

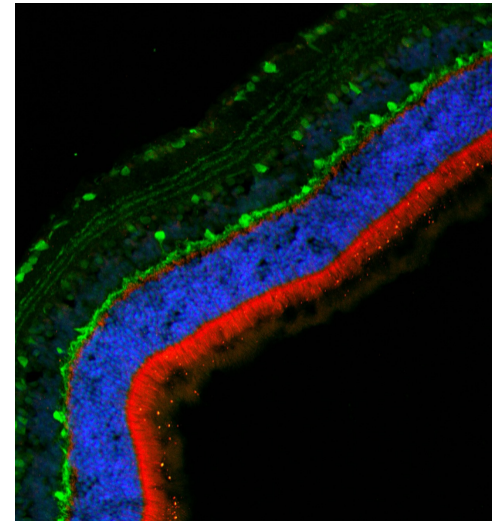
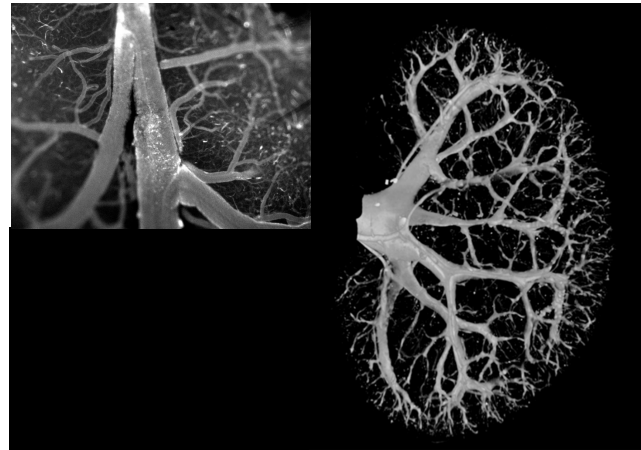
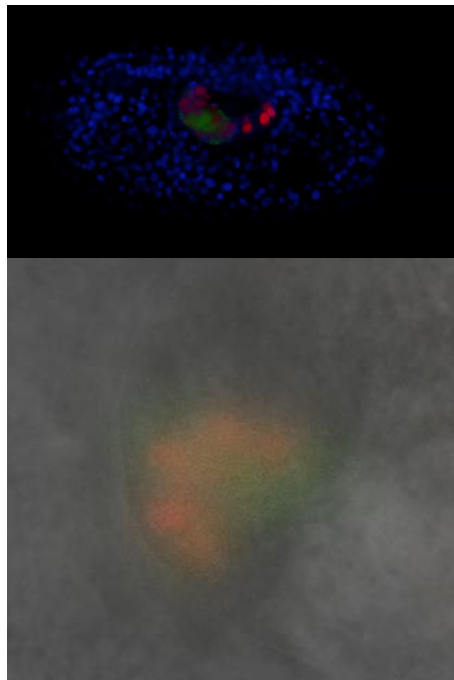
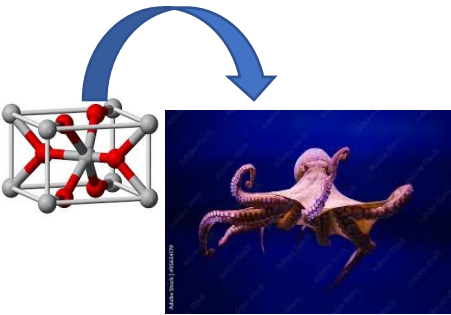


## Gusto e olfatto nel regno animale

09-11-2022

Antonio Palladino

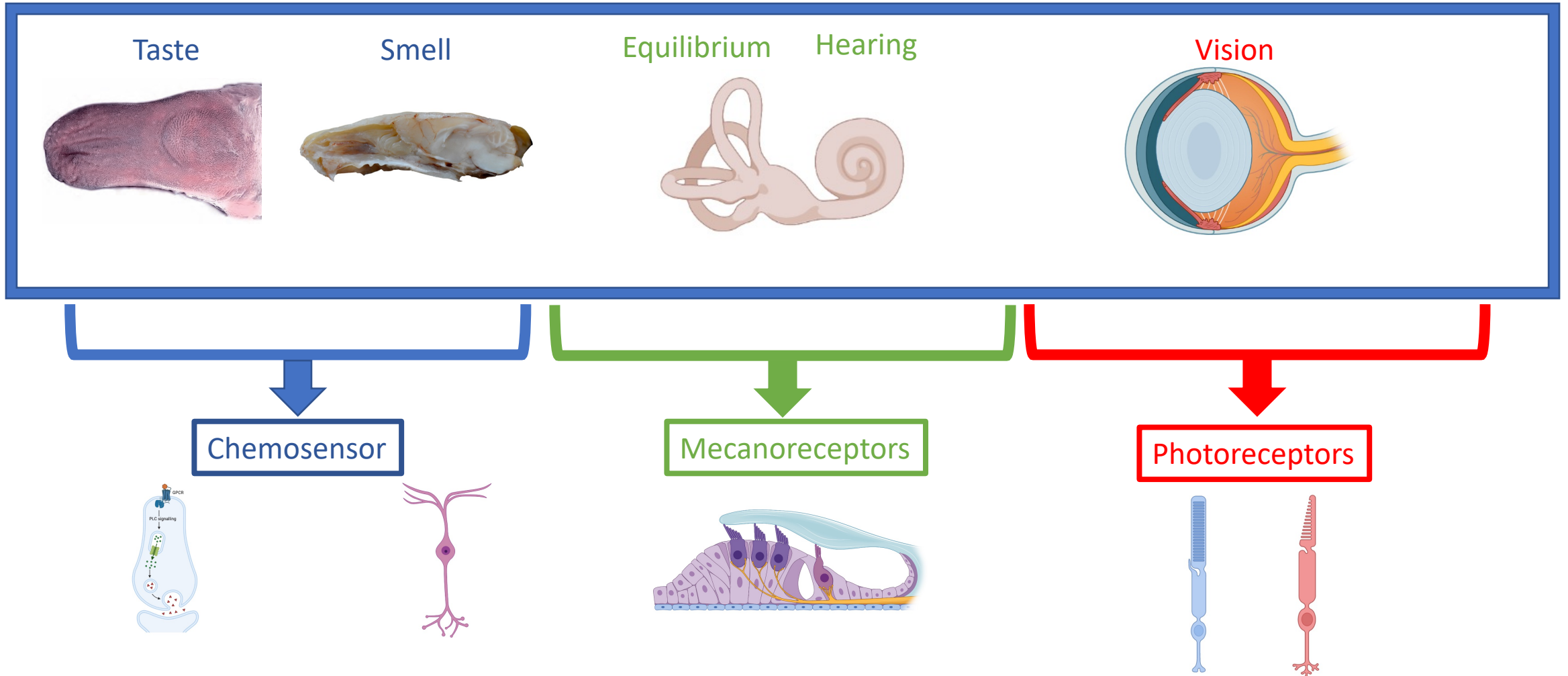






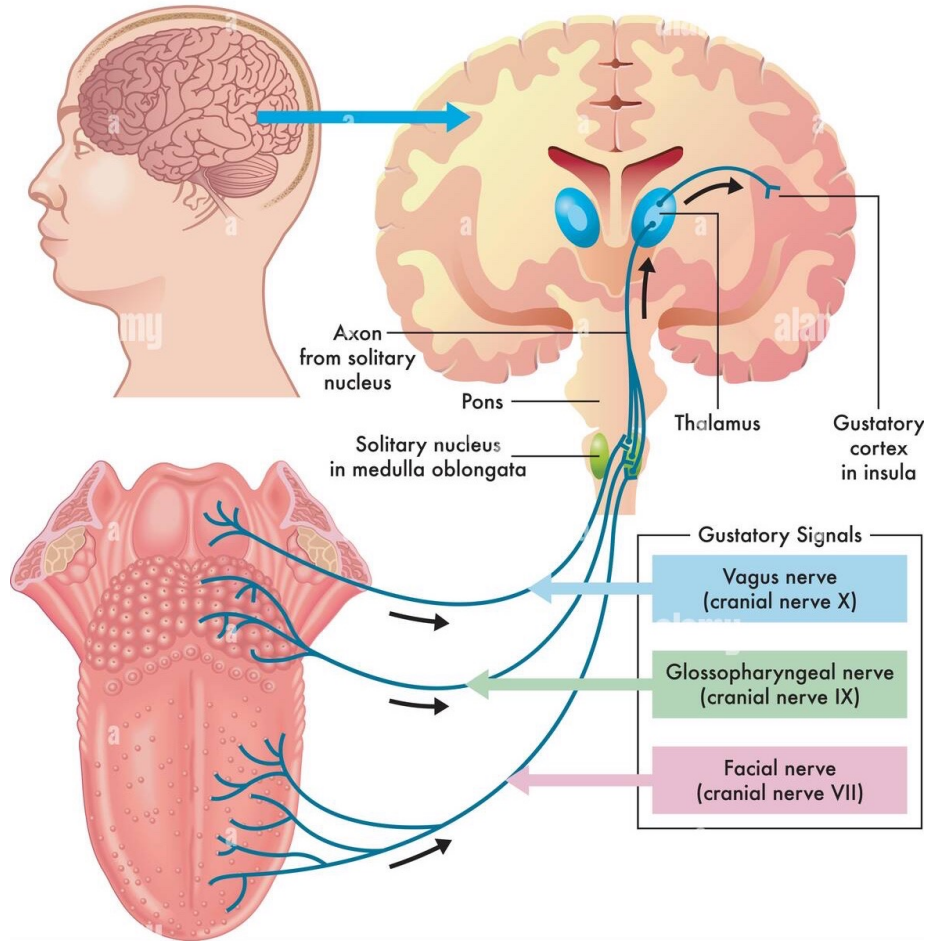
# Special Senses

Require **specialized sensory receptors** within large, **complex sensory organs** in the head region

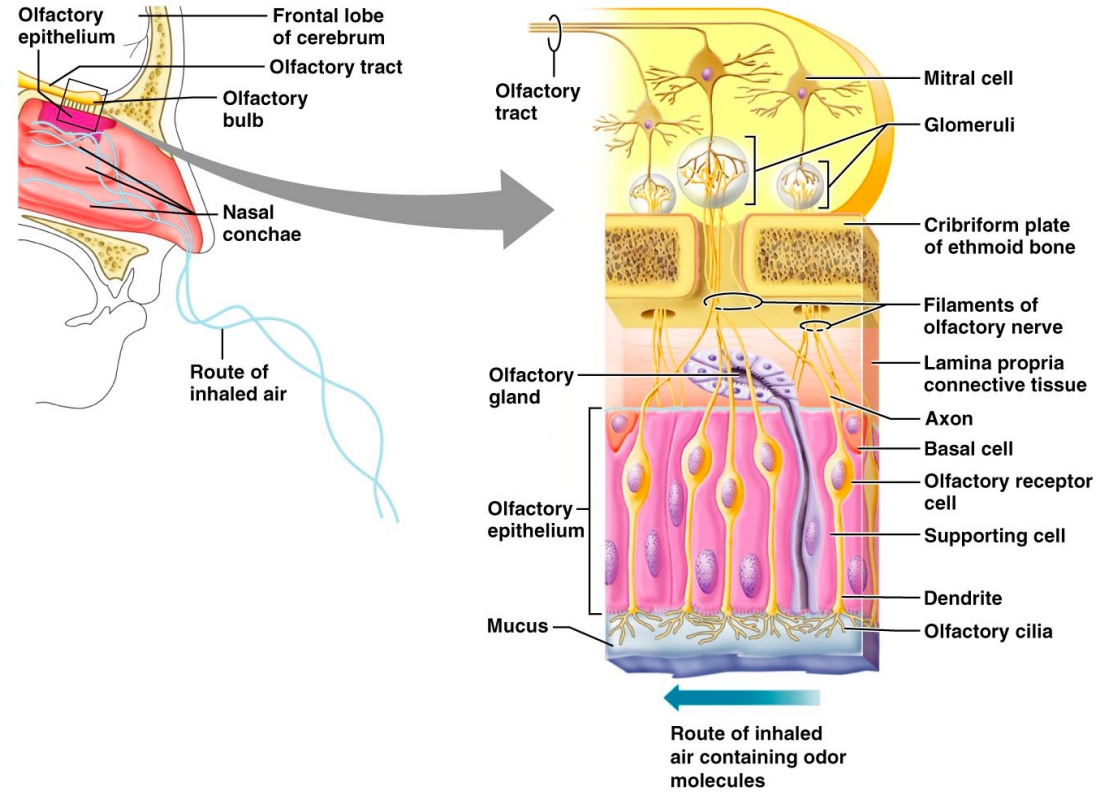


# Chemical senses

## Gustatory pathway



## Olfactory pathway







Feeding



Reproductive selection

## Importance of Chemical Senses

Disease detection



Predator escape

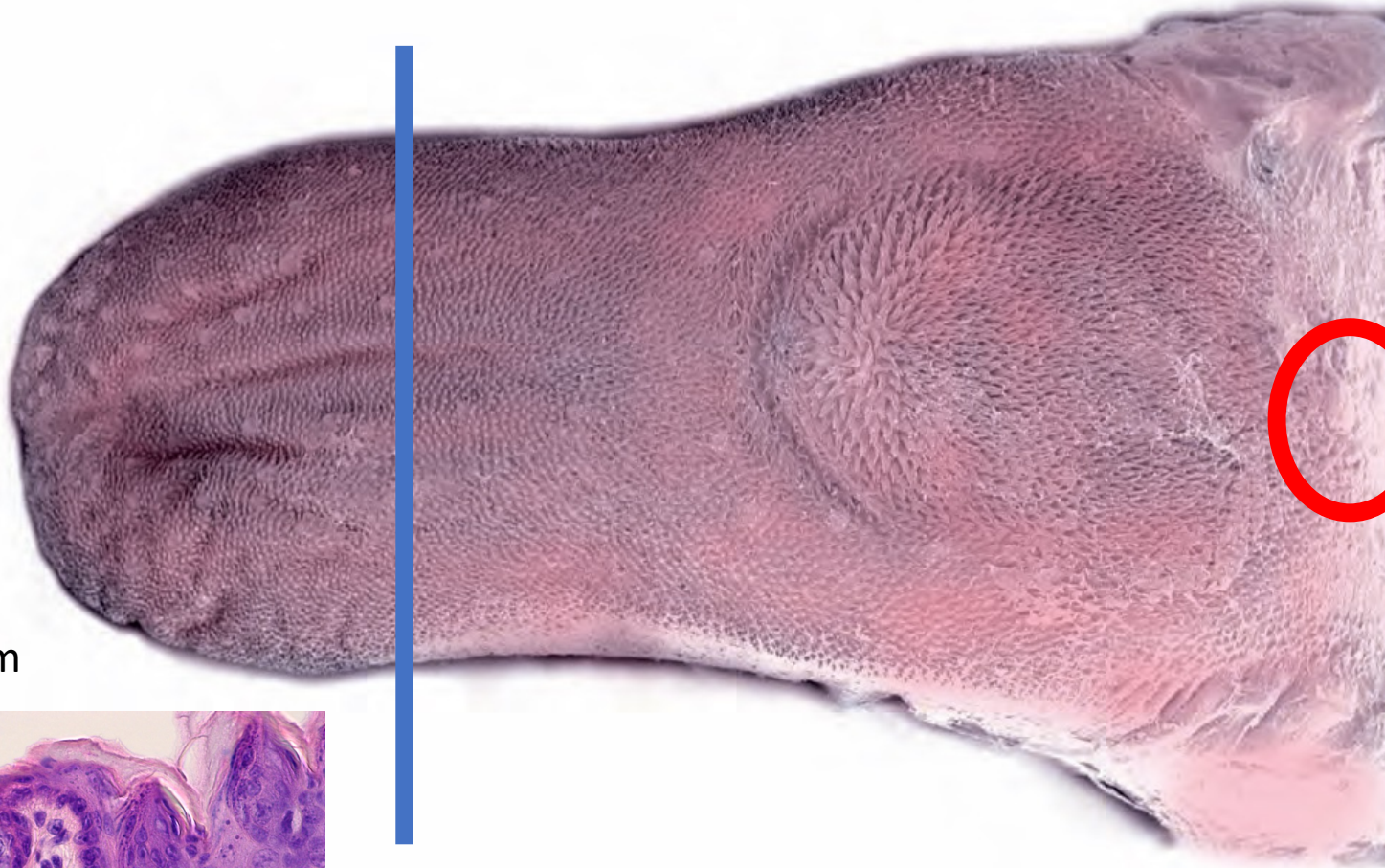


Maternal care

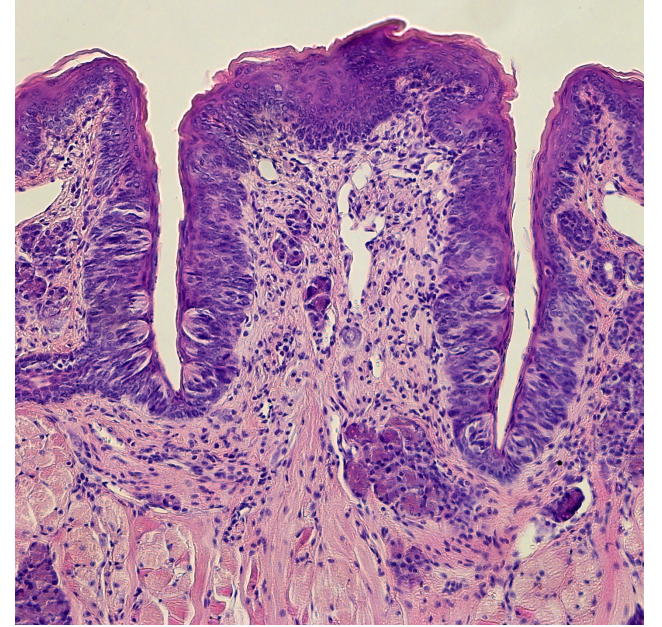




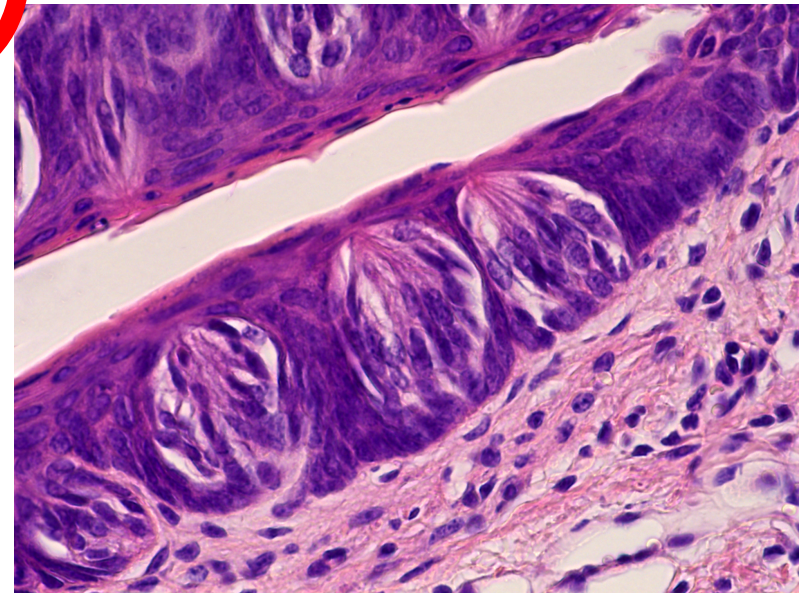
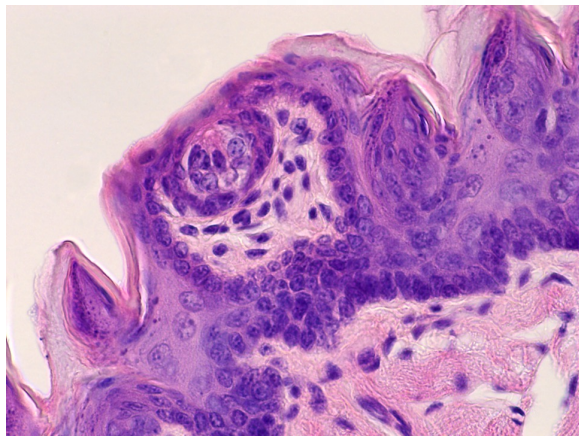
# Taste



Circumvallate

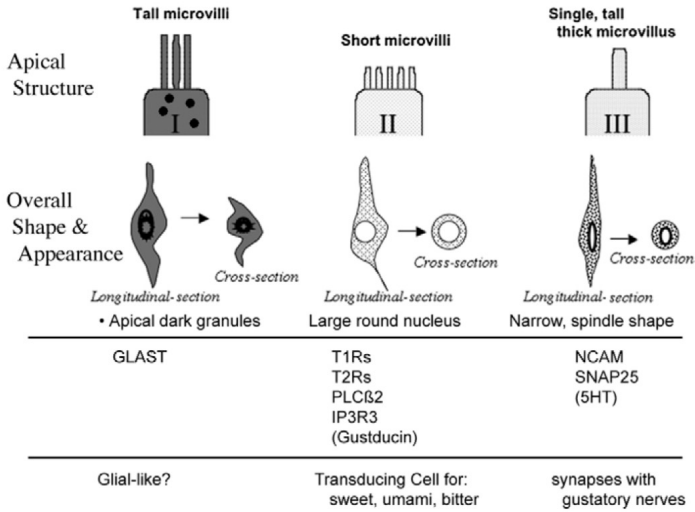
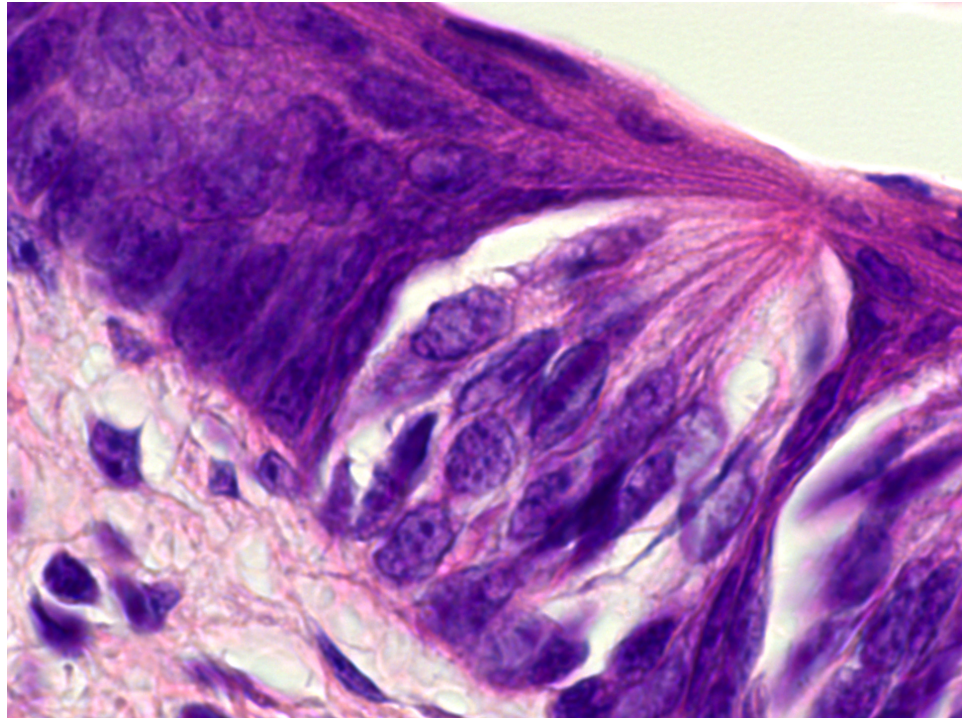
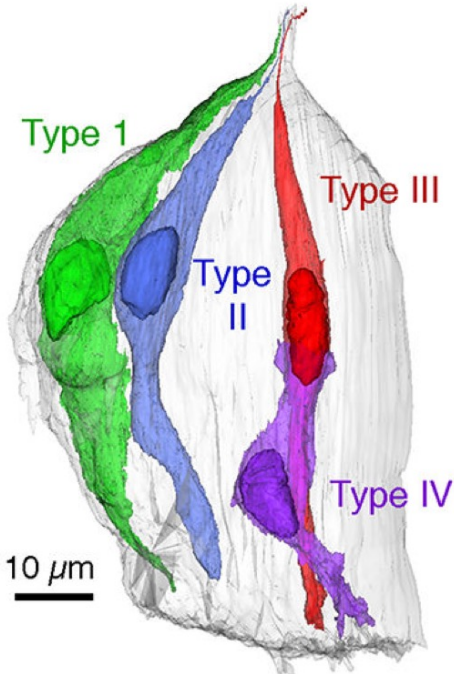


Fungiform

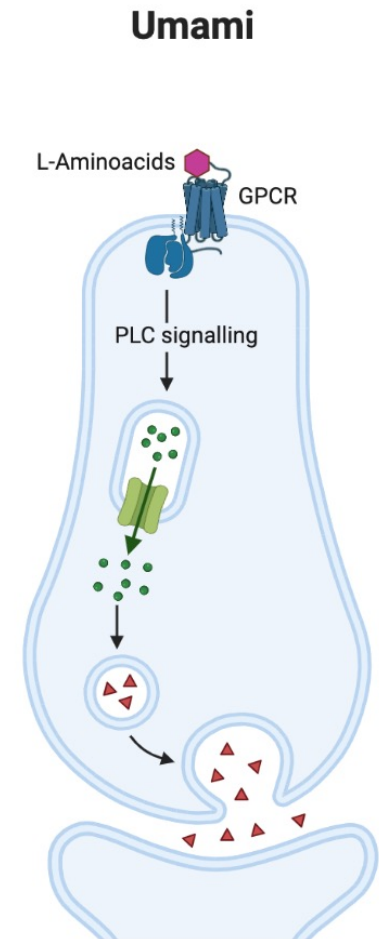
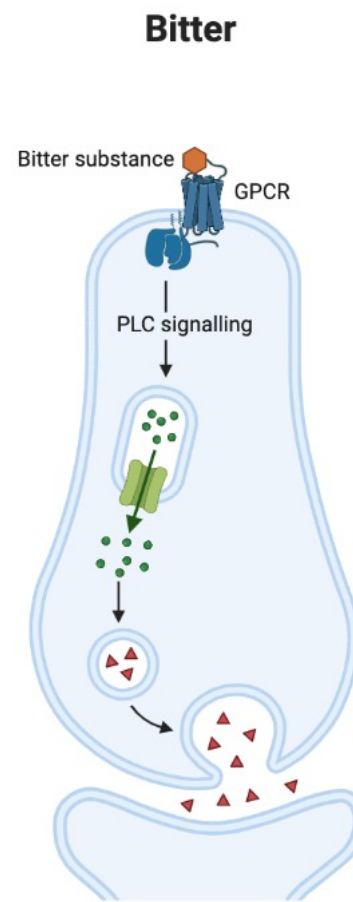
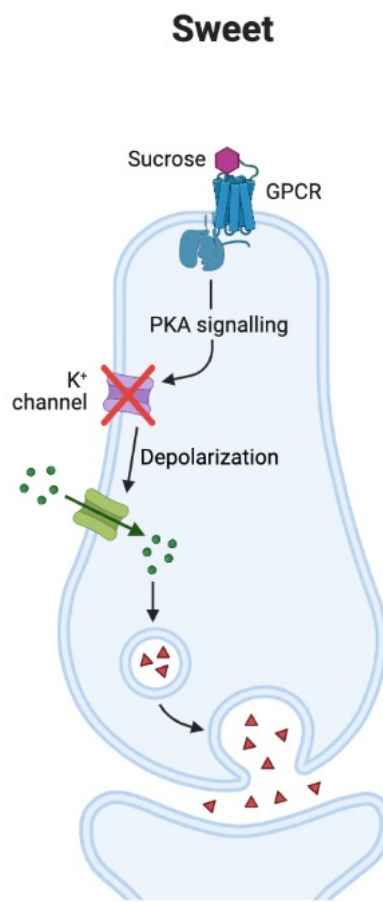
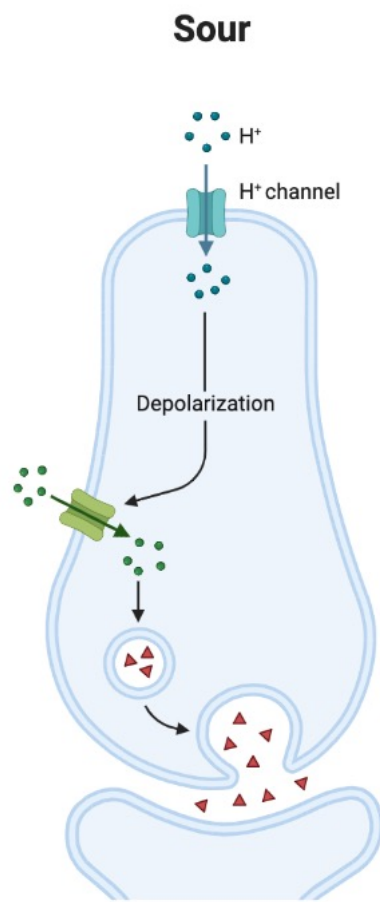
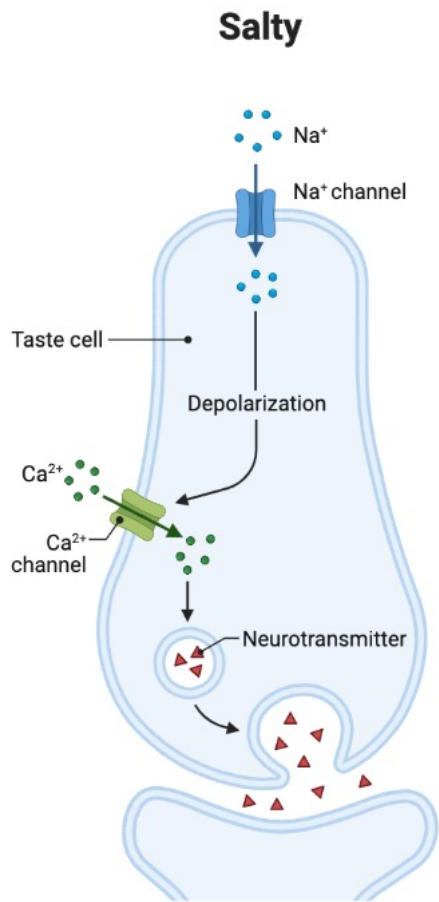




# The taste bud

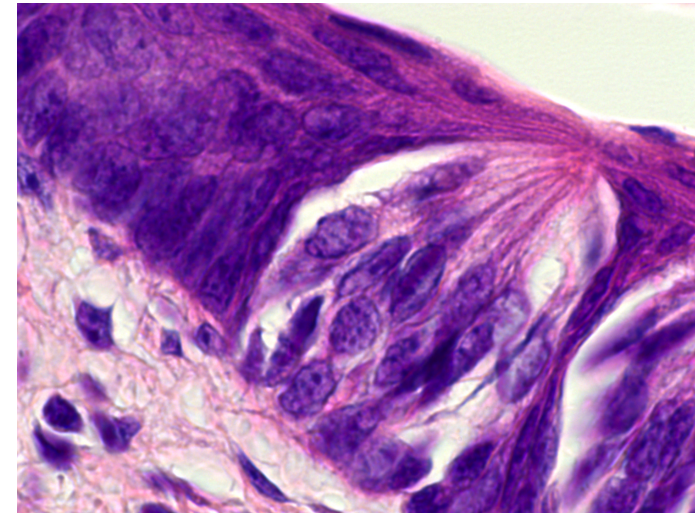
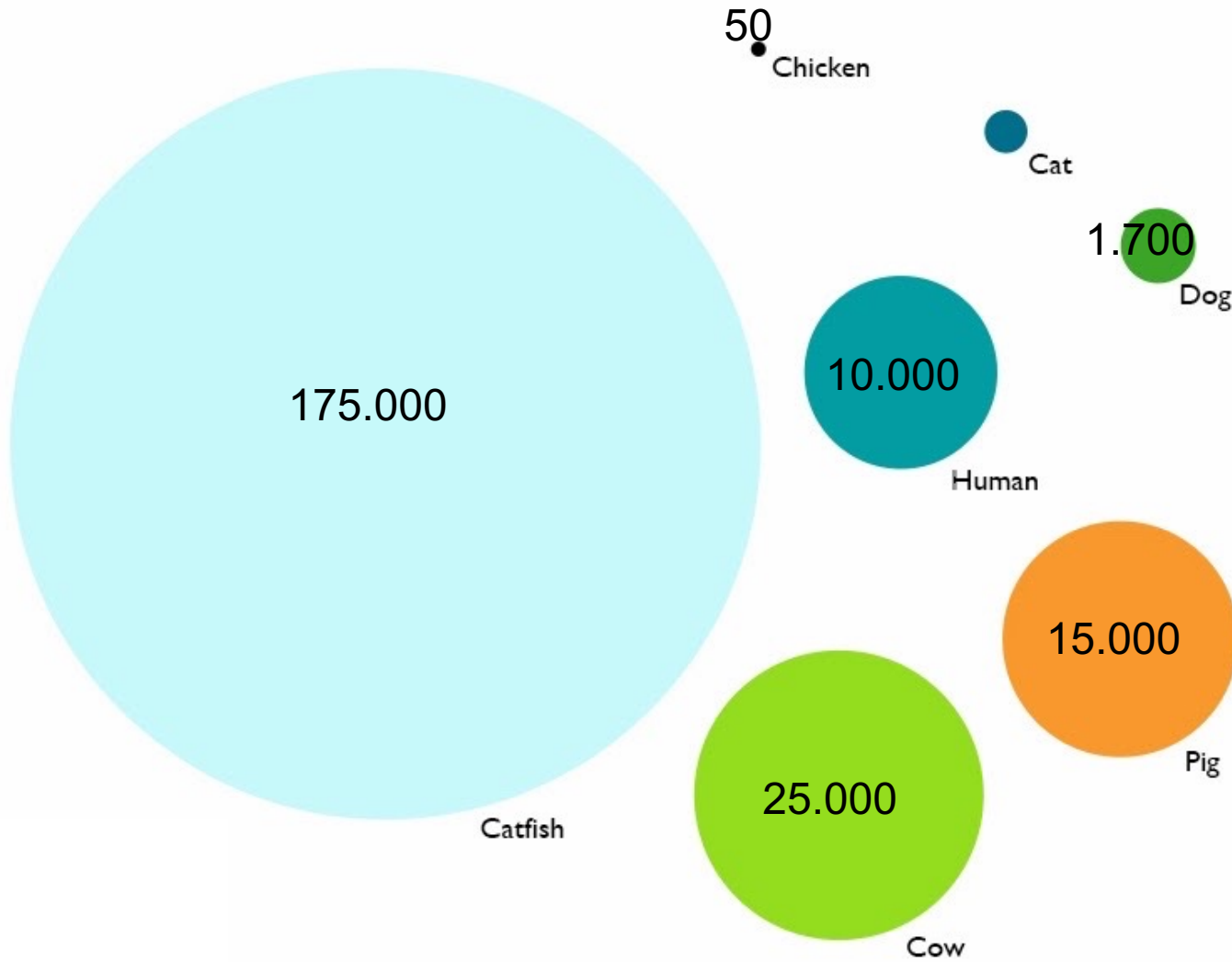


# 5 primary taste sensations



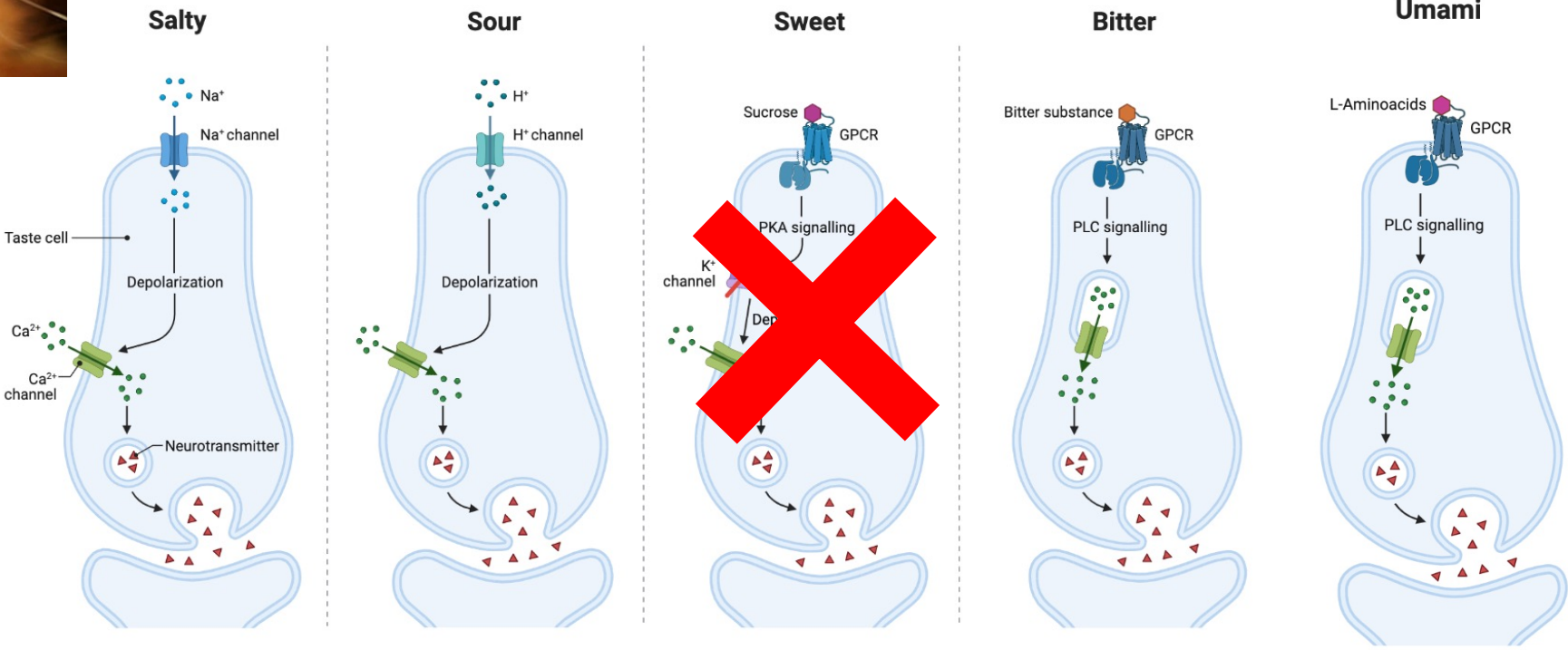


# Numerical differences among species

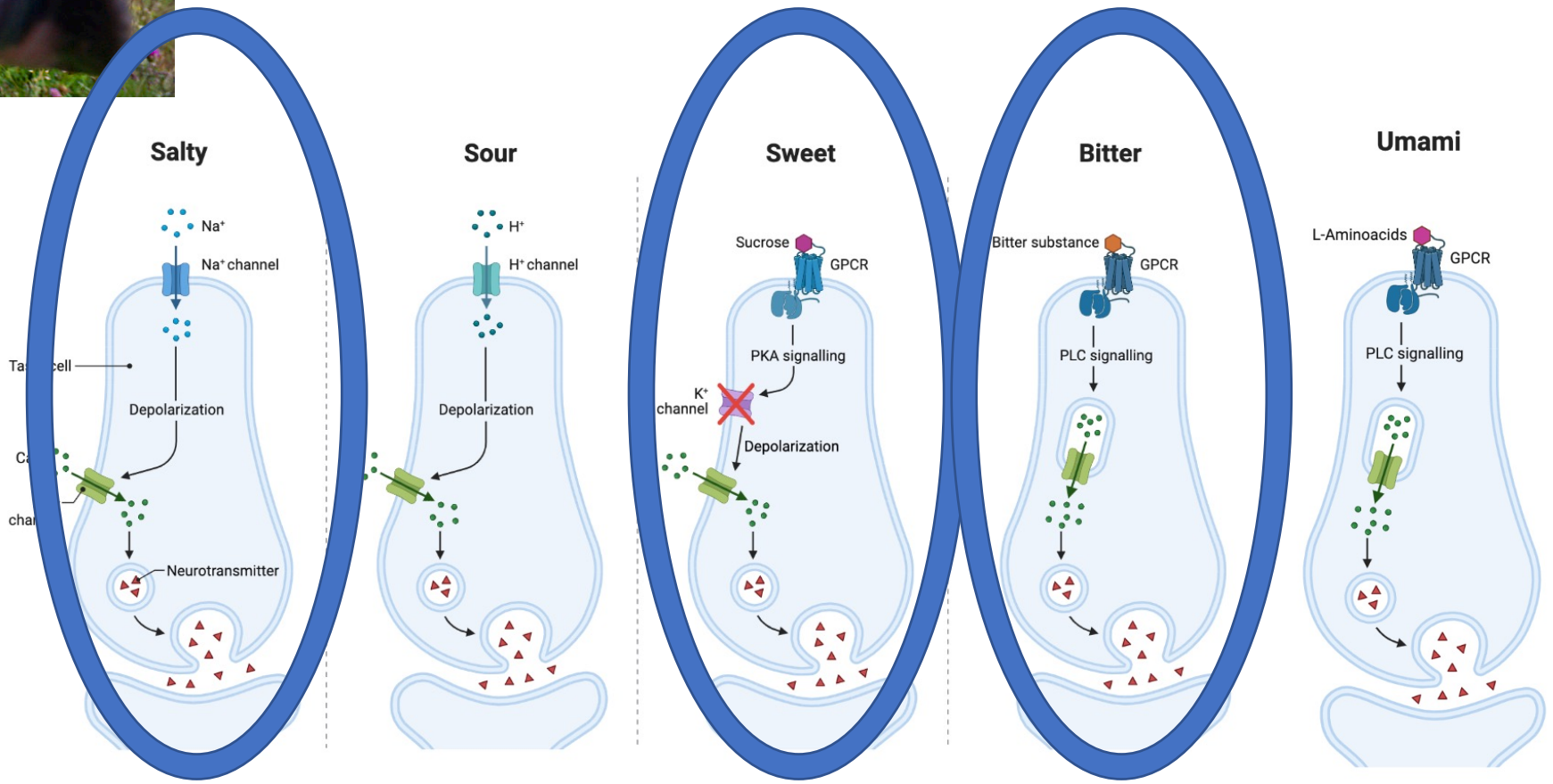


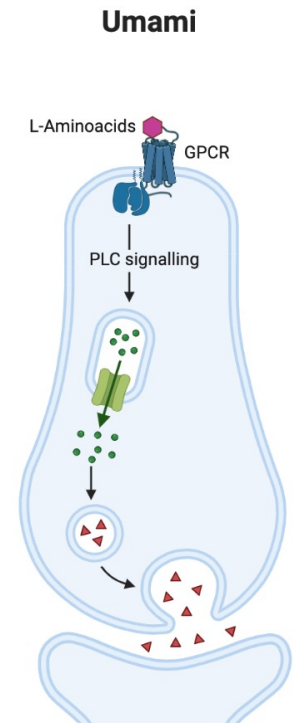
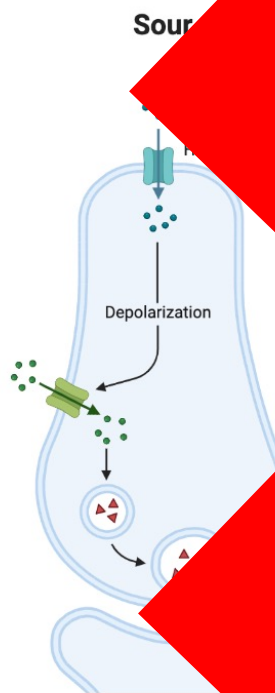
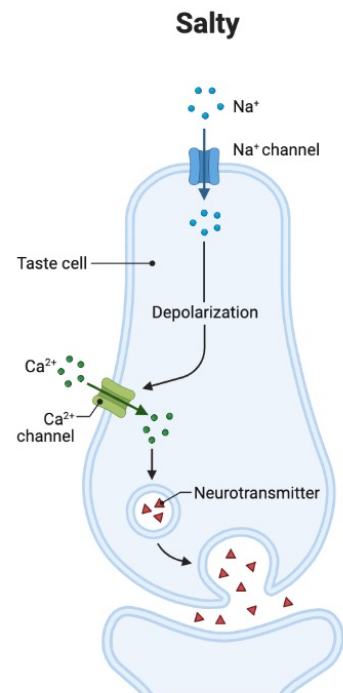


