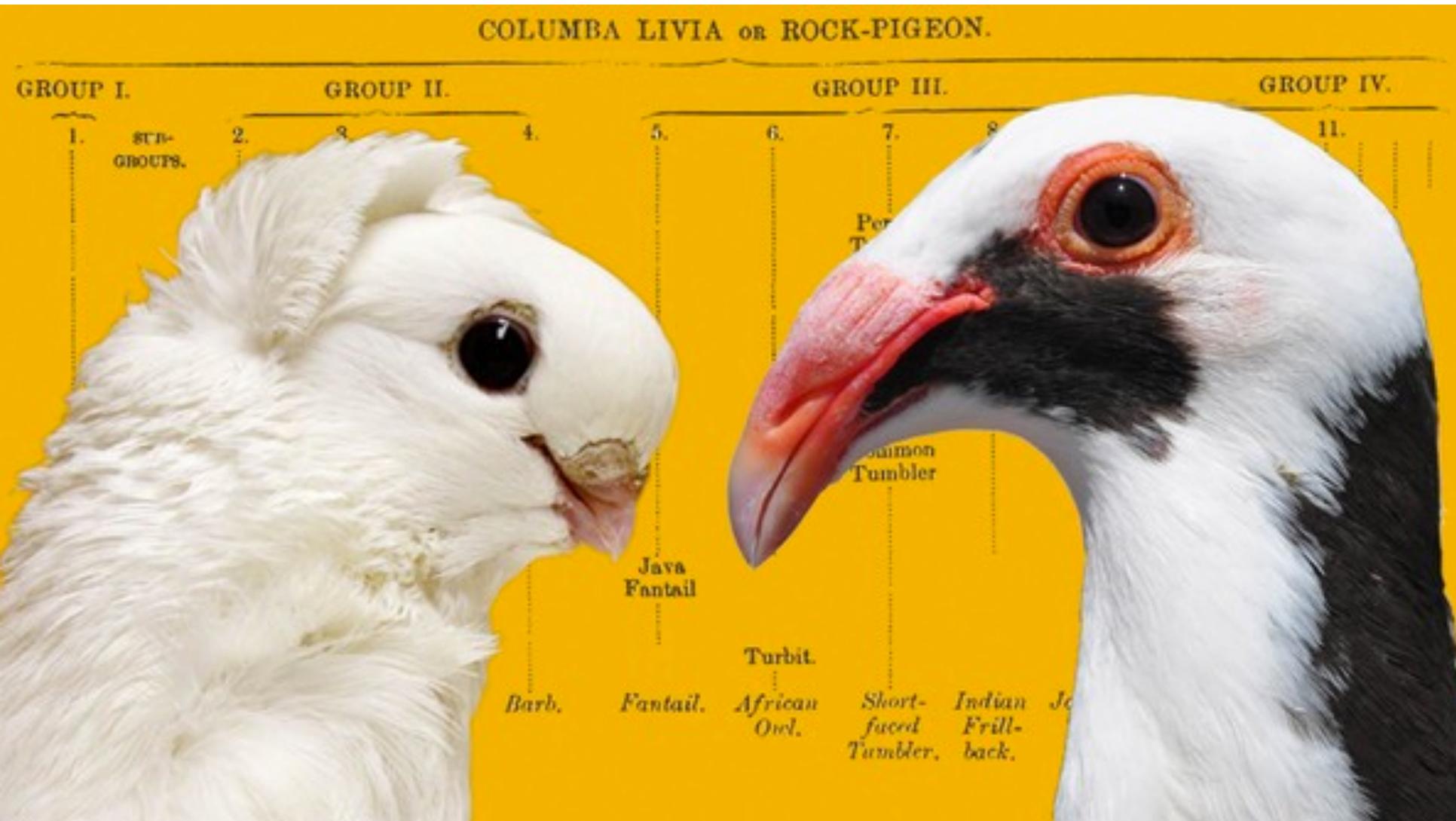
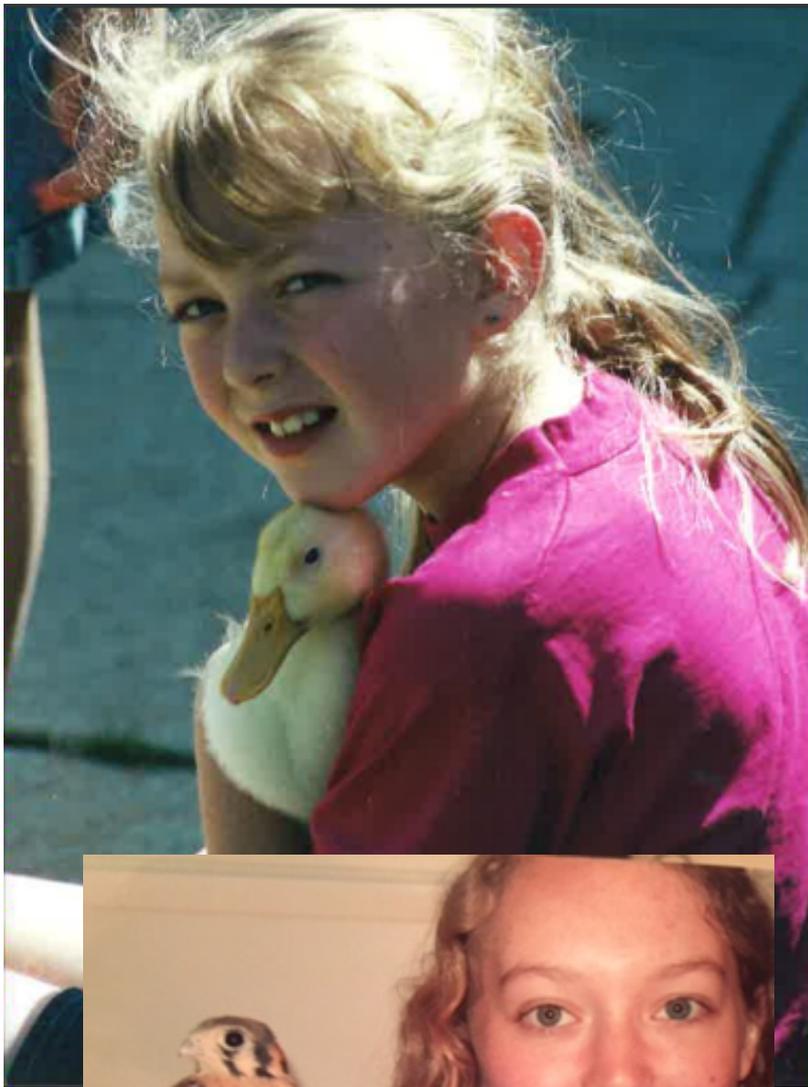


Pigeonetics!



