

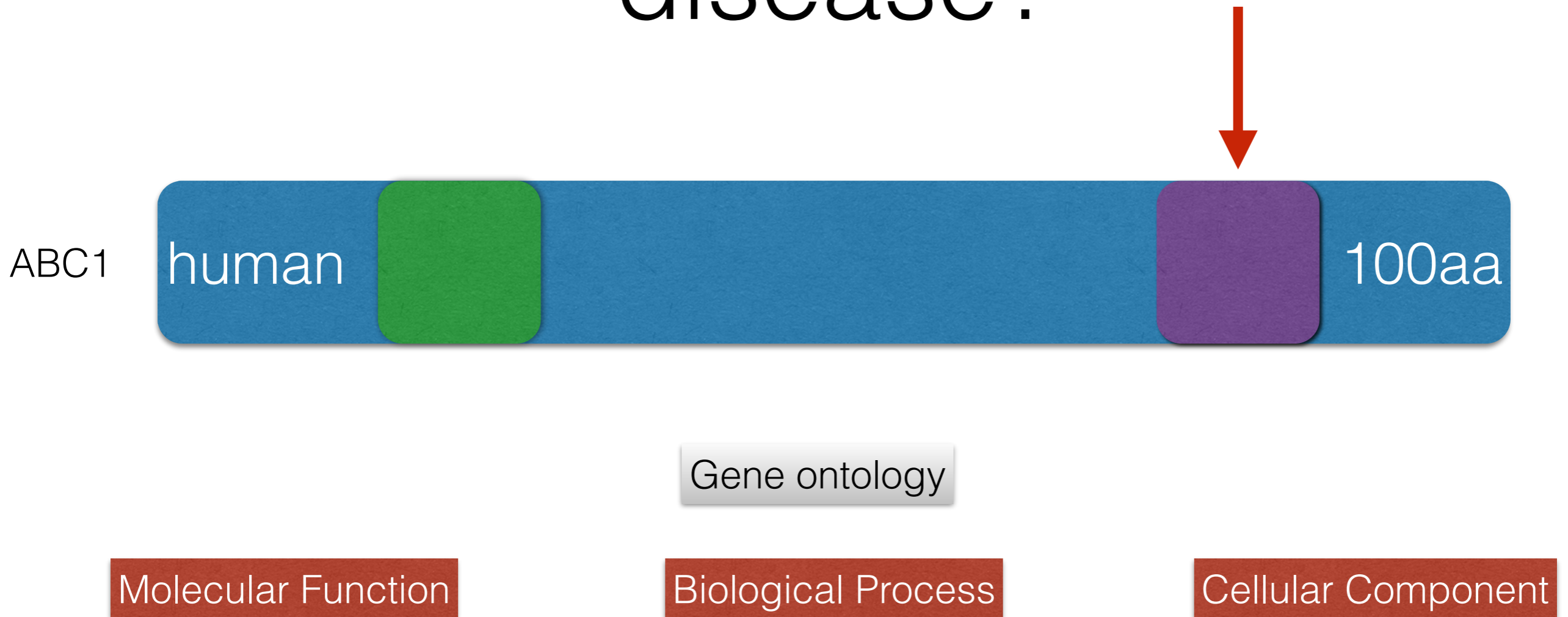


Gene for height

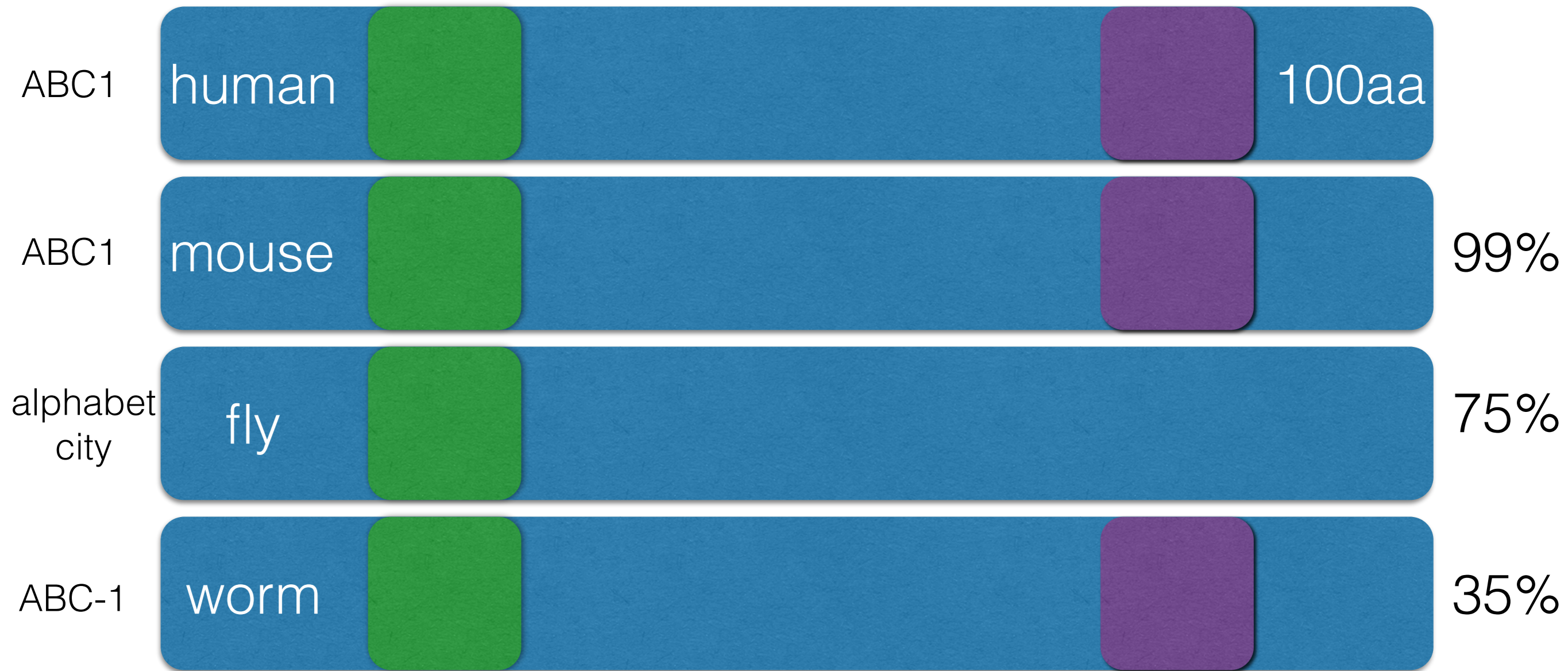
by James Watson

What is my disease or trait?

What gene is mutated in my disease?



