Inaugural Editorial: Launching Nexus Pathophysiology & Therapeutics

From Mechanism to Intervention: The Scope of Nexus of Pathophysiology and Therapeutics

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Abstract:

Biomedical science has achieved unprecedented resolution, mapping disease at molecular and cellular scales. Yet, understanding mechanisms does not consistently translate into effective treatment. This reflects a structural challenge: mechanistic insights often remain clinically isolated, while therapeutic advances may precede biological rationale. Nexus of Pathophysiology and Therapeutics Journal (NPT) addresses this tension by focusing on the explicit relationship between disease mechanisms and interventions. The journal prioritizes studies that clarify how biological understanding informs therapy and how therapeutic outcomes refine mechanistic reasoning. Cross-disease biology, such as chronic inflammation, dysregulated repair, and immunometabolic imbalance, is emphasized to reveal conserved programs and transferable strategies. NPT values rigor, relevance, and clarity: mechanistic depth must align with therapeutic significance, and claims must be proportionate to evidence. By bridging explanation and intervention, the journal seeks to integrate descriptive, experimental, computational, and clinical research into a coherent framework, guiding precision medicine and shaping the future of translational science.

Keywords: Pathophysiology, Translational Medicine, Cross-disease Biology, Therapeutic Interpretation, Causal Mechanisms

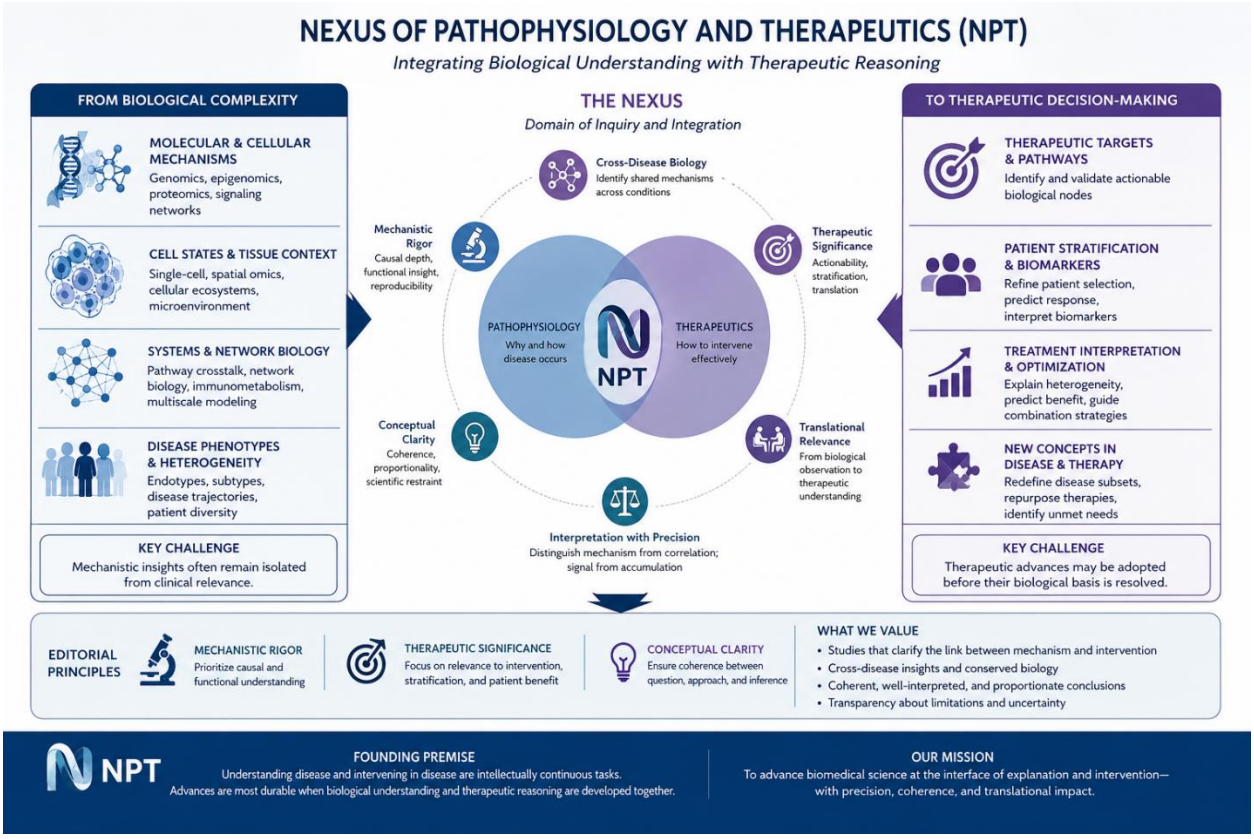

Figure 1. Conceptual framework of the journal. This figure illustrates the conceptual framework of Nexus of Pathophysiology & Therapeutics, highlighting the relationship between mechanistic understanding of disease and its translation into therapeutic intervention. The journal focuses on bridging biological explanation with clinical and pharmacological application through integrative and translational research.