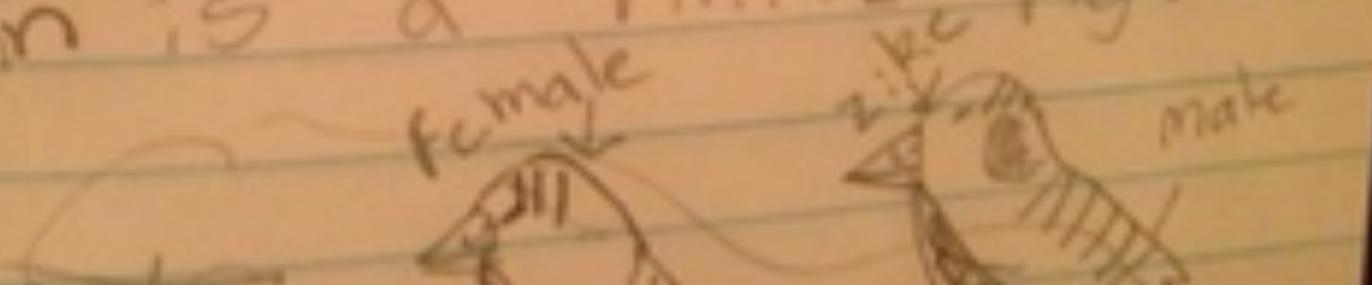
Pigeonetics!







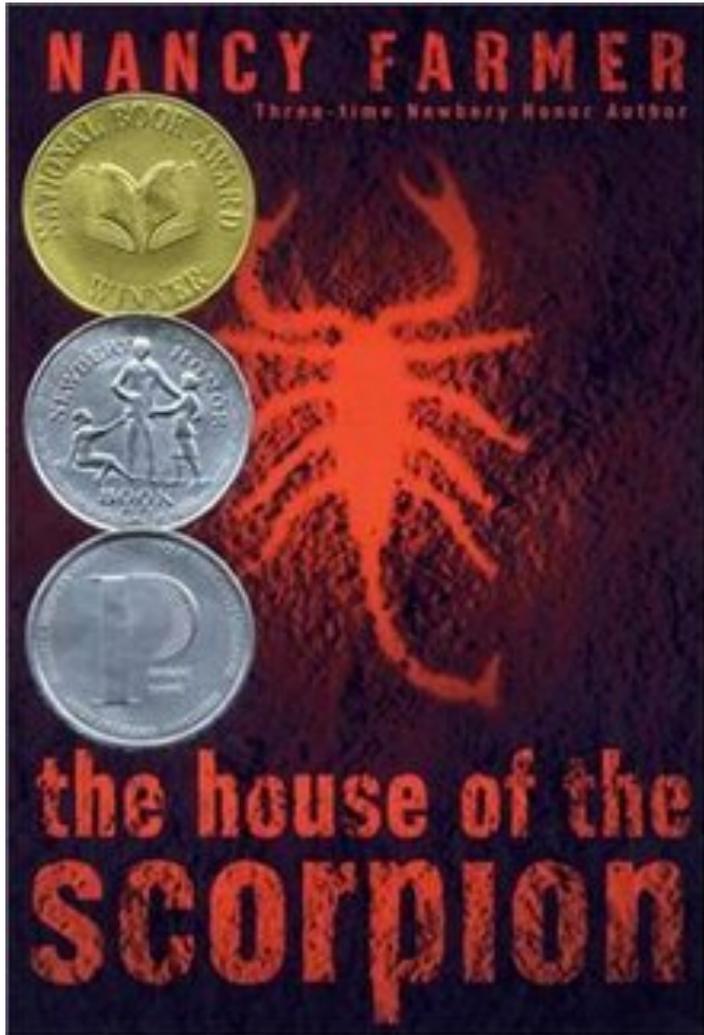
clean the testin tree.
My favert kind of bird is
a pigeon. My favert kind of
pigeon is a Pinkie Pigeon.



The text is written on lined paper. Below the text are two hand-drawn sketches of pigeons. The sketch on the left is labeled 'female' and the sketch on the right is labeled 'male'. The sketches are simple line drawings showing the profile of the birds' heads and necks.



Why science?



Cloning is real!?

