

Regenerative pharmacology for the treatment of chronic metabolic diseases

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Abstract

The increased incidence of chronic metabolic disorders, including diabetes and cardiovascular diseases, has become one of the worldwide health challenges of the 21st century.

Despite extensive effort in the past years to develop new therapeutics, currently available drugs failed to cure these diseases. For example, many diabetic patients in the advanced stage may need organ transplantation because of developing life-threatening complications such as nephropathy and heart failure. However, transplantation therapy is restricted by organ availability and immune reactions, indicating the importance of need for stem cells therapy and tissue regenerative approaches.

Nowadays, substantial progress has been made in cell therapy technologies. In spite of this, several challenges remain to be resolved to achieve more effective therapy. Some of these challenges include: insufficient amount of stem cells that can be obtained from tissues; inadequate migration and homing of exogenous stem cells; limited differentiation potential of stem cells under in vivo situation; and decrease of stem cells in damaged tissue.

A growing body of evidence suggests that pharmacological manipulation can help to overcoming these challenges and improve the preclinical and clinical utility of regenerative medicine technologies. This review focuses on studies performed by our research group and others to enhance proliferation, survival, migration, homing, and differentiation potential of stem cells by application of pharmacological sciences..

Biography:

Dr. Ahmad Ghorbani received his PhD degree in Medical Physiology from the Shiraz University of Medical Sciences, Iran. Currently, he is working as Research Associate Professor in Department of Pharmacology, Faculty of Medicine, Mashhad University of Medical Sciences (MUMS), Iran. His areas of research include regenerative pharmacology and also phytopharmacology. Dr. Ghorbani published more than 120 papers and received several honors and awards for his researches from MUMS between 2012-2018. Also, he is one of the top 1% of reviewers in the field of pharmacology and toxicology for the year 2019 (powered by Publons)

Speaker Publications:

- 1.Ghorbani A, Naderi-Meshkinb H (2016) The endocrine regulation of stem cells: physiological importance and pharmacological potentials for cell-based therapy. *Current Stem Cell Research & Therapy* 11(1): 19-34.
- 2.Ghorbani A, Baradaran Rahimi V, Sadeghnia HR, Hosseini A (2018) Effect of berberine on the viability of adipose tissue-derived mesenchymal stem cells in nutrients deficient condition. *Natural Product Research* 32(5): 592-595.
- 3.Ghorbani A, Rashidi R, Shafiee-Nick R (019) Flavonoids for preserving pancreatic beta cell survival and function: A mechanistic review. *Biomedicine and Pharmacotherapy* 111: 947-957.
- 4.Pourgonabadi S, Mousavi SH, Tayarani-Najaran Z, Ghorbani A (2018) Effect of zoledronate, a third-generation bisphosphonate, on proliferation and apoptosis of human dental pulp stem cells. *Canadian Journal of Physiology and Pharmacology* 96(2): 137-144.
- 5.Zojaji SA, Ghorbani A, Ghasemi F, Shafiee-Nick R (2017) Exposure to forskolin improves trans-differentiation of bone marrow stromal cells into insulin producing cells; generating cells with better responses to physiological and pharmacological agents. *Acta Poloniae Pharmaceutica* 74(5): 1395-1404.

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