# Qualitative differences among species





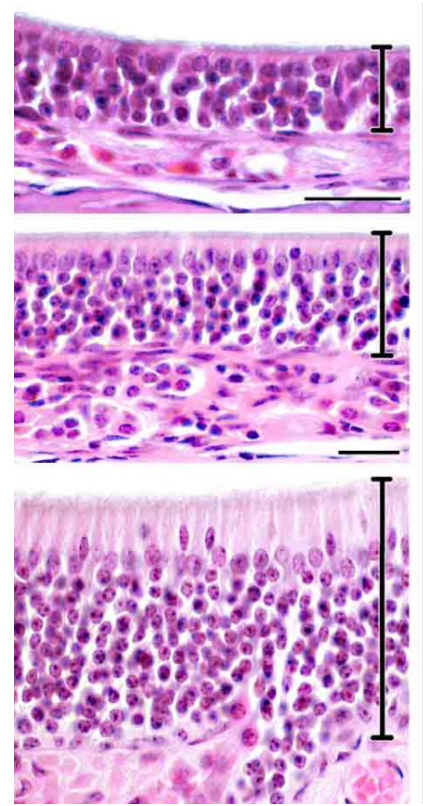
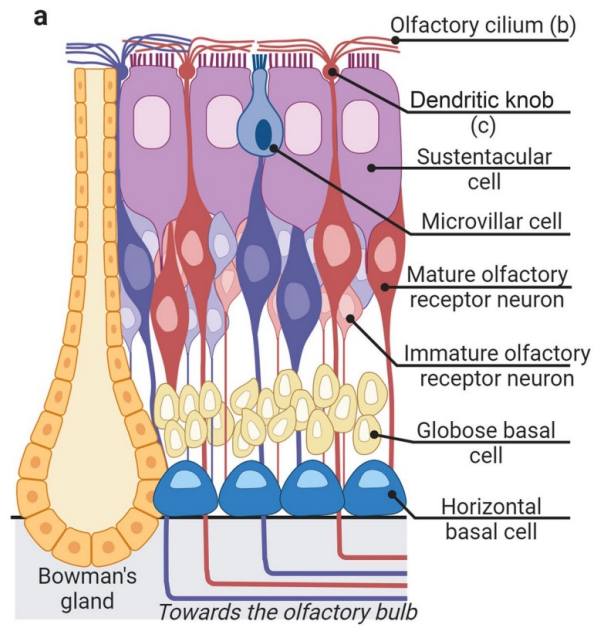
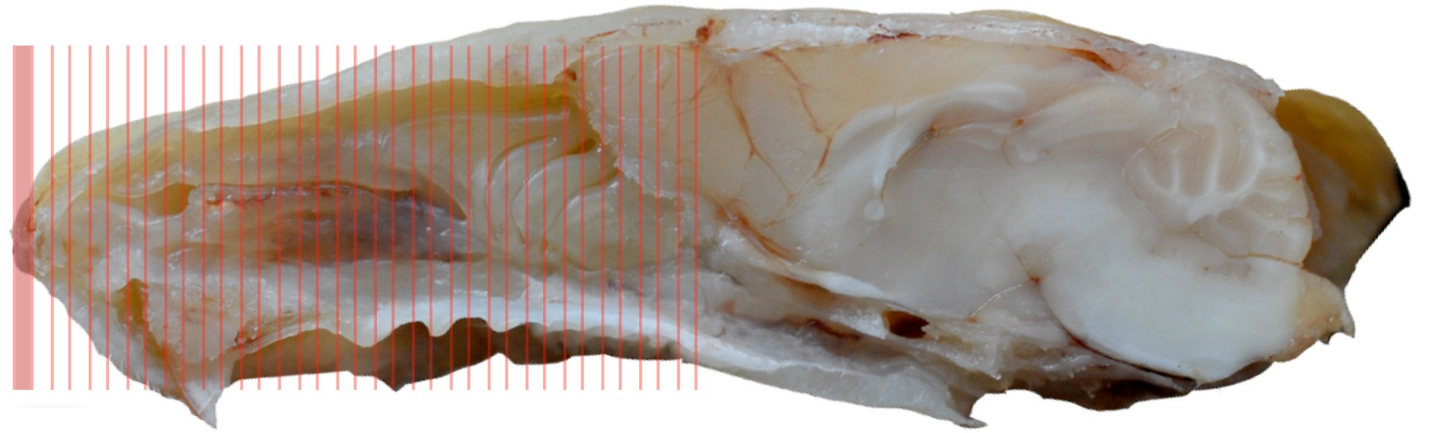
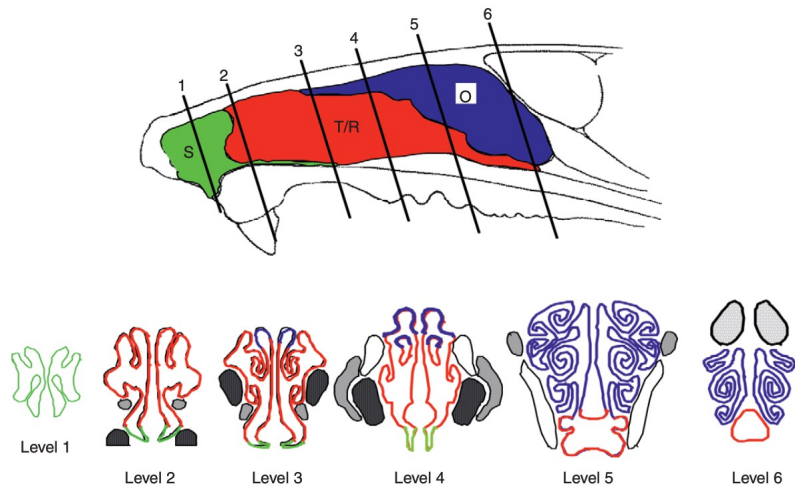


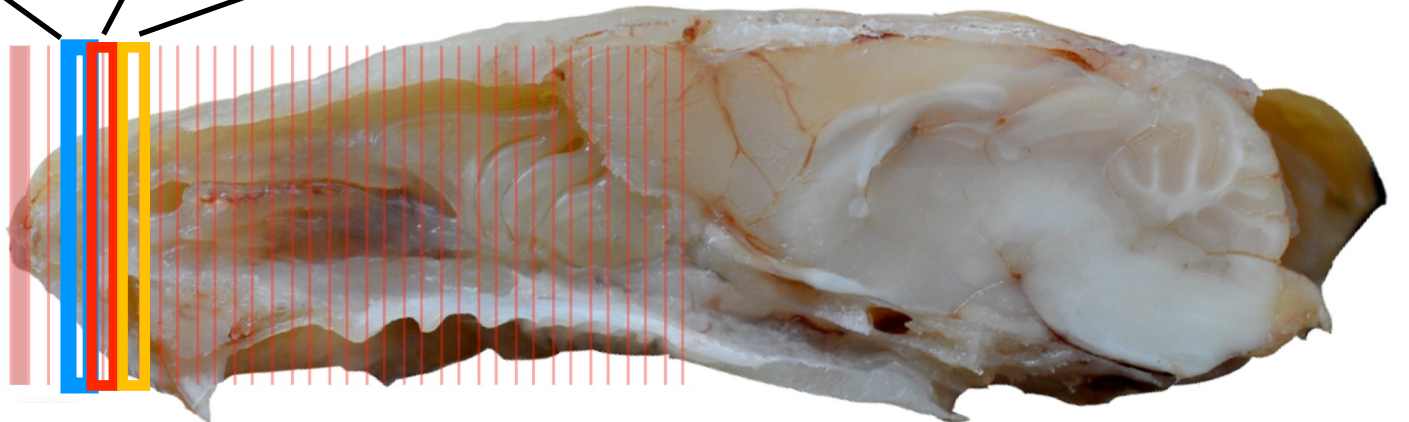
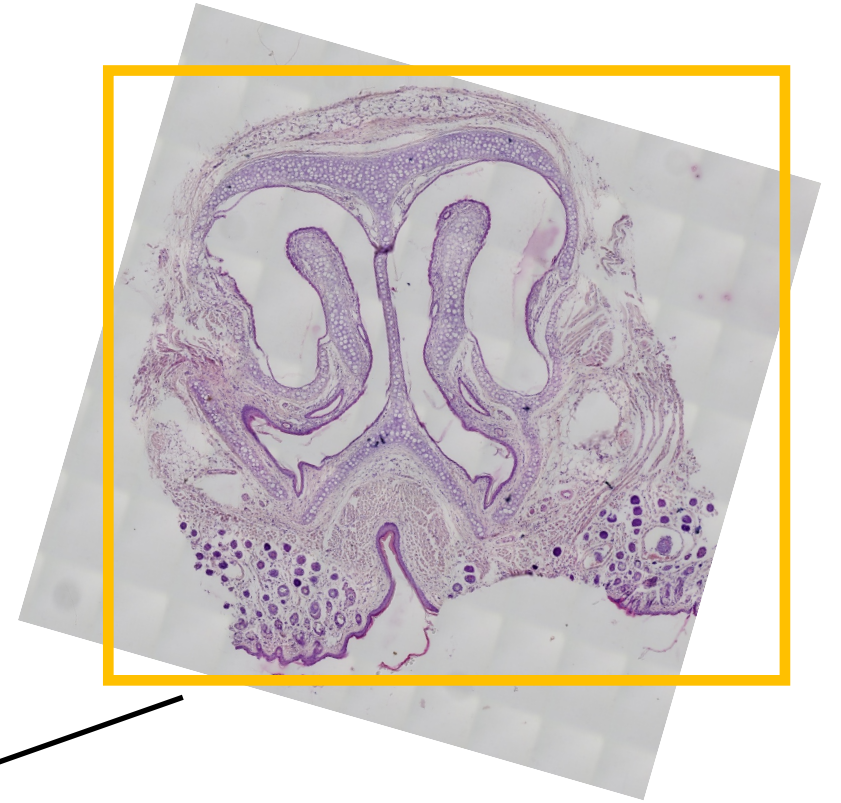


# Olfactory System

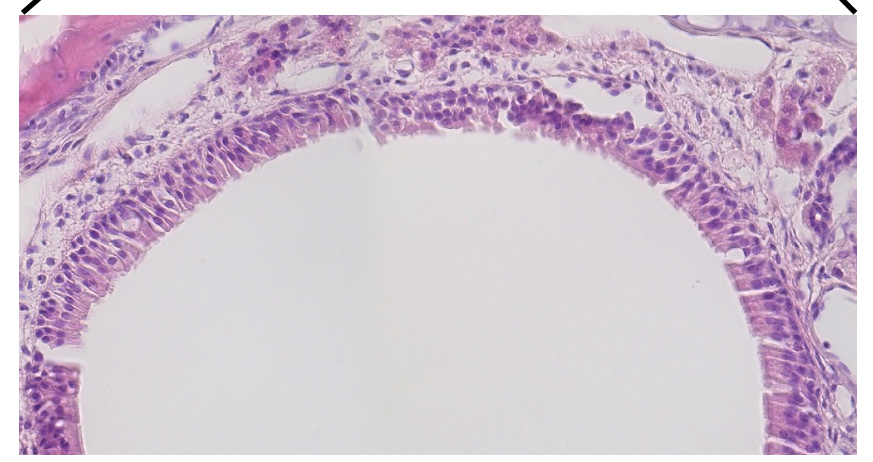
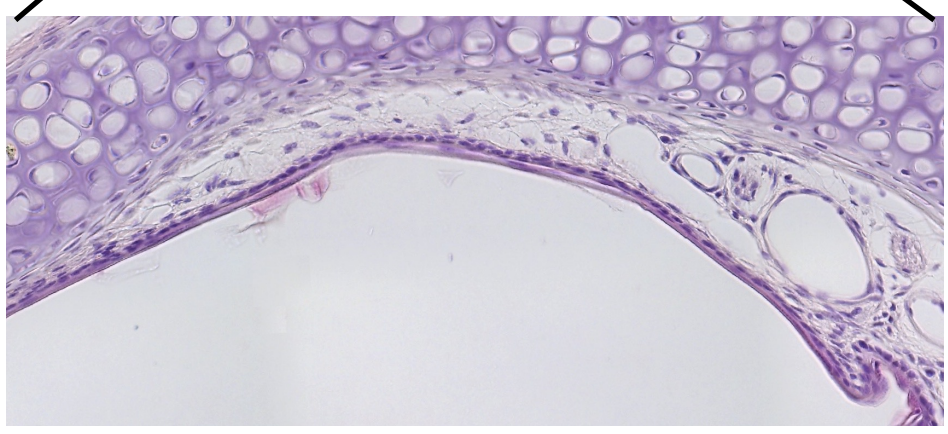
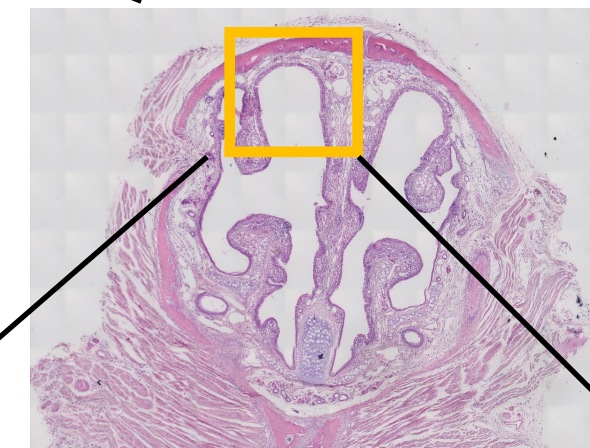
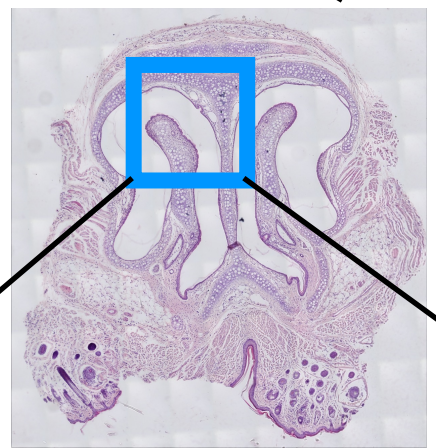
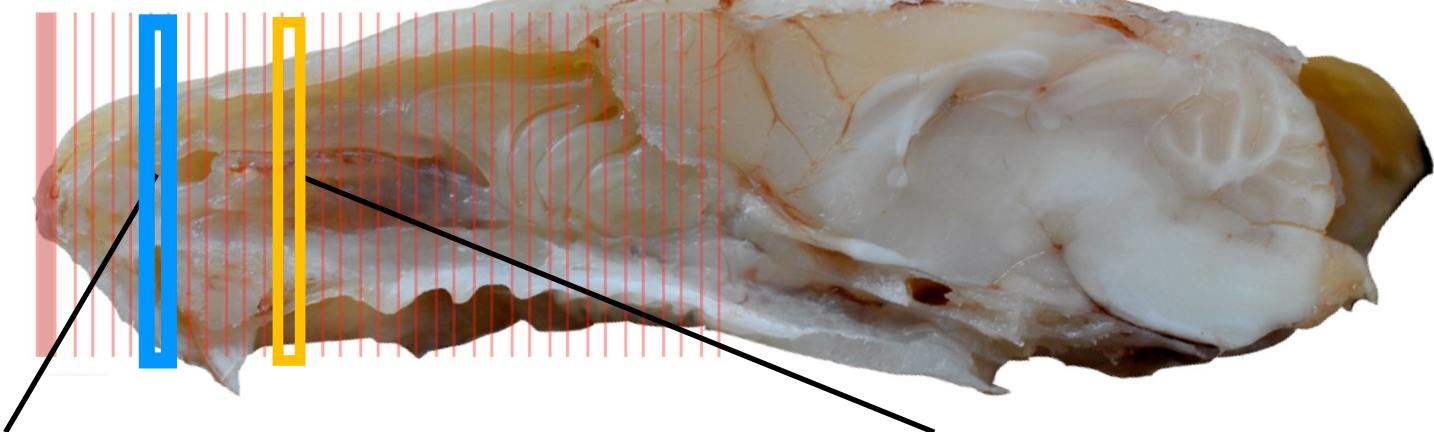
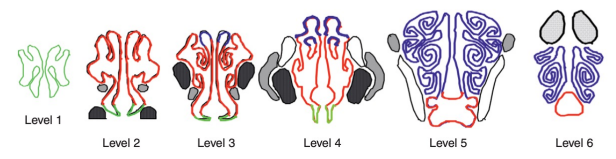
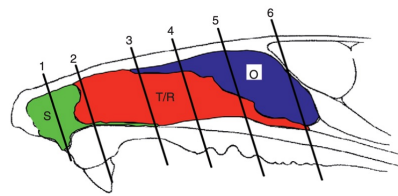




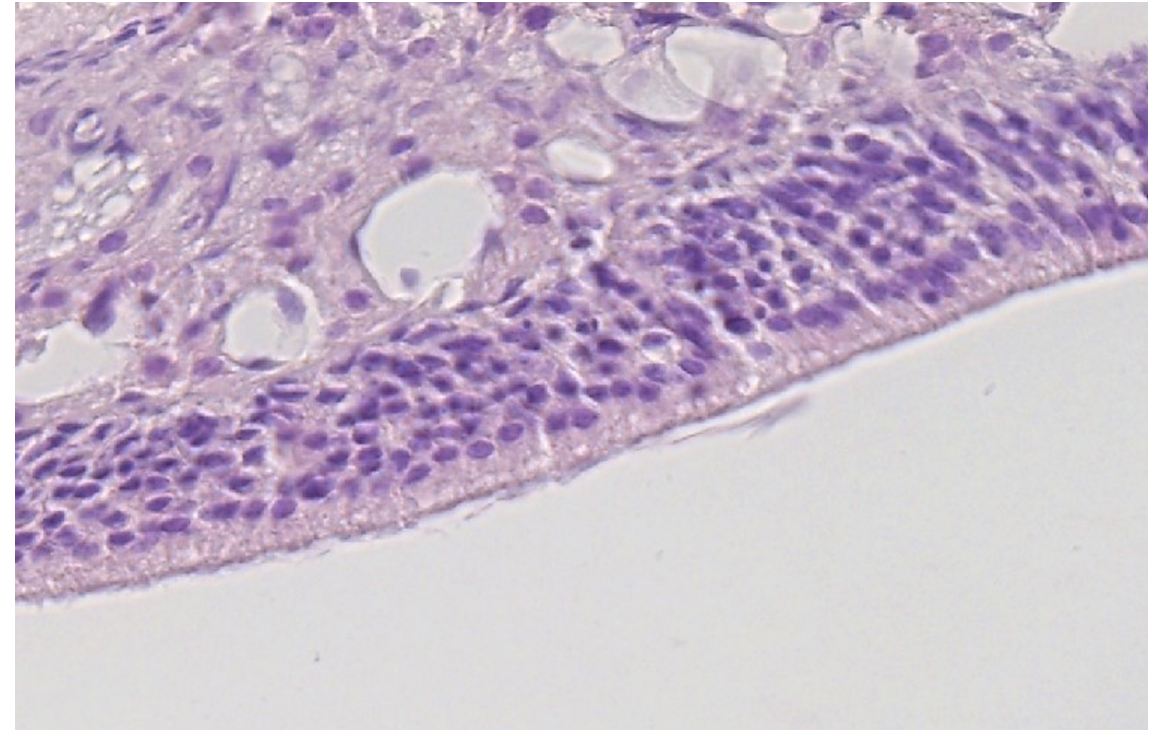
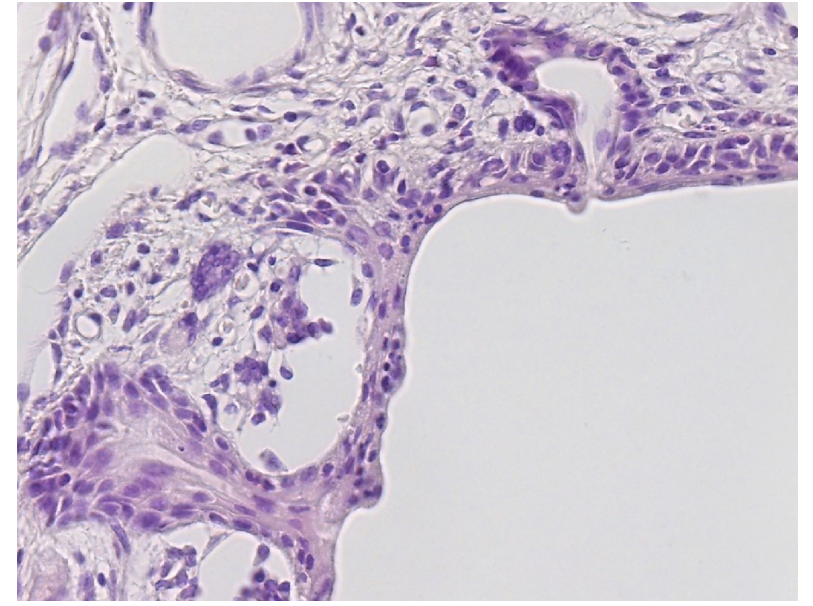
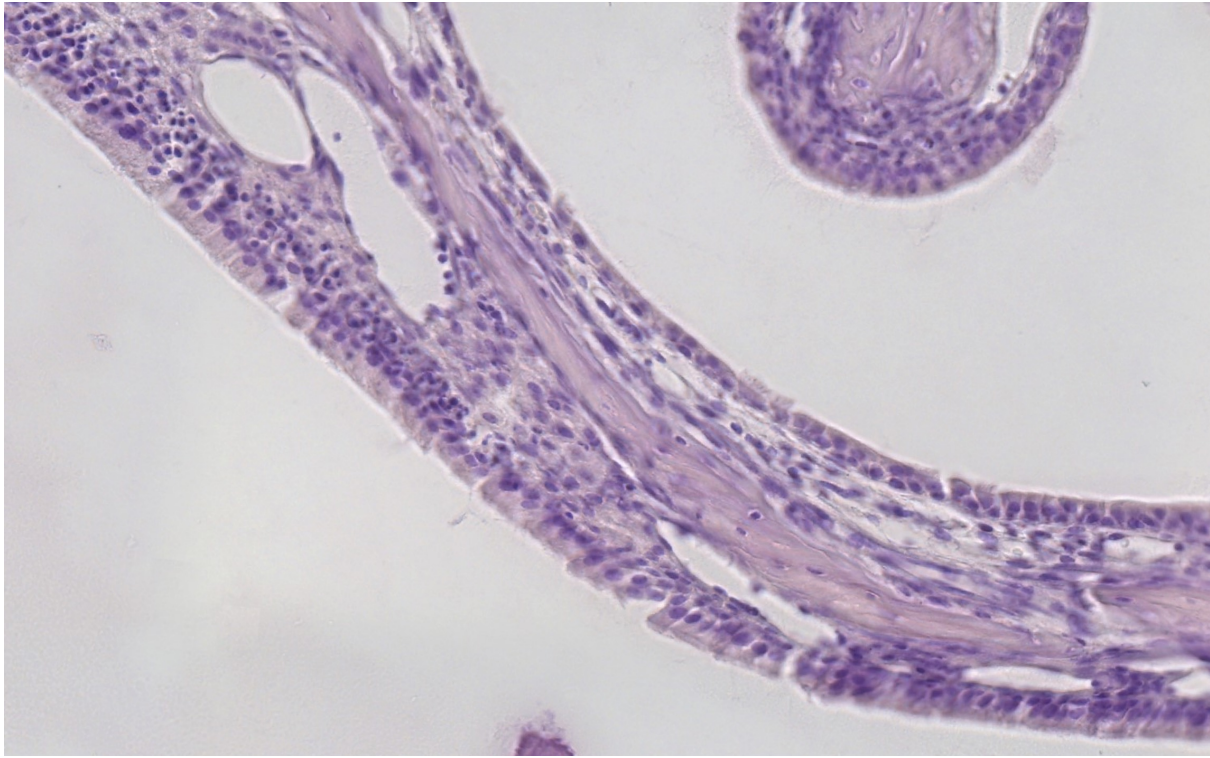














**Chemical senses  
in  
Environmental Enrichment**



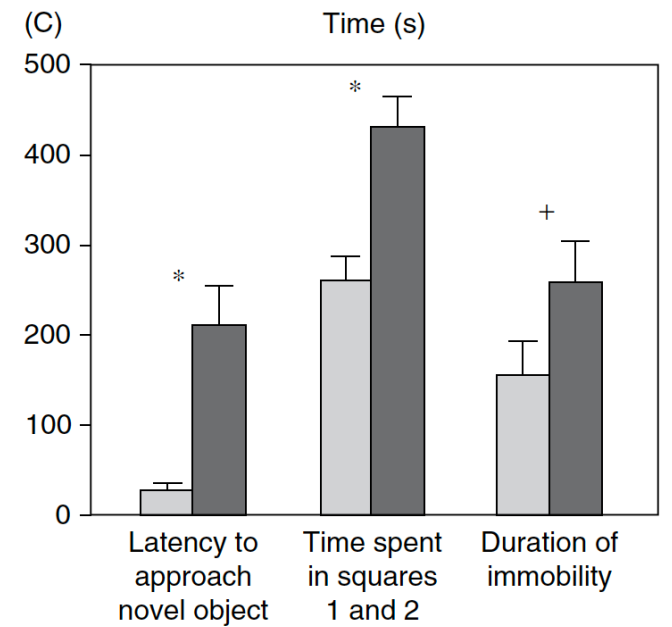
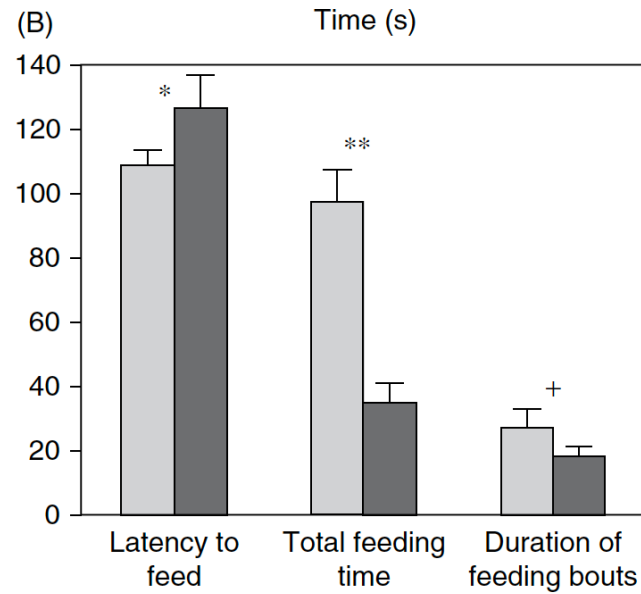
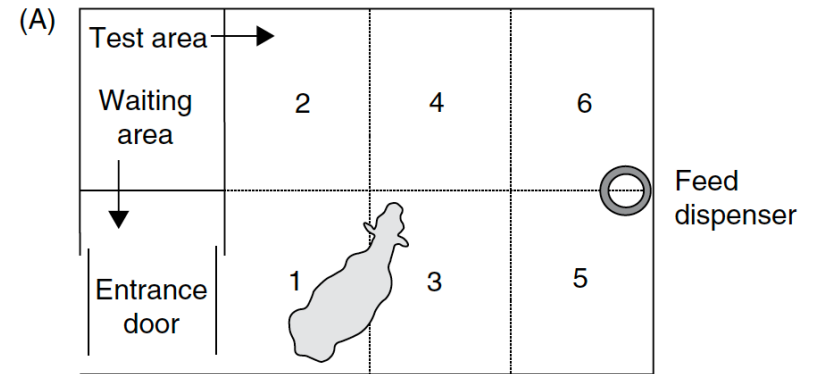
Parameter	Control group	Experimental group
Mean heart rate (bpm)	87 ( $\pm 22$ )	69 ( $\pm 14$ )
Maximum heart rate (bpm)	175 ( $\pm 23$ )	145 ( $\pm 23$ )
Time taken to enter stall (s)	203 ( $\pm 66$ )	115 ( $\pm 76$ )



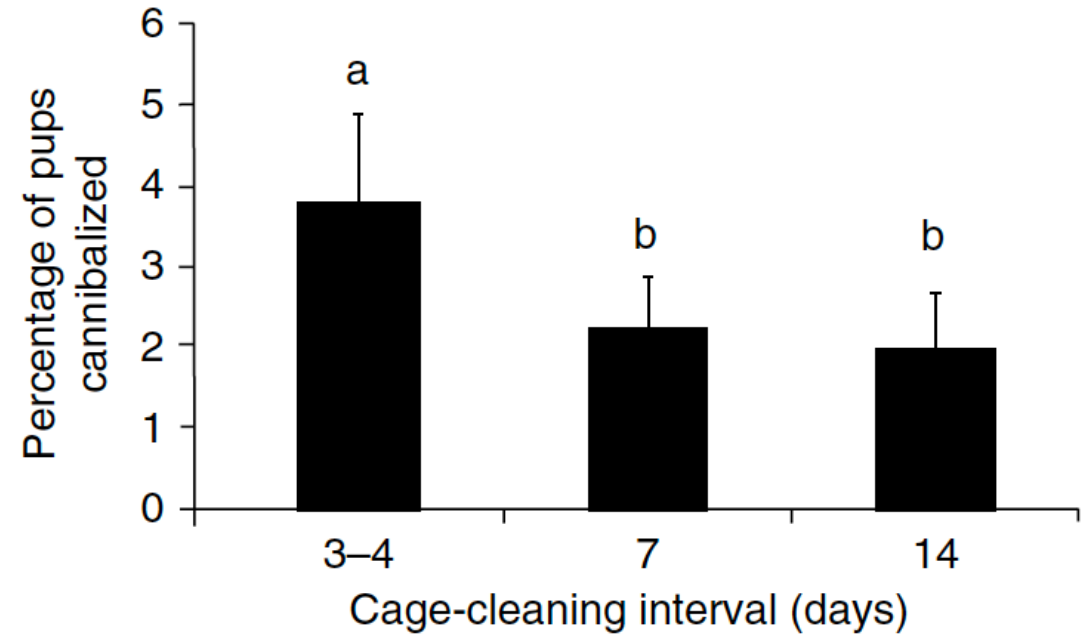




# In Farm animals

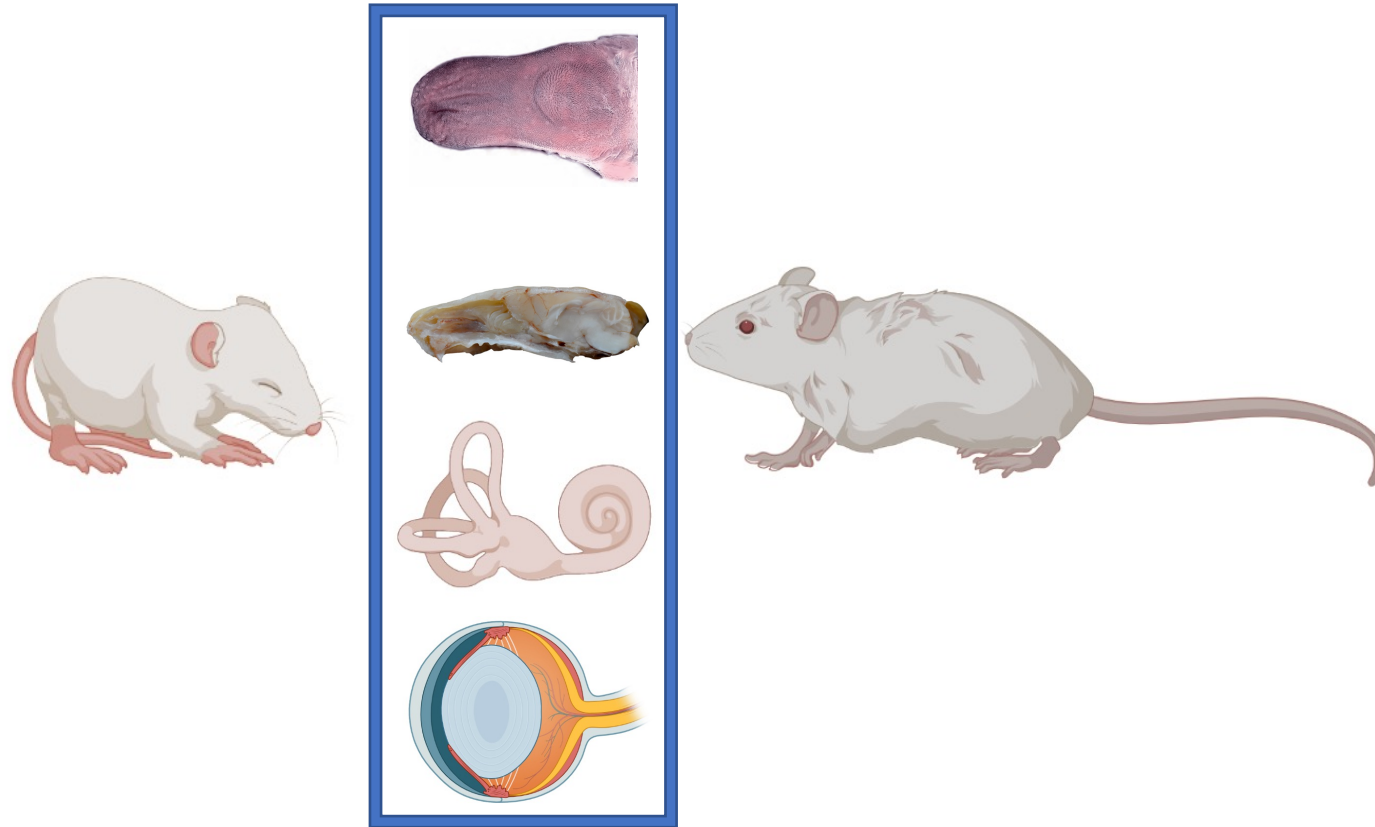


# In Laboratory animals



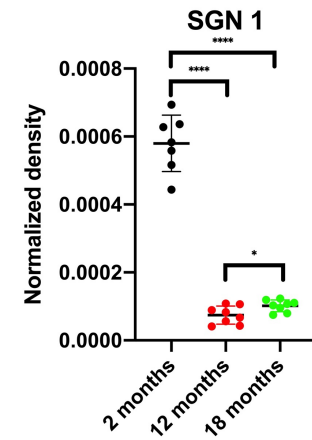
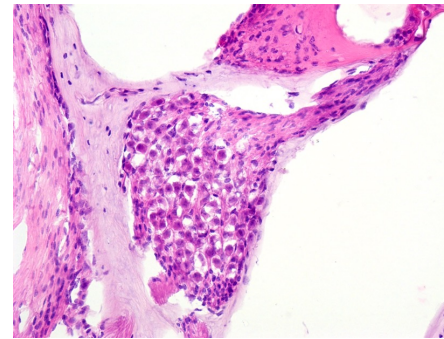
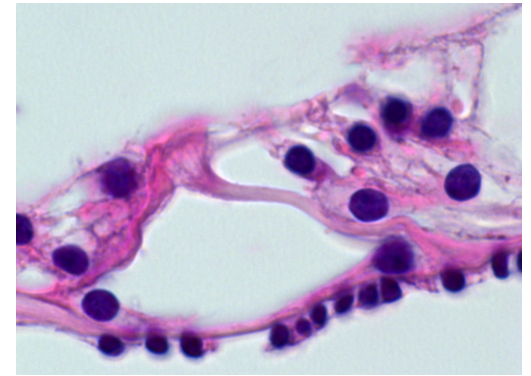
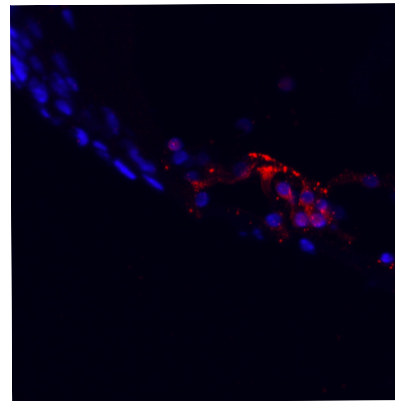
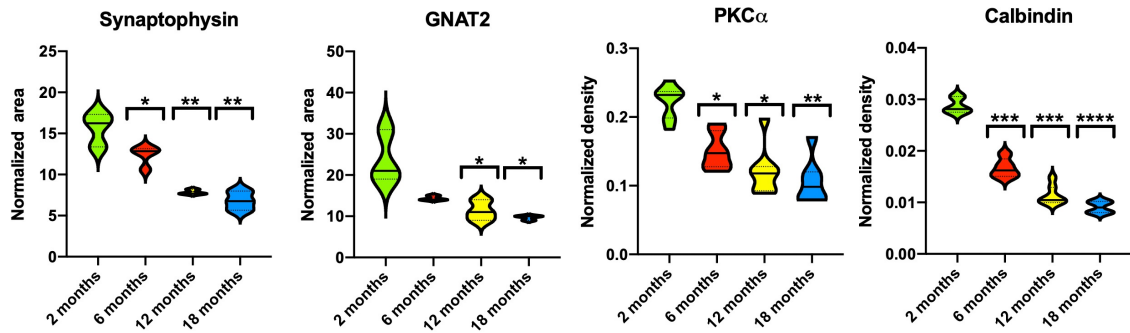
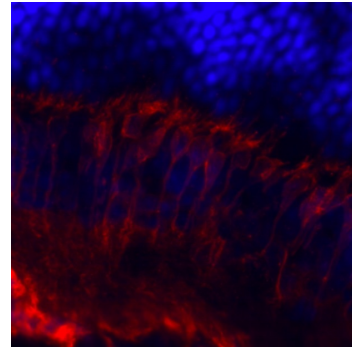
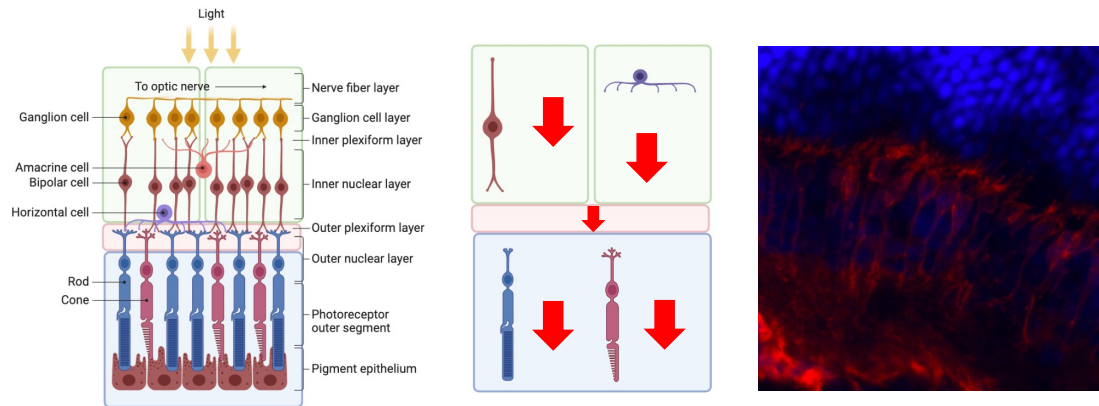
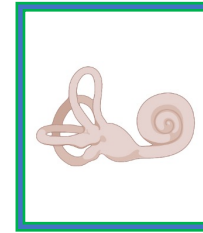
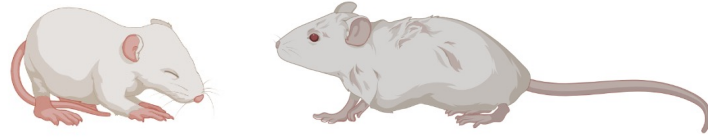
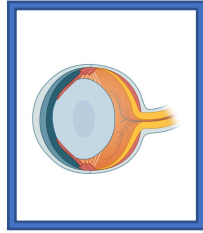


