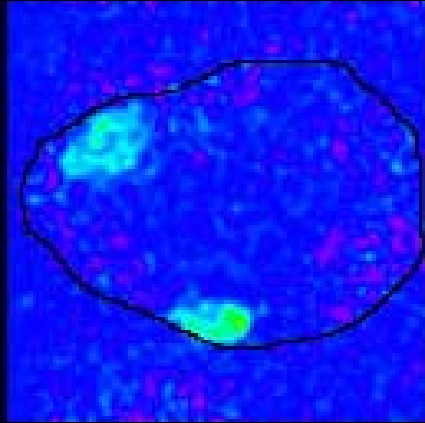
# Conserved Glomerular Patterns in Different Animals



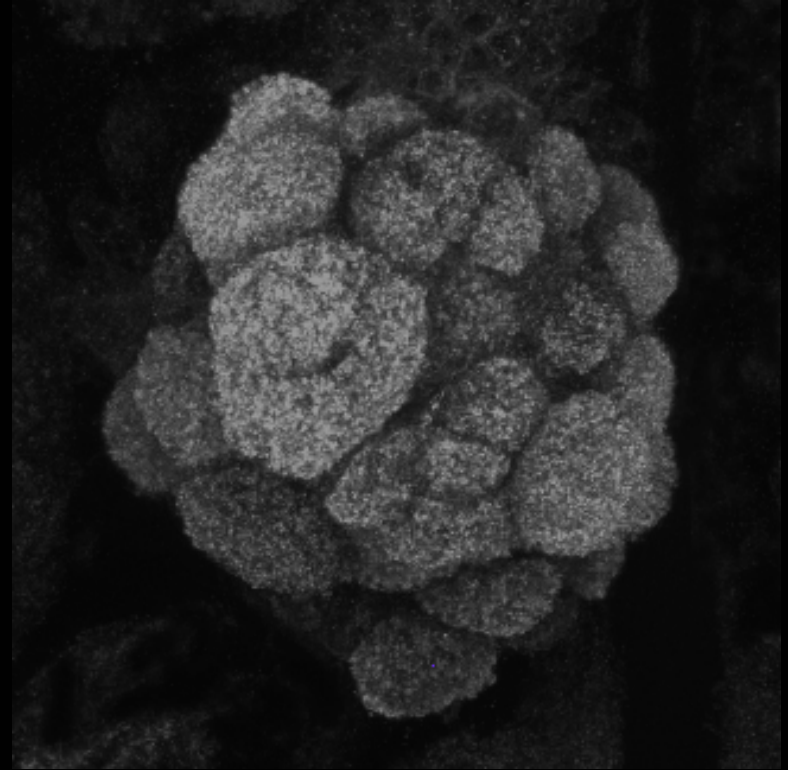
# Stress Odors: *Drosophila* Alarm Response?



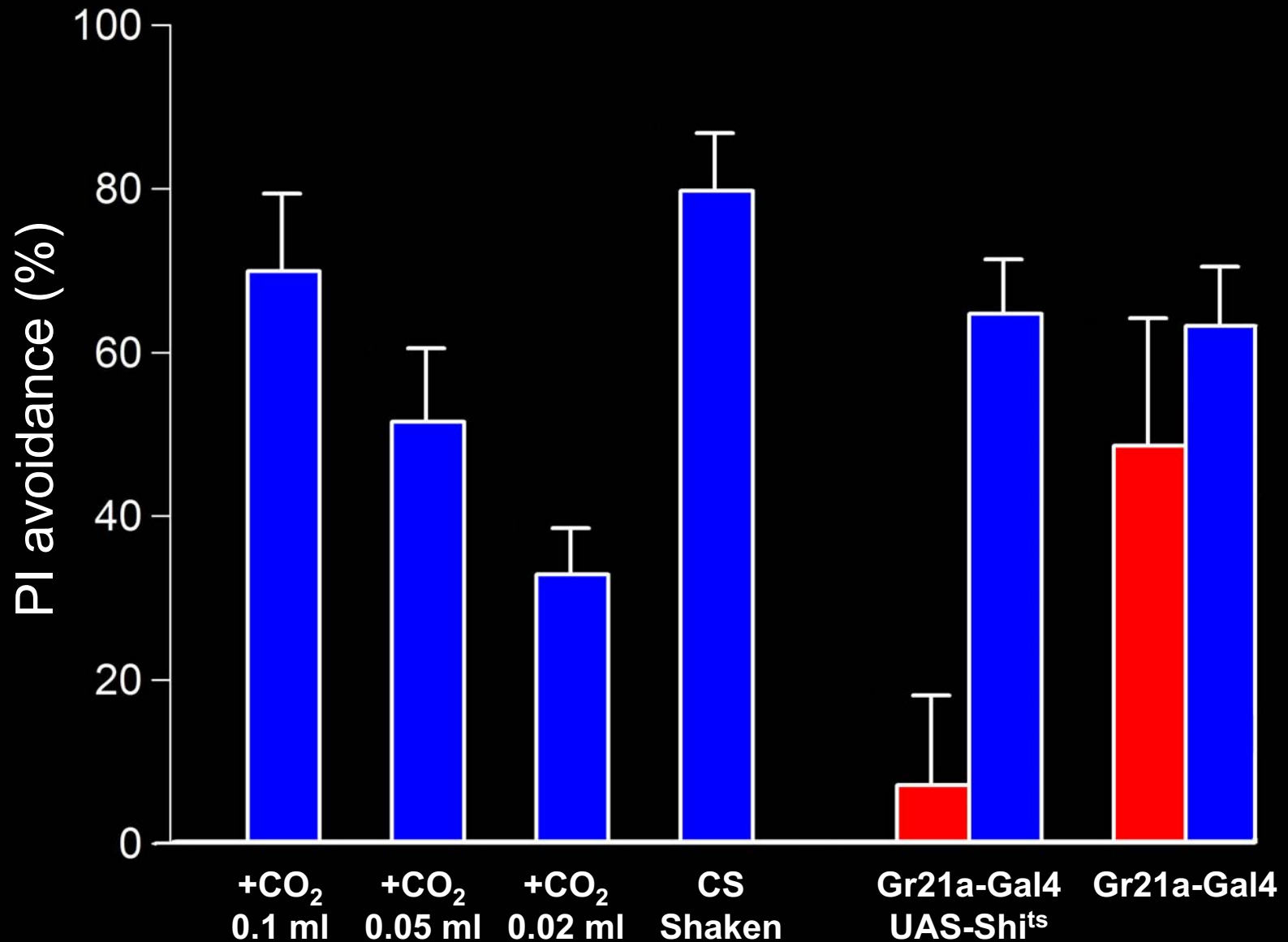
# Activation of the V glomerulus by Stress Odor and CO<sub>2</sub>



C761: G-CaMP



# A Single Glomerulus Mediates the Behavioral Response to CO<sub>2</sub>

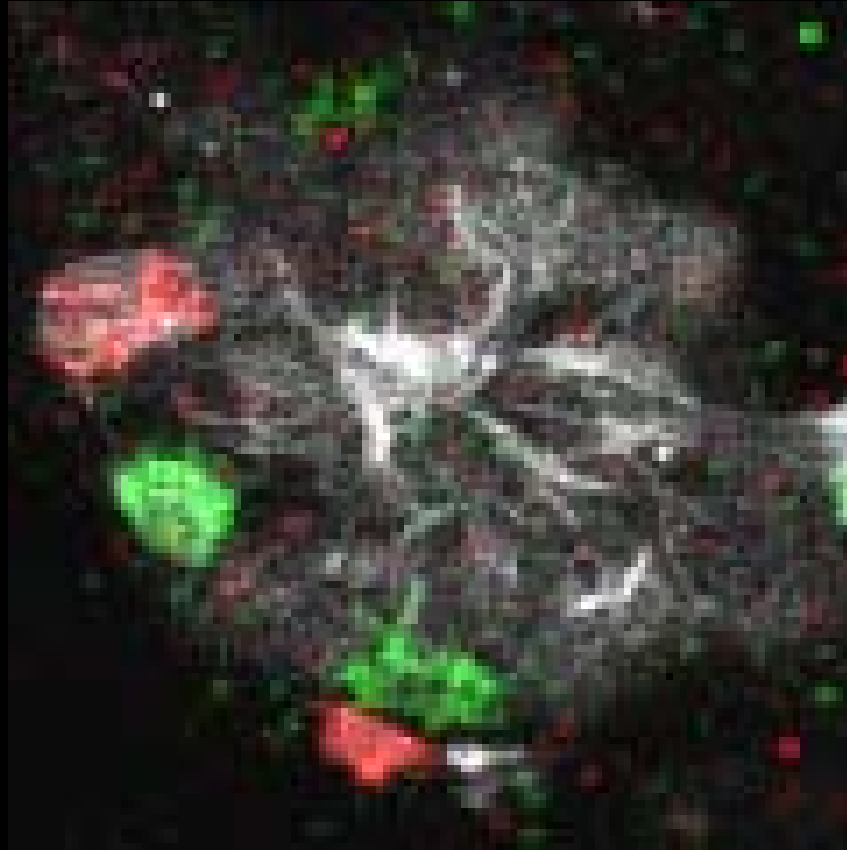




# Glomerular Response to Caproic Acid and Pyridine

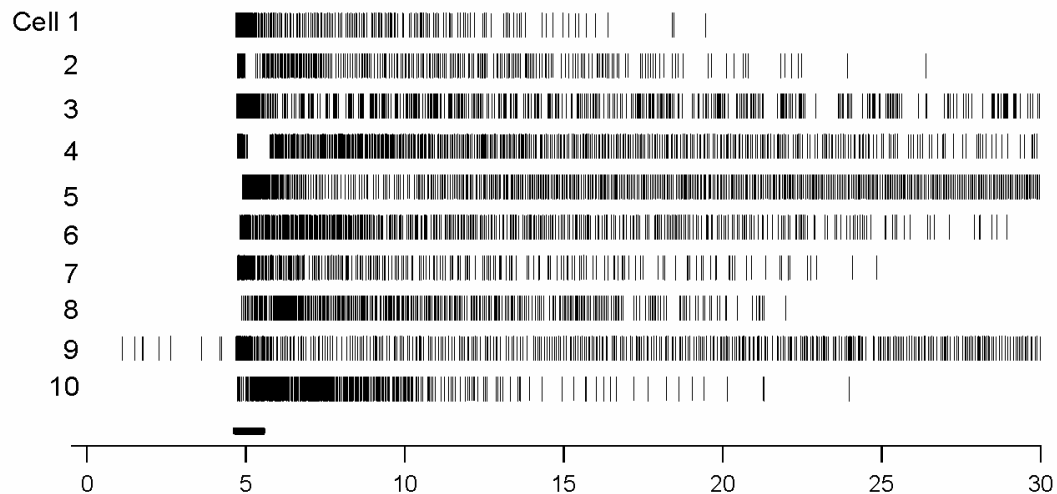
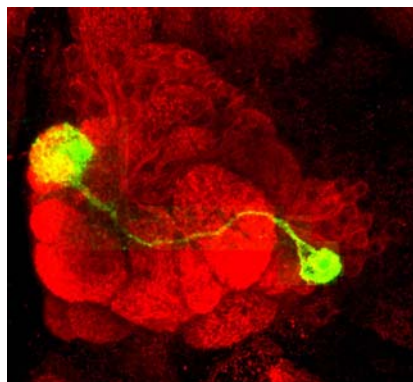
**Caproic Acid**

