

**Sex and Smell:  
Molecular Biology of  
Pheromone Perception**

Catherine Dulac

Harvard University  
Howard Hughes  
Medical Institute

---

---

---

---

---

---

---

---

**Sex and Smell**

- Introduction: genes and chemosensory detection
- Molecular biology of pheromone perception
- Sex-specificity of pheromone responses

---

---

---

---

---

---

---

---

**Sex and Smell**

- Introduction: genes and chemosensory detection
- Molecular biology of pheromone perception
- Sex-specificity of pheromone responses

---

---

---

---

---

---

---

---

### Hard-wired Brain Circuits and Behaviors



---

---

---

---

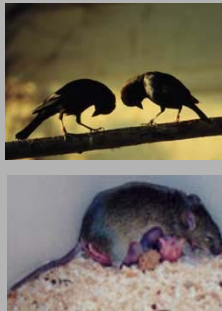
---

---

---

---

### Hard-wired Brain Circuits and Behaviors



---

---

---

---

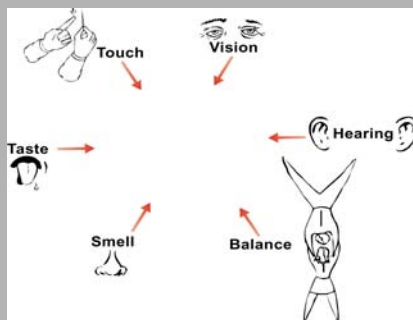
---

---

---

---

### Hard-wired Brain Circuits and Behaviors



---

---

---

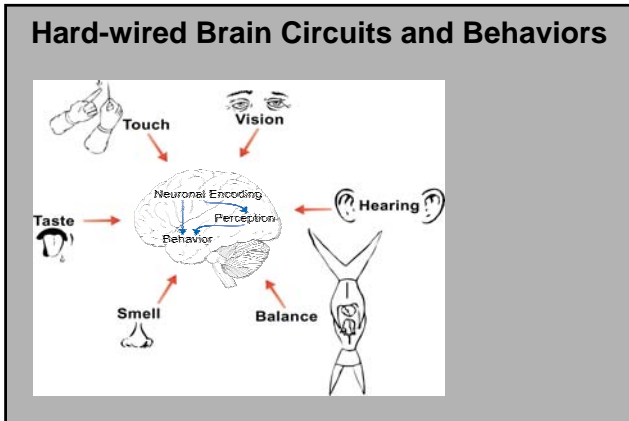
---

---

---

---

---



---

---

---

---

---

---

---

---

### Development of sensory connections: *and what if things go wrong?....*

HEARING COLORS,  
TASTING SHAPES

Synesthesia: condition in which people experience the blending of 2 or more senses

V. S. RAMACHANDRAN, E. M. HUBBARD  
Scientific American 2005

---

---

---

---

---

---

---

---

### Testing Synesthesia:

A 10x10 grid of numbers. Most cells contain the number '5', but some cells contain the number '2'. A yellow box highlights a 3x3 sub-grid in the bottom-left corner.

V. S. RAMACHANDRAN, E. M. HUBBARD  
Scientific American 2005

---

---

---

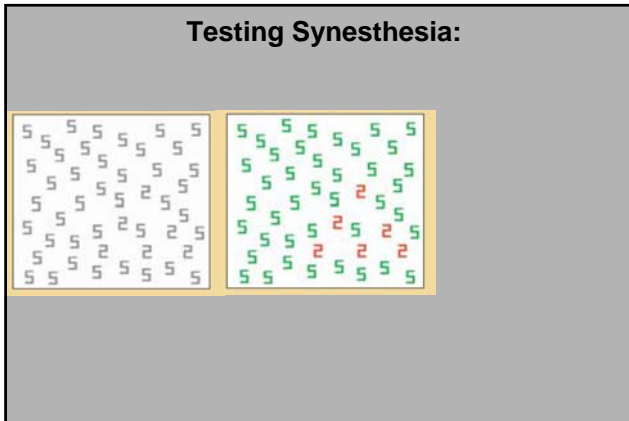
---

---

---

---

---



---

---

---

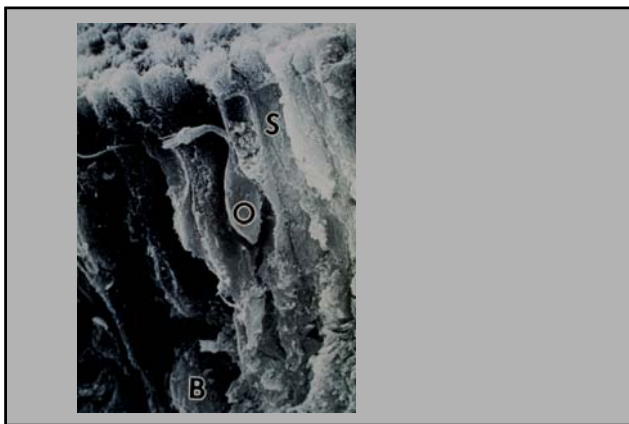
---

---

---

---

---



---

---

---

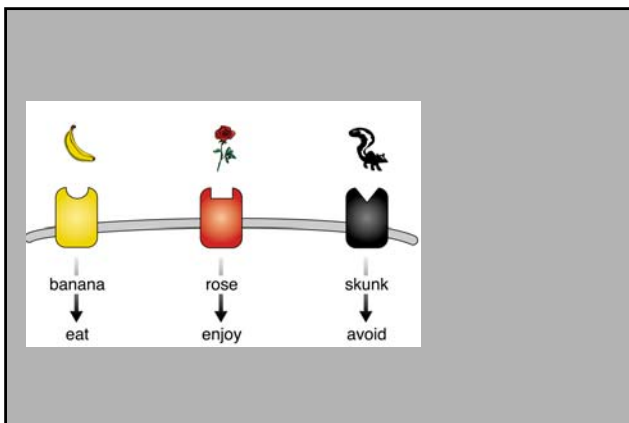
---

---

---

---

---



---

---

---

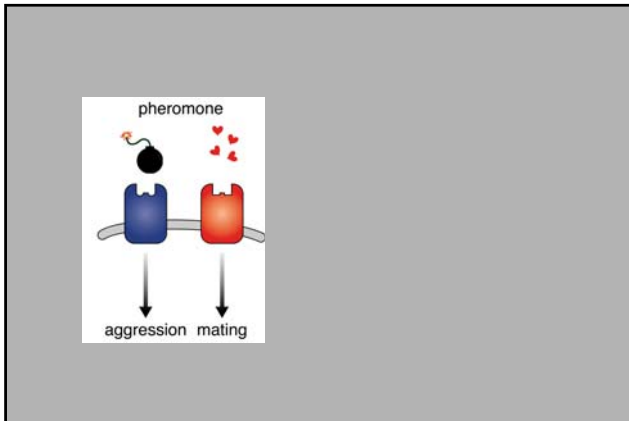
---

---

---

---

---



---

---

---

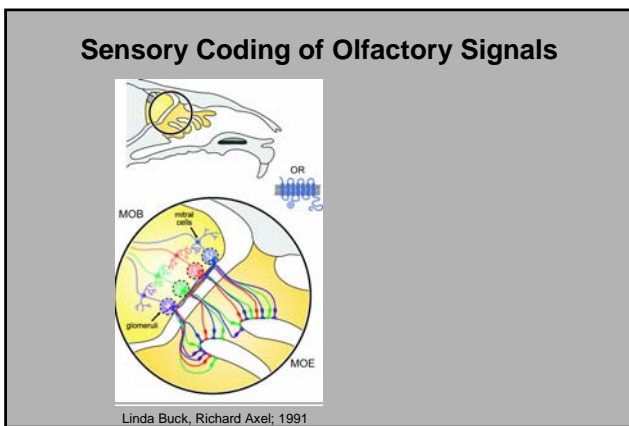
---

---

---

---

---



---

---

---

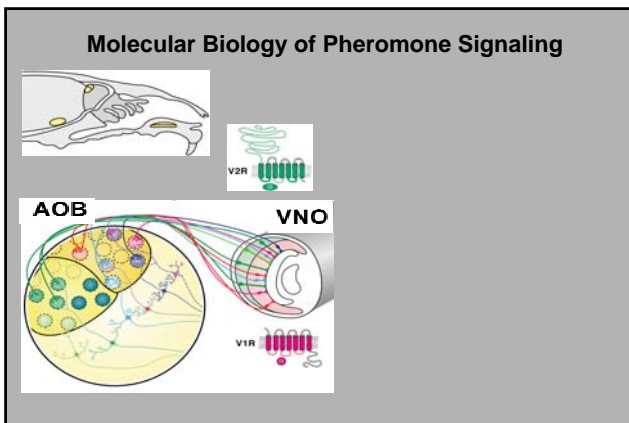
---

---

---

---

---



---

---

---

---

---

---

---

---