# SensAging



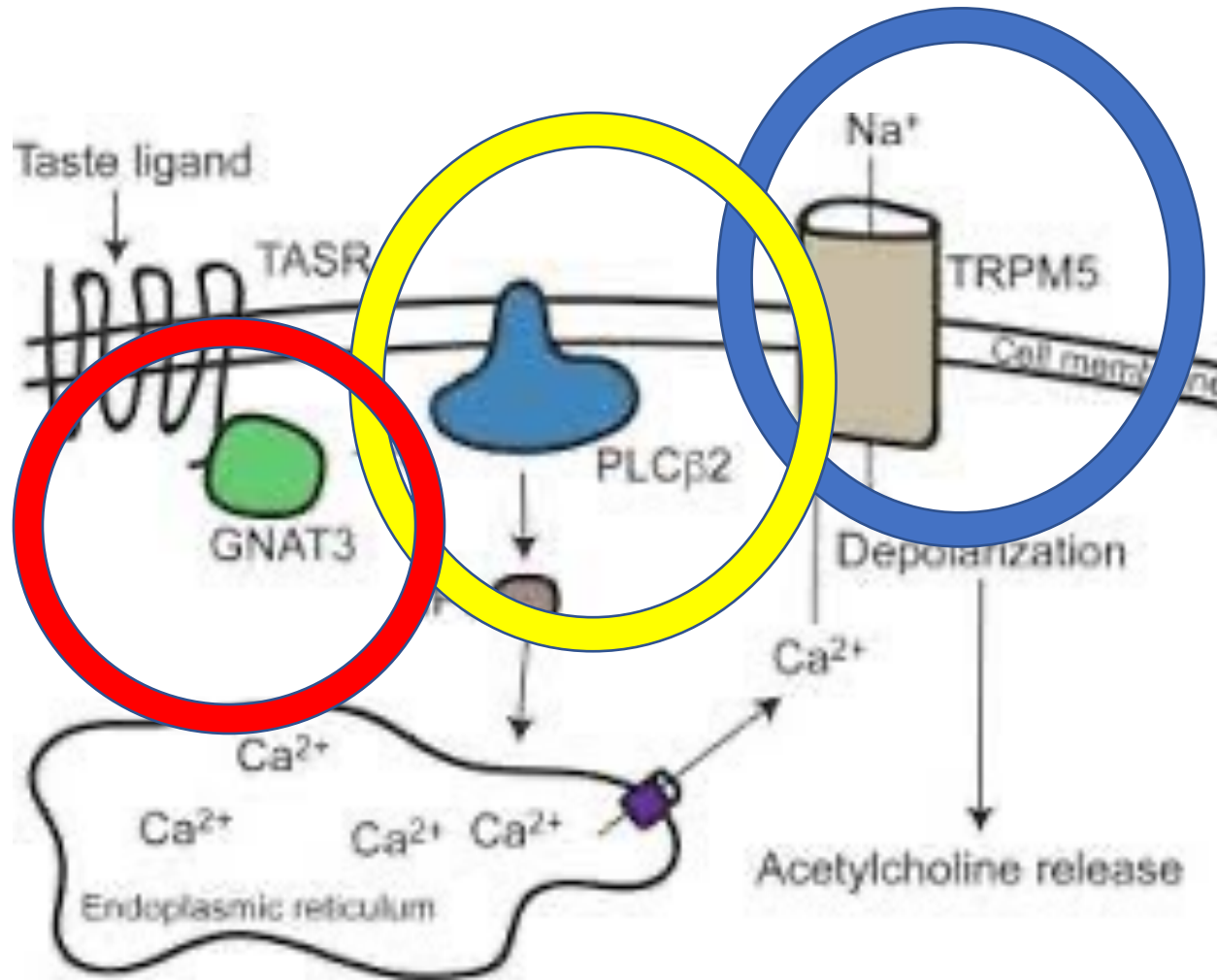
Morphological alterations during aging

# SENSAGING

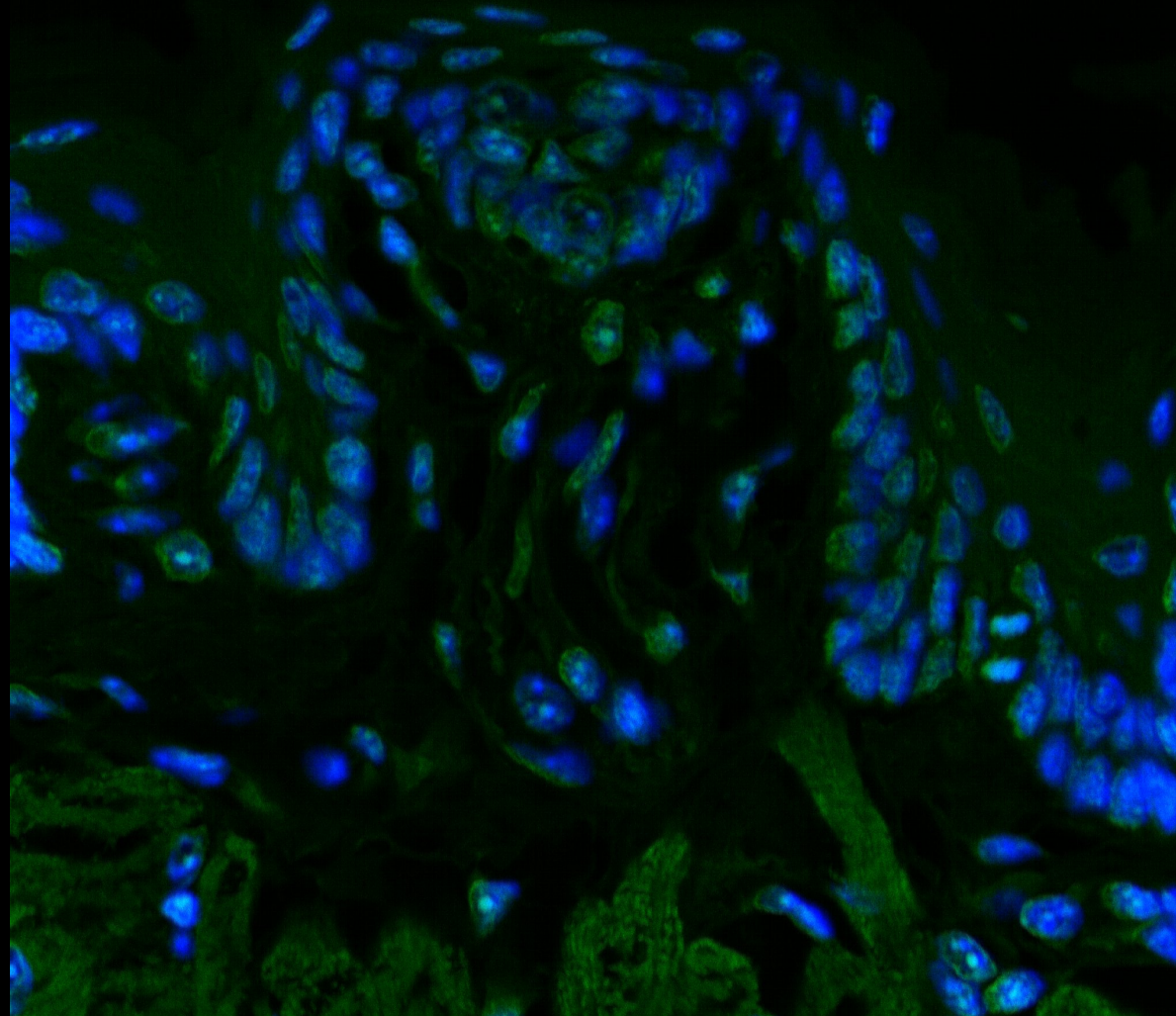
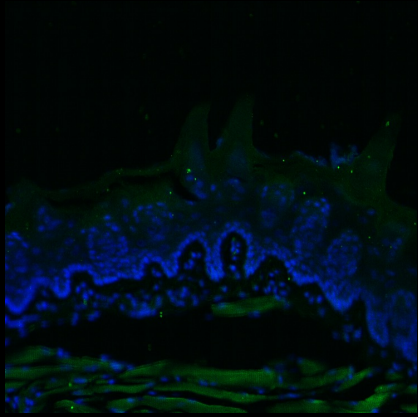
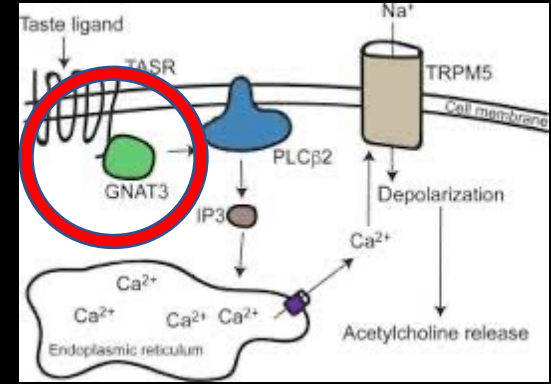
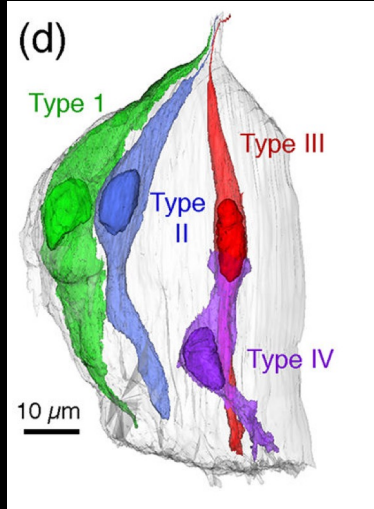




# Taste Markers

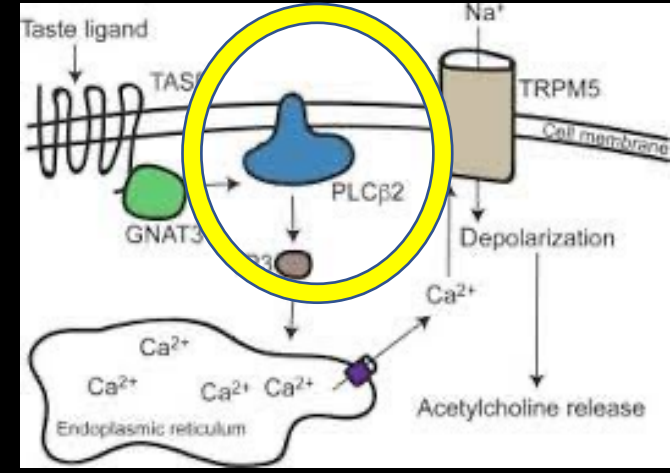
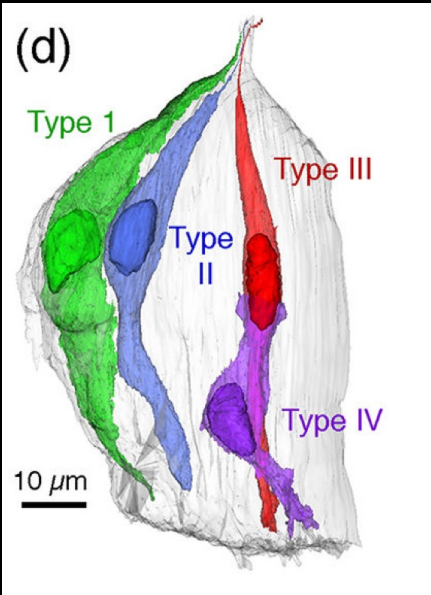


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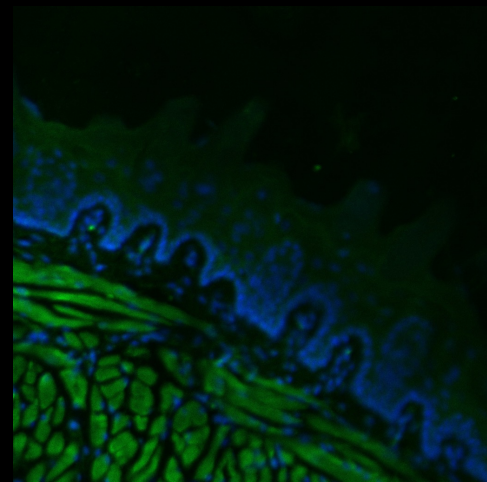
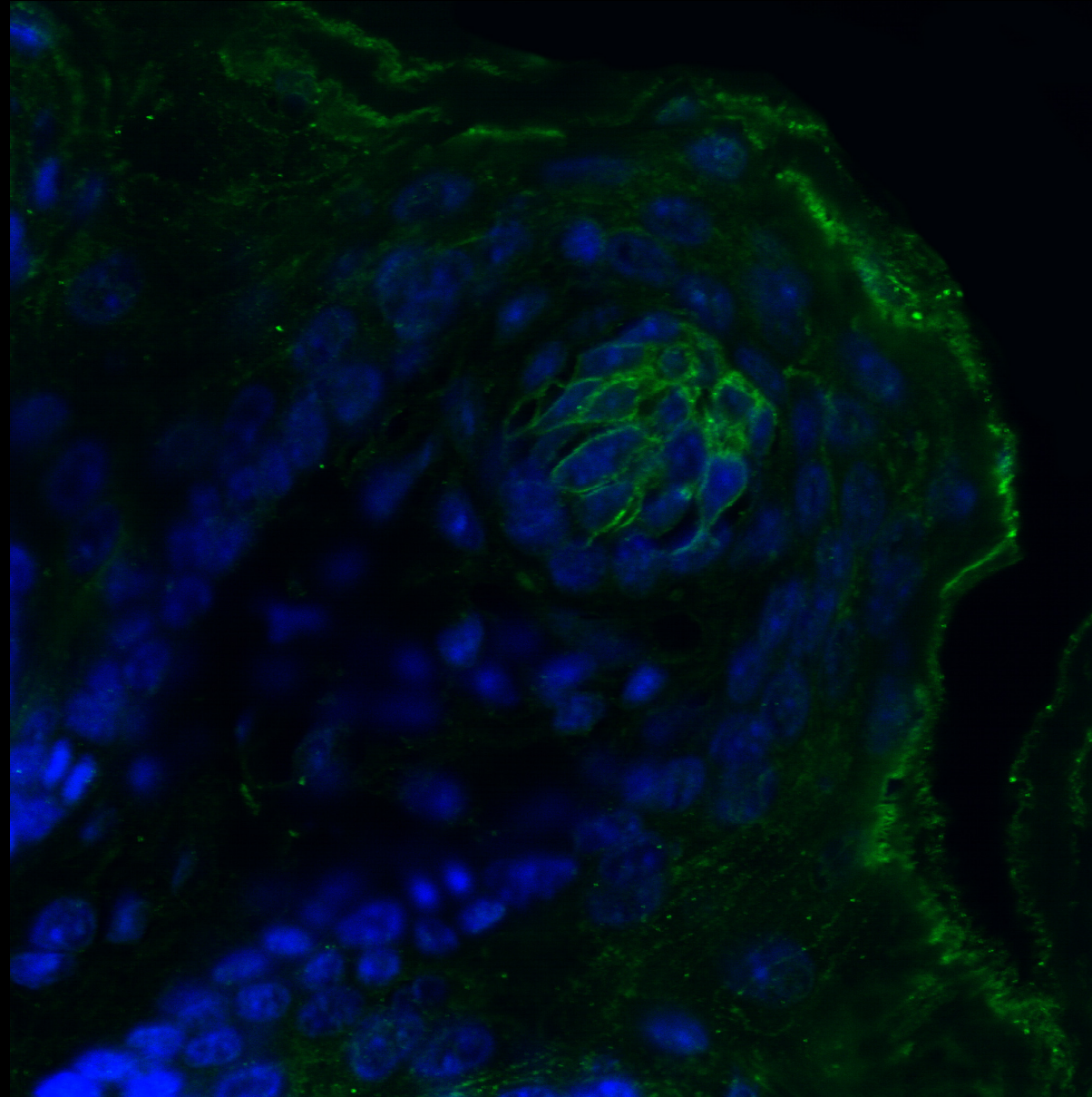
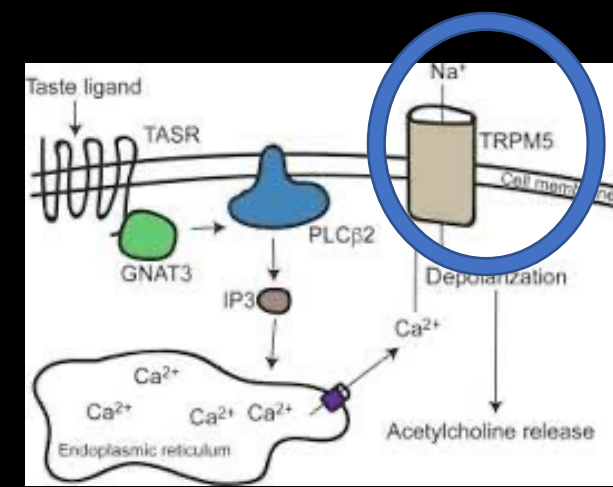
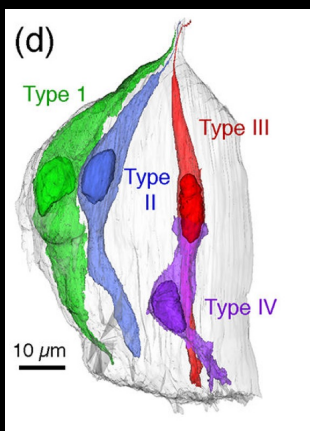




# PLCB2

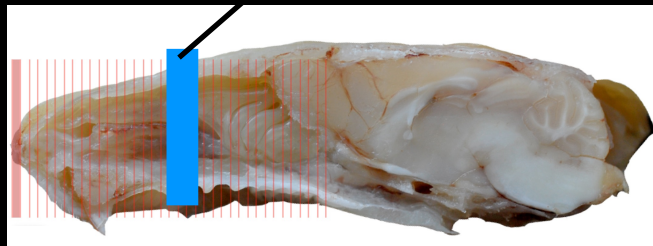
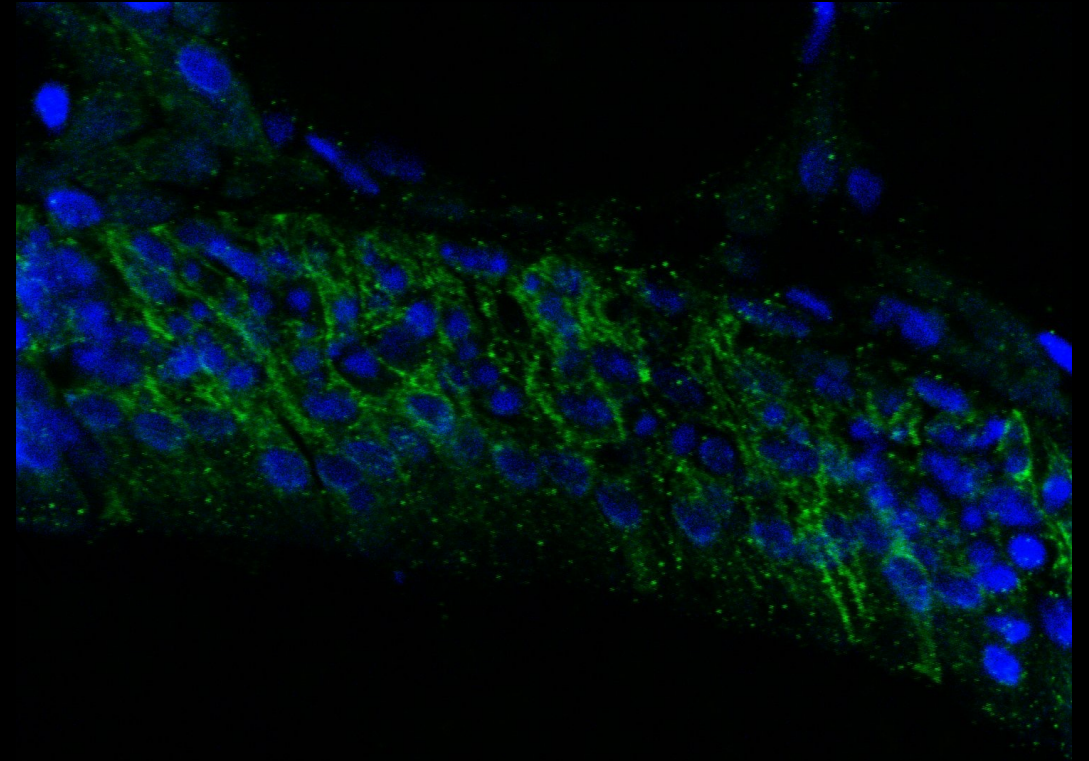
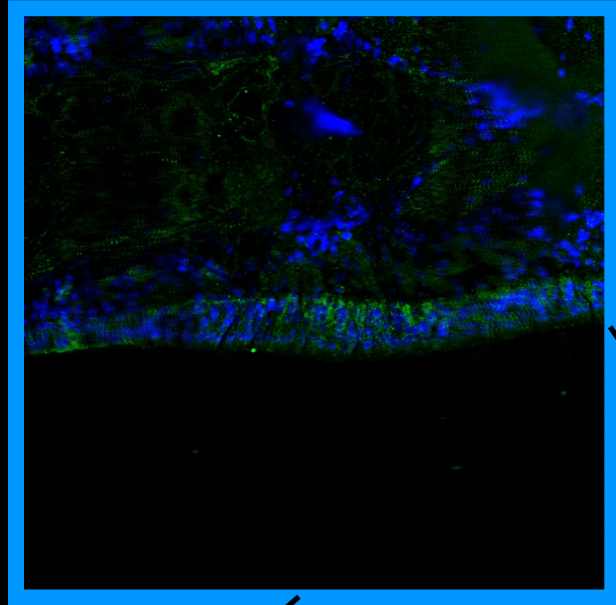
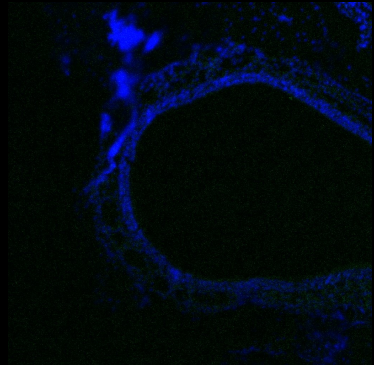


