

# Epithelial Biology and Pharmacology: A New Concept, Vision and Focus

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Welcome to the open journal titled *Journal of Epithelial Biology & Pharmacology (JEBP)*, a truly international journal devoted to the publication of articles on significant works in molecular and cell biology, preclinical science, clinical medicine, pharmacology and drug discovery and development related to epithelial cells. Epithelial cells are located in multiple organs/tissues in human body, and are responsible for multiple functions, e.g. absorption, transport, secretion, defense, and metabolism. The origins of epithelial cells in various organs/tissues depend upon three major cell lineages during gastrulation: ectoderm to skin, mesoderm to epithelial linings of the body cavities and endoderm to epithelial linings of the digestive, respiratory, and urinary tracts, and urethra.

In addition to their organ-specific functions, epithelial cells are responsible for systemic biological coordination and responses in physiological and/or pathophysiological conditions. For example, derangement in the formation or function of specialized structures in epithelial cells has been proposed to play a crucial role in the development of multiple organ dysfunction, e.g. lung, liver, gut, and perhaps kidney, associated with conditions such as sepsis and acute lung injury syndrome that are caused by inflammatory processes (1). Epithelial cells may be activated to produce a number of inflammatory mediators, e.g. oxygen free radicals, nitric oxygen, and cytokines, leading to deleterious effects on other cells (or themselves) in organs (2,3). It is also possible that epithelial cells communicate with endothelial cells and/or leukocytes to initiate inflammatory responses together or separately. It is important to understand more about epithelial bio-responses to challenges, e.g. inflammation, cancer, and toxins, epithelial biology and involvement in diseases, and changes in intracellular signaling during these responses.

Epithelial cells also play an important role in drug administration, absorption, metabolism, and efficacy, since epithelial cells represent the first barrier in the body to be exposed to drugs, regardless of their route of administration. Understanding the interaction between epithelial cells and drugs can be looked on as a first and critical step in discovering and developing new drugs. Epithelial cells are the first cell to respond to pathogens or drugs, essentially the determining factor for drug absorption and metabolism, the central target of drug toxicity, and the primary promoter of drug effects. Because of these responses, epithelial cells have become an increasingly attractive target for drug discovery and development. For example, the respiratory tract holds promise as an alternative site of drug delivery due to fast absorption and rapid onset of drug action in epithelial cells, with avoidance of hepatic and intestinal first-pass metabolism (compared to oral drug delivery) as an additional benefit. Thus, there is a great need for the existence of a scientific channel and platform, such as *The Journal of Epithelial Biology & Pharmacology*, to exchange information on epithelial biology and pharmacology for cell biologists, new drug “hunters”, developers and producers, pharmacologist and clinicians.

The term “*Epithelial Biology & Pharmacology*” is defined here as “epithelium-specific and –associated sciences of molecular mechanisms and potential therapies for diseases”, a new and important pathway to understand disease and develop new therapies. “*Epithelial Biology & Pharmacology*” describes development and formation of epithelial dysfunction in either single or multiple organs per system or single or multiple systems per organ. The increased rate of published scientific papers related to epithelial cells has been greater than 60% in the last ten years, and one can predict the number of papers to reach close to 300,000 by the year 2010. The journal provides a forum for exchange of ideas on potential molecular and cellular mechanisms of epithelium-associated drug discovery and development, thereby providing true in-depth coverage of this new science. The *Journal of Epithelial Biology & Pharmacology* will play an important, critical, and recognized role in improving understanding of molecular mechanisms of epithelium-related diseases and development of new treatments and therapies. The *Journal of Epithelial Biology & Pharmacology* is directed toward those specialists who work with epithelial molecular and cell biology and chemistry in multiple organs/tissues, who explore drug discovery and development, pharmacology and toxicology, and pharmaceutical science, who treat patients with epithelium-involved diseases in the clinic, including internal medicine physicians, surgeons, pediatricians, pharmacists/pharmacologists, anesthesiologists, nurses, and other healthcare professionals, and who investigate molecular and cellular mechanisms involved in the development and reversibility of epithelium-associated diseases.

There is an urgent and immediate need to create a forum to stimulate discussion and exchange of scientific findings and understanding of *Epithelial Biology & Pharmacology* with a clear goal of treating diseases and improving the quality of patients. While it is true that epithelium-related sciences are already served by several specialized journals, it remains difficult to keep track of the wealth of new information related to this topic. This is particularly the case when we observe the rapid development of new biotechnologies, e.g. genomics, proteomics, and celloomics, and the increasing capacities of clinical investigations. The *Journal of Epithelial Biology & Pharmacology* combines molecular and cell biology with pharmacology, and pharmaceutical and clinical science, highly focusing on a specific cell and disease.

We plan *The Journal of Epithelial Biology & Pharmacology* to participate centrally in an ongoing scientific debate related to epithelial and molecular mechanisms, biomarkers, prognosis prediction, prevention and intervention, metabolism and nutrition, and new technologies necessary for discovering new therapies for diseases. The goal of the journal is to take a multidisciplinary approach and bring together aspects of preclinical science and clinical medicine in epithelial biology and pharmacology.

The *Journal of Epithelial Biology & Pharmacology* publishes original articles on preclinical, clinical and pharmaceutical sciences related to the epithelium, and selected abstracts of the most important papers on this subject appearing in the world medical literature. We hope that the *Journal of Epithelial Biology & Pharmacology* will play an important, critical, and recognized role in understanding epithelial biology and pharmacology.

In conclusion, we the editors are delighted to welcome you to this new and novel journal and thank the scientists who have agreed to publish in the journal. In setting up the journal, we owe an enormous debt of gratitude to all professors and scientists for their encouragement, support, comments, suggestions, and contributions. With great support from Associate Editors and Editorial Board Members, we deeply believe that the *Journal of Epithelial Biology & Pharmacology* will be well-received by preclinical, clinical and pharmaceutical scientists interested in epithelial biology and pharmacology. We also hope it will contribute to better understanding of epithelial-associated diseases and development of new therapies. Involvement and contributions from the large group of scientists who work on epithelial biology and pharmacology are crucial to the success of the journal.

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