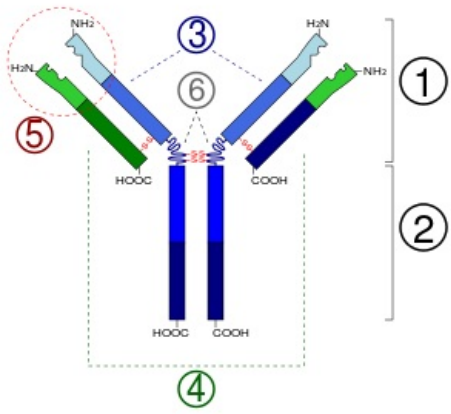
Immunoglobulin family

A group of functionally and structurally related proteins that play a key role in the immune system is called the **large immunoglobulin family** (*immunoglobulin superfamily*). The immunoglobulins include antibodies, specific receptors for T-lymphocyte and B-lymphocytes, HLA molecules, **adhesion** molecules, and **growth factor receptors**. They are expressed mainly on leukocytes, but some are also found on other cells (e.g. HLA class I on all nuclear cells). They occur as free molecules or are incorporated into the cell membrane.

Immunoglobulin domain

A characteristic feature of immunoglobulins is the presence of the so-called **immunoglobulin domain** in their structure. The domains contain about 100 amino acids. They have a globular structure. The peculiarity is that they form incomplete rings connected by a sulphide bridge of two cysteines (see figure). Immunoglobulin domains are classified according to their variability within a single type of molecule.



Immunoglobulin basic unit

Variable

Domains with high variability (**hypervariable**). They are usually found in the part of the molecule that contacts the antigens or ligands. They are referred to as **V 1-n**.

🔎 *For more information see Genetics of Ig, B and T receptors.*

Constant

This type of immunoglobulin domain is characteristic of single molecules. They further determine the reaction upon ligand binding. They are referred to as **C 1-n**.

Transient

Domains that retain a partially constant form but may vary are called transient. They are denoted **H1-n**.

Function of immunoglobulins

All immunoglobulin molecules are able to **recognize** their specific ligands (with varying degrees of accuracy). They are therefore essential agents in specific immunity.

Links

Related articles

- Antibody
- Specific immunity

Used literature

- ŠTERZL, Ivan, et al. *Základy imunologie pro zubní a všeobecné lékaře.* 1. edition. Praha : Karolinum, 2005. 207 pp. ISBN 978-80-246-0972-0.