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Editorial

Fibrosis: A New Open-Access Journal to Share Your Research

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Fibrosis is a complex global health issue that continues to demand action. We are launching *Fibrosis* to connect, discover and inspire scientists across the multidisciplinary arena of fibrosis research, aiming to advance biomedical knowledge and treatment strategies.

Fibrosis can affect any organ and is responsible for up to 45% of all deaths in the world. Long thought to be relentlessly progressive and irreversible, both pre-clinical models and clinical trials in various organ systems have shown that fibrosis is a highly dynamic process. This has clear implications for therapeutic interventions designed to capitalize on this inherent plasticity. However, despite significant progress in our understanding of the pathobiology of fibrosis, a translational gap remains between identification of putative antifibrotic targets and conversion into effective patient therapies.

Fibrosis may not be a disease but rather an outcome of the tissue repair response that becomes dysregulated following many types of tissue injury, most notably during chronic inflammatory disorders. When tissues are injured, local tissue fibroblasts become activated, increasing their contractility, secretion of inflammatory mediators, and synthesis of ECM components that together initiate the wound healing response. When damage is minor or non-repetitive, the wound healing response is efficient, resulting in only a transient accumulation of excess ECM components that is then quickly eliminated, facilitating the restoration of normal tissue architecture. However, when the injury is repetitive or severe, ECM components continue to accumulate, which can lead to disruption of tissue architecture, organ dysfunction and ultimately organ failure.

The emergence of modern medicine changed the view through the advent of molecular cell biology and genetics in last decades. This progress, together with more recent technological advances, have permitted an unprecedented understanding of the disease. The importance of the tissue and cell type from which the disease originates is almost clear. It is known that the function of fibroblasts at the molecular and metabolic level is crucial but is also highly context dependent. Fibrosis is also appreciated as a disease of change—A condition characterized by plasticity and heterogeneity, that evolves at genetic, phenotypic and pathological levels, and progresses through different stages clinically. Beyond decoding of the genetic fingerprint and molecular makeup of different tissues, we understand the importance of the systemic and local fibrotic microenvironment in how the disease develops and manifests. Indeed, today we recognize that fibrosis heterogeneity, evolution and the local and systemic environment all have key roles not only in disease development but also in the response or resistance to therapy and disease recurrence.

Technological advances such as next-generation sequencing, integrated '-omics', imaging and single-cell methodologies have allowed profiling of different fibrotic types at a resolution and scale that become possible now. The ability to generate and share big data is fundamentally altering the way this disease is understood and treated. Data science has become a core part of a field that is increasingly embracing computation, as in the form of artificial intelligence for extracting information from complex datasets. Nevertheless, the potential of such approaches to revolutionize data analysis for fibrosis screening, diagnosis and therapy decisions comes with challenges.

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Viewing fibrosis as a systemic disease characterized by evolution, heterogeneity and environmental inputs may seem commonplace now, but in reality, revealing one layer of complexity only underscores other complex features that need to be appreciated. A more complete picture may emerge with longitudinal information, as well as profiling of different cellular constituents of fibrotic tissue, such as fibroblasts, immune cells, epithelium and endothelium. Integrative '-omics' and single-cell approaches provide the ability to do so; however, additional factors need to be considered. Among them are the peculiarities of the particular tissue, the size and characteristics of human-participant cohorts or the choice of preclinical animal model systems, the resolution and strength of the chosen methodology and the quality of analytical tools. How data from individual patients versus larger cohorts are handled and analyzed, the information that can be obtained from each type of analysis and the extent to which scar profiling studies may be more broadly generalizable, given the degree of inter-patient heterogeneity, are questions with which this field continues to wrestle.

Socioeconomic factors lend an additional, devastating dimension, 70% of fibrosis deaths occur in low- or middle-income countries, but even in high-income societies, certain parts of the population bear a disproportionate burden of suffering. A large fraction of cases and deaths may be preventable with greater epidemiological and mechanistic understanding of environmental and behavioral risk factors. However, this remains a disease of disparities. Therefore, it is essential to deepen our appreciation of the underlying causes of these inequalities and to work toward reversing them, always keeping the patient at the forefront of the cross-disciplinary scientific endeavor in this field. Developing more-effective screening and diagnostic means and working toward providing accessible and affordable high-quality patient care for the wider population will be essential for addressing health disparities.

As we launch *Fibrosis*, we seek to provide a unique forum that embraces the breadth of this community, from foundational preclinical science to translational and clinical work. Through our pages, we aim to increase the knowledge of fibrosis formation, development and progression, to explore innovative approaches to fibrosis diagnosis, treatment and prevention, and to understand the societal impact of this disease. Ultimately, our goal is to become a point of convergence for scientists from diverse fields and to lend a new voice to discussing and contextualizing the most exciting findings and pressing issues in fibrosis research today. Our inaugural issue encapsulates the diversity of science we aim to bring to you and the conversations we seek to start. As we realize our first steps into this field, we thank our authors and referees and welcome our readers.