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IMMUNOGENICITY

Any treatment or medicine that affects the immune system, including biologics and biosimilars, can trigger an immune response.

This is known as immunogenicity.[1-3]

Immunogenicity caused by the development of ADAs and NAbs **may have no impact** on the clinical efficacy of a medicine and **no apparent clinical manifestations.**

However, **in cases where many ADAs develop**, this may influence the behavior of the medicine, contributing to a **loss of efficacy** and/or the development of – sometimes serious and life-threatening – **side effects.**[4]

Evaluating immunogenicity is essential to assess how the body's immune system responds to a biologic medicine by developing ADAs, which may impact the effectiveness of that medicine.

In a biosimilar development program, immunogenicity is evaluated to determine if the proposed biosimilar matches its reference medicine in its potential to trigger the development of ADAs and NAbs.[5,6]

The demonstration of **matching minimal potential differences** in immunogenicity using state-of-the-art, high-sensitivity assays is a **critical requirement** for establishing biosimilarity between a **biosimilar** and the **respective reference medicine**, and is subject to specific guidance from the FDA and EMA.[7,8]

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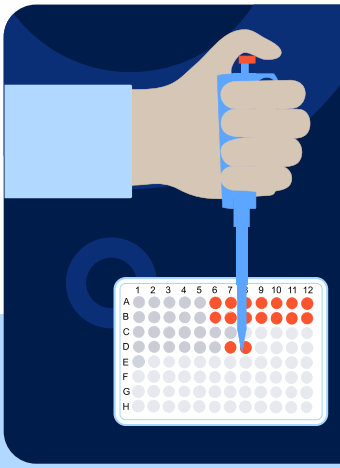
An **immunogenicity assessment** is a stepwise approach to determine if the **proposed biosimilar matches** its **reference medicine** in its potential to trigger the development of ADAs and NAbs, and in the **impact** of any immunogenic potential on humoral response, hypersensitivity reactions, and clinical outcomes.[2,3,5,6]

The comparison of immunogenicity between a **reference biologic** and a **proposed biosimilar** will evaluate[5]:

- Incidence of immune responses
- Nature and severity of the immune response (e.g. anaphylaxis, NAbs)
- Clinical relevance of the immune response (e.g. loss of efficacy and increased safety risks)



Immunogenicity is evaluated within a biosimilar development program using **'assays'**. These assays are **specialized** and more **sensitive** than the assays used in clinical trials, to detect **potential differences** that could translate to an **impact on efficacy and safety in patients.**[3,5,6]

Immunogenicity assays are **optimized** to have high sensitivity, specificity, precision, and robustness, and follow **validation standards** as per regulatory guidelines.[9]

If the immune response between a biosimilar and reference medicine is **'highly similar'** or presents **'no clinically meaningful differences'** to each other within the **same assay format,** then this demonstrates that **the two medicines match** in terms of **immunogenic potential** and can be used with **equal confidence.**[5,6,10,11]

ADA, anti-drug antibody; EMA, European Medicines Agency; FDA, Food and Drug Administration; NAb, neutralizing antibody.

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This infographic is a summary of the 'Immunogenicity in the context of biologic medicines' scrollytelling asset (MLR ID: 415310) and is intended for healthcare professionals only.
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