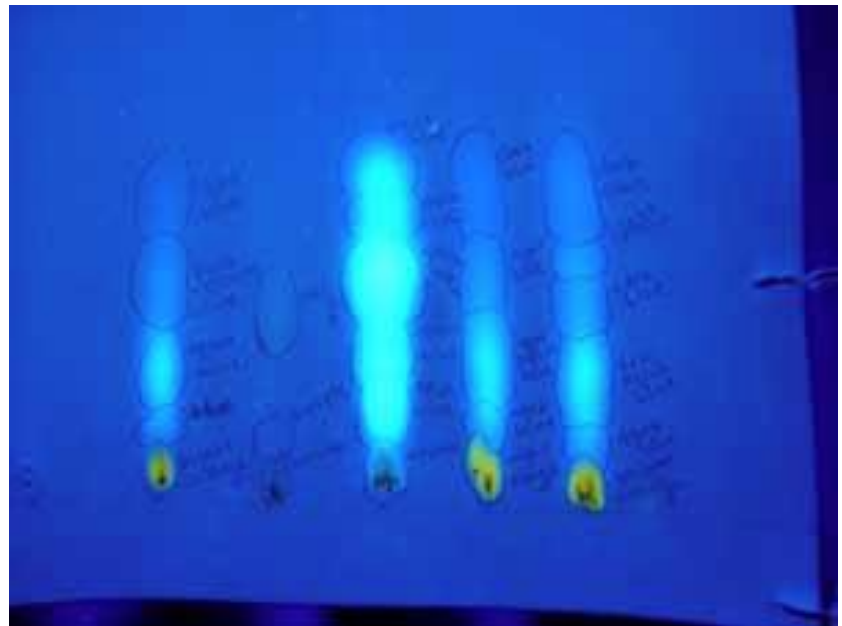


Biochemical Pathways of Eye Color Pigments in *Drosophila*

Review of the end of lab...



- Our flies had four different phenotypes for eye color (brick-red, sepia, brown, and white)

Q: What causes the differences we observe in eye color?



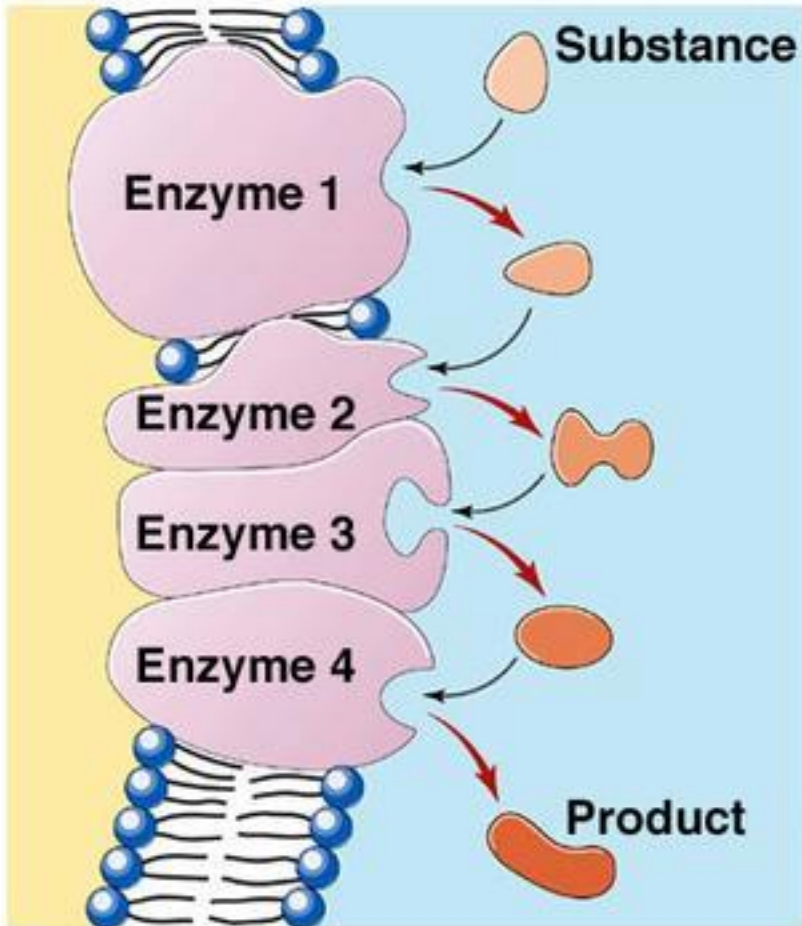
- Many different pigment molecules are involved in producing the eye color we see
- Different combinations of pigments result in different eye colors

Q: Why would the mutants have a different combination of pigments?