University of Utah



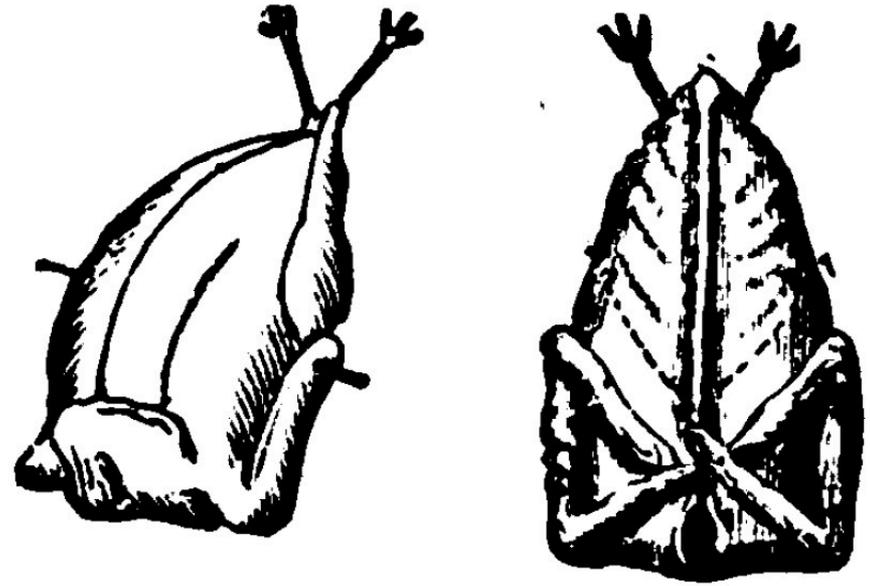
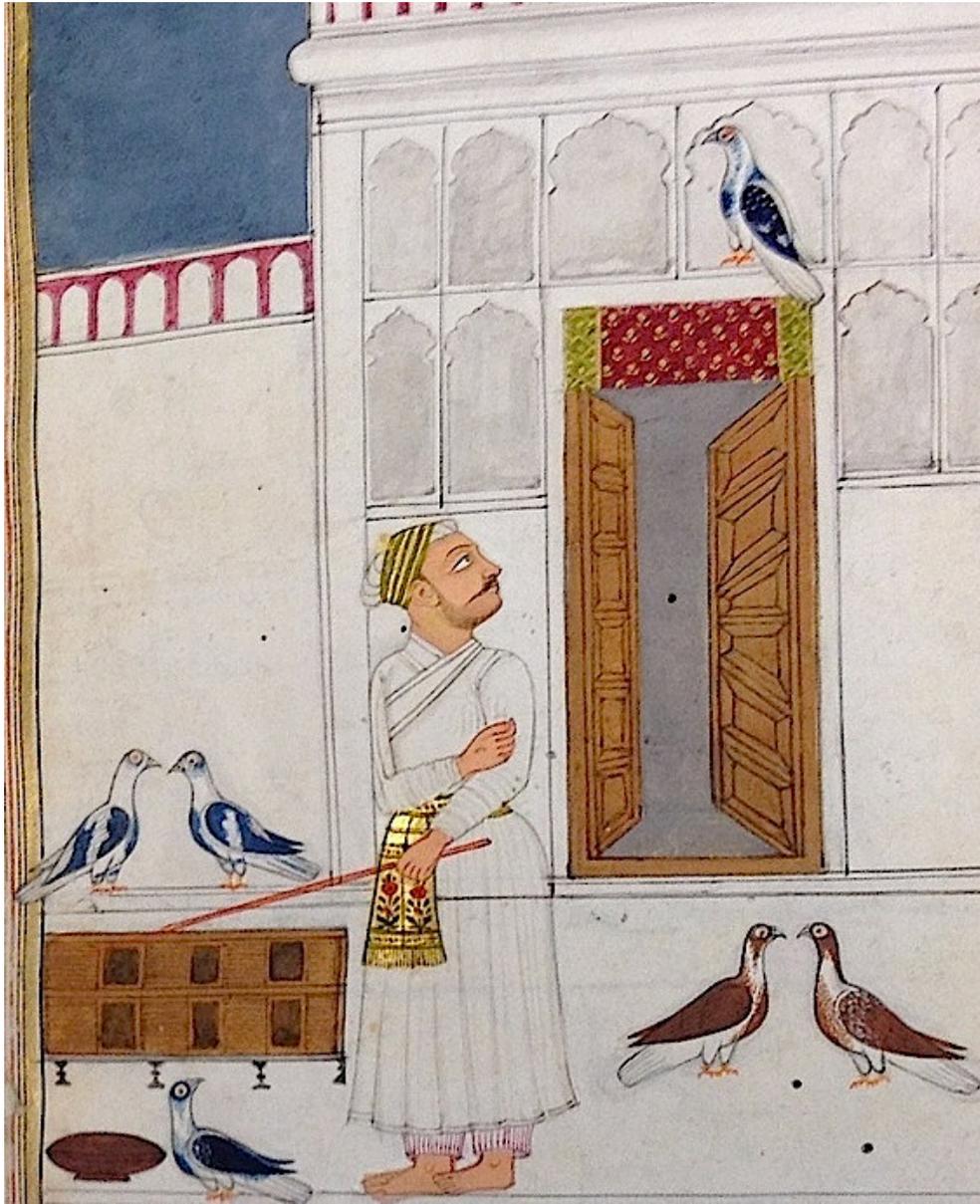
University of Utah- now finishing my PhD



What's cool about pigeons?



Pigeons were domesticated a *long* time ago



Pigeons for roasting.

Pigeons were used as messengers

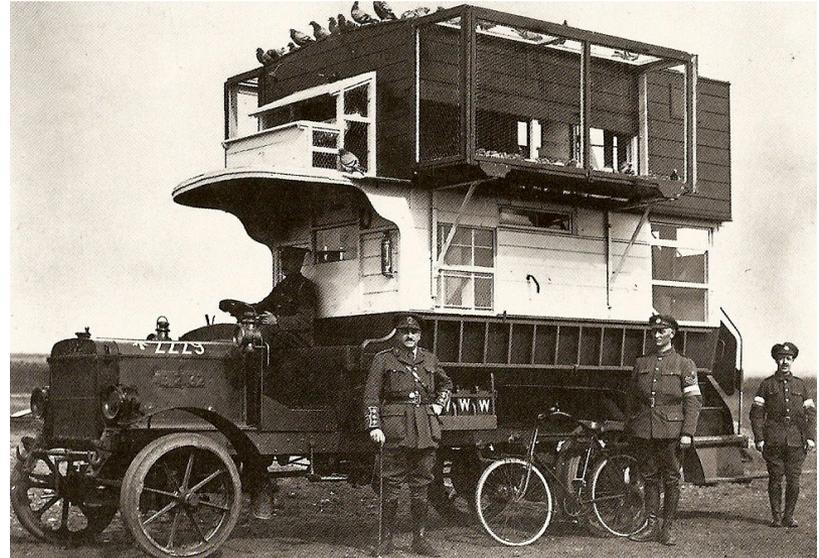


Greeks and Romans used homing pigeons to send news of Olympic champions!



Pigeons carried messages during world wars

***G.I. Joe* and *Cher Ami* real pigeon heroes!**



Today: pigeon racing is a huge sport

- Fast flyers at 92.5 mph
- Fly 700 miles in one day
- Travel over 7,000 miles to reach home
- Use a combination of magnetic field, sight, and smells



Pigeon “fanciers” have pigeon shows



Pigeon “fanciers” have pigeon shows



What's cool about pigeons
(for science)?