How well conserved is my gene in invertebrates and vertebrates?

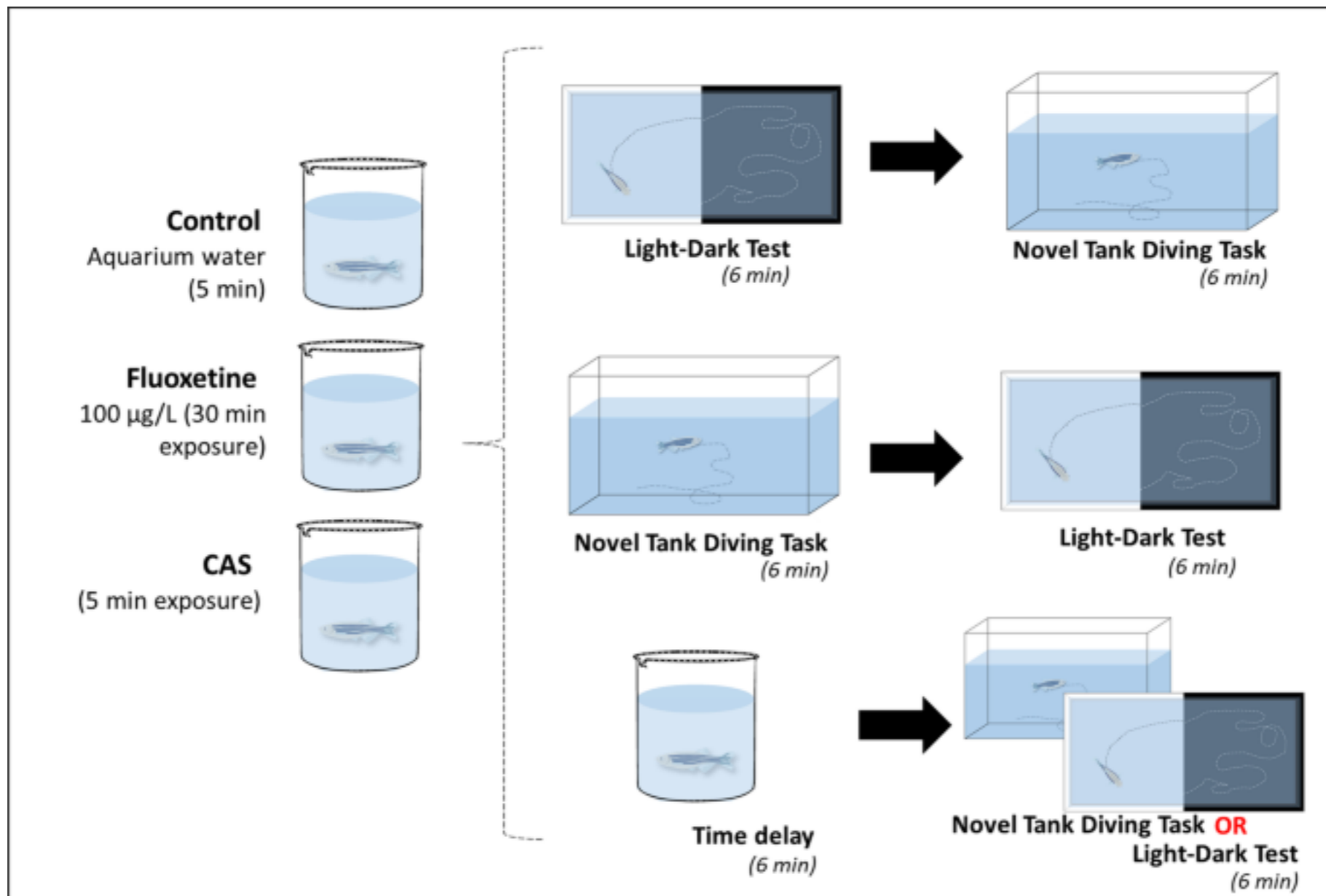


Phylogeny: How is my gene related among vertebrates and invertebrates?

