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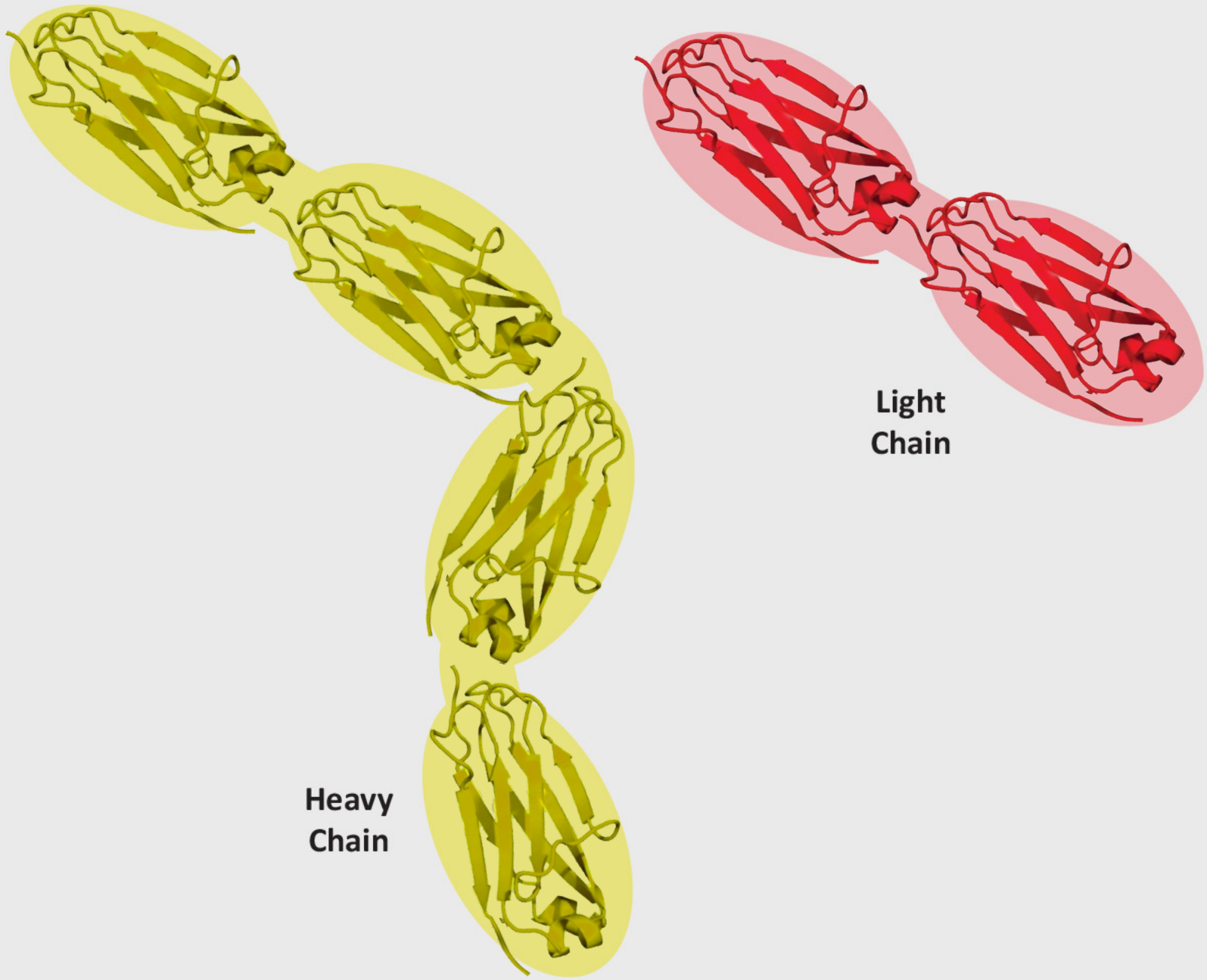
Heavy and Light Chains

Antibodies are large, multi-chain proteins, comprised of **two heavy protein chains** and **two light protein chains**.

Heavy and light chains can be further broken down into small modular motifs called **Immunoglobulin Folds**. Each **heavy chain** contains **four** immunoglobulin folds and each **light chain** contains **two** immunoglobulin folds.

Using the immunoglobulin fold pieces shown below, construct a **single heavy chain** and a **single light chain** to the right. When finished, move on to the next slide.