**Pyridine**

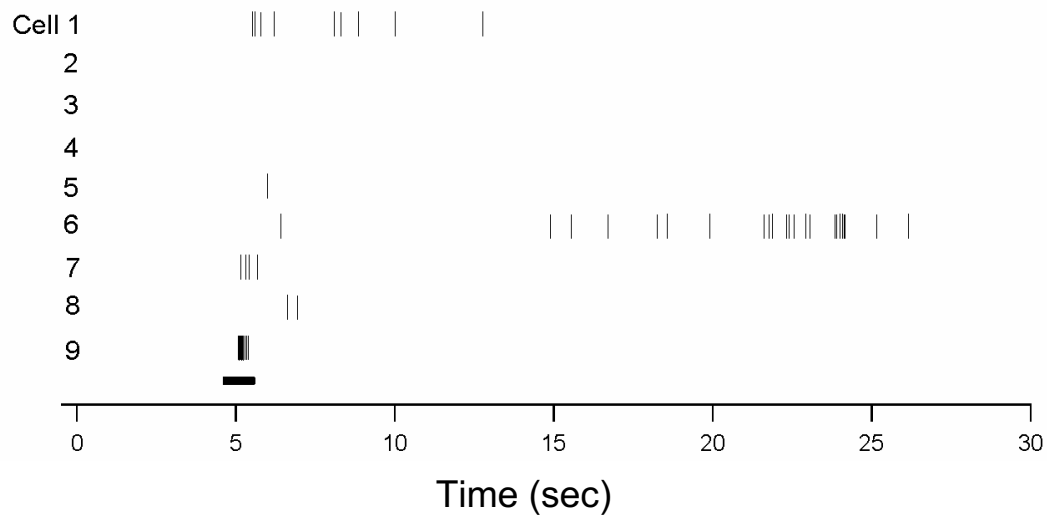
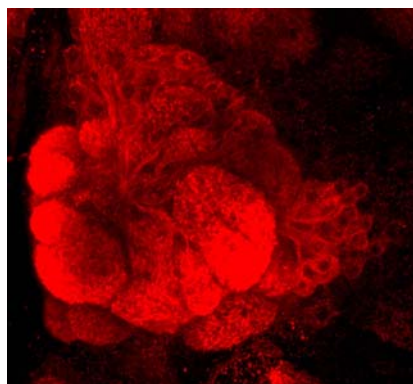


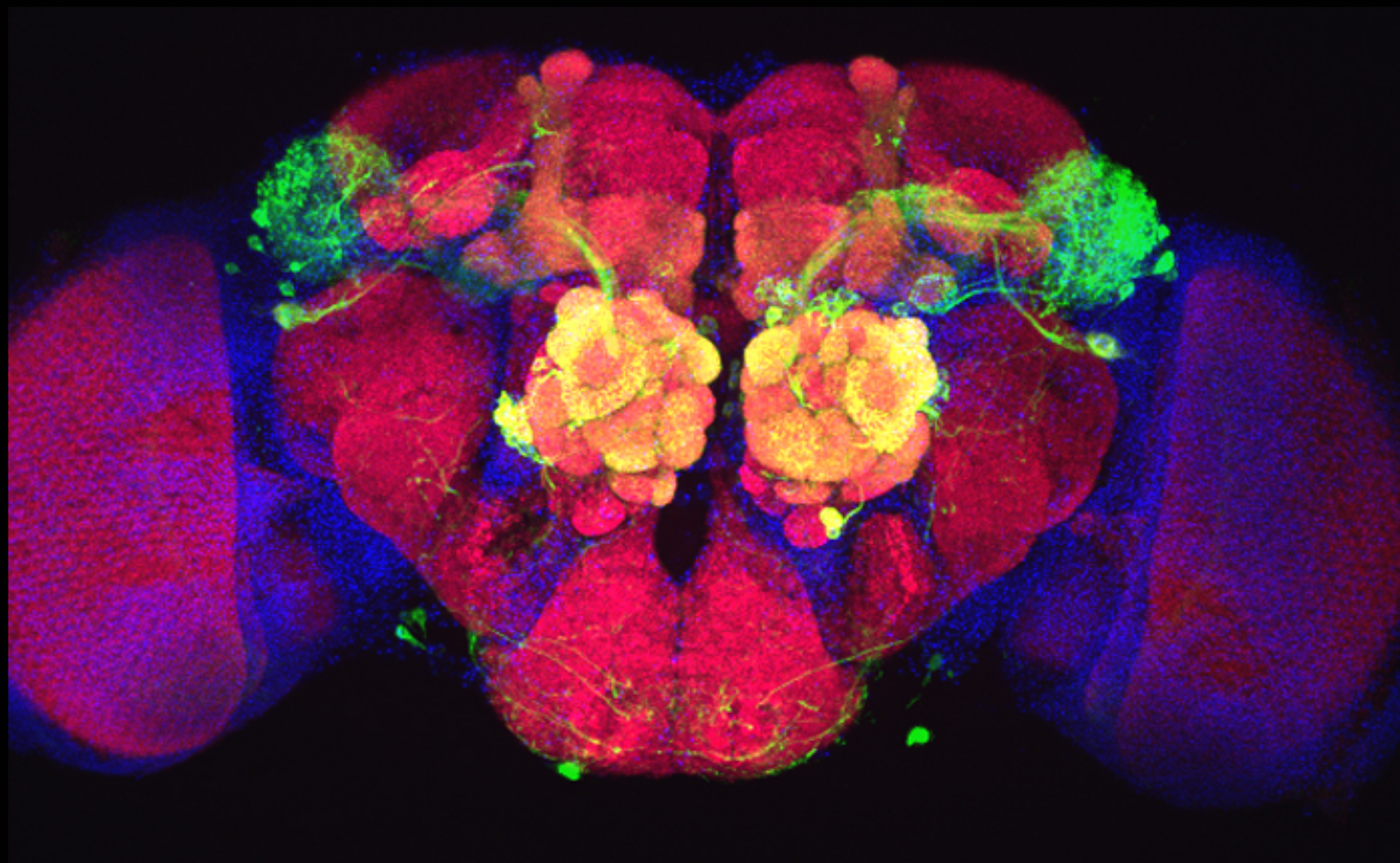
# Calcium Influx Correlates to Robust Neuronal Firing