**Big question:
What makes them
look different?**

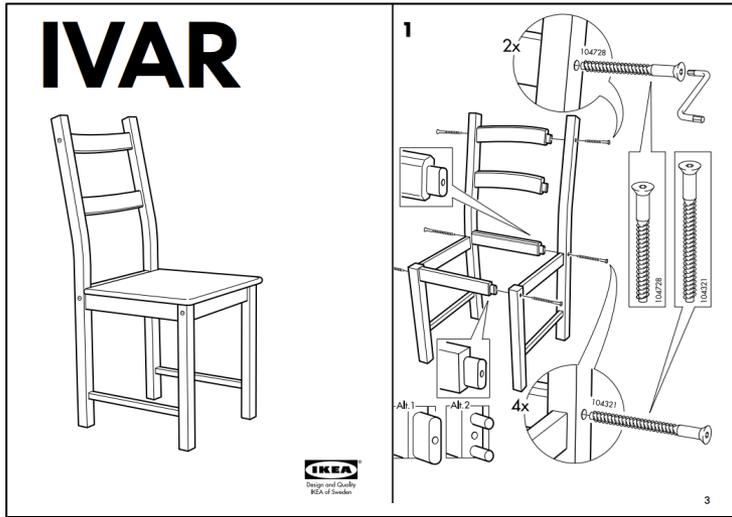
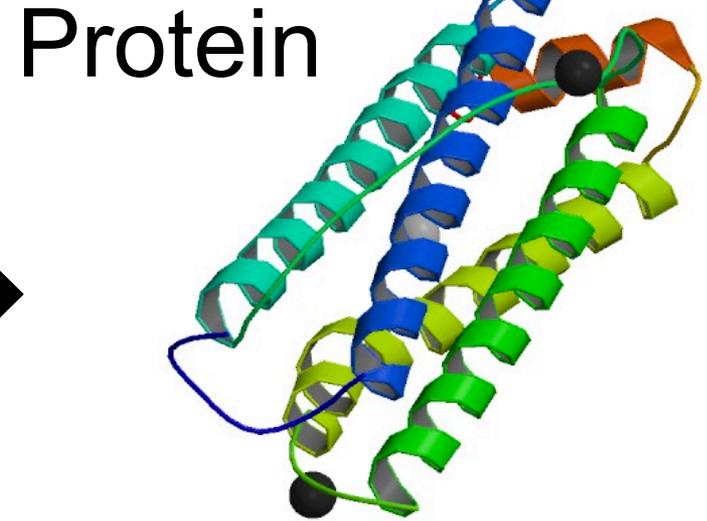
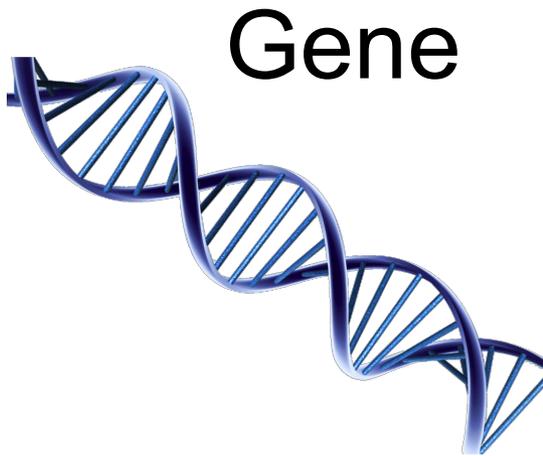


Genes give birds (and us!) traits



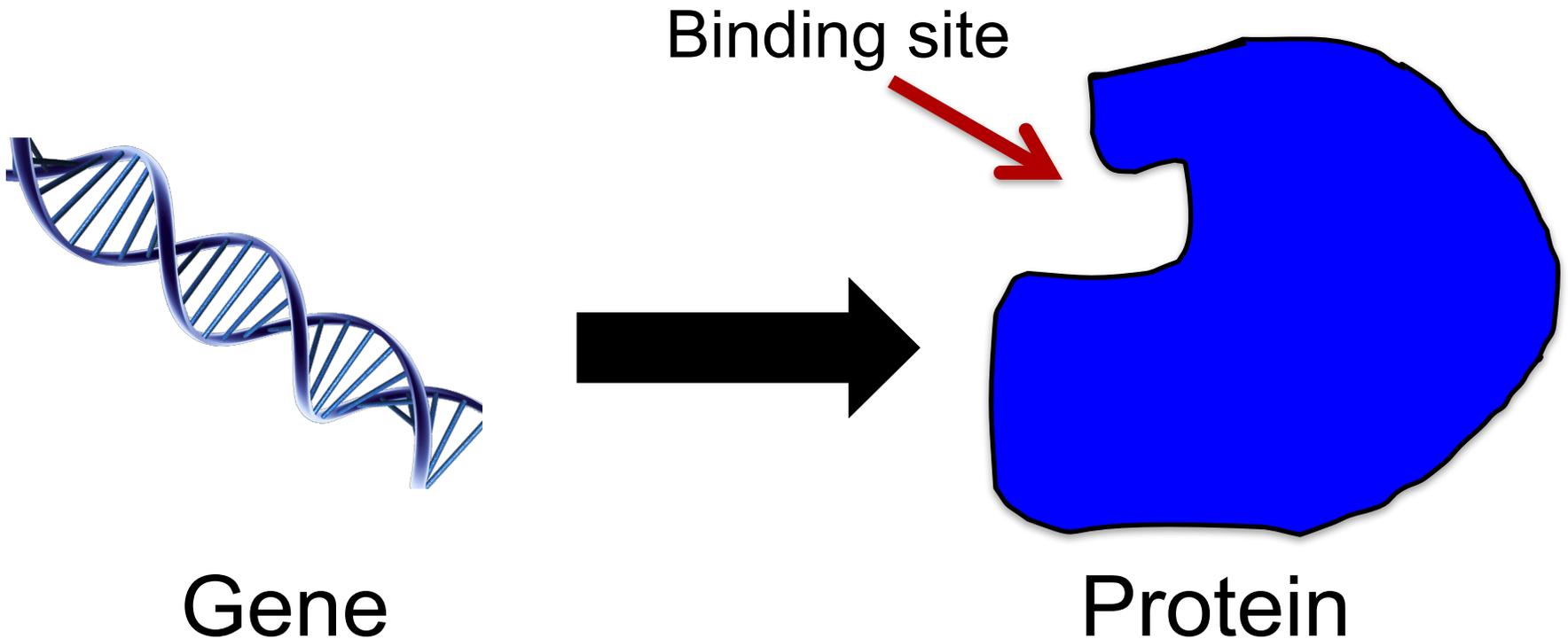
How do genes make traits?

