



OPEN ACCESS

EDITED AND REVIEWED BY

Gabriel Sandblom,
Karolinska Institutet (KI), Sweden

*CORRESPONDENCE

René H. Fortelny
✉ dr.fortelny@gmail.com

RECEIVED 04 September 2025

ACCEPTED 09 September 2025

PUBLISHED 03 October 2025

CITATION

Fortelny RH and East B (2025) Editorial:
Experimental hernia research from bench to
bedside and translational perspectives,
volume II.
Front. Surg. 12:1699360.
doi: 10.3389/fsurg.2025.1699360

COPYRIGHT

© 2025 Fortelny and East. This is an open-
access article distributed under the terms of
the [Creative Commons Attribution License](#)
(CC BY). The use, distribution or reproduction
in other forums is permitted, provided the
original author(s) and the copyright owner(s)
are credited and that the original publication
in this journal is cited, in accordance with
accepted academic practice. No use,
distribution or reproduction is permitted
which does not comply with these terms.

Editorial: Experimental hernia research from bench to bedside and translational perspectives, volume II

René H. Fortelny^{1*} and Barbora East²

¹Department of General, Visceral and Oncological Surgery, Sigmund Freud University Vienna, Vienna, Austria, ²General Surgery, Motol University Hospital, Prague, Czechia

KEYWORDS

hernia research, translational research, abdominal wall hernia, inguinal hernia, hernia repair

Editorial on the Research Topic

Experimental hernia research from bench to bedside and translational perspectives, volume II

Hernia research has undergone remarkable transformation in recent decades, moving beyond purely technical refinements of surgical repair toward a multidisciplinary field encompassing molecular biology, biomaterials science, regenerative medicine, and patient-centered outcomes. This evolution reflects a broader trend in surgery: the recognition that durable and individualized repair strategies require not only surgical expertise but also translational insights that bridge basic science with clinical application.

Experimental hernia research today addresses fundamental biological mechanisms that underlie abdominal wall failure, including altered collagen metabolism, impaired wound healing, and biomechanical tissue weakness. Parallel advances in mesh design, resorbable scaffolds, and biologically active materials have provided new opportunities to modulate the host response and reduce long-term complications such as chronic pain, fibrosis, and recurrence. The growing availability of *in vitro* models, animal studies, and computational simulations has further enhanced our ability to study complex interactions at the cellular and tissue levels.

Translating these findings into clinical practice remains both a challenge and a priority. The concept of “bench to bedside” in hernia surgery emphasizes not only the safe introduction of innovative techniques and materials, but also the necessity of robust clinical trials, registries, and long-term follow-up. Equally important is the reverse translation—bringing clinical observations back to the laboratory to refine hypotheses and guide future research.

A translational perspective also highlights the importance of interdisciplinary collaboration. Surgeons, basic scientists, material engineers, and industry partners must work closely to ensure that novel discoveries are effectively implemented and evaluated. At the same time, patient-reported outcomes and health economic considerations are essential to define the true value of innovation in hernia care.

In this context, experimental hernia research represents a unique opportunity to redefine the future of abdominal wall surgery. By integrating mechanistic understanding with clinical relevance, and by fostering continuous exchange between laboratory and bedside, the field can move toward safer, more effective, and more personalized repair strategies.

Author contributions

RF: Writing – original draft. BE: Writing – review & editing.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

The author(s) declared that they were an editorial board member of Frontiers, at the time of submission. This had no impact on the peer review process and the final decision.

Generative AI statement

The author(s) declare that no Generative AI was used in the creation of this manuscript.

Any alternative text (alt text) provided alongside figures in this article has been generated by Frontiers with the support of artificial intelligence and reasonable efforts have been made to ensure accuracy, including review by the authors wherever possible. If you identify any issues, please contact us.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.