Formycon seeks FDA approval for pembrolizumab biosimilar without Phase 3 trial

Market Event Summary

Archana Prasad Variyar | April 2025

Formycon terminates the Phase 3 trial for its pembrolizumab biosimilar

Background

- In February 2025, Formycon announced the termination of its Phase 3 "Lotus" trial for FYB206, its pembrolizumab biosimilar candidate, in the United States. The FDA concluded that the ongoing Phase 1 study ("Dahlia") in melanoma—expected to complete by June 2026—combined with a comprehensive analytical similarity package, was sufficient to establish biosimilarity with the reference product, Keytruda.
- Formycon had previously published detailed analytical similarity data demonstrating high levels of similarity to Keytruda in terms of structure, purity, protein variants, target binding, and functional potency, using a wide range of advanced analytical techniques.

Keytruda global sales for 2024 (company reported) = $29.5B

Approved indications of Keytruda in the United States

As of the end of 2024, Keytruda has attained 40 approved indications in the United States. This extensive list encompasses a broad spectrum of malignancies, including melanoma, non-small-cell lung cancer, head and neck squamous cell carcinoma, classical Hodgkin lymphoma, among others.

We expect Keytruda biosimilar market shares to reach 63% in the United States and 58% across the G7 markets by 2033.

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Clarivate's takeaways

$ Harnessing strategic cost-savings

The discontinuation of the Phase 3 clinical trial is anticipated to yield substantial cost-savings for Formycon. These financial efficiencies may enable the company to offer significant rebates to healthcare payers and attractive discounts to patients, ultimately enhancing access to its products.

Growing confidence in biosimilars without Phase 3 trials

The FDA's decision reflects growing confidence in the totality-of-evidence approach, where biosimilarity is determined through comprehensive analytical, pharmacokinetic (PK) and pharmacodynamic (PD), and immunogenicity data. This shift reduces reliance on traditional Phase 3 efficacy trials, especially when robust preclinical and early-phase data are available.

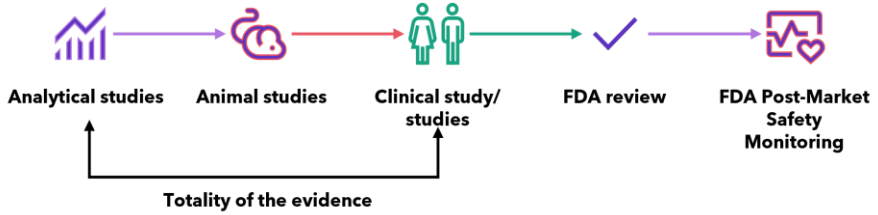
Formycon's move also highlights a broader market trend of increasing comfort among U.S. payers and prescribers with biosimilars approved without Phase 3 trials. This is supported by strong adoption of products such as **Nivestym**, **Udenyca**, and **Nyvepria**, which achieved 50%+ prescribing rates despite not undergoing Phase 3 trials (Biosimilars A&R US Payer Insights, Clarivate 2024).

This shift can help streamline biosimilar development as regulators, payers, and prescribers grow more aligned on approvals without Phase 3 trials.

Clinical data requirements for biosimilars across the U.S., E.U., and U.K. markets

The FDA and the EMA do not mandate Phase 3 trials as a condition for approving biosimilars. In May 2021, the MHRA discontinued the requirement of a comparative efficacy trial in most cases.

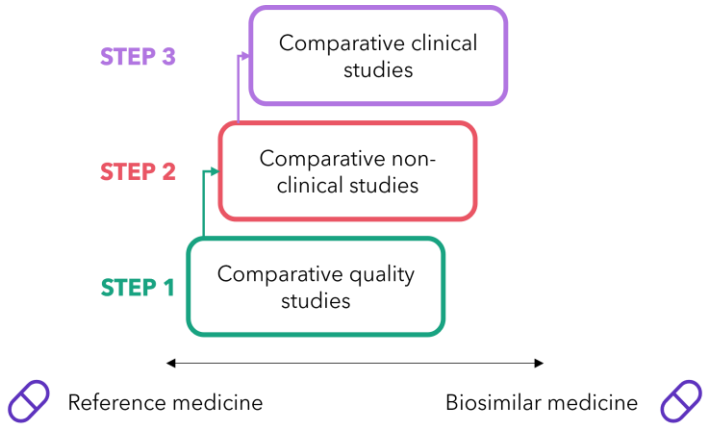
FDA



- The FDA evaluates biosimilarity based on a "totality-of-evidence" approach. This includes data on structural and functional characterization, PK/PD, immunogenicity, and clinical performance.
- Under the Biosimilar User Fee Act III, the FDA has discretion to waive Phase 3 efficacy trials when other data sufficiently support biosimilarity. In such cases, additional trials are not considered "pivotal" as they are for standalone biologics.