# TRPM5

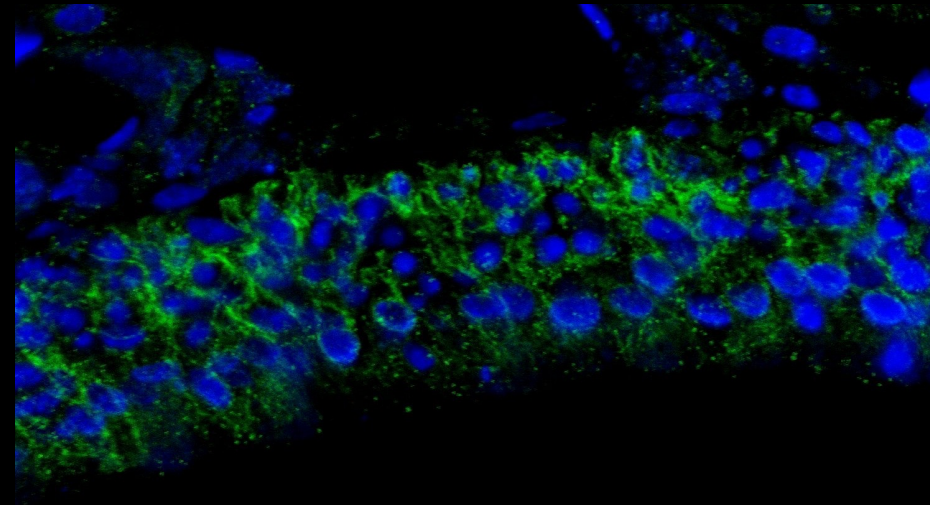
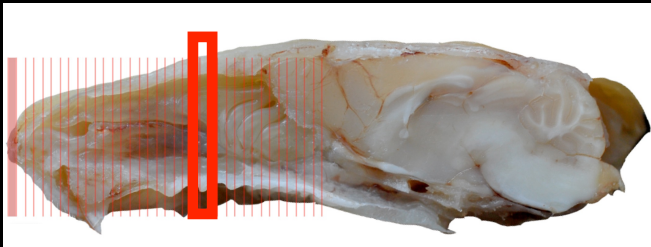
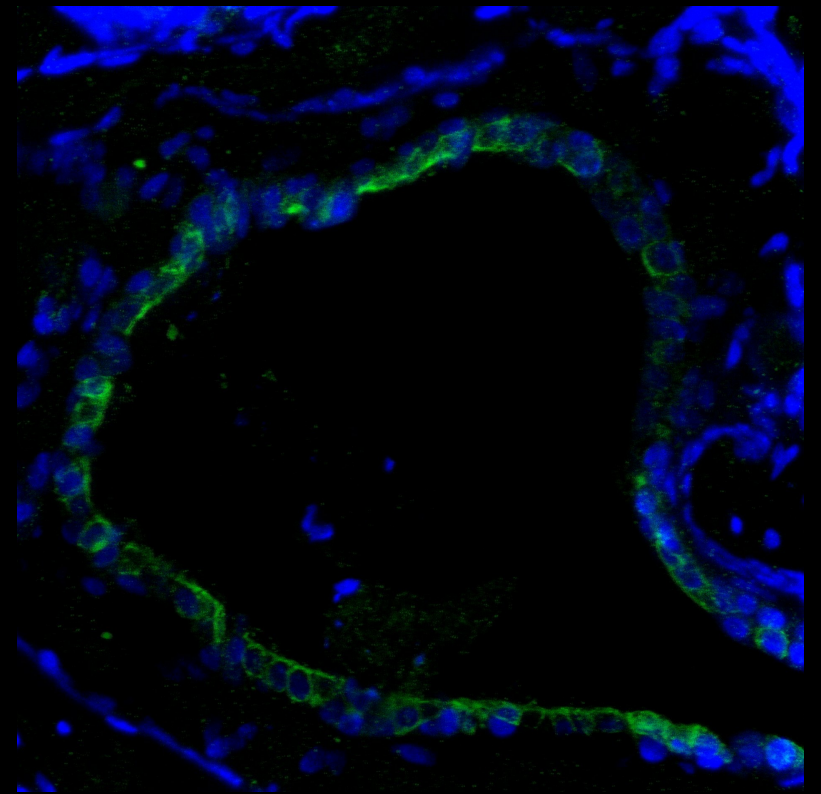
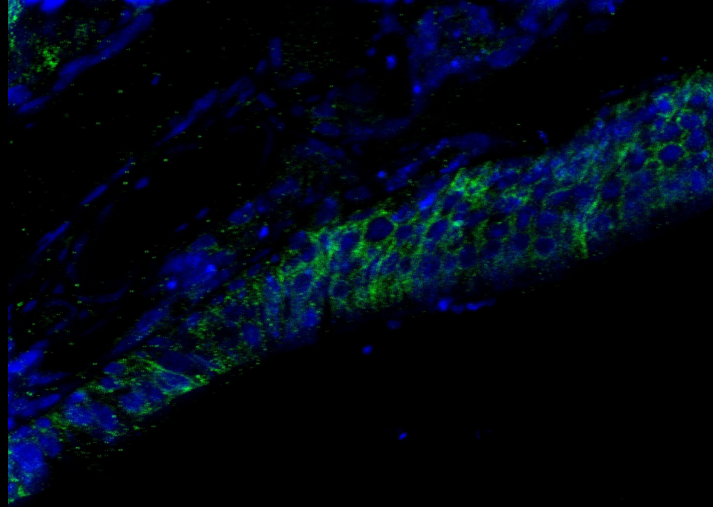
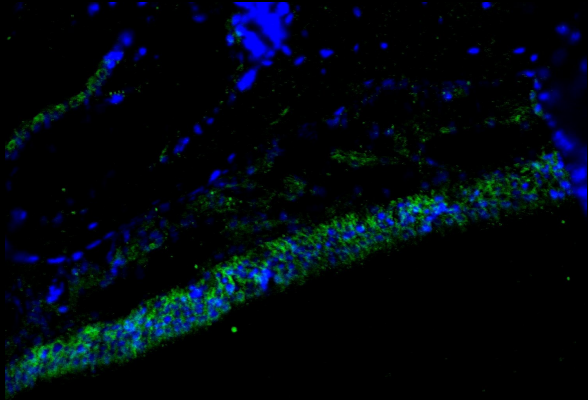




# Citokeratin 8

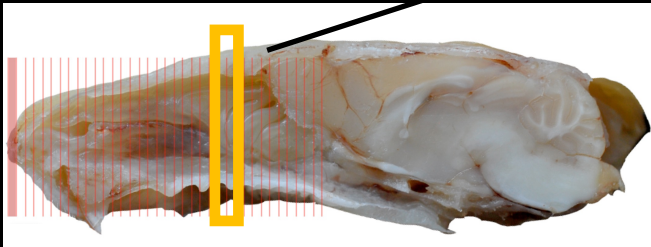
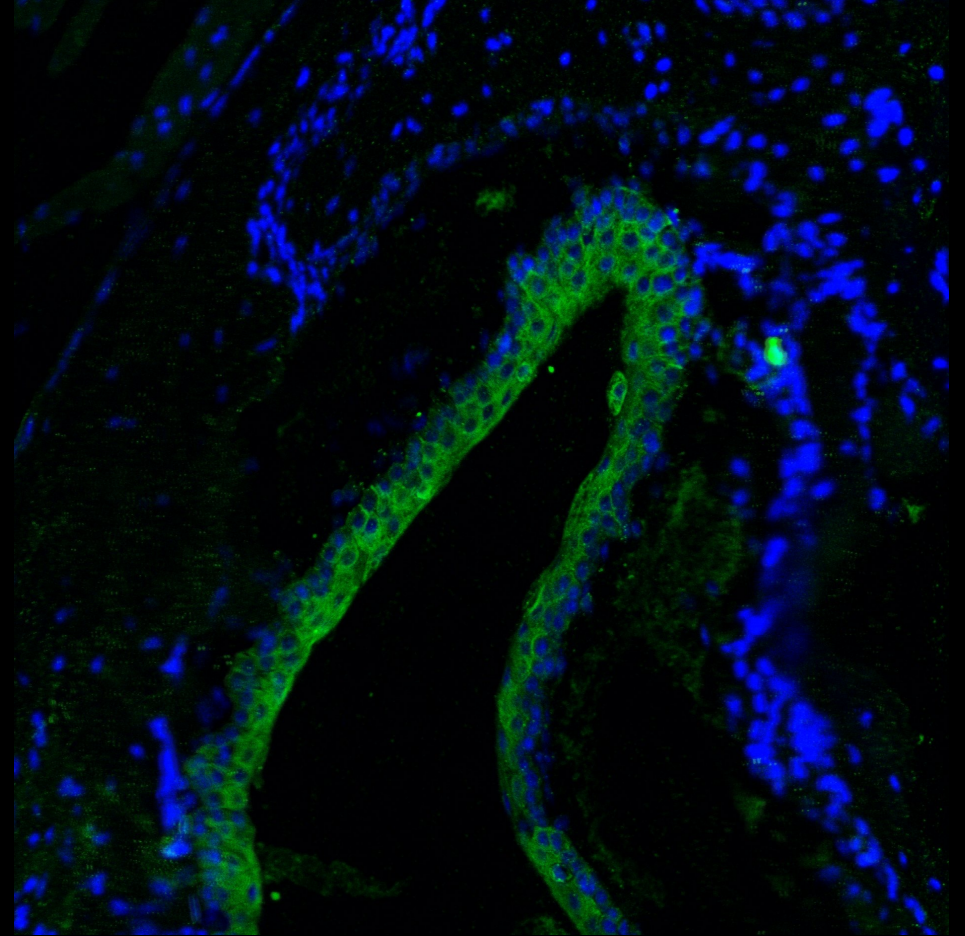
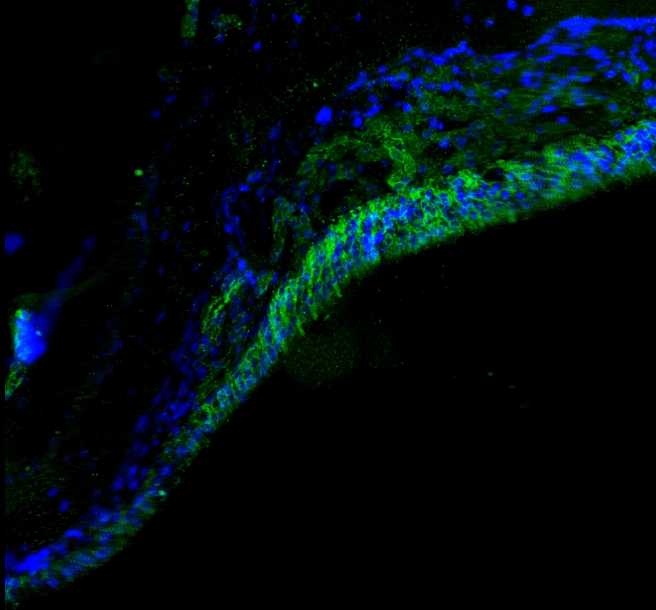


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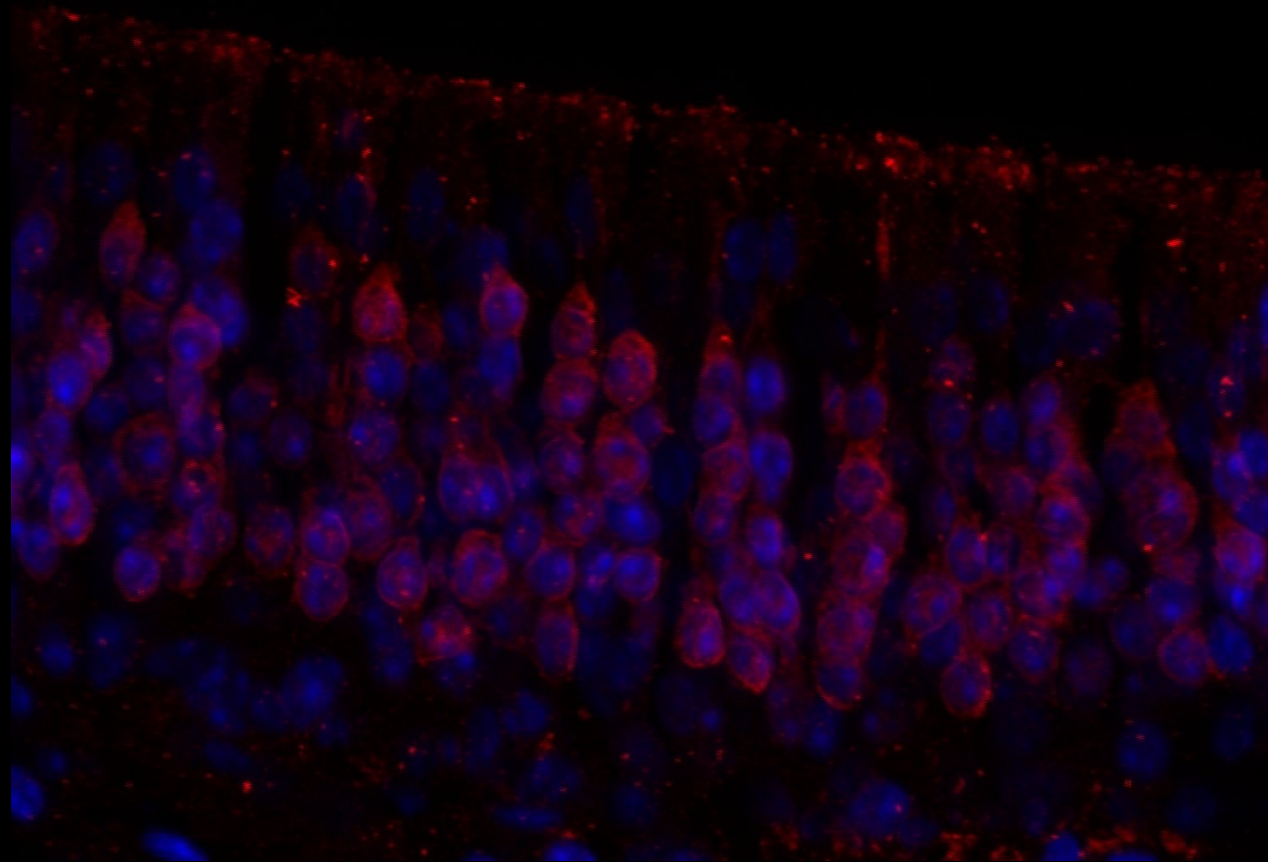
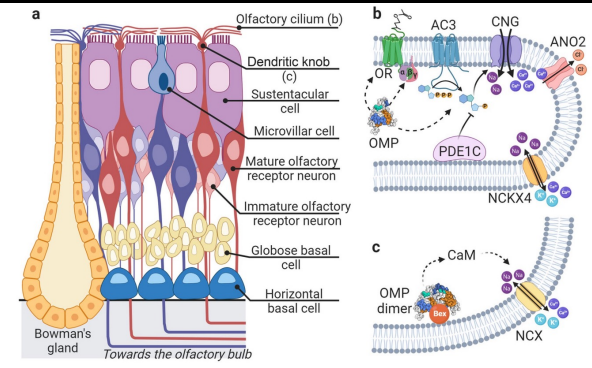




# Citokeratin 8

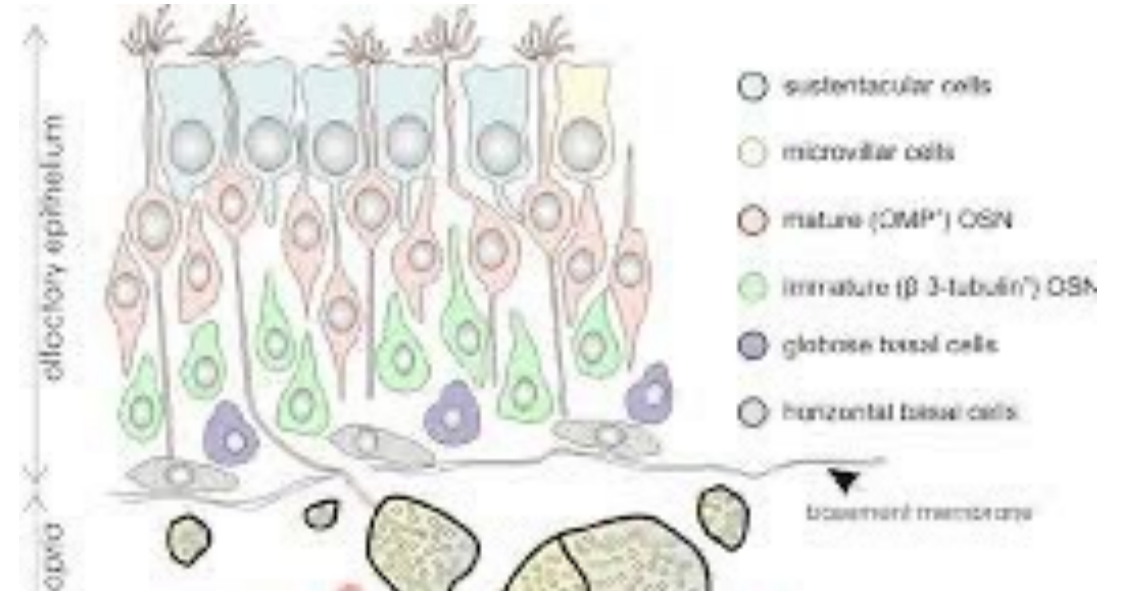
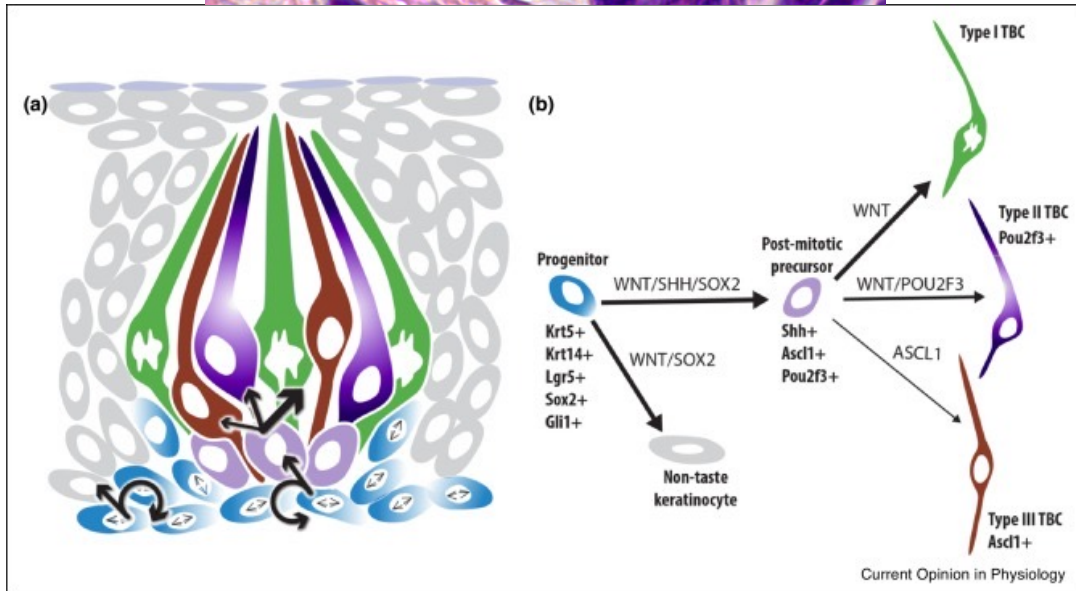
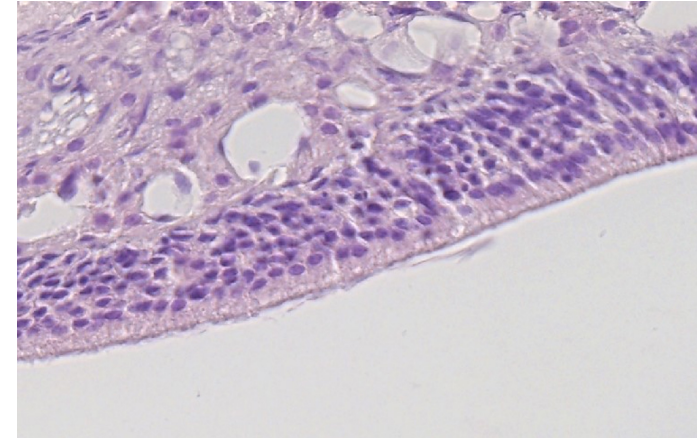
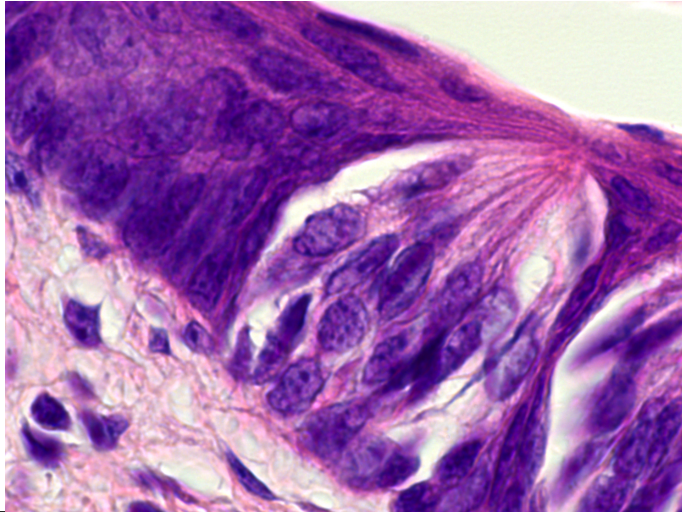


