

# Hypergammaglobulinemia

## Polyclonal hypergammaglobulinemia

Polyclonal hypergammaglobulinemia develops in response to antigenic stimulation, in which *multiple plasma cell clones* are activated, thereby increasing the concentration of immunoglobulins, that affect one or more classes of immunoglobulins – we speak of **polyclonal gammopathy**.

- We encounter it in **chronic infections, liver and autoimmune diseases**.
- In electrophoresis, there is an increase in the fraction of gamma globulins forming a wide, blurred band in the area of  $\gamma$ -globulins.

## Monoclonal hypergammaglobulinemia

Monoclonal immunoglobulins (paraproteins) are immunoglobulins or immunoglobulin fragments produced by a **single clone of plasma cells**. Their main feature is the homogeneity of the molecule with the same primary structure; immunoglobulins with the same specificity are represented, consisting of only one type of heavy chain and also one type of light chain.

- The physicochemical homogeneity of the paraprotein is manifested by a narrow peak during electrophoresis, usually in the area of  $\beta$ - $\gamma$  globulins.
- Monoclonal immunoglobulins are most commonly the IgG and IgM types. They consist of either a complete immunoglobulin molecule, free light chains alone (**Bence-Jones protein**) or heavy chains alone.
- Bence-Jones protein easily passes through the glomerular filter to urine.
- The finding of monoclonal immunoglobulins is a symptom of a malignant disease - **plasmacytoma** (= **multiple myeloma**), caused by the tumor growth of one clone of plasma cells, or a symptom of **benign monoclonal gammopathy**.

## Links

### Related Articles

- Plasma proteins
- Antibody
- Serum proteins electrophoresis
- Paraproteinemia