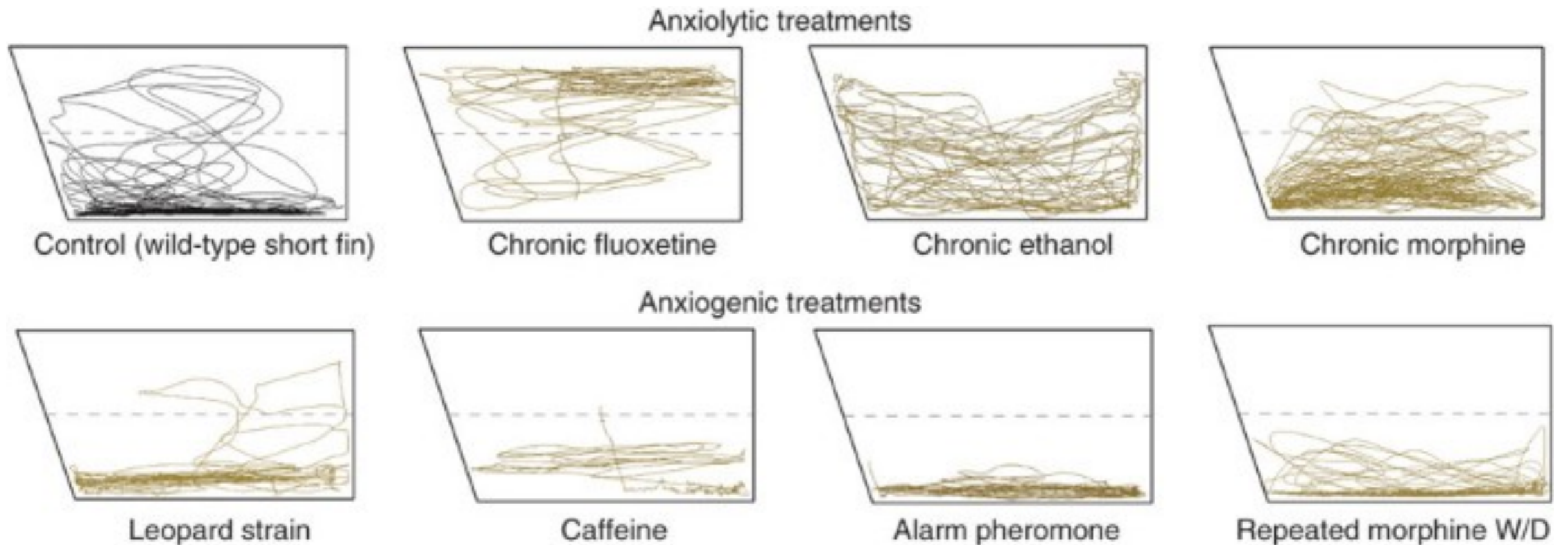
Protein Interactions: ABC1 interacts with protein necessary for DNA binding

Chemical Genomics: Caffeine is
a potent inhibitor of cell division

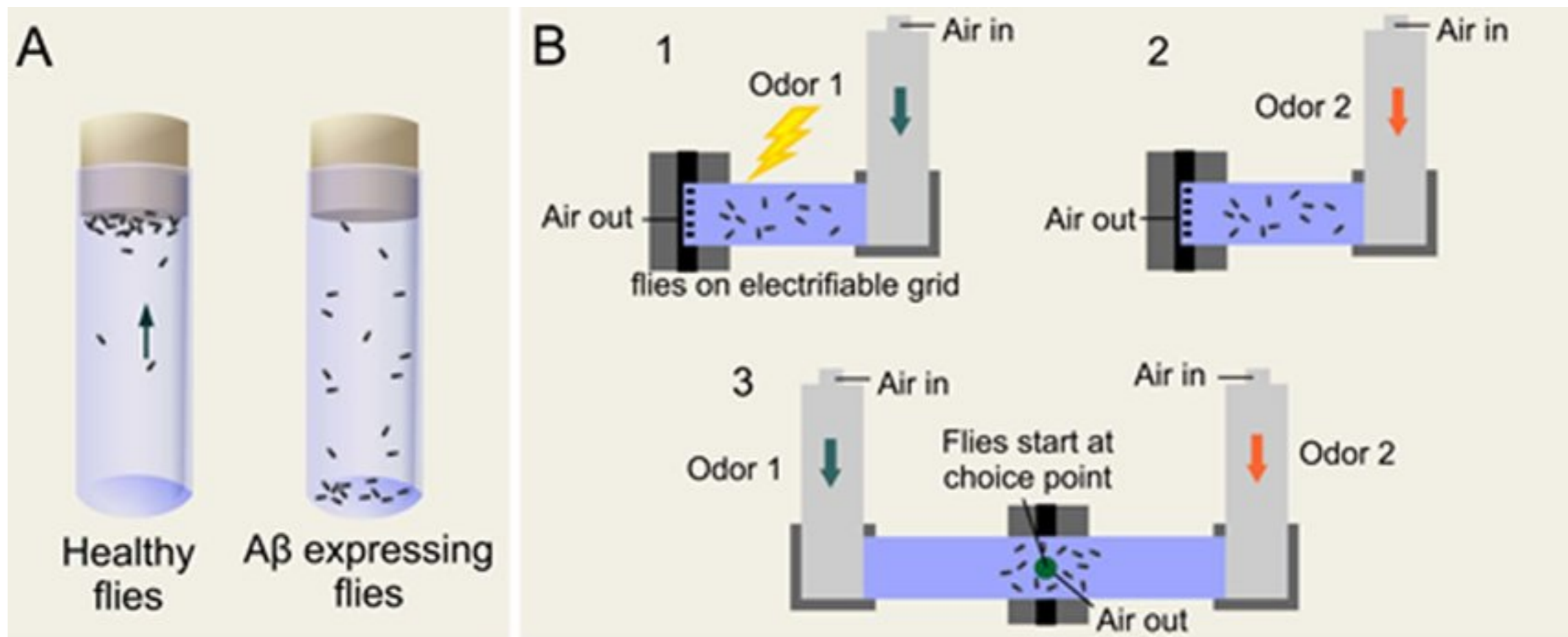
Zebrafish is an excellent model to study the role of XX gene in autism



