

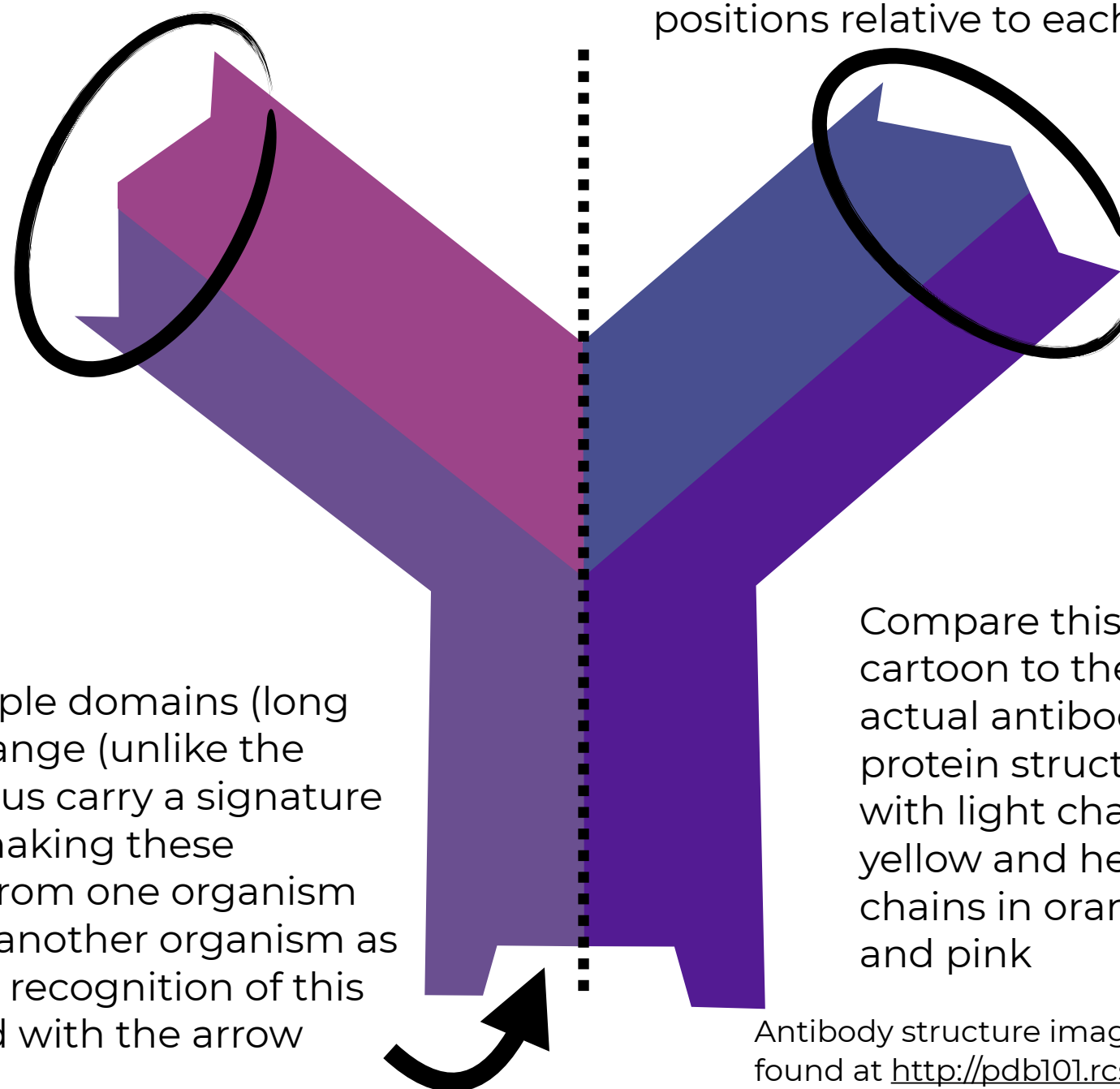
What is an antibody?

An **antibody** is a molecule made by mammals (including humans) immune systems as a way to recognize and initiate a defense mechanism within our bodies

Binding domain: changes easily and our bodies make many combination (like carrying a ring of keys that might potentially open doors). Each antibody contains two identical binding domains, each one circled in our model antibody

Antibody stem: the purple domains (long chains) do not easily change (unlike the binding domain) and thus carry a signature for the host organism making these antibodies. Antibodies from one organism detect antibodies from another organism as foreign, usually through recognition of this stem region highlighted with the arrow

Antibody symmetry: an antibody has mirror-image symmetry (as if this dotted line was a mirror); while the domains actually twist around each other more than this model shows, the diagram gives you a sense of the different components and their positions relative to each other



The components

- (purples) Two heavy chains extend the whole length of the antibody
- (pink/blue) Two light chains connect to the binding-end of each heavy chain

Compare this cartoon to the actual antibody protein structure with light chains in yellow and heavy chains in orange and pink