Genes are instructions for proteins



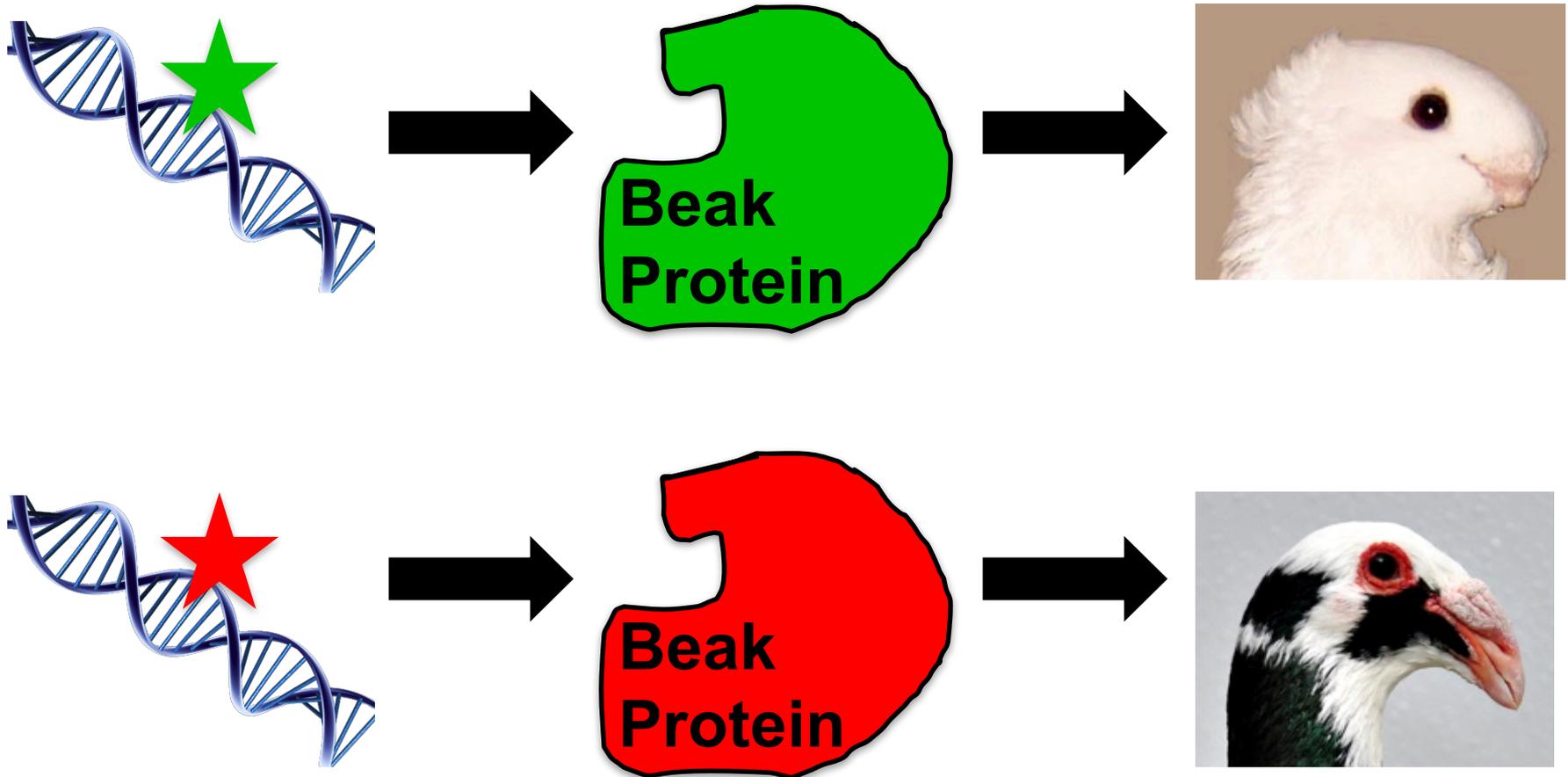
How do genes make traits?

Genes are instructions for proteins



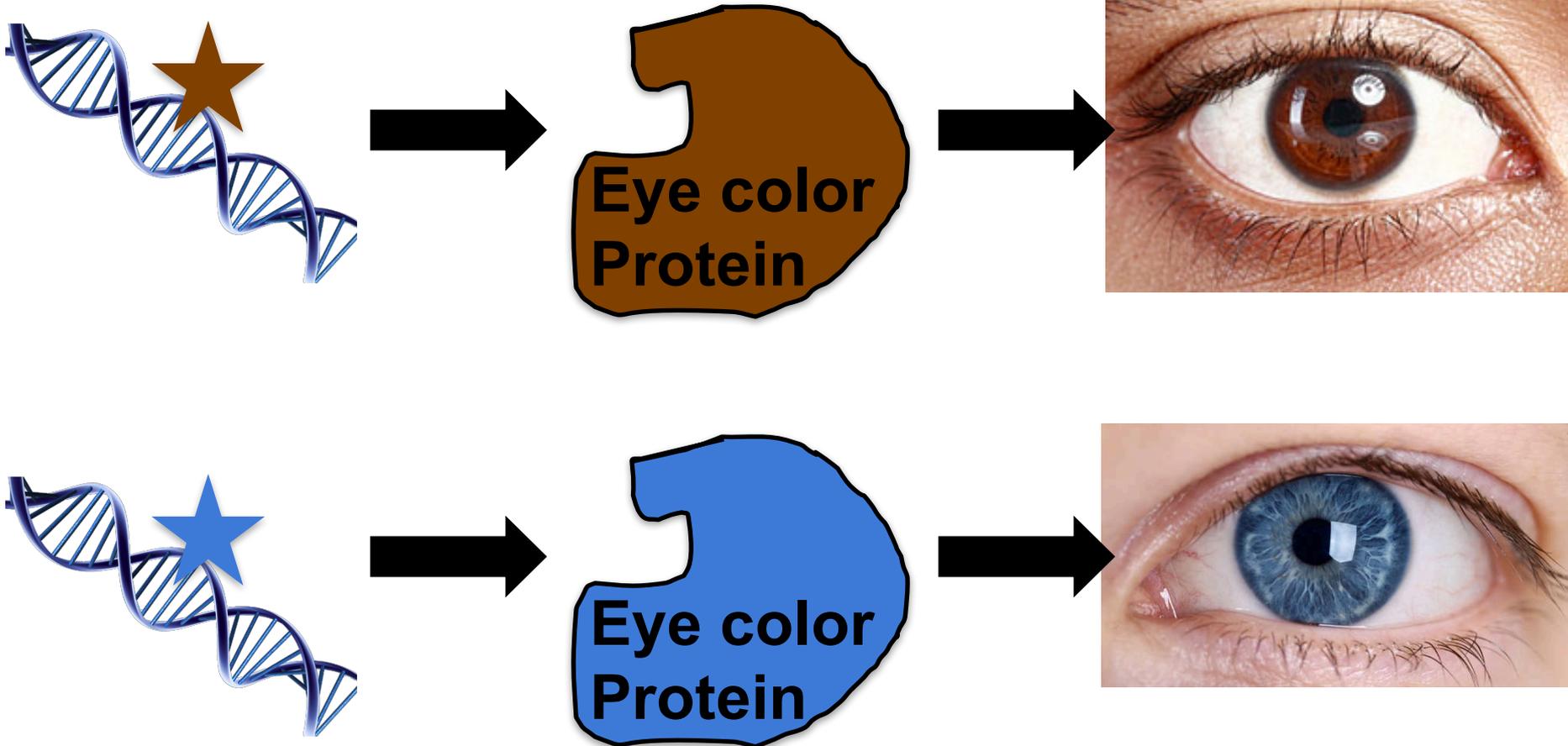
Different versions of genes make different proteins.

