Immunoglobin M (Ig M)

It is the largest immunoglobin. It has high molecular weight about 950,000. It is Y shaped. It is predominently found in Serum.

- Ig(M) has typical immunoglobin structure. It has two pairs of Polypeptide chains, two light chains and two heavy chains. The two light chains are of Kappa(κ) or Lambda(λ) type. The two heavy chains are Mu (μ) type.
- The light chain consist of two domains, a Single Constant domain (C_L) and a Single variable domain (V_H) and three Constant domains (C_H1, C_H2 and C_H3).
- They are called natural antibody because it is formed in the blood even before primary immune response. They are Polymer of usually 5 molecules, each with five polypeptide chains.
- The polymerization of these molecules occurs in the presence of joining chain (J-chain). The J-chain holding the 5 (five) Subunits together at the Fc region.
- The Serum level of Ig M is very low, about 5 to 7 mg/ml. This is due to the short half life (5 days) and low synthetic rate (5-8 mg/kg/body Weight/day).
- The Sedimentation coefficient is 19S.

- It is the earliest immunoglobulin to be synthesized by the foetus. When foetus was about 5th month. Phylogenetically IgM is the most primitive immunoglobulin present in all vertebrates from lampreys onwards.
- In mammals it is in the form of a cyclic pentamer of five ~~subunits~~ linked by disulfide bonds and J-chain. A monomeric form (7S) of IgM is found on the B-lymphocytes.

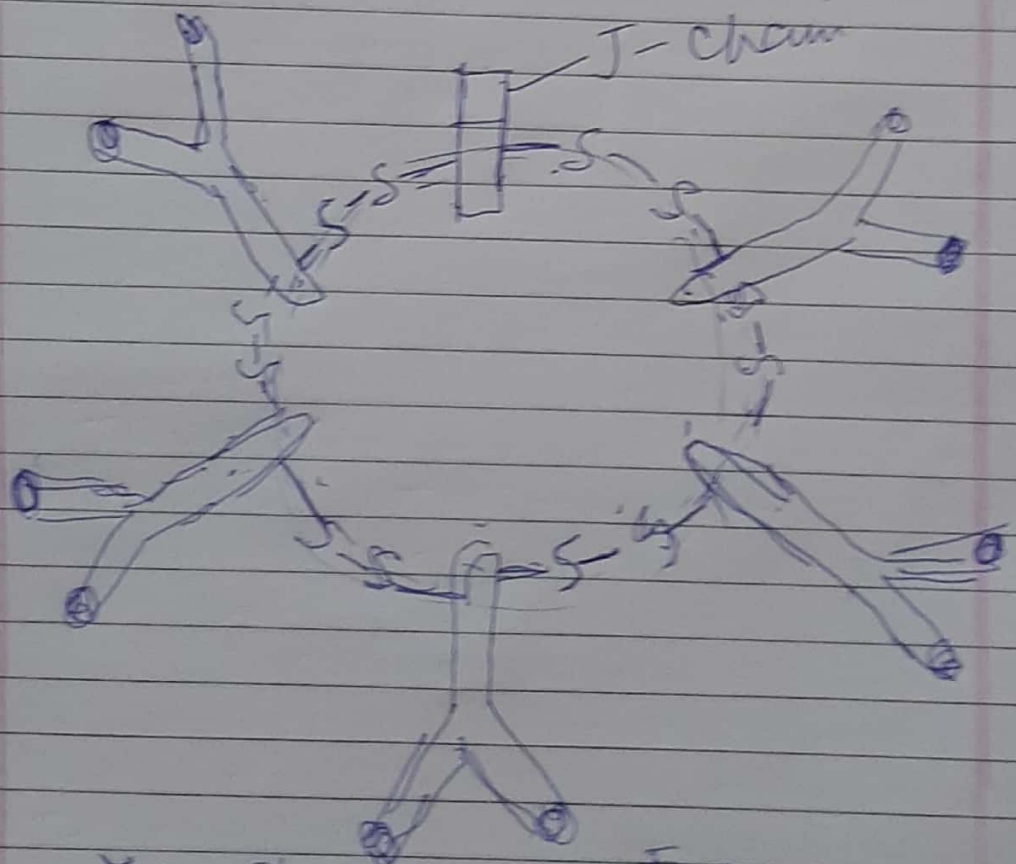

Fig - Structure of IgM.