Biological drugs

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Introduction

Biological drugs include a wide range of medicinal products created by biological instead of chemical processes. Biological drugs can consist of proteins, nucleic acids or complex combinations of substances, or may be living entities such as cells and tissues. They are isolated from natural sources or are produced by biotechnology methods.

The aim of this study was:
- To better know what are biopharmaceutical drugs.
- To present a clinical project about the use of anti-TNFα molecules in rheumatoid arthritis and,
- To give the role of biopharmaceuticals in the future.

Currently available classes of biopharmaceuticals

The more common classes of biopharmaceuticals, currently on the market include hormones, cytokines, growth factor, antibodies, enzymes and vaccines.

This drugs are considered outstanding compared to conventional drugs due to their origin from a natural source. They don't present the toxic effects that conventional could display.

One of the main and most studied problems that present biopharmaceuticals is immunogenicity. In patients treated with immune-type products, such as monoclonal antibodies, these side effects occur frequently.

Present of biopharmaceuticals

Several Hospitals are already working with biopharmaceutical drugs. The Immunology Service of Hospital Clínic de Barcelona is driving a study with anti-TNFα molecules against rheumatoid arthritis.

➢ *Rheumatoid Arthritis*

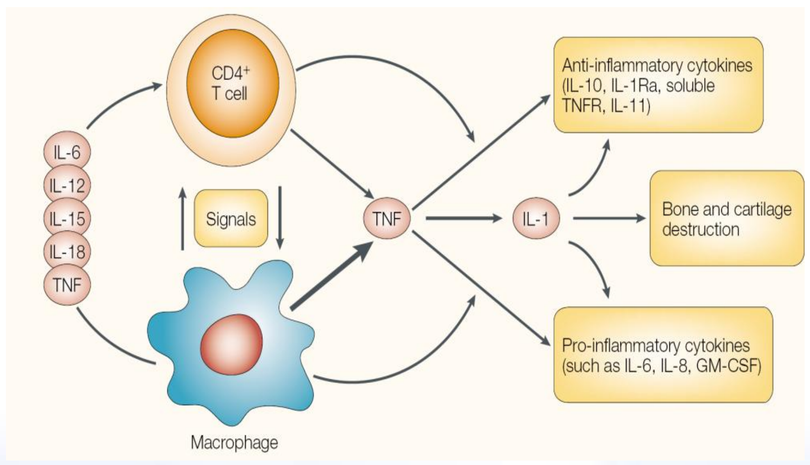

Figure 1. Pathogenesis of rheumatoid arthritis

➢ *Anti-TNF α molecules*

Infliximab
Chimeric monoclonal antibody against TNFα used to treat autoimmune diseases. In rheumatoid arthritis, infliximab works by preventing TNF-α from binding to its cellular receptor.

Adalimunab
Human monoclonal antibody against TNFα used to treat autoimmune diseases. It has been shown to reduce the signs and symptoms of moderate-to-severe rheumatoid arthritis in adults.

Etanercept
Fusion protein produced by recombinant DNA. Is a compound that treats autoimmune diseases acting as a TNF inhibitor.

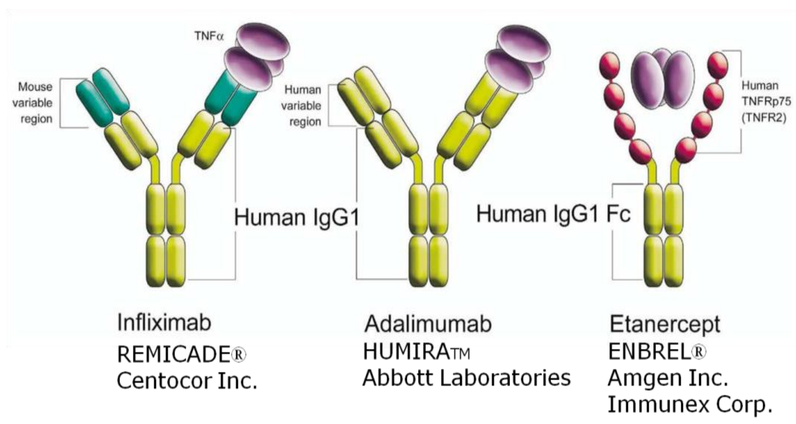

Figure 2. Anti-TNFα molecules used by HCB

Future of biopharmaceuticals

Biological drugs have brought a revolution in the treatment of many serious diseases that had few therapeutic alternatives.

Currently, there are more than thousand biological drugs in research. In the last decade they have been a third of the new drug approvals and it is estimated to be the world's best selling drugs in 2016.

Conclusions

Biopharmaceutical successful studies, conducted in Hospitals, have opened a new opportunity to control serious untreatable diseases.

Biopharmaceuticals are going to be important players in the future of the Pharma Industry.

References

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