Different proteins make different traits.

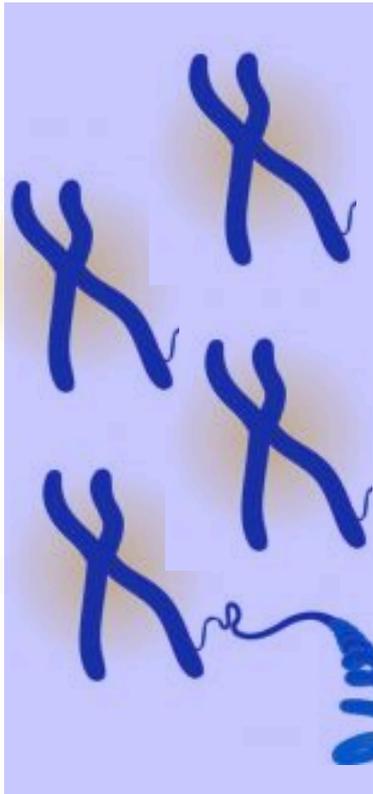


Different versions of genes make different proteins.

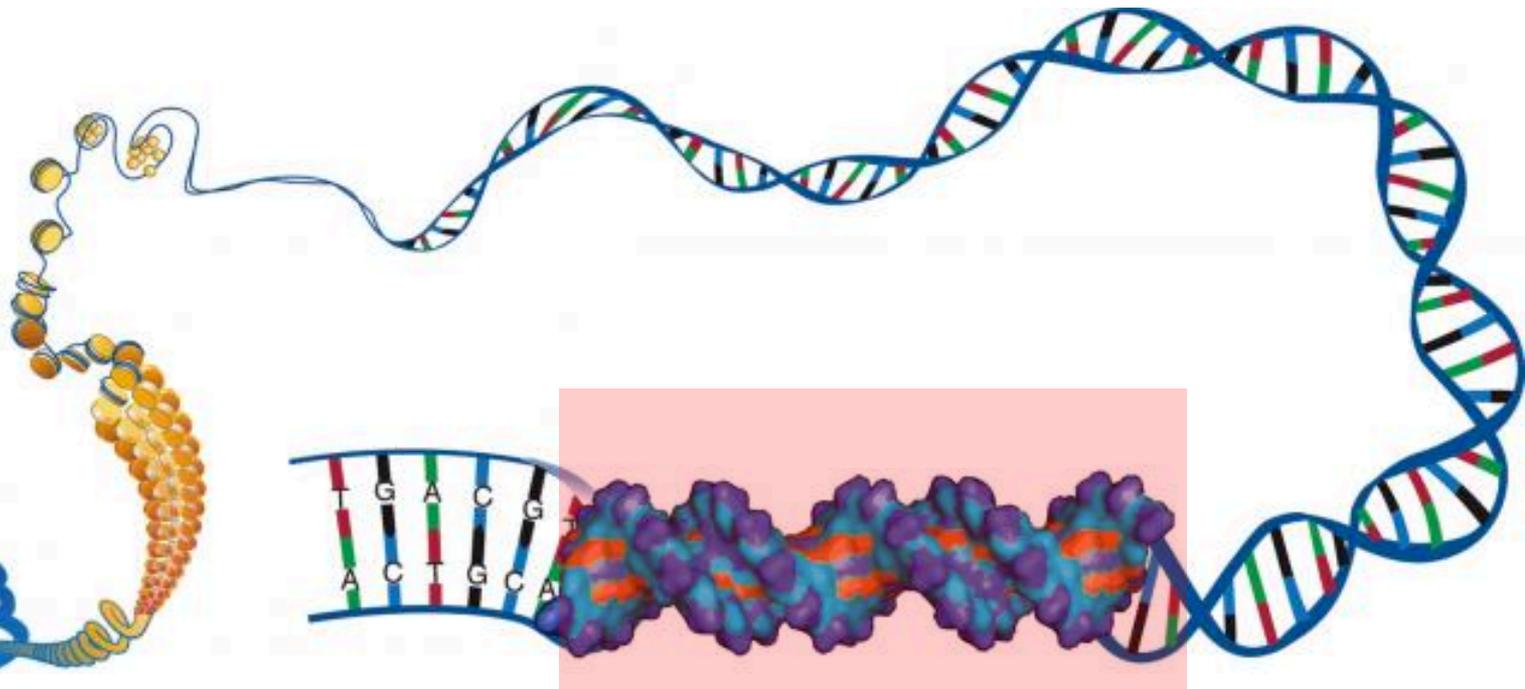
Different proteins make different traits.