Calcium influx

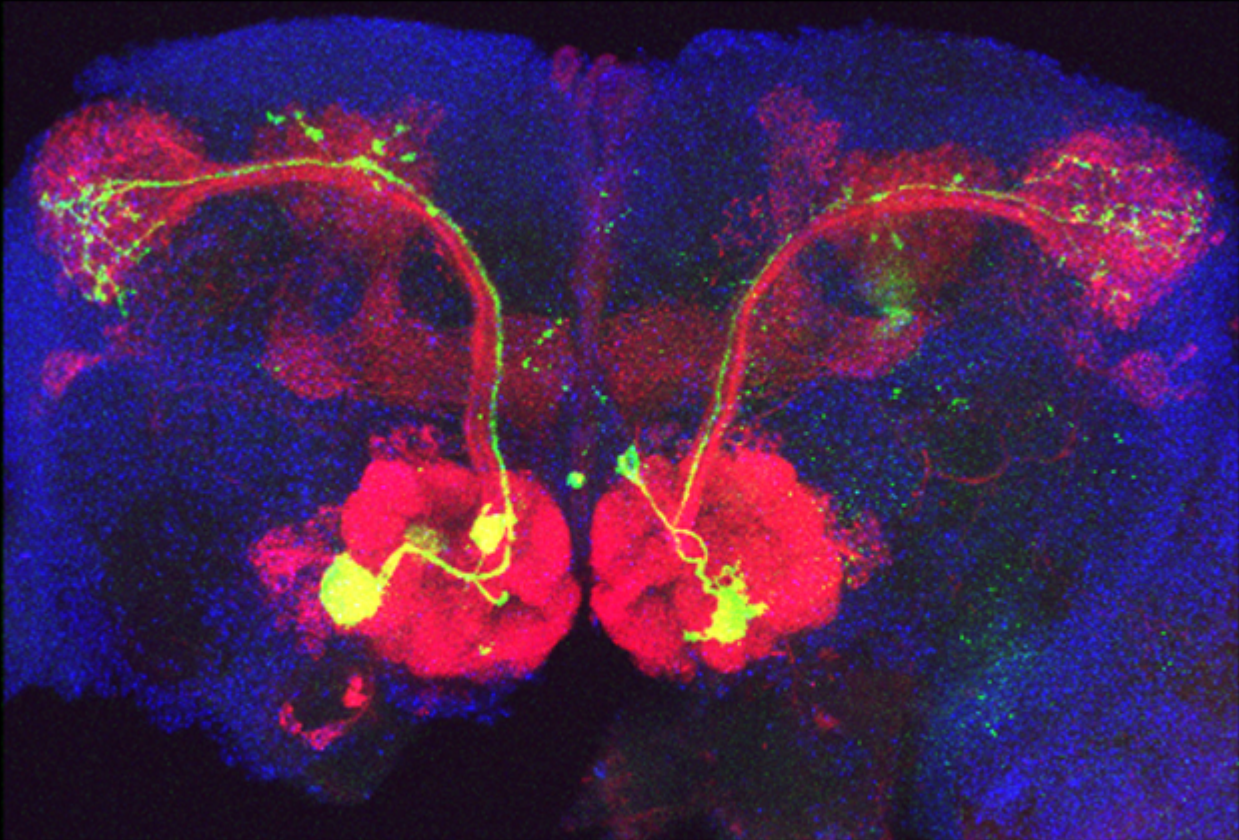


No calcium influx

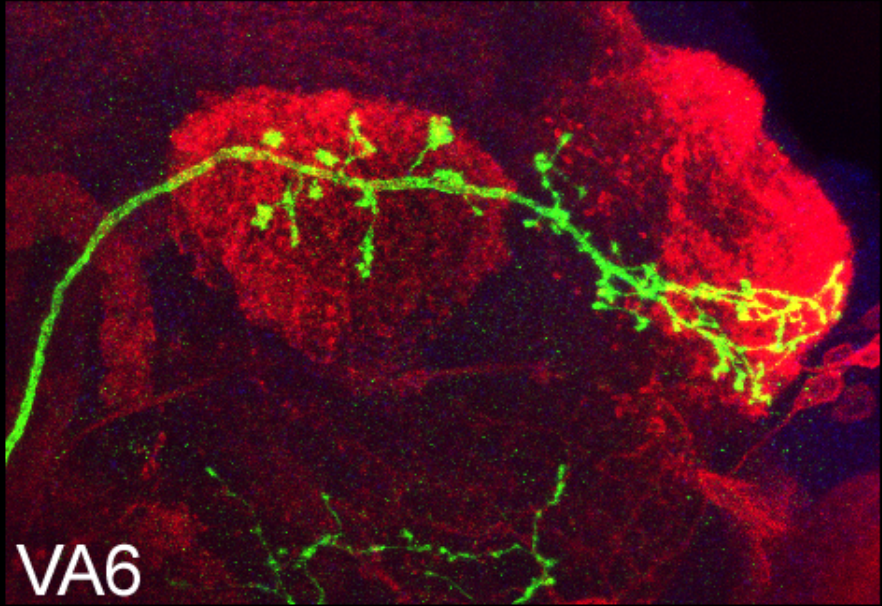
