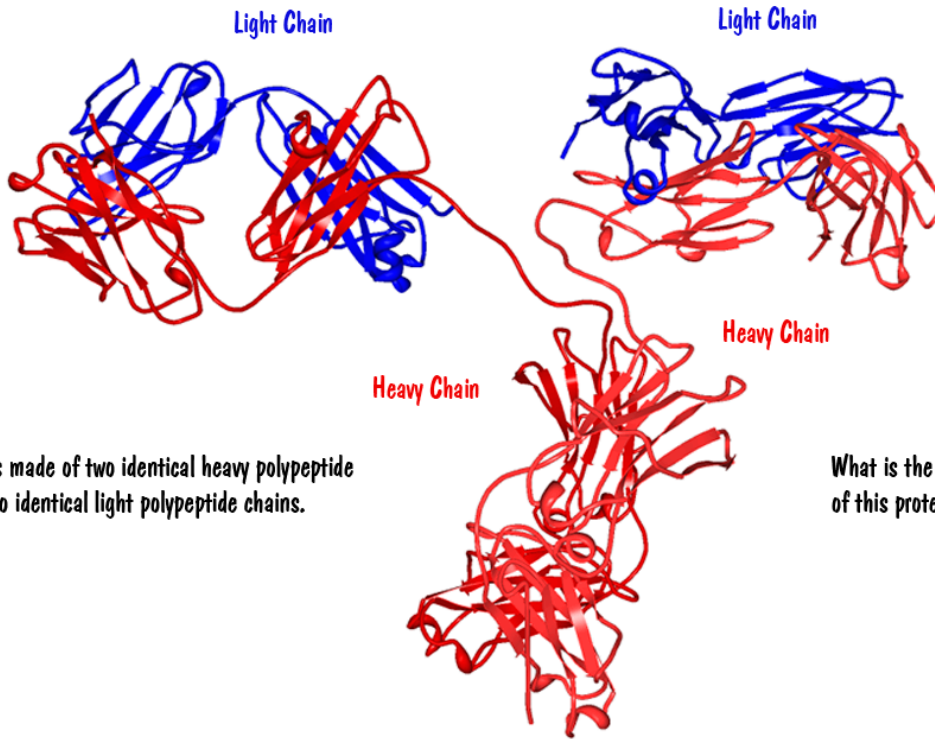


## Quaternary Structure

Many proteins are combinations of one or more polypeptide chains, and only function when all are present. **QUATERNARY STRUCTURE** is the final three-dimensional configuration of a complete protein with all of its different subunits.

This is a computer model of the quaternary structure of an Immunoglobulin G (IgG) antibody, a protein made by B cells as part of an immune response.

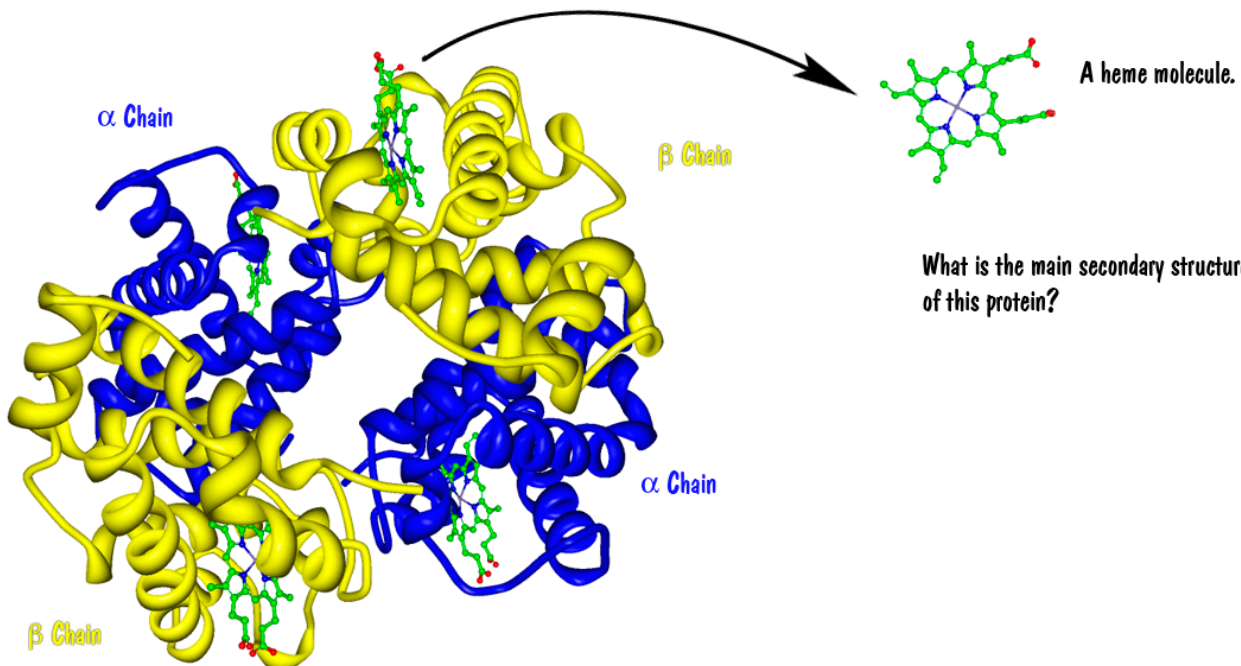


This protein is made of two identical heavy polypeptide chains and two identical light polypeptide chains.

What is the main secondary structure of this protein?

This is a computer model of hemoglobin, the protein that carries oxygen in red blood cells. It has four polypeptide chains, two identical alpha ( $\alpha$ ) chains and two identical beta ( $\beta$ ) chains.

Its quaternary structure also includes a non-polypeptide component called heme. Each subunit (chain) contains one heme molecule.



What is the main secondary structure of this protein?