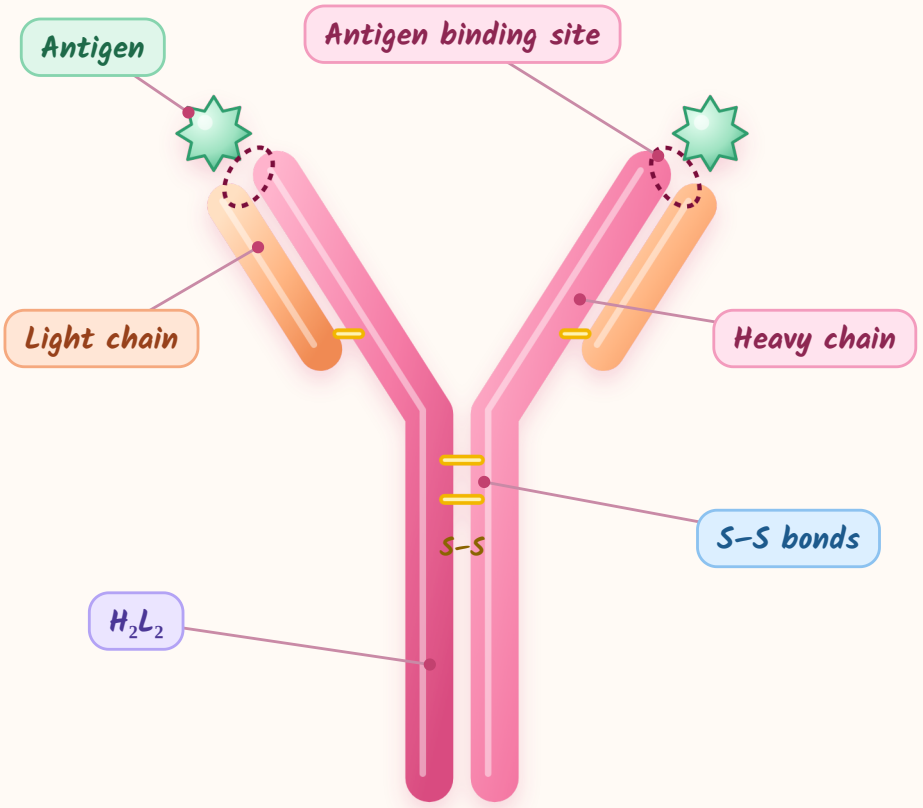
# Antibody Structure & Immunity

$H_2L_2$ · antigen binding sites · humoral vs cell-mediated




Original drawing by SLH · based on NCERT Fig 7.4

## Key points ✍️

- **Immunity** — the overall ability of the host to fight disease-causing organisms, given by the immune system.
- **Innate immunity** — non-specific, present at birth; barriers: physical, physiological, cellular, cytokine.
- **Acquired immunity** — pathogen-specific and has memory.
- **Primary vs secondary response** — first meeting: low-intensity primary response; next meeting with the same pathogen: highly intensified secondary (anamnestic) response.
- **B-lymphocytes** — produce antibodies; **T-cells** do not secrete antibodies but help B cells make them.
- **Antibody** — 4 peptide chains: 2 light + 2 heavy → written $H_2L_2$.
- **Types** — IgA, IgM, IgE, IgG are some antibodies made in our body.
- **Humoral immune response** — antibody-mediated; called so because antibodies are found in the blood.
- **Cell-mediated immunity (CMI)** — carried out by T-lymphocytes; it is responsible for graft rejection.

- **Active immunity** — the host makes its own antibodies on exposure to antigens; slow to give full response.
- **Passive immunity** — ready-made antibodies are given, e.g. colostrum has IgA; foetus gets some antibodies through the placenta.
- **Vaccination** — based on the memory of the immune system; vaccines generate memory B and T cells.

## 💡 Remember

$H_2L_2$ = 2 Heavy + 2 Light 🧬 · NCERT examples: "**GAME**" → Ig**G**, Ig**A**, Ig**M**, Ig**E**
**B**-cells → antibodies in blood = humoral · **T** = cell-mediated, graft rejection

Source: NCERT Biology Class 12, Ch 7 Human Health and Disease (Fig 7.4 Structure of an antibody molecule). Notes and drawing: original work by Simple Learning Hub.