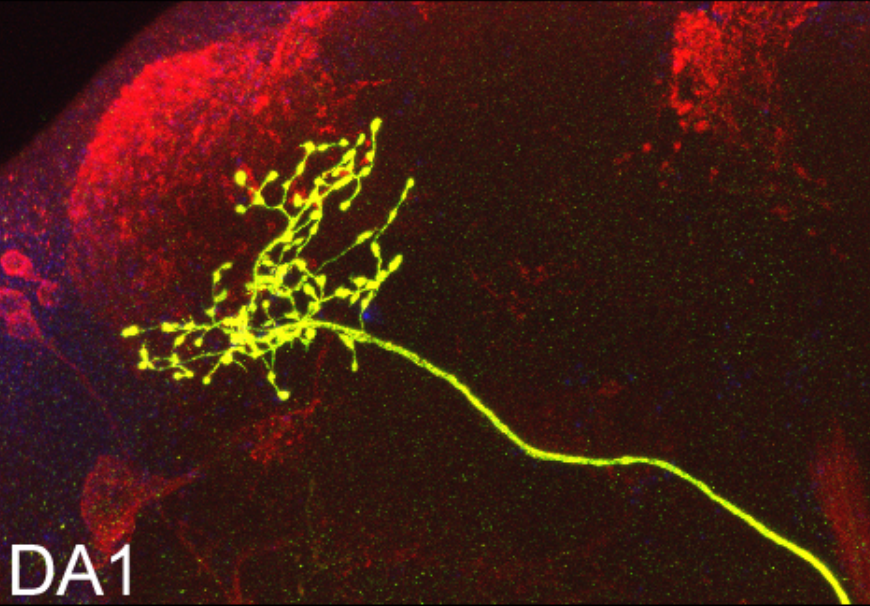
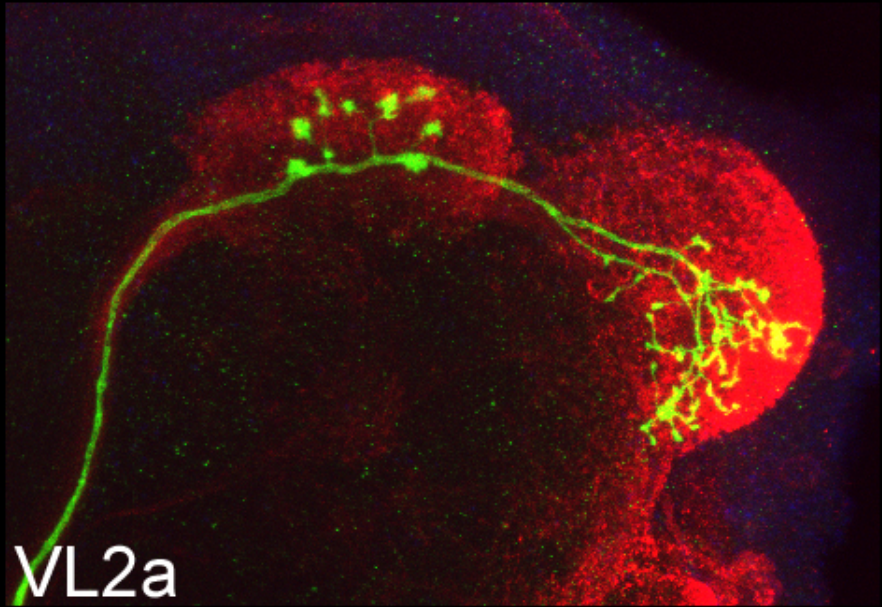
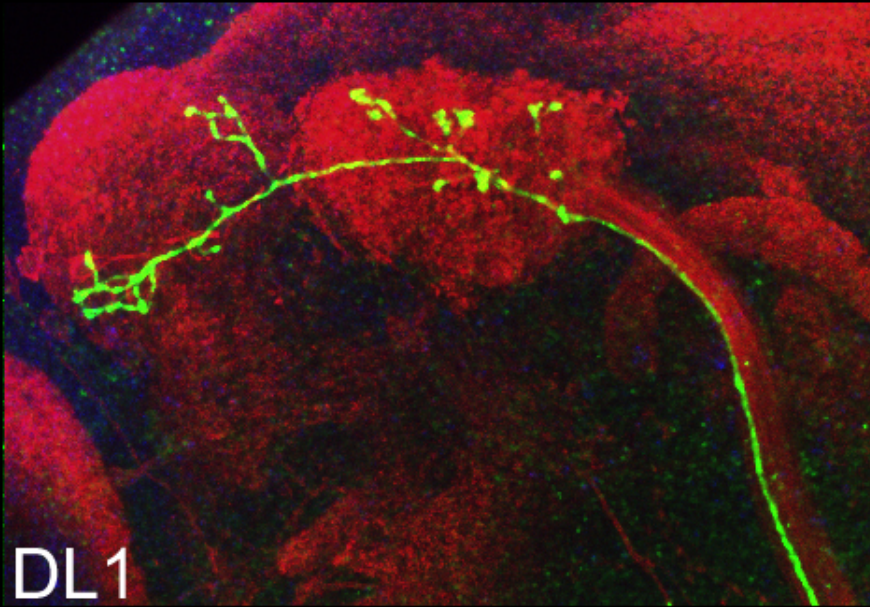