# Olfactory Marker Protein (OMP)







# Sensory epithelia regeneration

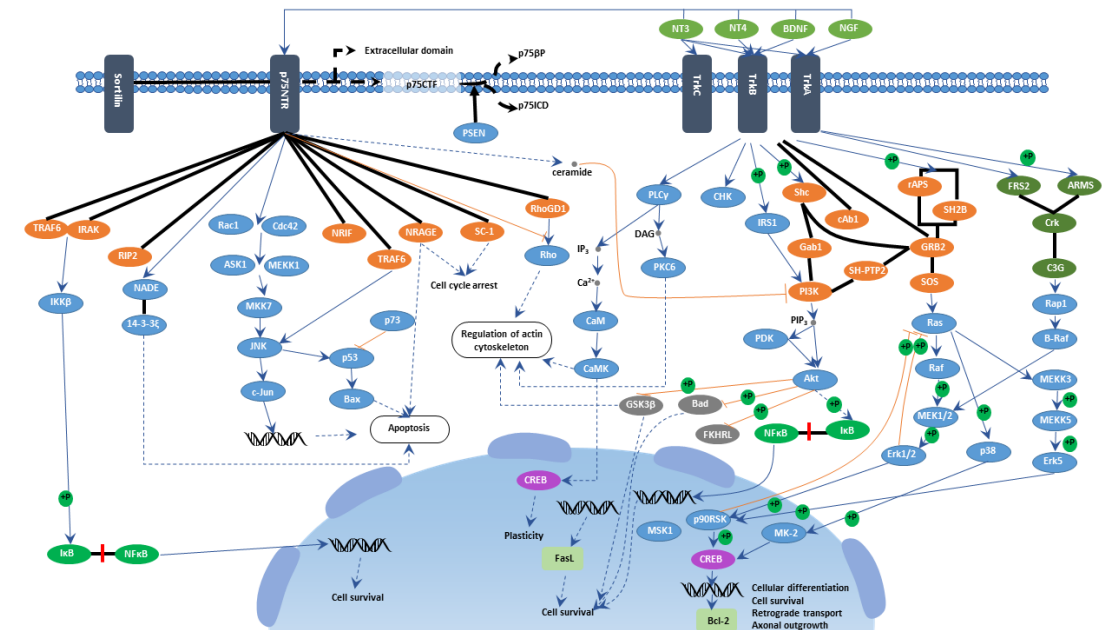


# Taste Buds in Zebrafish



## Article Neurotrophins in Zebrafish Taste Buds

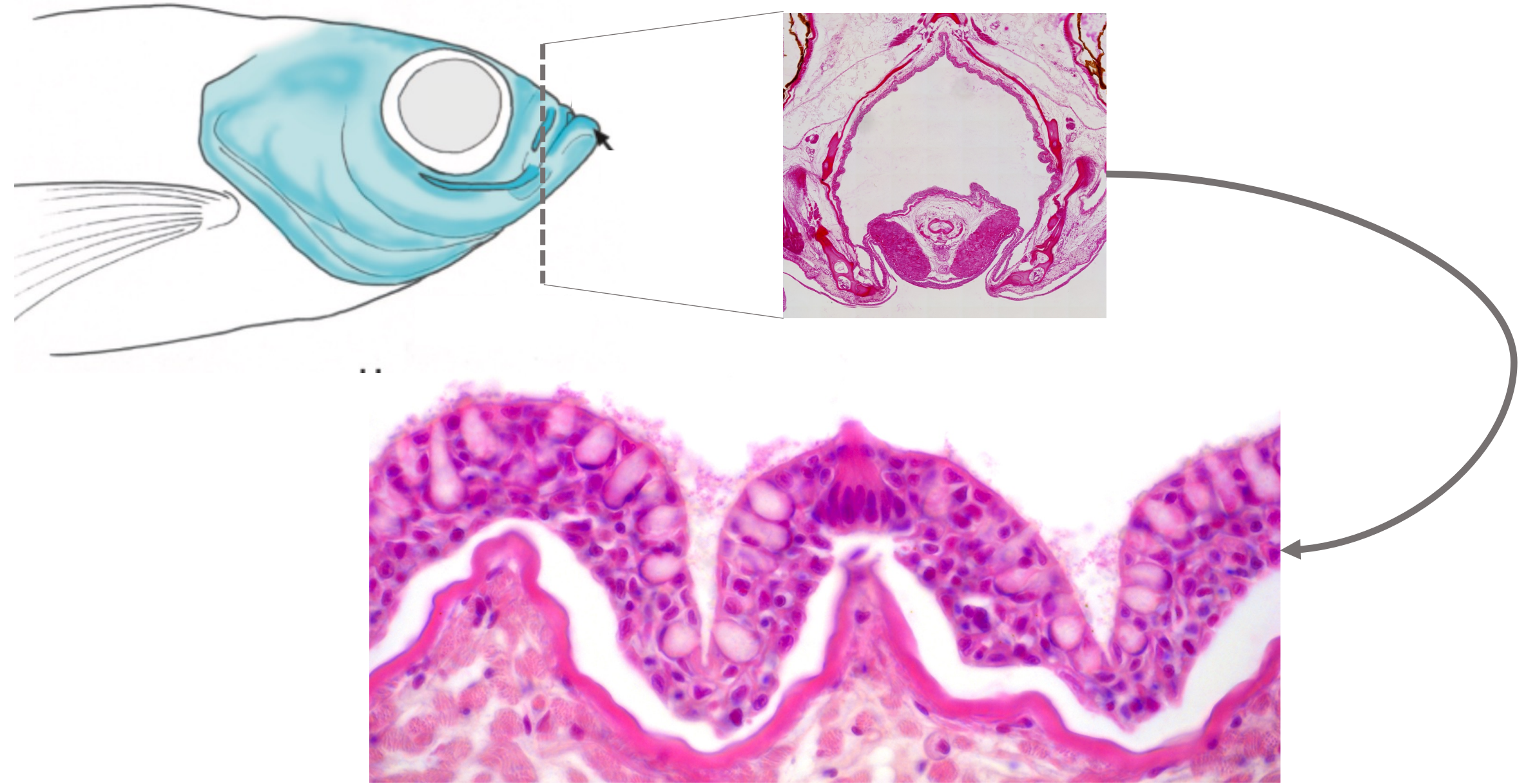
Claudia Gatta <sup>1</sup>, Valentina Schiano <sup>1</sup>, Chiara Attanasio <sup>1</sup> , Carla Lucini <sup>1,\*</sup> and Antonio Palladino <sup>2</sup> 



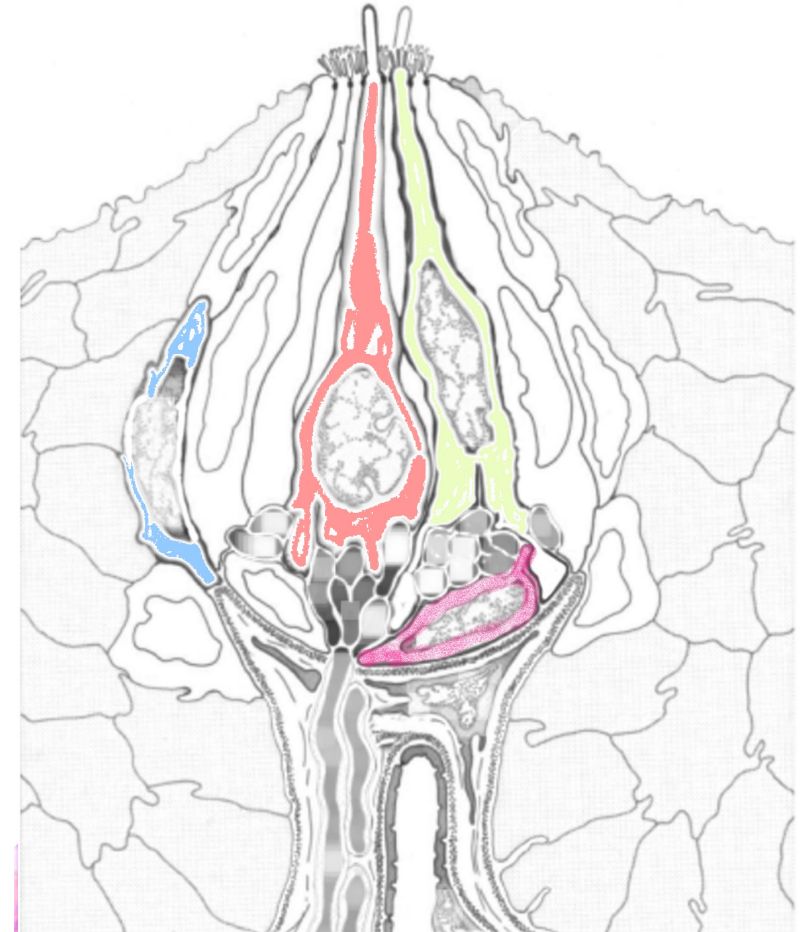
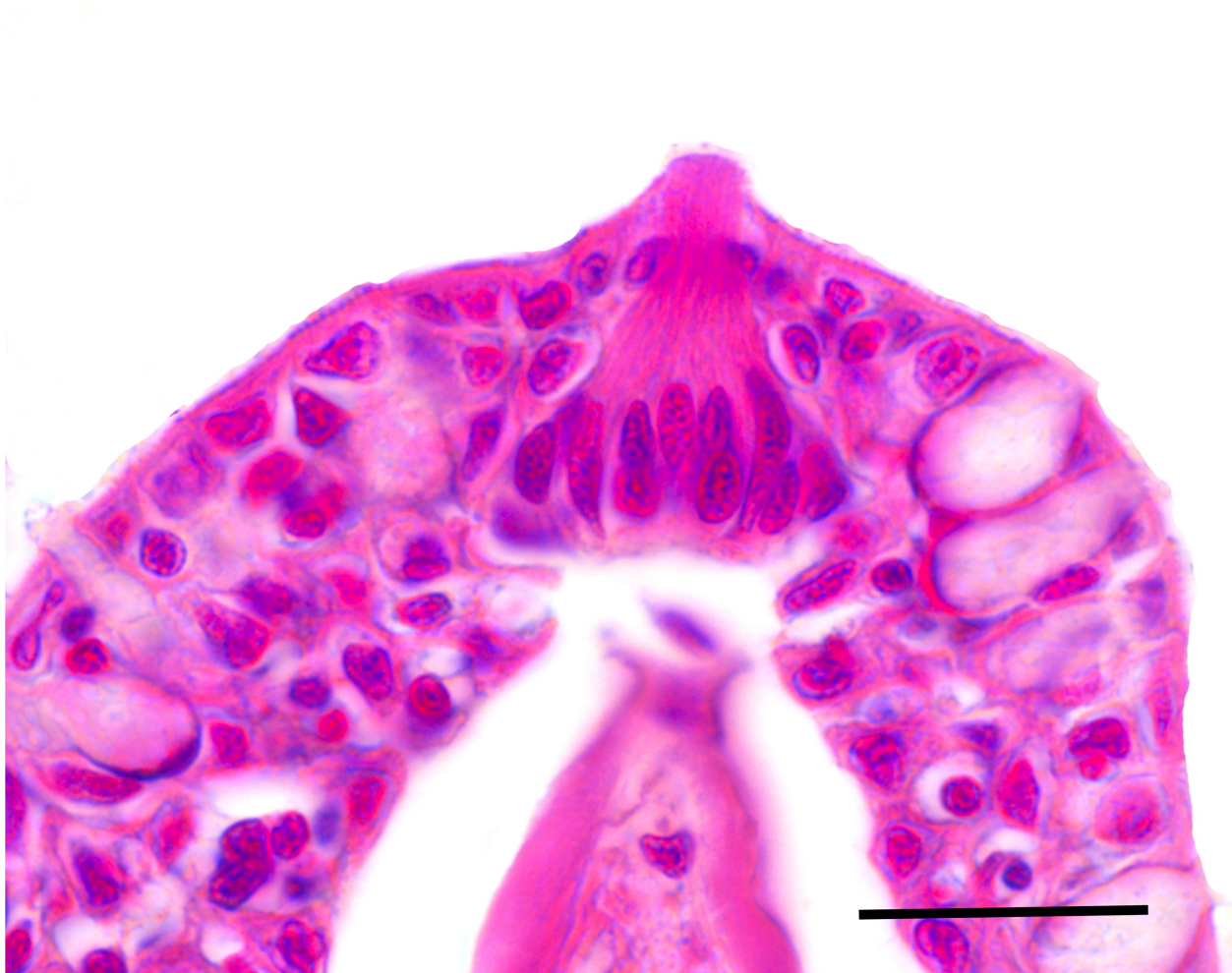
- Neurotrophins are important regulators of survival, development, function, and plasticity of many neuronal populations



# Oropharyngeal cavity in Zebrafish

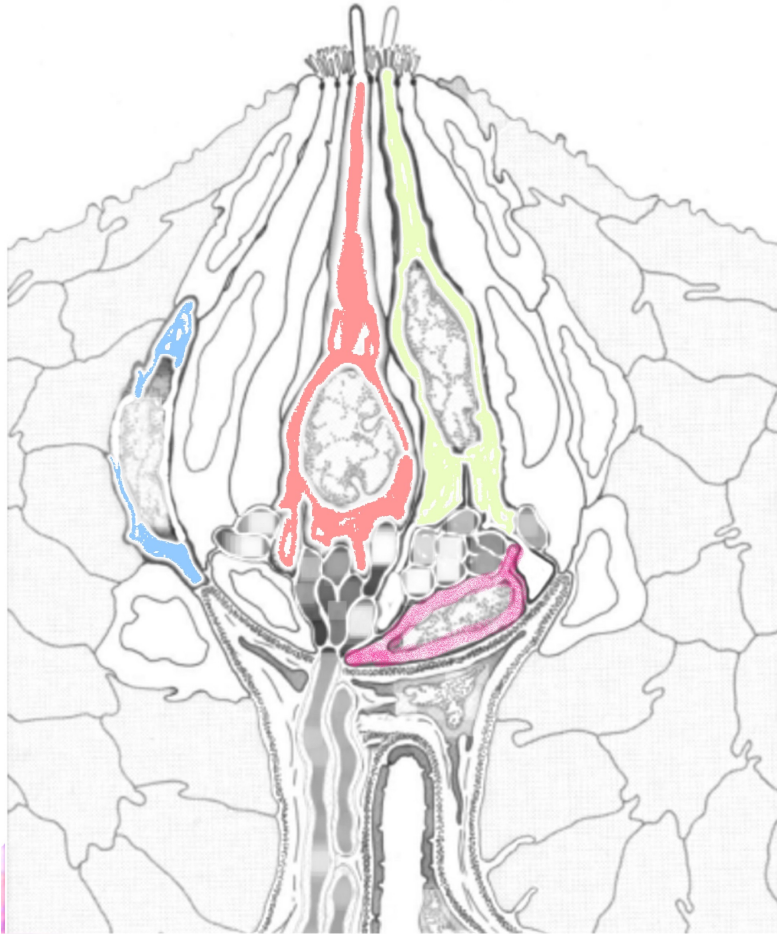


# Taste Bud in Zebrafish





# Taste Bud Cell types



- Light cells

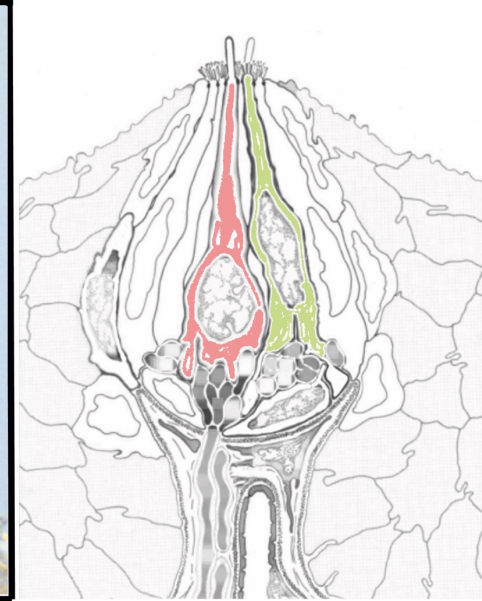
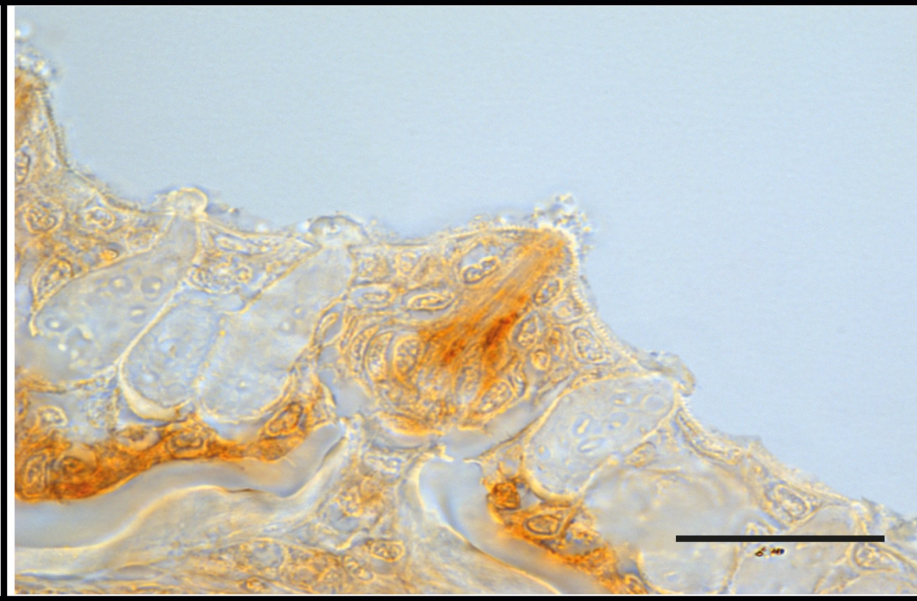
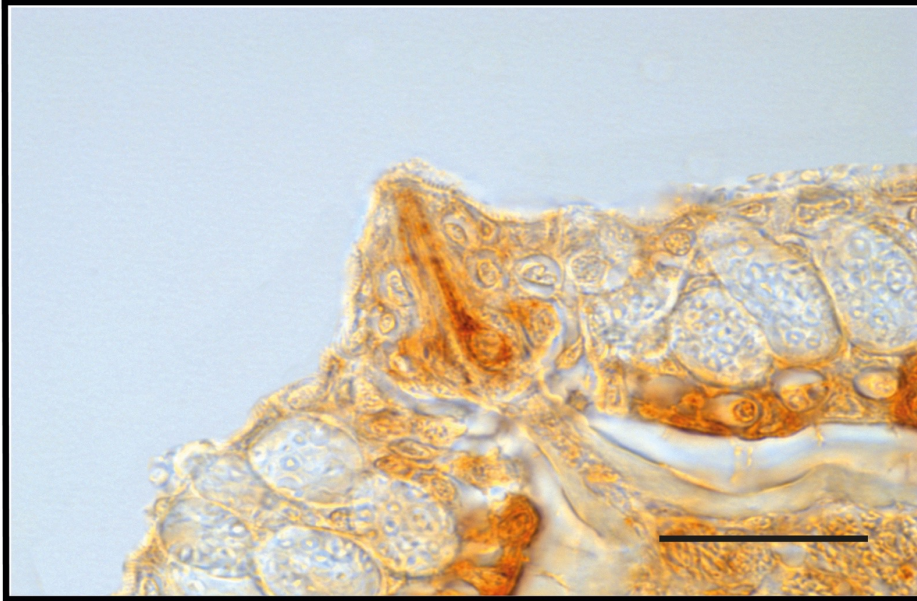
- Dark cells