Zebrafish is an excellent model to study the role of XX gene in autism



Drosophila is an excellent model to study the role of XX gene in behavior

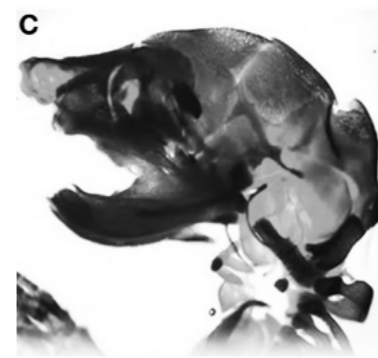
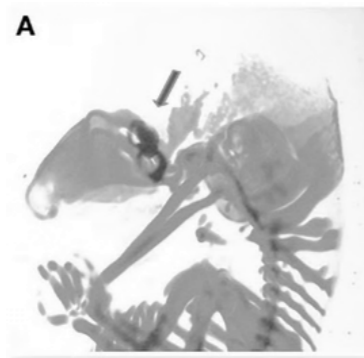


Mice are the best model organism for bone development

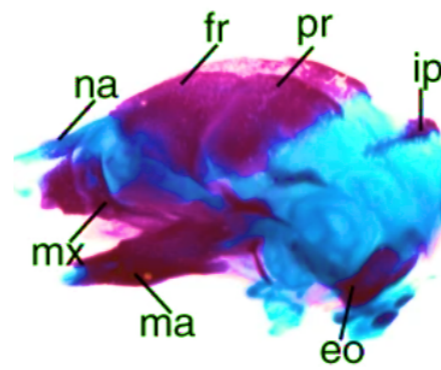
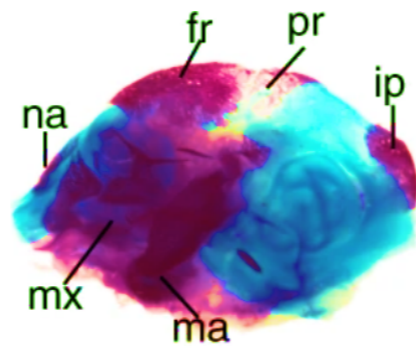
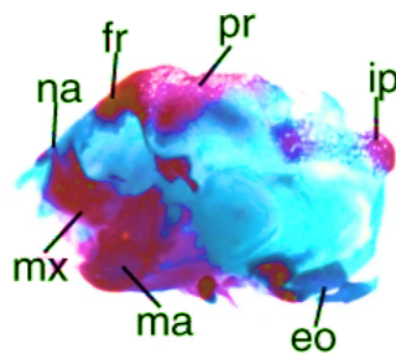
Stages of development