A Genome is all of the DNA and genes that an animal has



Genome



Gene



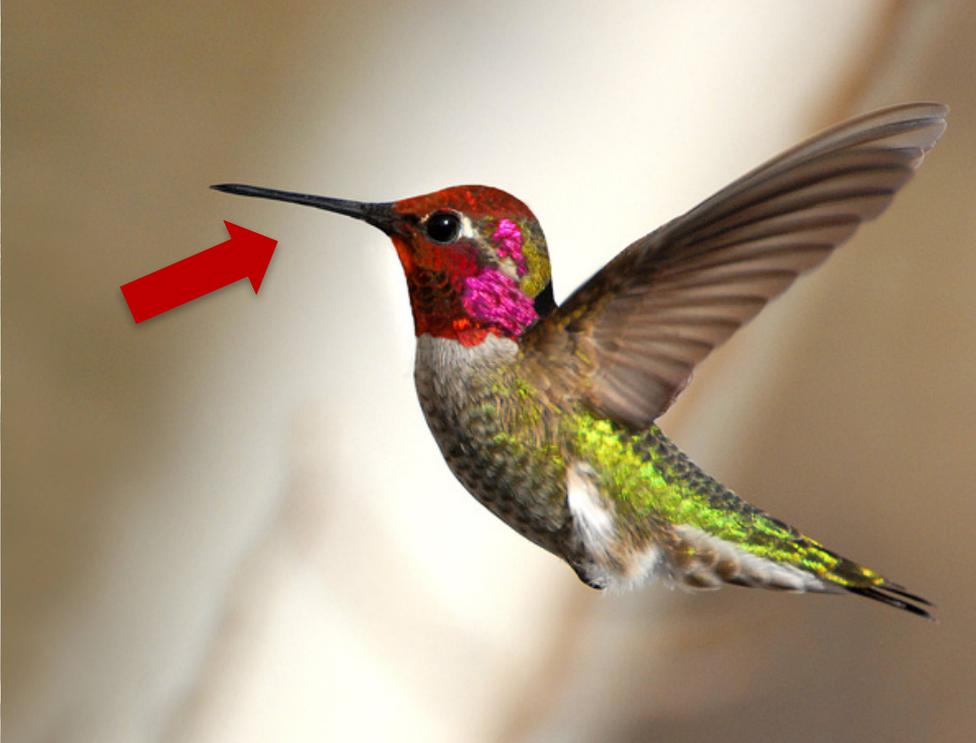
**Big question:
What makes them
look different?**



What **genes make
them look different?**







Domestic pigeons help us learn about traits in all birds



Domestic pigeons are the bird version of domestic dogs









Even different behaviors- rolling pigeons

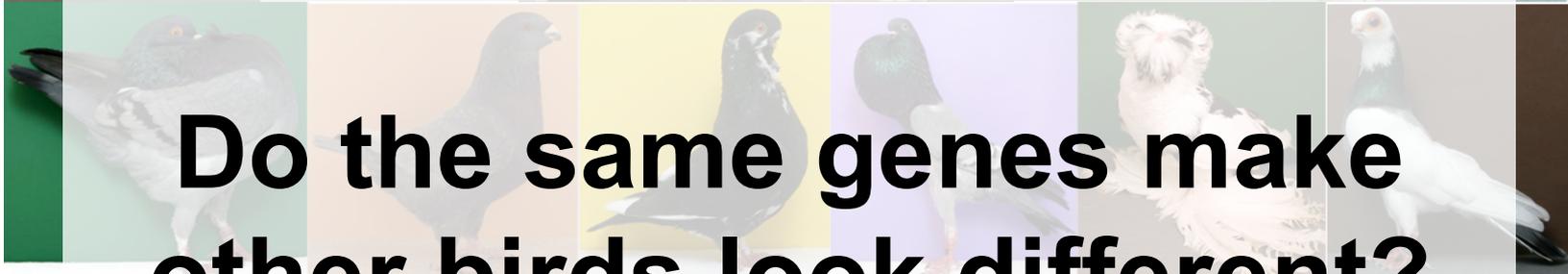




What genes make pigeons look different?



Do the same genes make other birds look different?

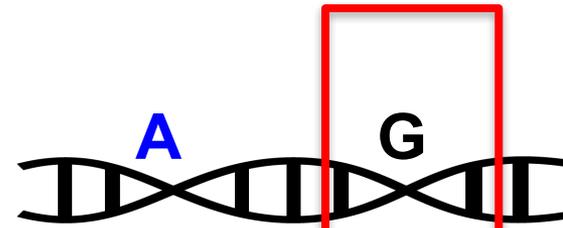
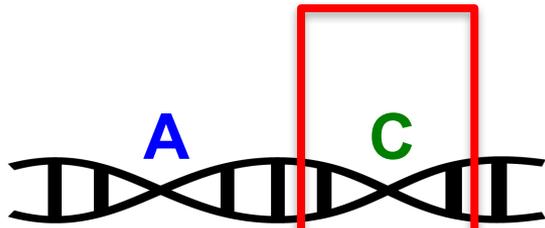


What gene causes head crest?



Look for patterns of genes and crests in the entire genome

Crested vs. Uncrested



Look for patterns of genes and crests in the entire genome



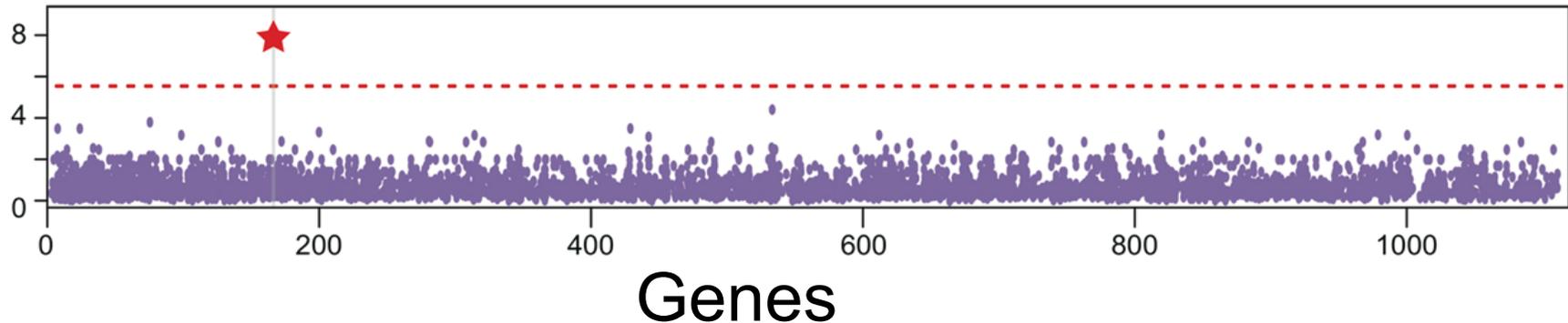
Crested Birds

vs.