Biomedical science now operates at an unprecedented level of resolution. Disease can be mapped at molecular scale, cellular states can be tracked across tissues, and biological systems can be modeled with increasing precision. Yet one fundamental challenge remains unresolved: understanding disease does not consistently translate into improving its treatment. The distance between mechanism and intervention is neither trivial nor inevitable. It reflects a deeper problem in how knowledge is generated, interpreted, and translated into practice. Mechanistic insights often remain isolated from clinical relevance. Therapeutic advances, in contrast, are sometimes adopted before their biological basis is fully resolved. This asymmetry is not incidental. It is one of the defining tensions of modern medicine.

Nexus of Pathophysiology and Therapeutics (NPT) is founded on the premise that this tension deserves focused attention. The journal is not intended to simply host studies of disease mechanisms alongside therapeutic outcomes in parallel. Its purpose is more specific. It seeks work that explicitly clarifies the relationship between them (Figure 1), which outlines the journal's conceptual framework linking mechanistic understanding to therapeutic intervention.

Our guiding principle is straightforward. Advances in pathophysiology matter most when they refine therapeutic reasoning. Advances in therapeutics are most durable when they are grounded in coherent biological understanding. The space between explanation and intervention is therefore not a gap to be overlooked. It is a domain of inquiry in its own right. This is a

particularly opportune moment for such a focus in biomedical science. Over the past decade, biomedical research has expanded its descriptive capacity at an unprecedented scale.

Genomics, single-cell and spatial technologies, immunophenotyping, and computational modeling have transformed how disease is characterized. At the same time, therapeutic science faces a different challenge. The question is no longer only how to develop interventions, but how to interpret them. Which biological models support them? Which patients benefit? Which signals reflect true mechanism, and which arise from classification or methodological artifacts? Across disciplines, similar questions frequently confined within disciplinary boundaries. The result is fragmentation. Important connections remain underdeveloped. The journal is designed to address this problem directly. Its scope is defined not by organ systems, but by scientific orientation.

We are interested in studies that interrogate disease mechanisms with clear implications for intervention, stratification, or therapeutic interpretation. This includes experimental, computational, and clinical research, provided that mechanistic insight remains central. A particular priority is cross-disease biology. Many pathological processes are not confined to a single field. Chronic inflammation, dysregulated repair, endothelial and epithelial dysfunction, stromal activation, and immunometabolic imbalance recur across diverse conditions. These are not coincidental similarities. They reflect conserved biological programs. Recognizing them can refine disease classification, reveal transferable therapeutic strategies, and reduce artificial divisions between disciplines.

biomarker interpretation, or redefining disease subsets. What matters is not immediacy, but relevance. Studies that narrow the distance between biological observation and therapeutic understanding are of particular interest. Conceptual clarity remains central.

are emerging. In oncology, immunology, neuroscience, cardiovascular medicine, and metabolic disease, the central problem is increasingly shared. What is the operative biology? How stable is it across patient populations? And how should it guide intervention?

These developments expose a structural limitation in the current literature. Mechanistic studies are often valued for detail, even when their clinical implications remain unclear. Translational claims, conversely, may be advanced without sufficient causal grounding. Insights that extend across diseases are

The journal places strong emphasis on translational relevance. However, it does not endorse translational overstatement. Not every mechanistic observation is actionable. Not every association justifies therapeutic extrapolation. For this reason, claims of relevance must remain proportionate to evidence. Precision is favored over promotion. Restraint is viewed as a marker of scientific rigor. Editorial decisions are guided by three principles: mechanistic rigor, therapeutic significance, and conceptual clarity.

We welcome diverse methodologies, but expect coherence between question, approach, and inference. We prioritize studies that move beyond description toward functional or causal insight. At the same time, we recognize that not all questions can be fully resolved. Explicit acknowledgment of limitations is essential.

Therapeutic significance may take multiple forms. It may involve identifying actionable pathways, explaining treatment heterogeneity, refining

As datasets grow larger and more complex, the distinction between signal and accumulation becomes critical. Mechanism must be distinguished from correlation. Interpretation must be separated from assertion. The journal will prioritize work that brings structure to

complexity and meaning to data. *Nexus of Pathophysiology and Therapeutics* is founded on a simple but demanding idea: that understanding disease and intervening in disease should be treated as intellectually continuous tasks. The goal is not to eliminate the distinction between explanation and intervention, but to define their relationship with greater precision. At a time when biomedical research risks fragmentation despite its technical power, the journal seeks to support a more integrated approach. One in which mechanistic depth and therapeutic relevance are developed together, not in isolation.

NPT is positioned at the interface of biological explanation and therapeutic decision-making. We invite contributions that do not merely describe biology, but explain it—and use that understanding to define the future of therapeutic science.