



## Biological medicinal Products

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### Biosimilars

***There are more than 150 biotechnology medicines on the market  
More than 325 million patients worldwide use biotech medicines  
50% of medicines in clinical development are biotech medicines***

#### Difference between biotech medicines and chemical medicines

- Biotech medicines are derived from living cells
  - Chemical medicines are derived from chemical processes
- Biotech medicines are complex in structure
  - Chemical medicines have a simple and well-defined structure
- Because of the way they are expressed by living cells, biotech medicines contain a mixture of related molecules and are difficult to characterise
  - Chemical medicines, on the other hand, are easy to characterise

#### What are biosimilars ?

- The expiry of patent protection and regulatory data protection for certain biotech medicines has led to the development of what are called biosimilars
- Biosimilars are products that claim to be a “copy” of the original, innovative biotech medicine
  - eg. epoetin, G-CSF, insulin, somatropin
- However, they are made with a different cell-line and a different manufacturing and purification process
- As they are made by a different manufacturing process
  - This will lead to biosimilars having similar, but not identical biophysical characteristics to the innovator biotech medicine

As it is not possible to demonstrate that two biological medicinal products are identical, the presumption of the legislation is that preclinical/clinical data need to be individually defined. Comparability studies, including appropriate original pre-clinical and clinical studies, are needed to generate evidence substantiating the similar nature of the new similar biological medicinal product and the chosen reference medicinal product already authorized in the Community. Strong pharmacovigilance programs need to be implemented post-approval in order to assure the safety of biosimilars, for instance to detect any abnormal immunogenic adverse events, and their Summary of Product Characteristics needs to be updated as soon as new efficacy or safety data become available. Besides changes in the manufacturing process which alter the biological activity of biological medicines, the possibility for inconsistent quality and potency, contamination



with endotoxines (related to the purification process) and presence of excess aggregates are a concern and need continuous pharmacovigilance and the need for a risk management plan.

### **Importance of the proper identification of the biological medicinal products.**

Three key issues related to the identification of biosimilars have been identified: pharmacovigilance, substitution, and traceability.

The lack of proper identification for biological medicinal products, including biosimilar medicines could create public health concerns for the following reasons:

- **Pharmacovigilance issues:** the generation of meaningful pharmacovigilance information in the European Union will be facilitated if each biosimilar medicine is assigned a unique identification to distinguish it from other biosimilar products and from the innovator's product. Having multiple biosimilar products of a certain innovator product on the market without a proper identification system could lead to inadequate reporting of safety events that could be wrongly attributed to a particular manufacturer. This could lead to a dilution of messages about safety.
- **Substitution issues:** by contrast with the situation applicable for generics or "copies" of small molecule drugs, biosimilar medicines are "similar" but not "identical" to the innovator reference products. The "similar, but not identical" nature of biosimilar medicines means that substitution of the innovator product with a biosimilar product could have clinical consequences as patients could respond differently to the two products. Clear identification of biological medicines could provide a safe mechanism for ensuring the patient is dispensed the precise medicine prescribed by the physician.
- **Traceability issues:** an identification system that distinguishes between manufacturers could significantly reduce the risk of errors or confusion in medication, prescription, or distribution of biotech medicines, ensure appropriate traceability for the quality of the product, and ultimately increase the safety of patients.

### **Conclusions**

- **Biotechnology medicines will be part of the future healthcare landscape**
- **Biosimilars will become a familiar phenomenon**
- **The regulatory approvals process has been established in Europe**
- **Awareness of the differences between original biotech medicines and biosimilars is essential for healthcare professionals and patients to ensure appropriate introduction into clinical practice**
- **Any decision to substitute one biotechnology medicine with another should be made with the knowledge and explicit prior consent of the physician.**
- **Prescription for biological medicines should always be made by brand name and prescription by active substance name (INN) should not be allowed.**  
**Any decision to substitute one biotechnology medicine with another should be made with the knowledge and explicit prior consent of the physician.**



**Bio.be is the Belgian biotechnology industry organisation.**  
**Founded on January 23 2006 as a result of the merger of the Belgian Bioindustries Association (BBA) and BelgoBiotech, Bio.be represents the companies and professionals involved in research, development, testing, production or marketing of biotechnology applications, as well as those servicing the biotechnology community.**

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