

## Tentative Outline

### Special Thematic Issue for the journal *Current Molecular Pharmacology*

**Title of the Thematic Issue: “Molecular mechanisms of drugs in the regulation of the immune microenvironment in chronic diseases”**

**Guest Editor: Dr. Zhiwen Luo**

**Co-Guest Editors: Dr. Chunwai Mai; Dr. Shicheng Guo; Dr. Jie Mei**

- **Scope of the Thematic Issue:**

Chronic diseases are diseases that persist or recur, such as cardiovascular diseases, diabetes and tumors, which are a major global public health burden and a leading cause of death and disability. The development and progression of chronic diseases are closely linked to the immune microenvironment (IME), a complex network including immune cells, cytokines, chemokines and metabolites that regulate immune response and immune tolerance in different tissues and organs. IME plays an important role in chronic diseases, both in suppressing or removing abnormal cells and in promoting or maintaining tissue damage and fibrosis. Therefore, modulation of IME is one of the effective strategies for the treatment of chronic diseases.

In recent years, with advances in the fields of molecular biology, pharmacology and immunology, many drugs have been found to improve clinical outcomes in chronic diseases by affecting different signaling pathways and molecular mechanisms in IME. For example, antibodies targeting immune checkpoint molecules in the tumor microenvironment (e.g. PD-1/PD-L1, CTLA-4, etc.) are able to restore T-cell function and enhance tumor immune response, thus improving the survival rate of tumor patients. In addition, some anti-metabolic drugs (e.g. methotrexate, hydroxychloroquine, etc.) are able to reduce the activity of autoimmune diseases (e.g. rheumatoid arthritis, systemic lupus erythematosus, etc.) by inhibiting metabolic pathways or interfering with DNA synthesis and reducing the levels of pro-inflammatory cytokines in IME. In addition, there are drugs that can alter gene expression patterns in IMEs and affect the differentiation and function of immune cells by modulating epigenetic modifications (e.g. histone deacetylase inhibitors, DNA methyltransferase inhibitors, etc.).

This special issue aims to explore the molecular mechanisms of drugs in regulating IME in chronic diseases. This special issue welcomes authors to submit original articles or review articles to share your latest advances and insights in this field.

**Keywords:** Chronic diseases; immune microenvironment; drug; molecular mechanism.

#### Sub-topics:

- To describe the effects of drugs on different types of immune cells (e.g. T cells, B cells, NK cells, DC cells, macrophages, etc.) in IME and their mechanisms; (5) Evaluate drug effects on chronic diseases and their mechanisms;
- To describe the effects of drugs on different signaling pathways in IME (e.g. JAK/STAT, NF- $\kappa$ B, MAPK, PI3K/AKT, etc.) and their mechanisms;
- Analyze drug interventions on different metabolic pathways (e.g. amino acid metabolism, fatty acid metabolism, nucleotide metabolism, etc.) in IME and their mechanisms;
- Discuss drug alterations on different epigenetic modifications (e.g. DNA methylation, histone acetylation, histone methylation, etc.) in IME and their mechanisms;
- To evaluate the impact of drugs on the clinical efficacy and safety of chronic diseases and their mechanisms.

### Tentative titles of the articles:

- Exploring the Impact of Drugs on T Cell infiltration in Cancers-a review
- The Role of Drugs in Regulating NK Cell Activity within the Immune Microenvironment-a review
- Dendritic Cell Modulation: Mechanisms of Drugs in Chronic Diseases-a review
- Effects of drugs on Macrophages in the Immune Microenvironment of Chronic Diseases-a review
- Unveiling the Role of Resveratrol in Pathway Modulation in Chronic Diseases-a review
- Resveratrol suppresses breast cancer by heating the "cold" immune microenvironment
- Mechanisms of Histone Methylation Modulation by Drugs in Chronic Diseases-a review
- Rapamycin delays osteoporosis by regulating the PI3K/AKT pathway in bone immune microenvironment
- The Clinical Efficacy and Safety of Immunomodulatory medicines in the Treatment of Chronic Diseases-a review
- Curcumin promotes cartilage regeneration by regulating macrophage polarization
- The Role of herb monomer in Nucleotide Metabolism in Chronic Disease -a review
- Impacts of Metformin on DNA Methylation in Chronic Diseases-a review
- Mechanistic review of Ibrutinib's modulation of the immune microenvironment in chronic diseases
- Entresto's Impact on Chronic Disease Progression: Mechanisms and Clinical Implication -a review
- The Clinical Efficacy and Safety of Tislelizumab in the Treatment of Chronic Diseases-a review

### Schedule:

- Thematic issue submission deadline: **01-05-2024**

### Contacts:

**Guest Editor Name:** Dr. Zhiwen Luo

**Affiliation:** Huashan Hospital, Fudan University, Shanghai, China

**Email:** zwluo@sibs.ac.cn

**Co-Guest Editor:** Dr. Shicheng Guo

**Affiliation:** University of Wisconsin-Madison

Madison, United States

**Email:** Shicheng.Guo@wisc.edu

**Co-Guest Editor:** Dr. Jie Mei

**Affiliation:** Nanjing Medical University, Nanjing, China

**Email:** meijie1996@njmu.edu.cn

**Co-Guest Editor:** Dr. Chunwai Mai

**Affiliation:** UCSI University, Malaysia

**Email:** maicw@ucsiuniversity.edu.my