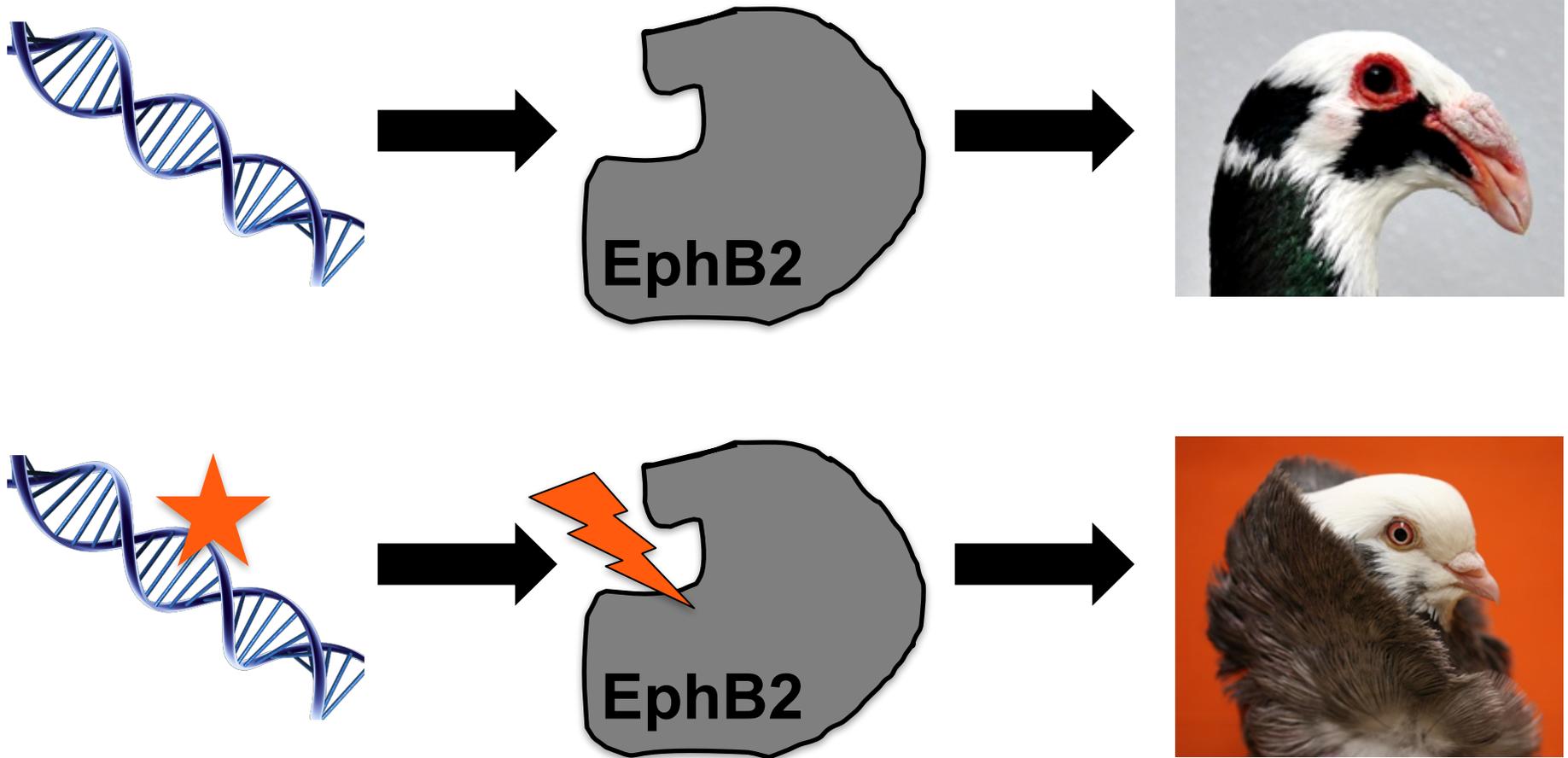


Uncrested Birds

One gene is different! (*EphB2*)



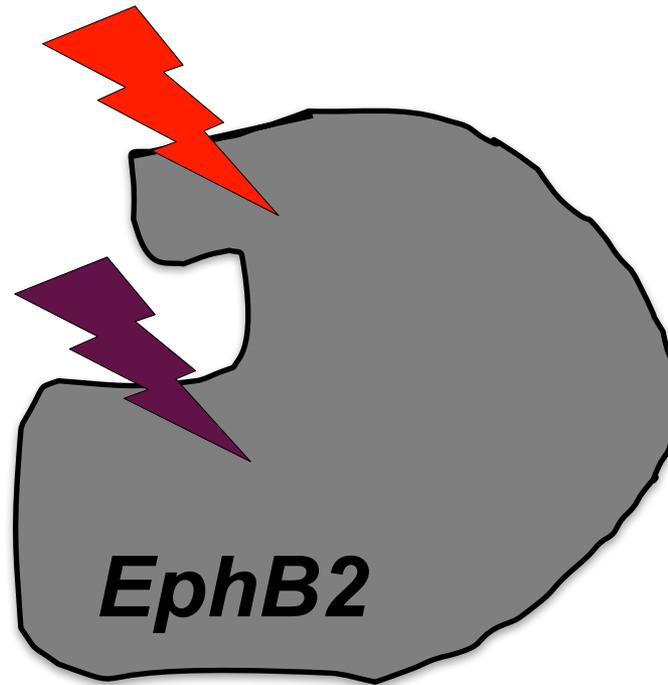
Crested pigeons have a mutated version of the *EphB2* gene



Are head crests in other birds caused by *EphB2*?



Evolution of head crests in two different bird species:



Crested ringneck doves have a **different** mutation in the **same** gene!

Thank you!

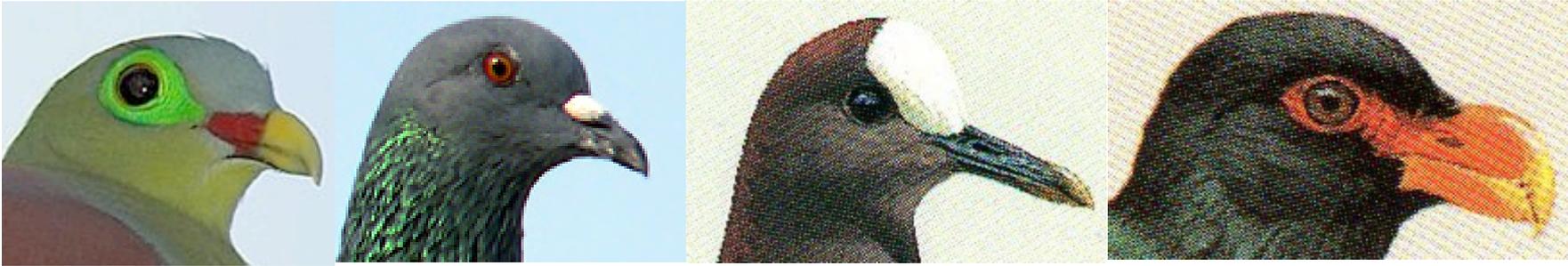


Thank you!



Variation normally with different species seen within the same species in domestic pigeon

Wild Birds



Domesticated pigeons