- Many possibilities, but all have to do with mutations disrupting the *biochemical pathway* that makes the pigments
 - Ex. A mutation affecting a pigment's production
 - A mutation affecting the transport of a pigment to the eye

A Generic Biochemical Pathway

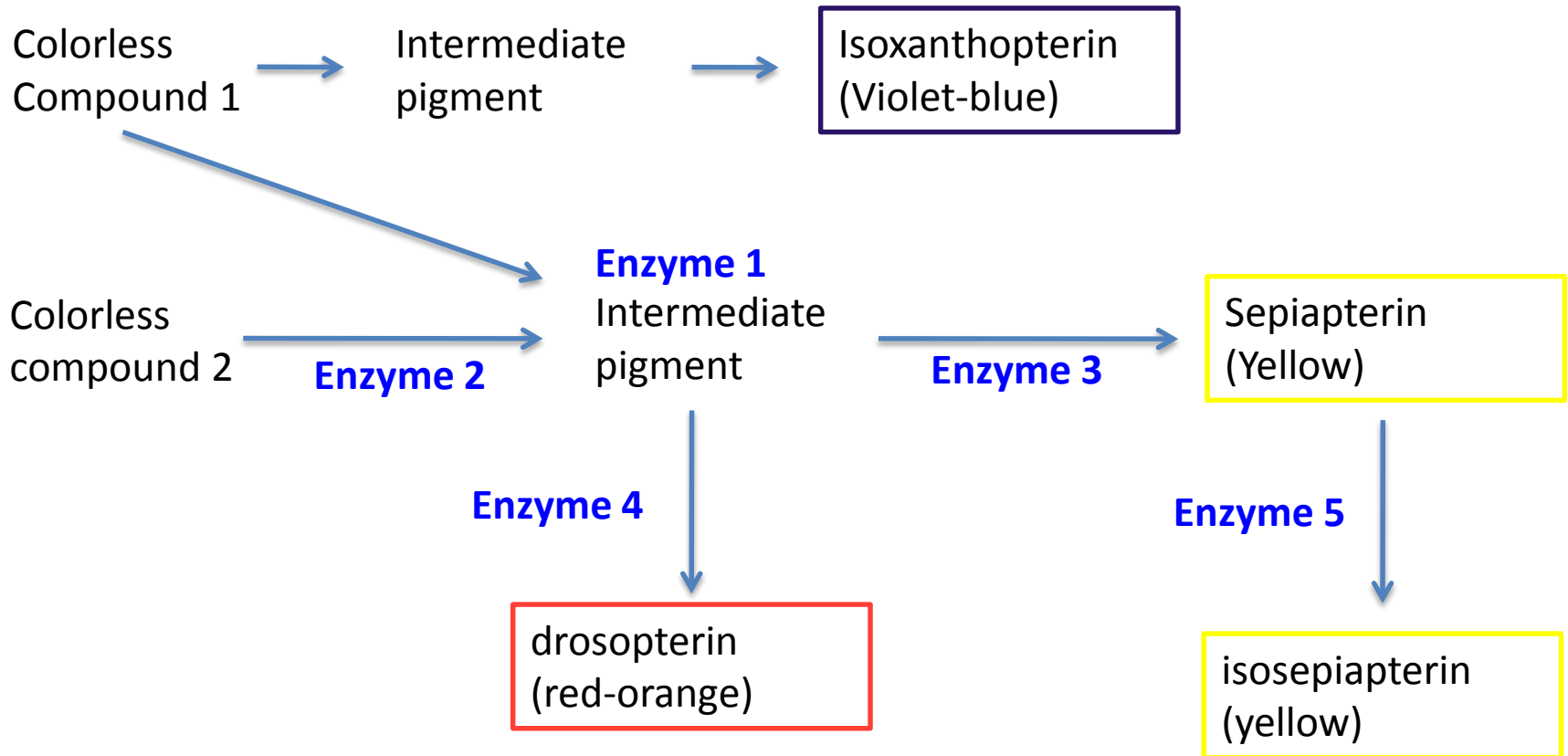
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Q: What would happen in this metabolic pathway if a metabolic disorder prevents the cell from making enzyme 3?