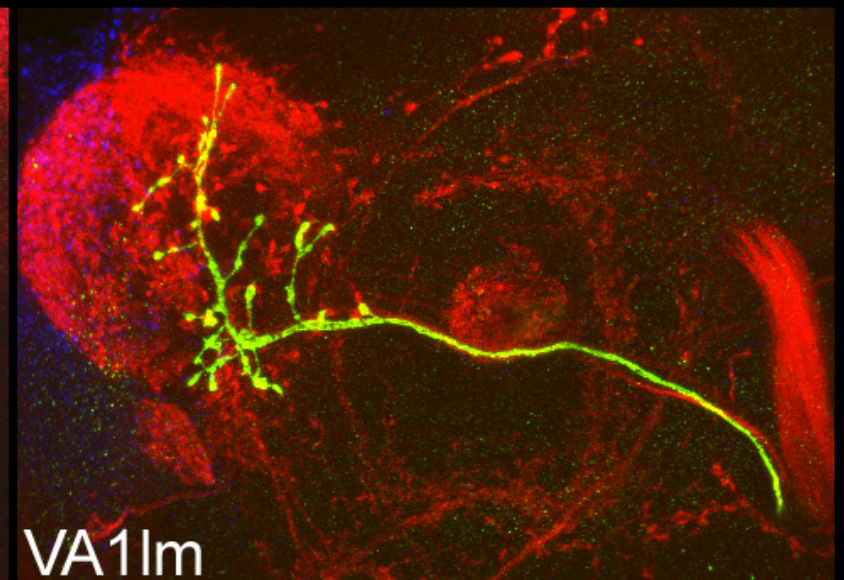
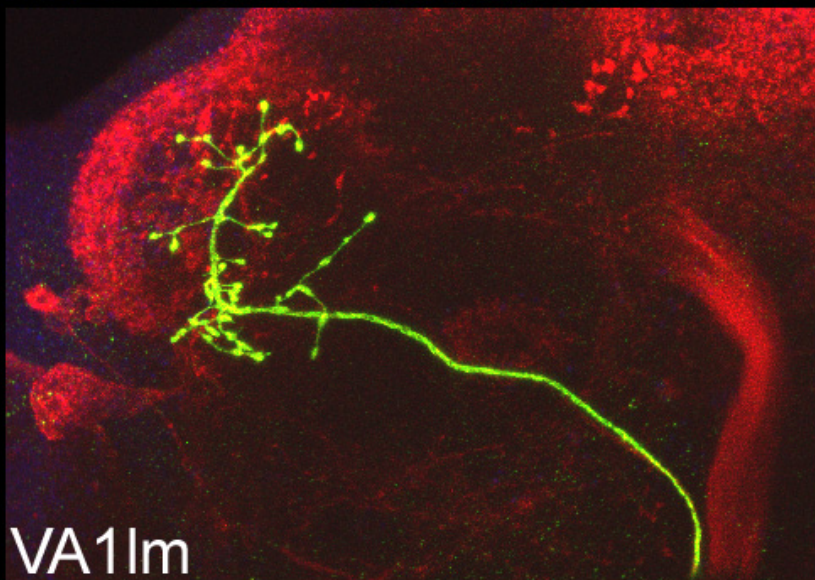
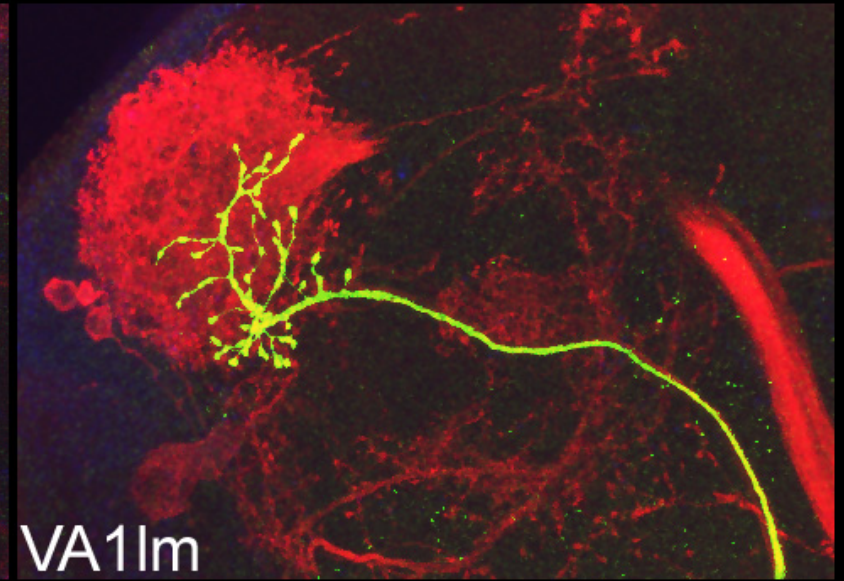
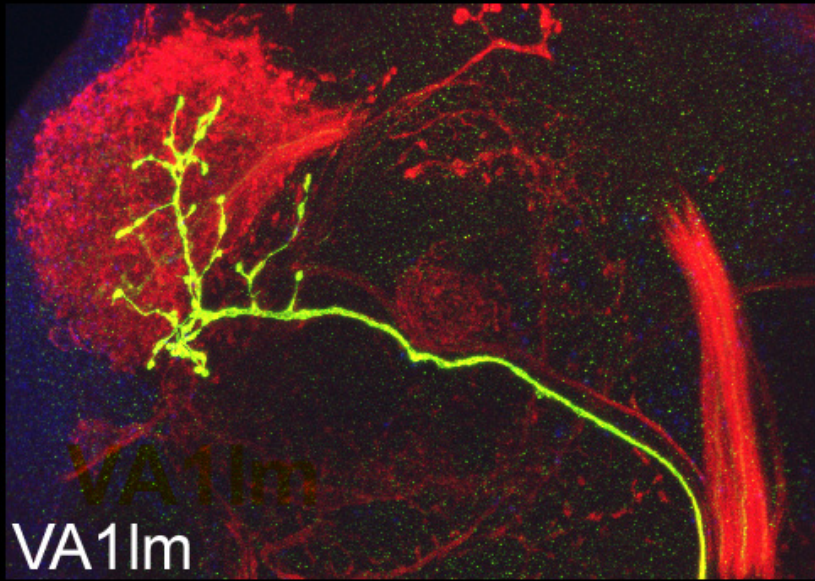
# Expression of CD8-GFP in Single Projection Neurons



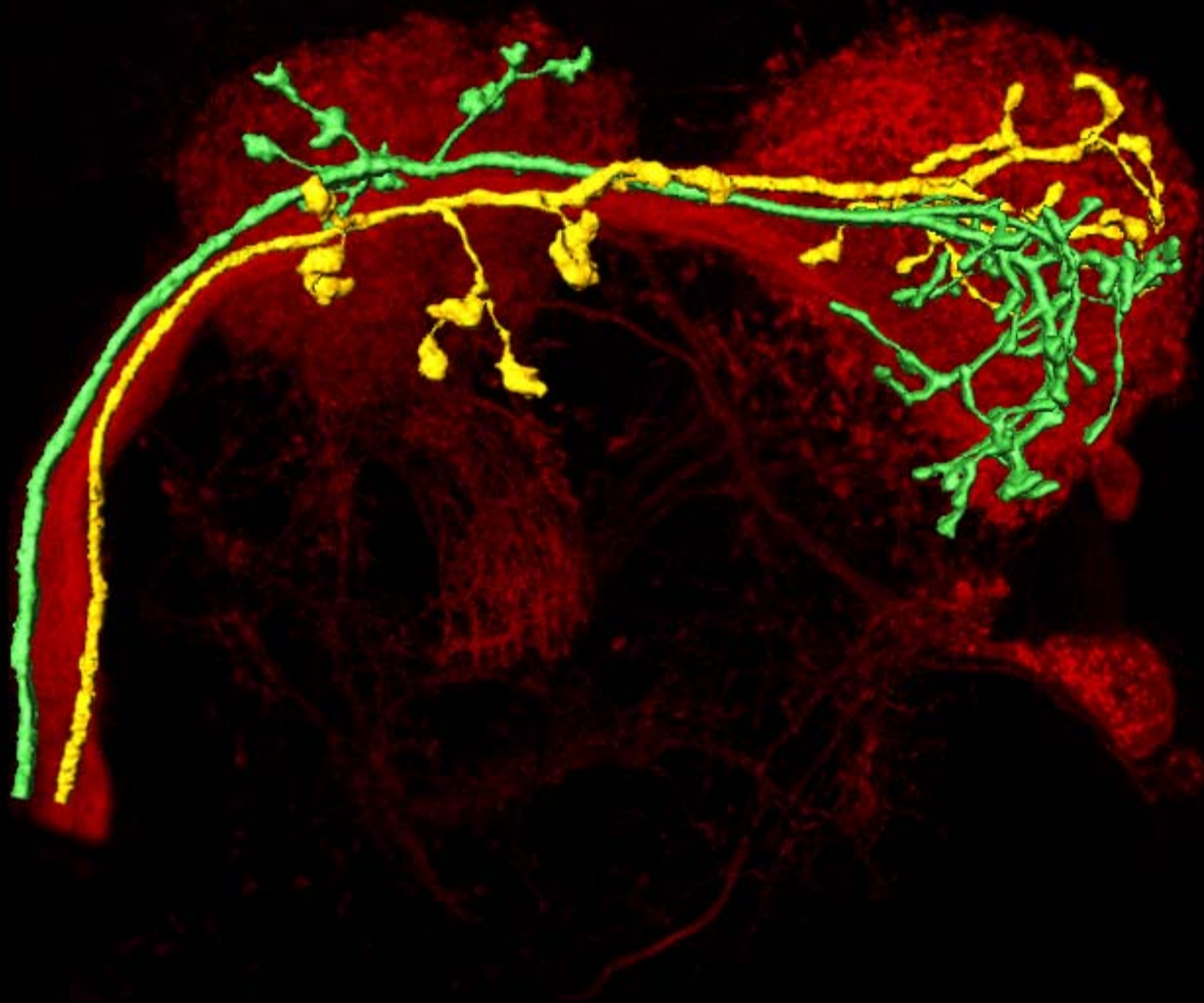
# Different Projection Neurons Show Distinct Patterns in the Protocerebrum