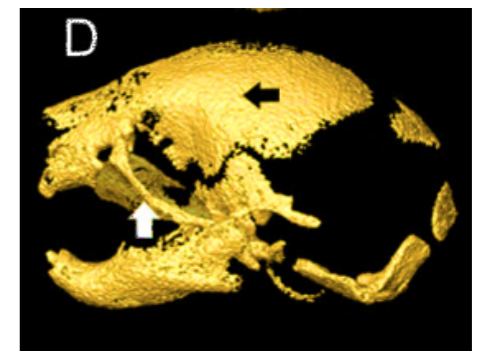
Normal development



Abnormal development

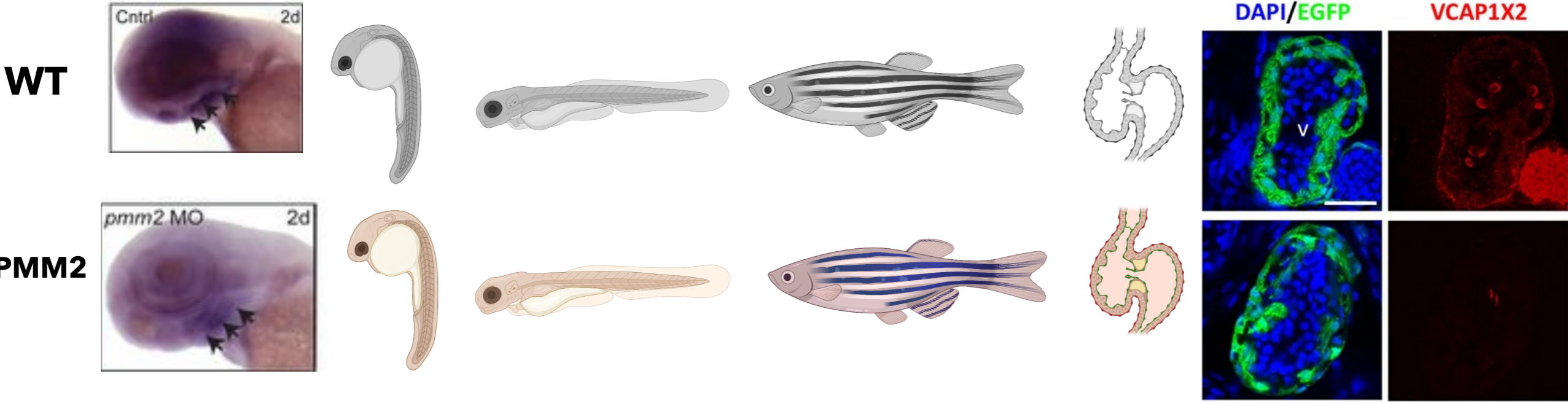


Jiang Y. *et al.* 2019

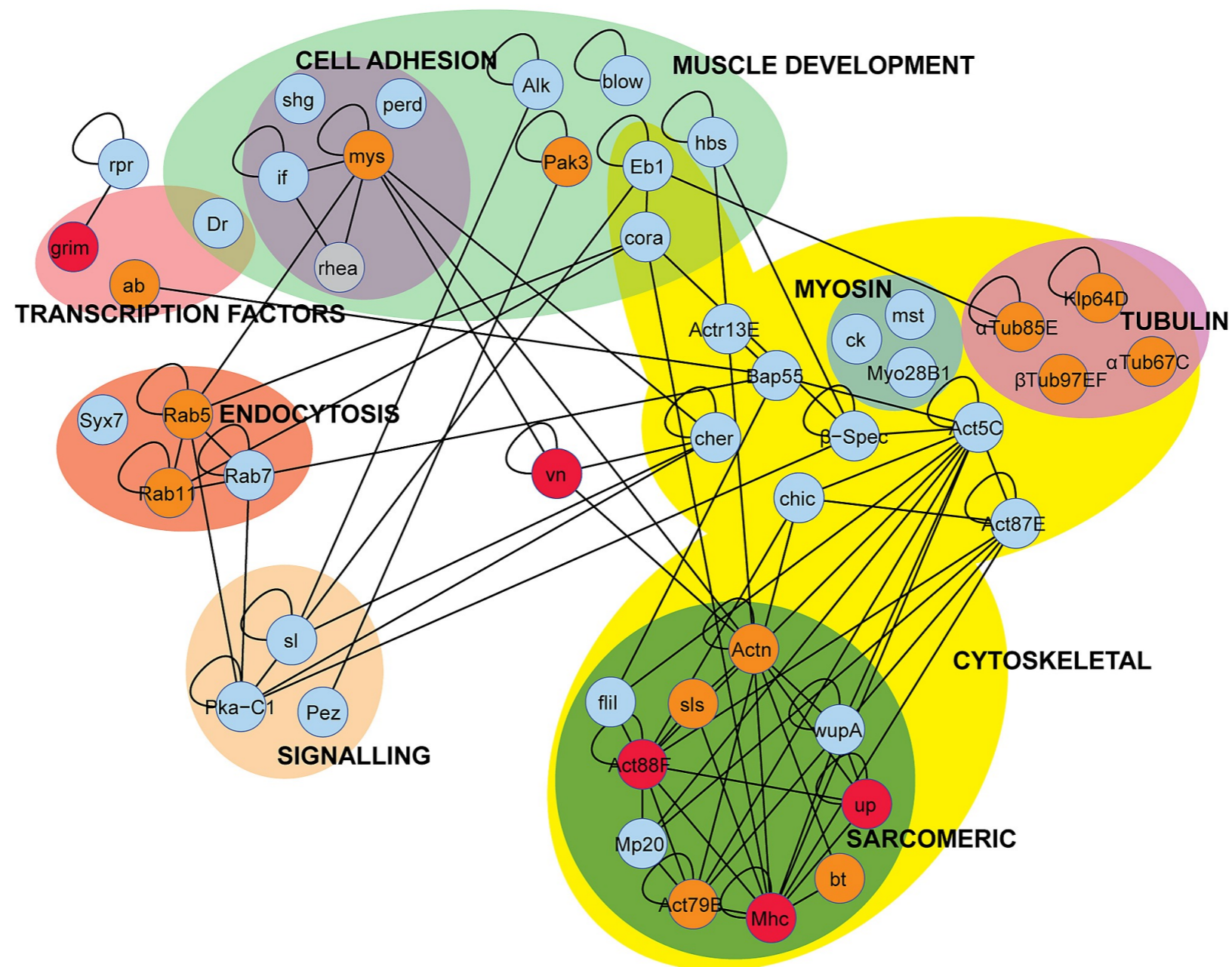


Wany Y. *et al.* 2010

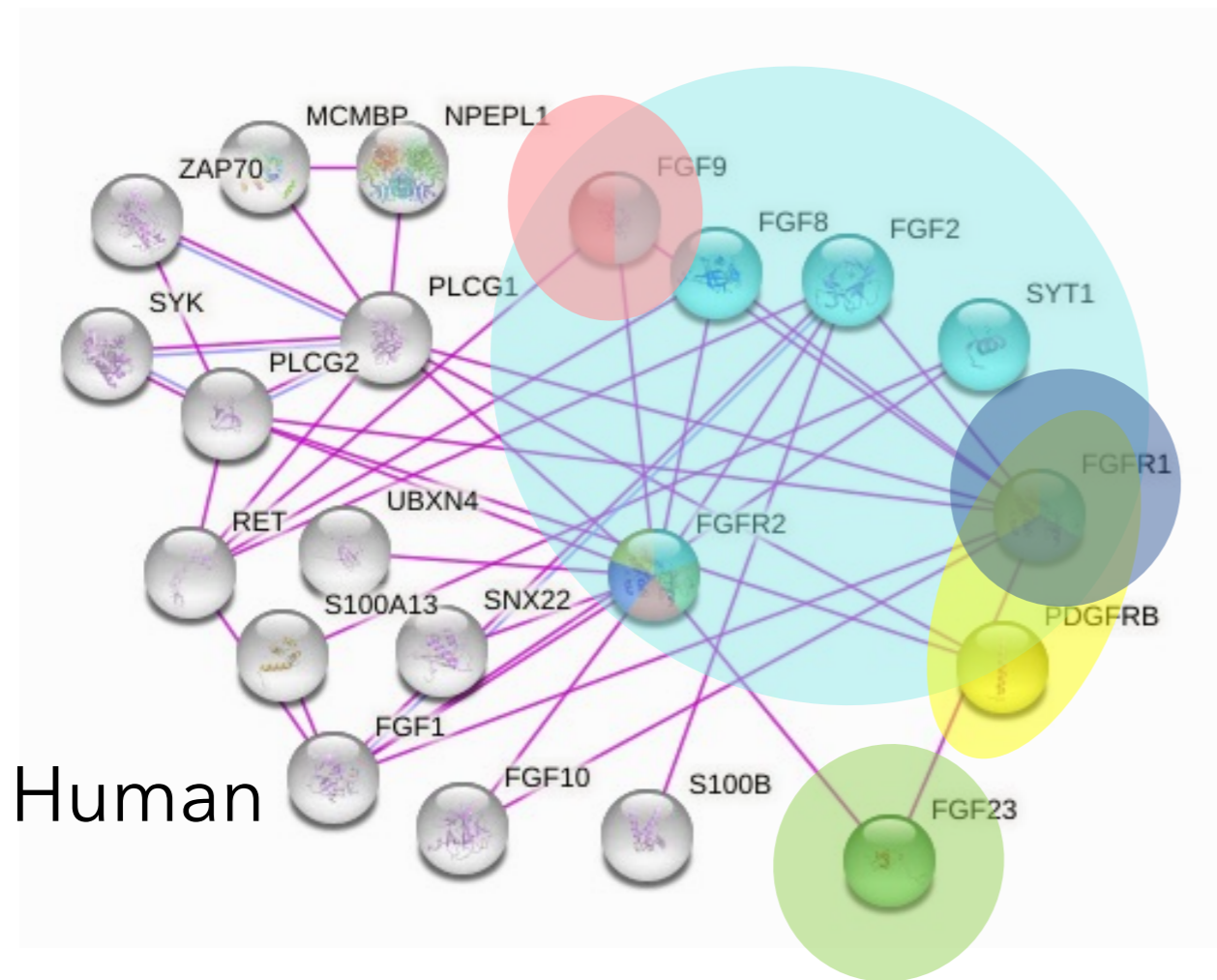
Why are *Danio rerio* the best model to study heart development?