EMA

- The EMA has adopted a tailored evaluation model. Developers are advised on necessary studies based on available quality and functional data.
- In January 2024, the EMA proposed formally waiving comparative efficacy trials for biosimilars with a straightforward mechanism of action—a proposal expected to be reviewed in 2025.
- EMA scientists have stated that patient trials have played only a minor role in historical decision-making.



MHRA

- As of May 2021, the MHRA no longer requires comparative efficacy trials in most cases. Current guidelines emphasize the need for a pivotal comparative PK trial, with PD markers where applicable.
- Where sufficient analytical and functional similarity exists, the MHRA views comparative efficacy studies as often unnecessary.

PK: pharmacokinetic, PD: pharmacodynamic, FDA: Food and Drug Administration, EMA: European Medicines Association, MHRA: Medicines and Healthcare products Regulatory Agency

Biosimilars approved without a Phase 3 trial

Nivestym, Udenyca, and Nyvepria were approved without Phase 3 trial data.

Nivestym (filgrastim)

- FDA-approved in July 2018
- RMP: Neupogen
- Indications: Febrile neutropenia and severe neutropenia

- Nivestym was approved by the FDA without a Phase 3 trial.
- The approval was supported by a comprehensive data package and three Phase 1 studies: ZIN-FIL-1501 and ZIN-FIL-1502, which evaluated the pharmacokinetics and pharmacodynamics of the U.S.-licensed reference product; and C1121012, which assessed the immunogenicity profile of Nivestym.

Udenyca (pegfilgrastim)

- FDA-approved in November 2018
- RMP: Neulasta
- Indications: Infections arising due to febrile neutropenia

- Udenyca received FDA and EMA approval without a Phase 3 trial; however, the EMA application was later withdrawn.
- The FDA's approval was based on a comprehensive analytical similarity package, supported by two Phase 1 studies: CHS-1701-05, which evaluated pharmacokinetic and pharmacodynamic bioequivalence, and CHS-1701-04, which assessed Udenyca's immunogenicity profile.

Nyvepria (pegfilgrastim)

- FDA: June 2020
EMA: Nov 2020
- RMP: Neulasta
- Indications: Infections arising due to febrile neutropenia

- Nyvepria was approved by both the FDA and EMA without a Phase 3 trial.
- Approval was supported by a comprehensive data package, including three Phase 1 studies—ZIN-130-1505 (C1221001) and C1221002 (ZIN-130-1504), which assessed pharmacokinetic and pharmacodynamic equivalence; and C1221005, which evaluated immunogenicity characteristics of Nyvepria.

Clarivate's 2024 primary research shows that most oncologists reported high satisfaction with Nivestym, Udenyca, and Nyvepria, with nearly half—or more—prescribing these biosimilars across the U.S. and E.U. markets.

Clarivate coverage of oncology biosimilars

- **Biosimilars | Forecast | Oncology| G7**, assesses the current events and market sizing for oncology biosimilars
- **Biosimilars | Emerging Biosimilars | Global**, provides up-to-date pipeline analysis and launch predictions of biosimilars in the G7 markets.
- **Biosimilars | Access & Reimbursement | Payer Insights | US/EU**, provides in-depth knowledge of payer attitudes toward biosimilars and management of formularies
- **Biosimilars | Access & Reimbursement | Global Landscape**, analyzes the implications of regulatory changes concerning biosimilars in the G7 and major ex-G7 markets.
- **Biosimilars | Current Treatment | Oncology | US/EU**, offers comprehensive insights into physicians' perceptions and attitudes toward oncology biosimilars.
- **Biosimilars | Corporate Strategies | Global**, provides in-depth knowledge of strategies employed by reference brand and biosimilar developer companies to defend competition in the market.

About the author

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