

Monoclonal antibodies in treatment

Monoclonal antibodies (*mAbs* – *monoclonal anti-bodies*) are made by **cloning one unique B-cell**.

Properties

Monoclonal antibodies are antibodies of the same type which are already effective in very small quantities. They have a unique specificity and act against the same epitopes. They're made by cloning and have unlimited availability.

Use of the monoclonal antibodies

They take part in quarters of biotechnology drugs research. They're used not only for diagnostics of different diseases but also as drugs in oncological, autoimmune and infectious disorders and transplantations.

Monoclonal Abs can be possibly used as **reagents** in biomedical and microbiological research – detection of cancer, AIDS, influenza, herpes simplex or chlamydial infection. They can be applied in the **identification of the infections** transmitted by the transfusion, proteins, sugars and nucleic acids in PCR and ELISA assays. Also may be used in diagnostical tests for **detection** of even minimal amounts of drugs, toxins or hormones (for example, detection of choriongonadotropin in pregnancy tests).

acute myeloid leukemia

In AML suspection are used mAbs against the **CD-33** molecule, which occurs on the surfaces of some mature leukocytes.

Prostate cancer

The most clinically used marker is **PSA** (*prostate-specific antigen*), however, it is not 100%. Radiolabeled mAbs allow high specific localization of the tumor in vivo. They're used in diagnostics, Využívají se v diagnostice, imaging and therapy.

Ebola

EBOV GP antigen can be detected with the mAbs 3–6 days after the first manifestations of hemorrhagic fever. Several mAbs have been developed that selectively react with the GP antigen, however not all of them but with all types of EBOV antigen (mAbs reactivity can be detected by the PCR assay).

Avian influenza

Identification by the AIV laboratory assay (detection of the increase of the specific antibodies).

Monoclonal antibodies can be also possibly used in criminalistics (ABO system, detection of semen, identification of saliva, urine, blood) or food industry (detection of antibiotic residues in meat products).

Representatives

Infliximab

Chimerical human/mouse monoclonal IgG1 antibody. Basic indications for use are rheumatoid arthritis, ankylosing spondylitis and Crohn's disease.

Rituximab

Chimerical human/mouse monoclonal IgG1 antibody. The first monoclonal antibody was approved for human use in patients with oncology, for example in the therapy of the malignant lymphoma.

Links

Related articles

- Monoclonal antibody
- Antibody
- Biological treatment

Bibliography

[1] (https://is.muni.cz/th/lvg4z/Bakalarska_prace.pdf?so=nx)https://is.muni.cz/th/lvg4z/Bakalarska_prace.pdf?so=nx

[2]

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