- Merkel-like cells

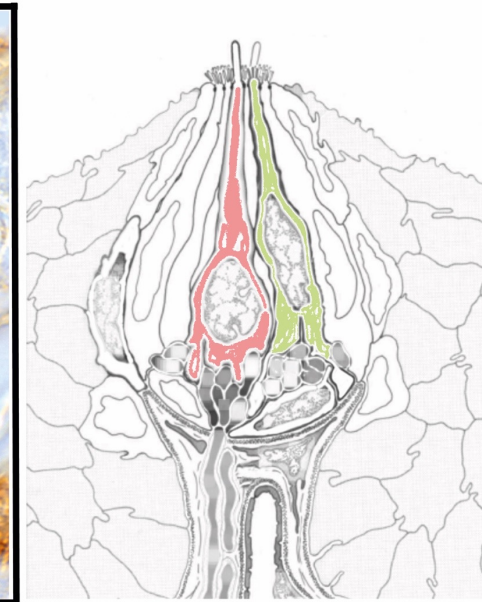
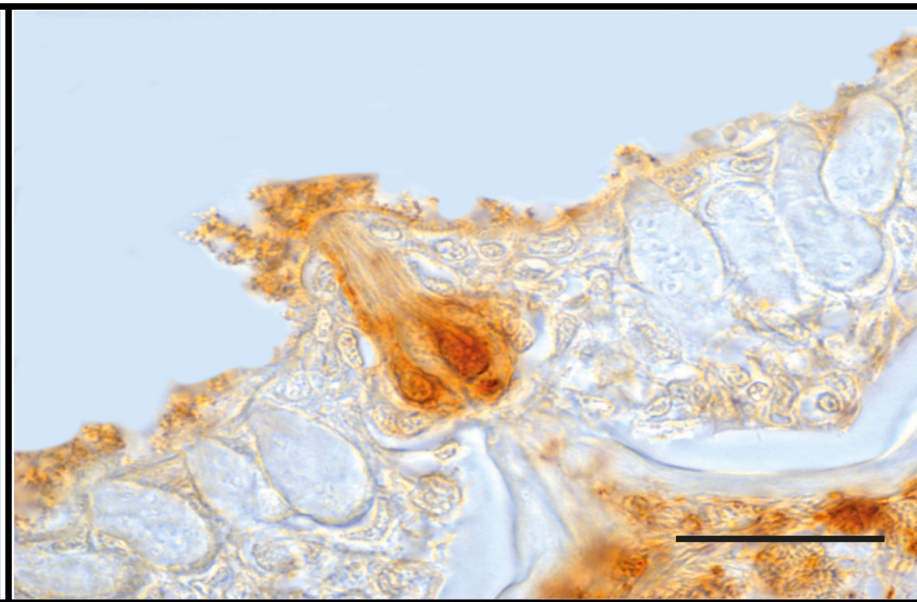
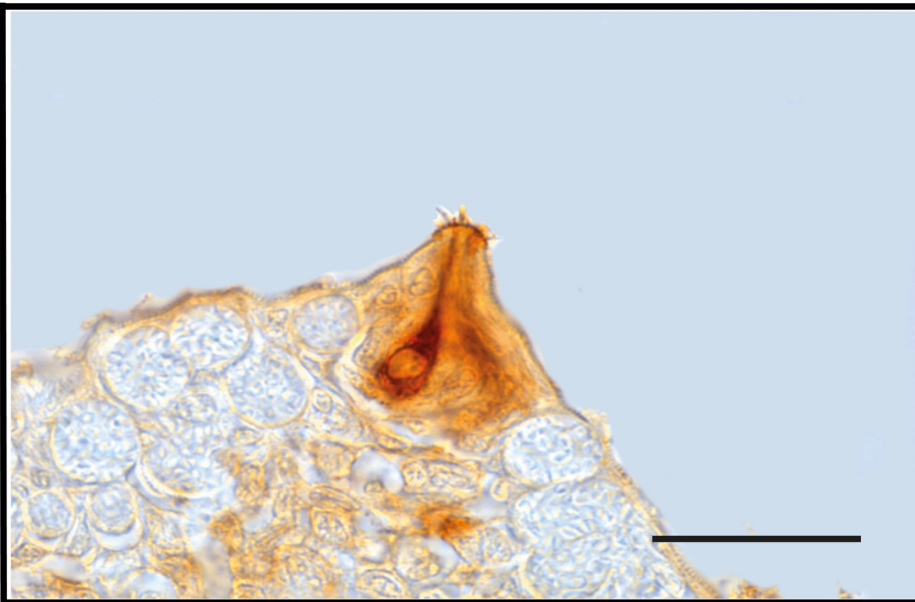
-Marginal cells

# NGF/BDNF Immunoreactivity

**NGF**



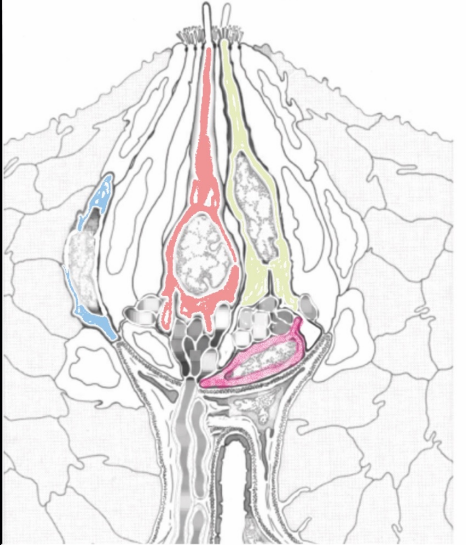
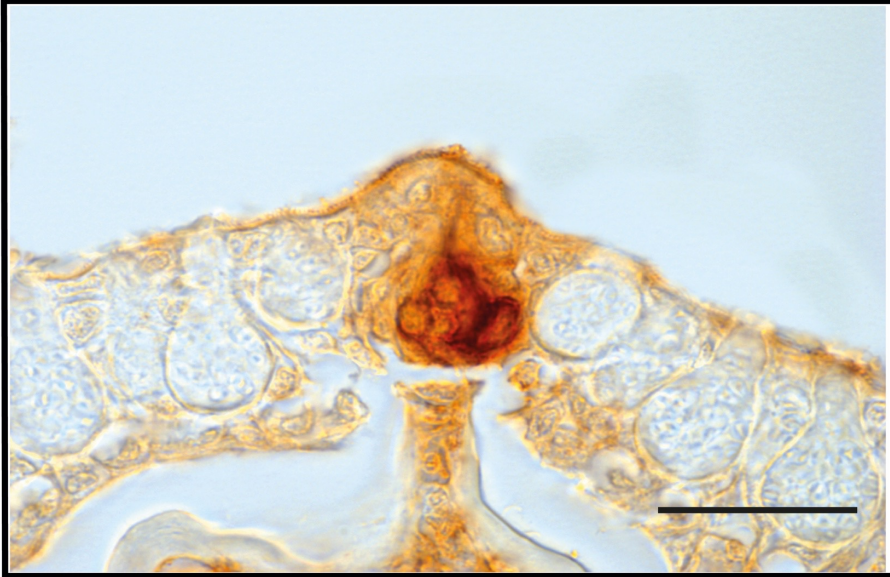
**BDNF**



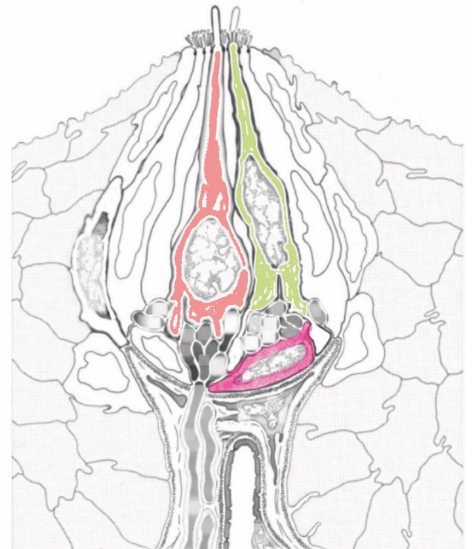
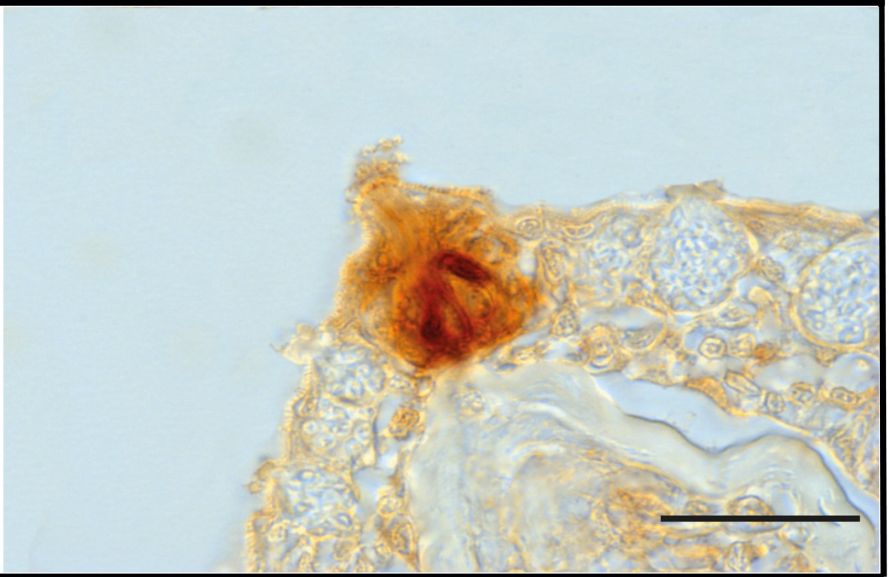
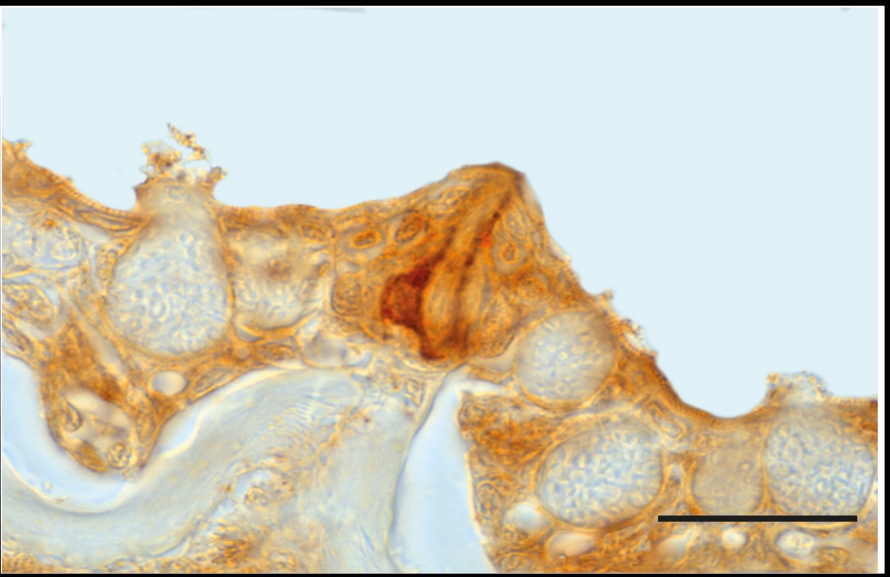


# NT3/NT4 Immunoreactivity

**NT3**

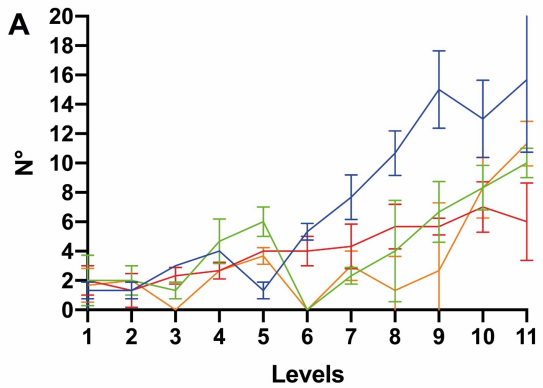


**NT4**

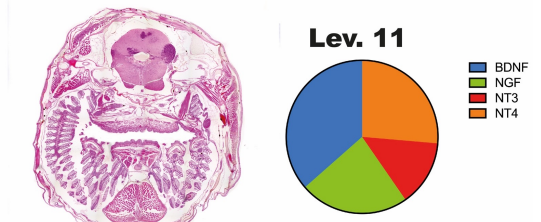
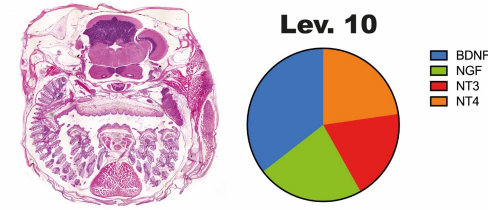
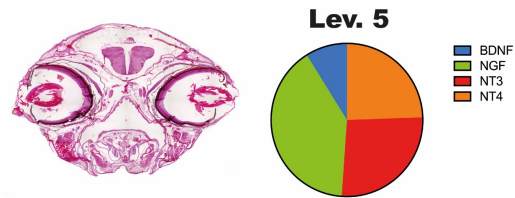
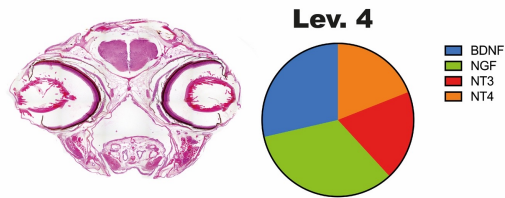
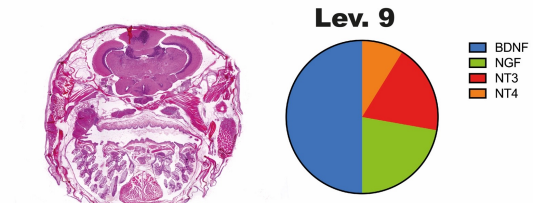
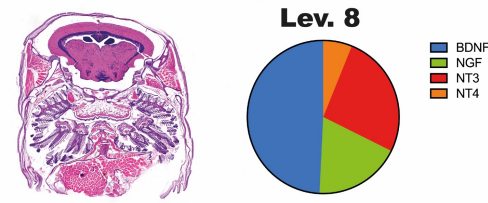
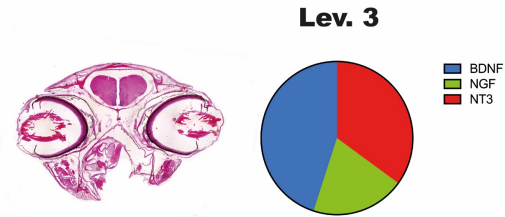
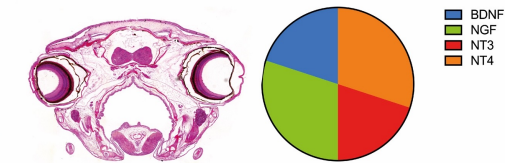
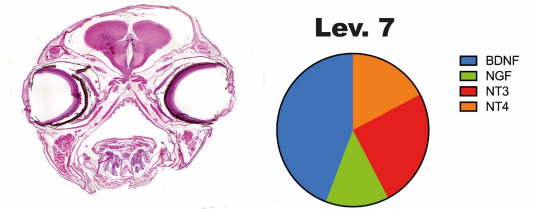
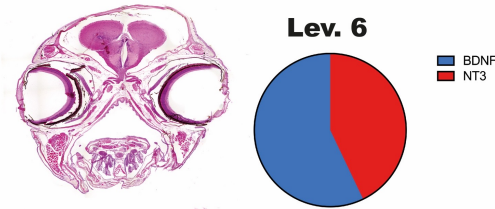
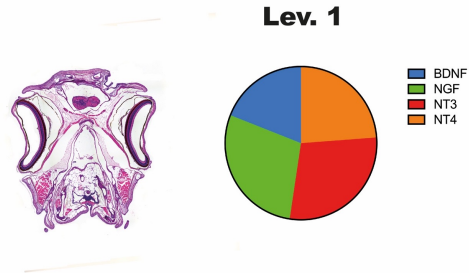




# Neurotrophin Distribution



— BDNF  
— NGF  
— NT3  
— NT4





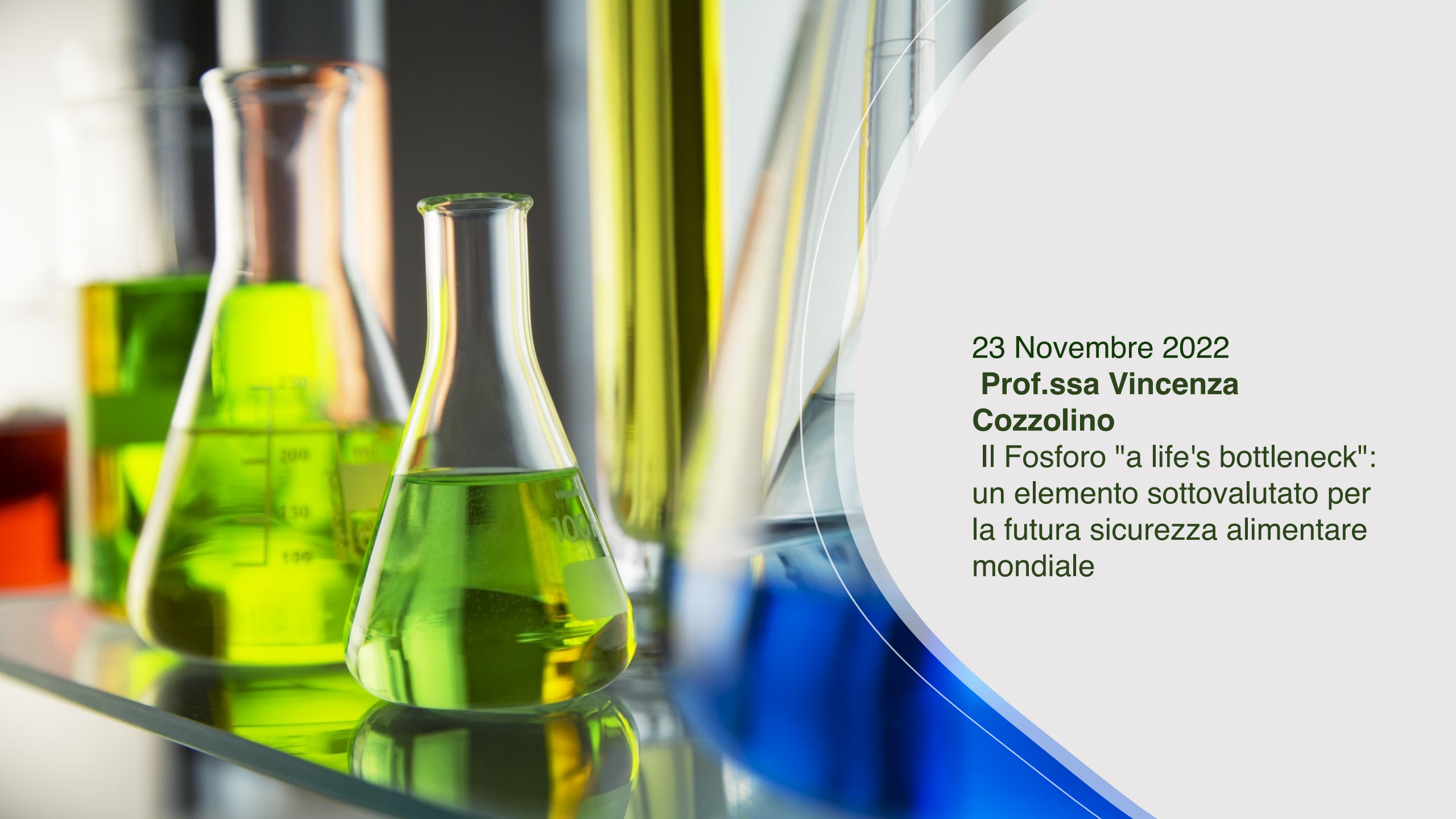


SCUOLA DI  
AGRARIA  
E MEDICINA  
VETERINARIA

2022



Grazie per  
l'attenzione!



23 Novembre 2022  
**Prof.ssa Vincenza  
Cozzolino**

Il Fosforo "a life's bottleneck":  
un elemento sottovalutato per  
la futura sicurezza alimentare  
mondiale