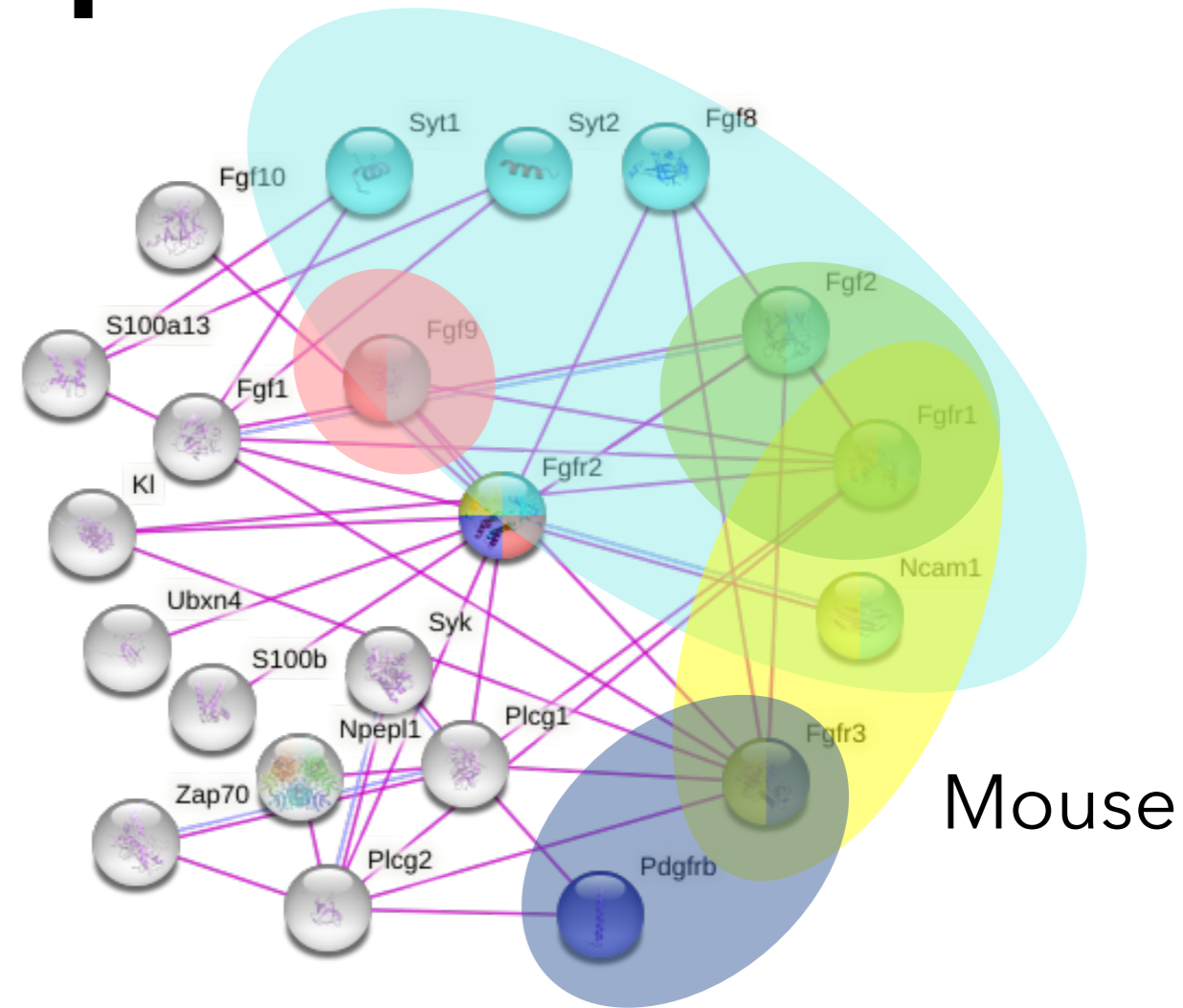
Interaction networks: Genes involved in neuron function bind to the ABC1 gene



Human and mouse FGFR2 protein interactions



Human



Mouse

Positive regulators of developmental growth

Regulators of osteoblast differentiation

Embryonic skeletal system development

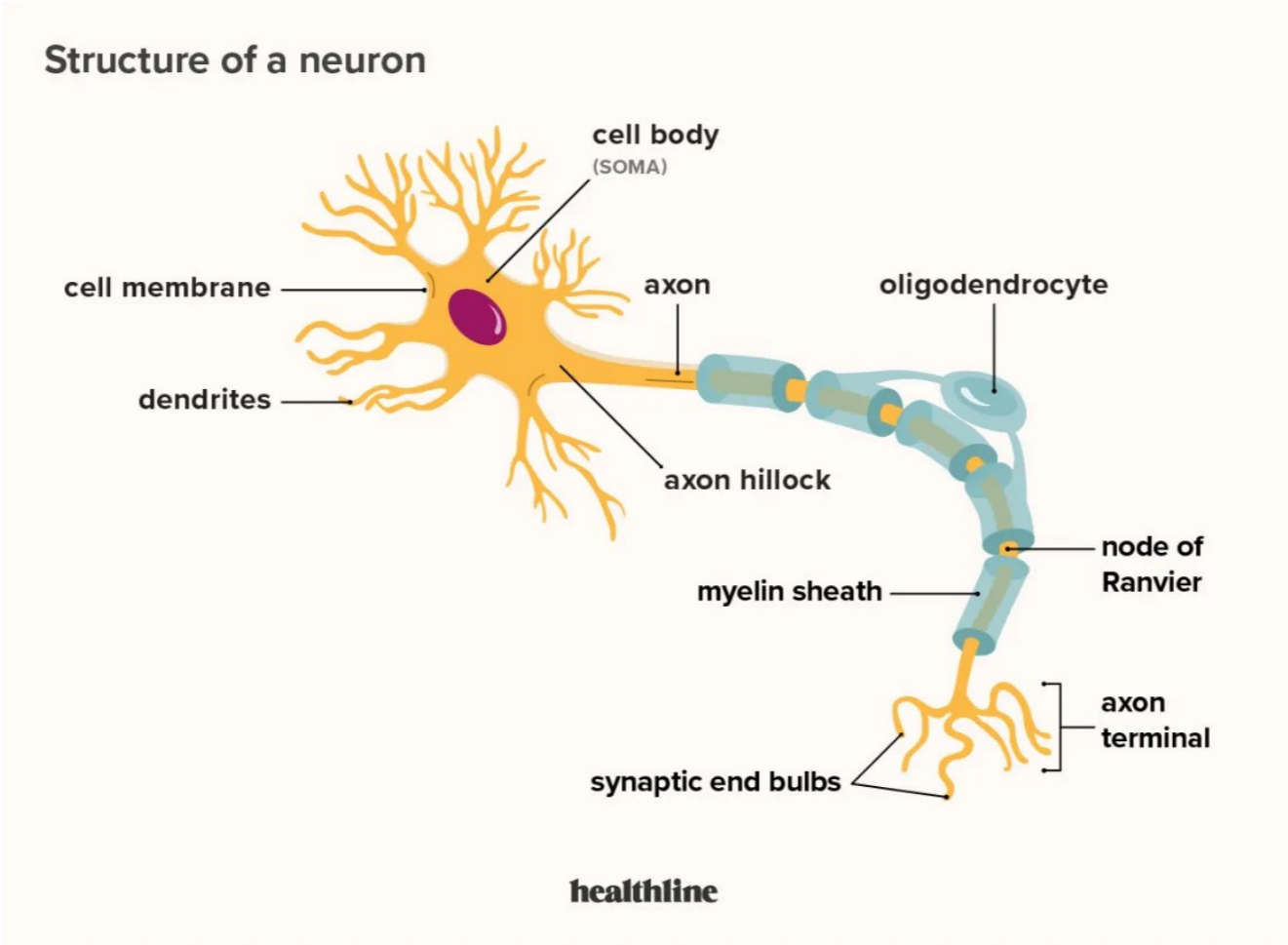
Immunoglobulin domain

Skeletal system morphogenesis

Gap in knowledge: The role of ABC1 in neuron function during early development is unclear