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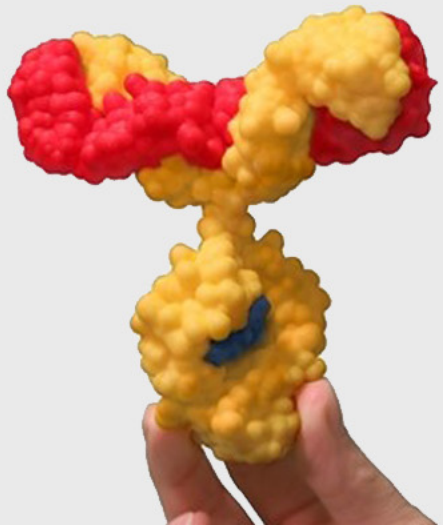
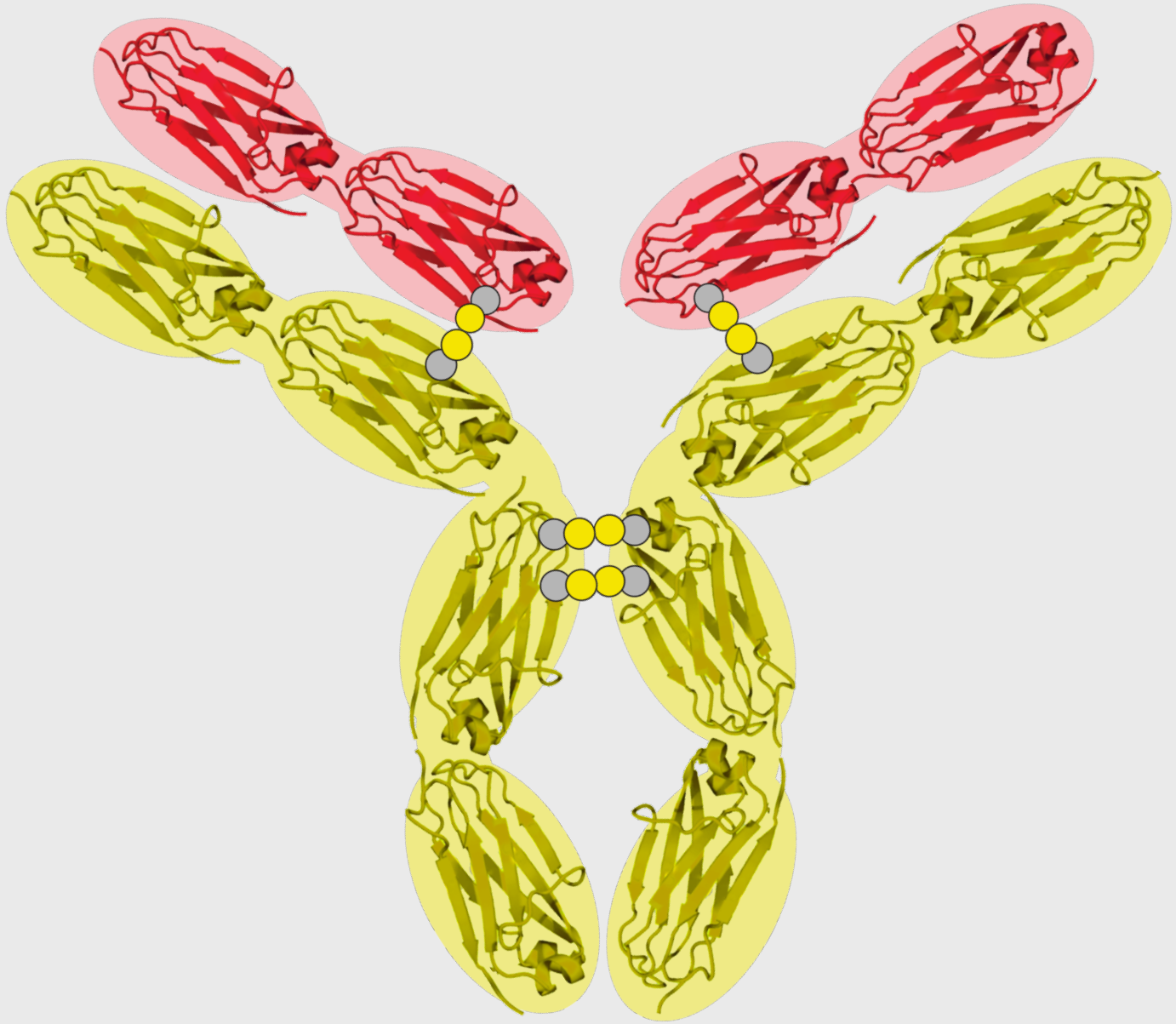
Assembling a Full Antibody

The **two heavy protein chains** and **two light protein chains** of an antibody come together in a very precise orientation that is stabilized by four key disulfide bonds between cysteine amino acids (gray and yellow).

Using the photo of an antibody model shown below as a guide, **assemble the four chains shown to the right into a full antibody**. When finished, move on to the next slide.





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Labeling Your Antibody

As a review of the antibody you have assembled, **add the labels** to the right to the antibody graphic. Use the four **green ovals** to highlight the four disulfide bonds between cysteine amino acids.