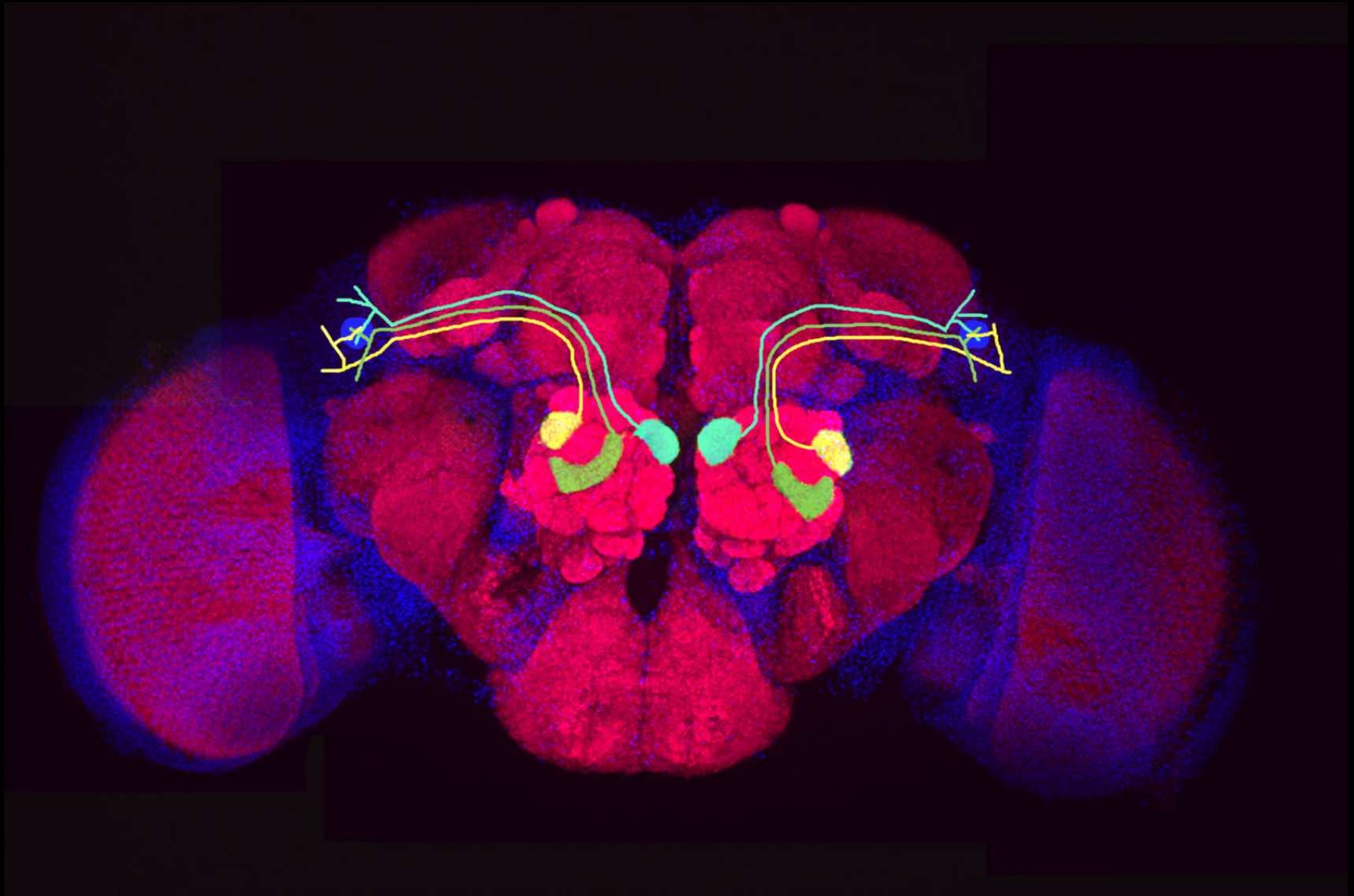
# Maintenance of a Spatial Map in the Protocerebrum



# Mapping the Fly Olfactory System



# Convergence of Glomerular Information





*Sten Grillner Torsten Wiesel Tomas Hokfelt*



# GHOSTBUSTERS

THE SUPERNATURAL SPECTACULAR