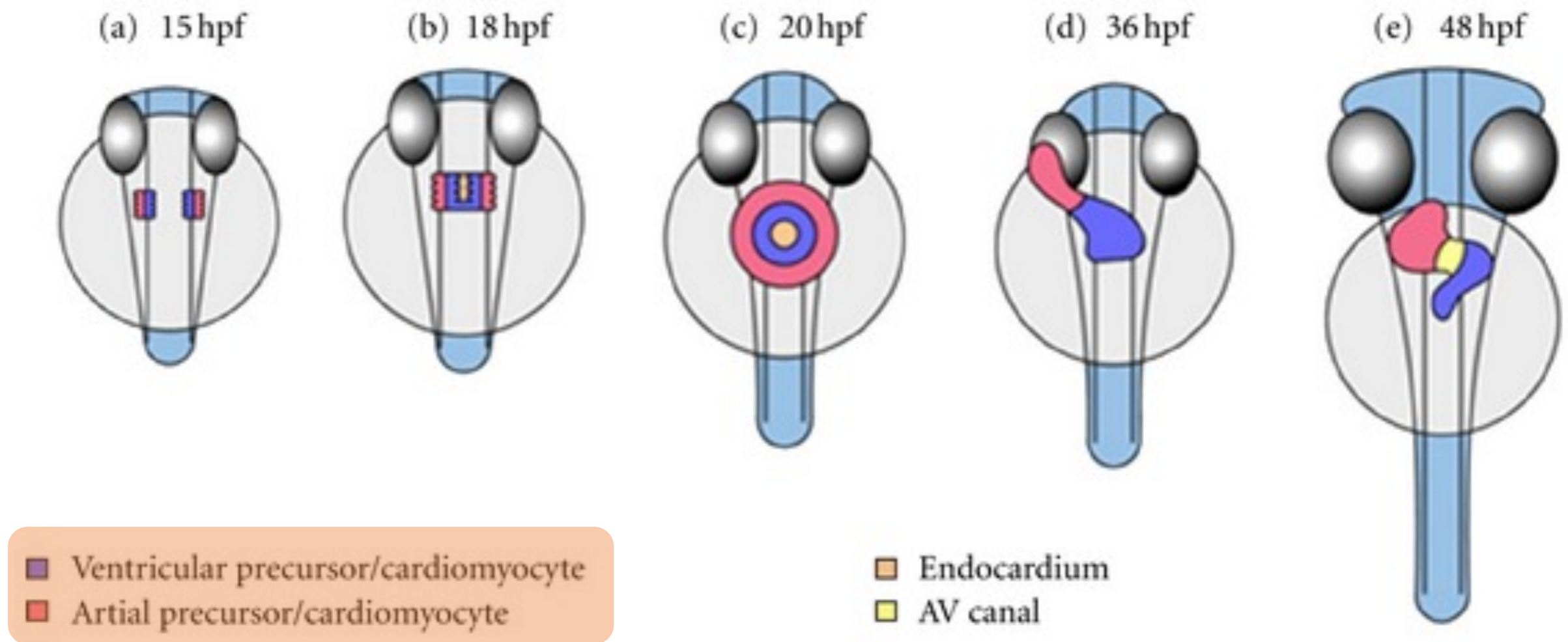


ABC1

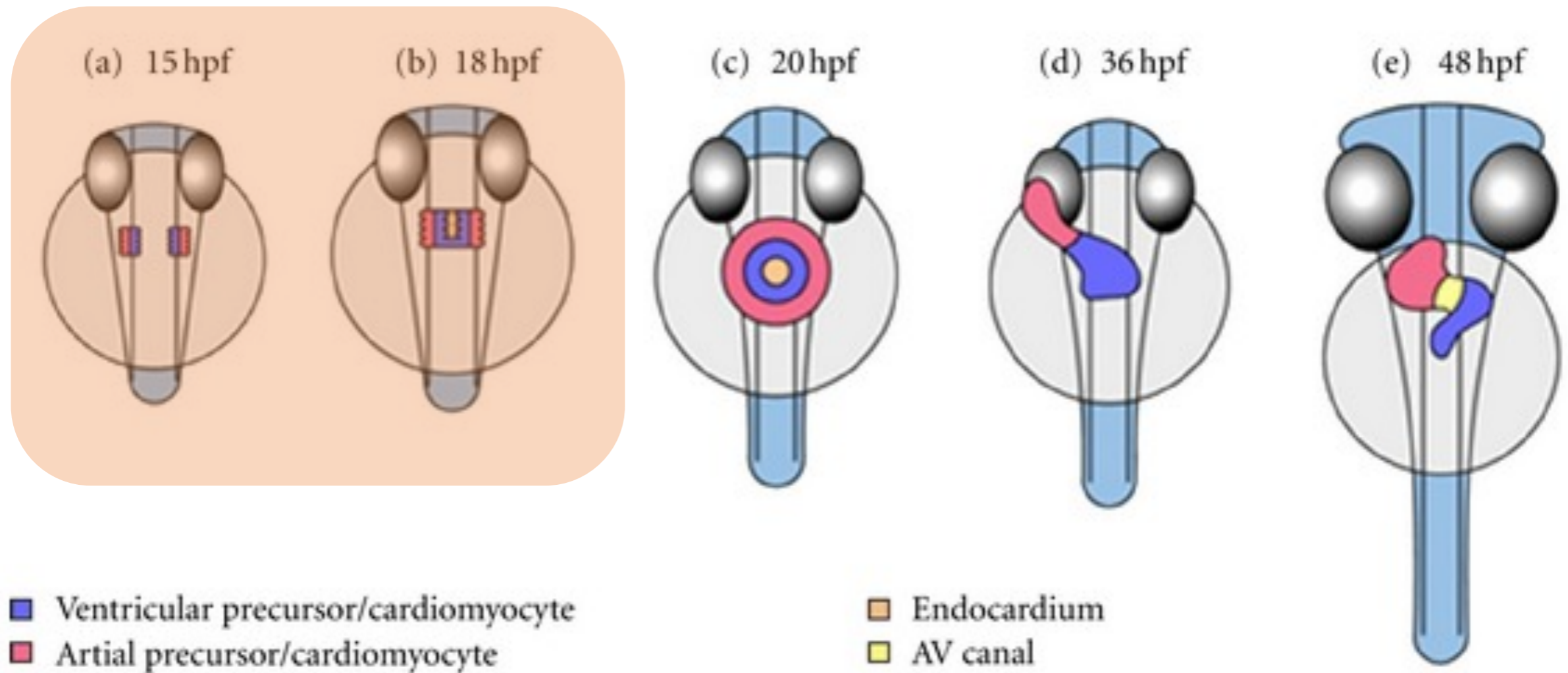


???

GAP: The role of **PMM2 in cardiac development and function is unclear.**



Hypothesis: PMM2 will be most important at **early developmental time points**.



Aim 1: To determine XXX

Why?

Approach:

Hypothesis:

Aim2: To determine XXX

Why?

Approach:

Hypothesis:

Aim3: To determine XXX

Why?

Approach:

Hypothesis:

Future Directions

References