A Biochemical Pathway

Biochemical Pathway of Pteridine Eye Pigments



What is the difference between these two chromatographs?

0	isosepiapterin	yellow
0	biopterin	blue
0	2-amino-4-hydroxycypteridine	blue
0	sepiapterin	yellow
0	xanthopterin	green-blue
0	isoxanthopterin	violet blue
0	drosopterin	orange

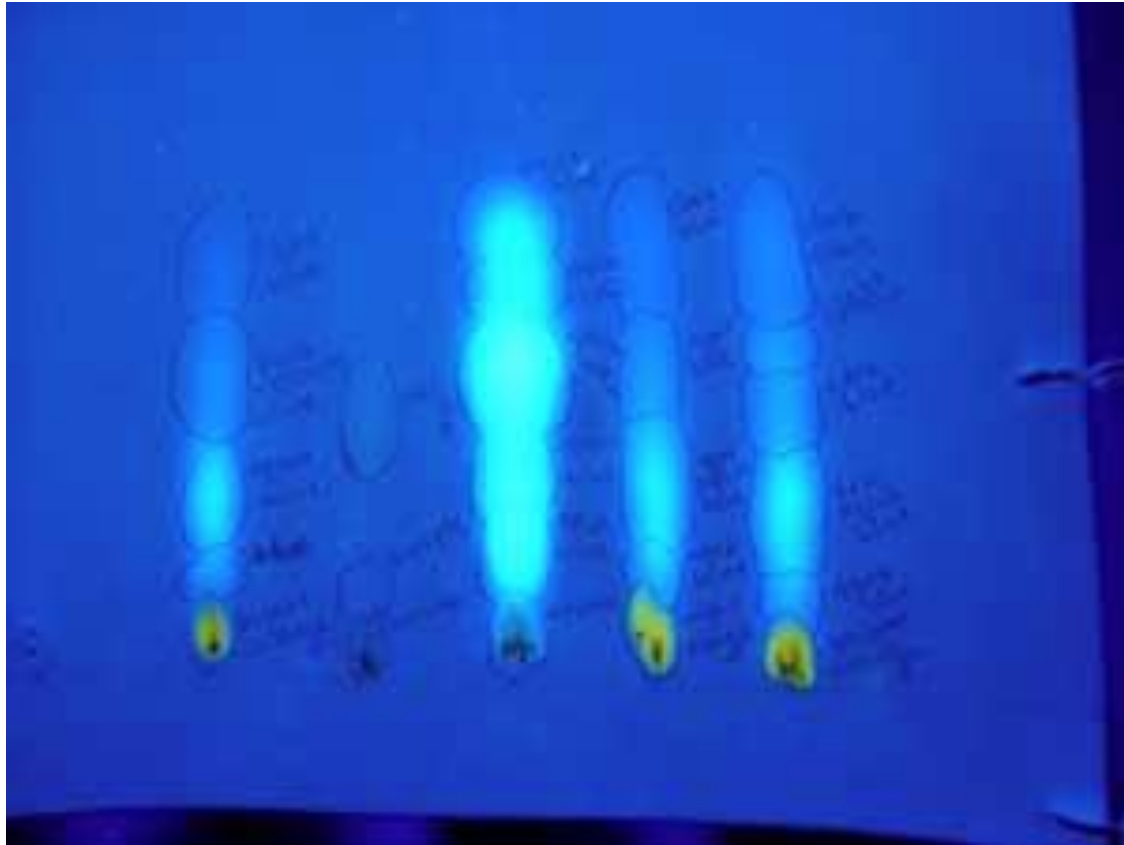
+ _____

wild-type only

0	isosepiapterin	yellow
0	biopterin	blue
0	2-amino-4-hydroxycypteridine	blue
0	sepiapterin	yellow
0	xanthopterin	green-blue
0	isoxanthopterin	violet blue

+ _____

Q: Which mutant is this lane?



Q: Why is *Drosophila* a “model organism?”

- Overall cost is low
- Morphology is easy to identify
- Short generation time (10 days at room temp)
- High fecundity (up to 100 eggs per day)
- Males and females are easily distinguished
- Giant chromosomes that show banding where transcription is happening
- Only four pairs of chromosomes
- Complete genome was sequenced in 2000