Snapdragon flower color

Red flowers \times \text{ White flowers} \rightarrow \text{ Pink flowers}

Blending of determinants??

How to test?

Prediction?

... a case of \textbf{incomplete dominance}
Incompletely dominant or recessive?
... in the eye of the beholder?

e.g., Tay Sachs disease

**Symptoms:**
- extreme sensitivity to noise
- muscle weakness
- cherry-red spot on retina

Affected individuals rarely survive past childhood

Defect –

Overt phenotype . . .

At the biochemical level . . .
**Co-dominance**

e.g., ABO blood group

Three possible alleles: A, B, or O

Looking at 3 different “crosses”:

<table>
<thead>
<tr>
<th>Parental genotype</th>
<th>Progeny phenotype</th>
<th>Progeny genotype?</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA x BB</td>
<td>AB</td>
<td></td>
</tr>
<tr>
<td>AA x OO</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>BB x OO</td>
<td>B</td>
<td></td>
</tr>
</tbody>
</table>
The curious case of the yellow mice

Interpreting:

◇ Which allele is dominant?

◇ Parental genotypes?

What’s missing in F2?
The physical basis of Mendelian genetics

- 1902: Boveri and Sutton, “Chromosome theory of inheritance”

- Chromosomes

- Diploid vs. haploid chromosome number

What’s in a chromosome?

- Protein
DNA (deoxyribonucleic acid)

Subunit: Ribose + Phosphate + base

Base: Adenine, Cytosine, Guanine, Thymine

**DNA as the molecule of inheritance**

The Hershey-Chase experiment

- **Question:** What is passed on from one generation to the next, protein or DNA?

- **Model organism:** Bacteriophage T2
The experiment

- Bacteriophage with radioactive DNA
- Bacteriophage with radioactive protein

Infect bacteria (E. coli)

- Do progeny virus have radioactive DNA?
- Do progeny virus have radioactive protein?

Conclusion: