

## Mesenchymal Stem Cells— ‘Living Drug’ Molecules

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### Abstract

The concept of mesenchymal stem cells (MSC) being proposed as a medicinal signaling agent is based on the fact that cells are not single molecular agents. MSCs, which more appropriately may be called ‘Living Drug’ molecules, are adaptive agents capable of complex functions involving many bioactive factors. These multi-potent cells may be considered injury-specific drug stores that home to the site of injury and secrete considerable levels of immunomodulatory and trophic factors. MSCs reduce inflammation, modulate the immune system, as well as stimulate other cells to perform their functions effectively (paracrine properties). In addition, MSCs can function as regulated delivery vehicles and target specific molecules that act against cancerous cells. This could be an interesting avenue of research in cancer immunotherapy, to enhance the outcomes of dendritic and natural killer cell therapies.

Mesenchymal cell-based therapy is emerging as an extremely promising approach for tissue regeneration owing to the availability, ease of harvest and transplant of cells. Capitalizing on the regenerative potential of the human body also ensures reduced side effects along with enhancing the overall health of individuals. Current research also includes development of bioactive scaffolds that are capable of supporting activation and differentiation of host stem cells at the required site. In the future, through these living drug molecules, it will be possible to use human native sites as micro-niche/micro-environment for potentiation of the human body's site-specific response.

Research on cells and growth factors in the human body will expand the horizon of translational medicine and provide definitive therapeutic solutions to several acute, chronic, and lifestyle-mediated diseases. The ultimate aim is to REGENERATE and not REPAIR and change the scenario of medical therapy from the use of PILLS to CELLS.

### Biography

Mahajan completed his masters in General Surgery from Marathwada University, Maharashtra and went on to pursue Diploma in Urology at the University of Vienna, Austria. In a career changing move, after three decades of being a successful general and uro-surgeon, he started his brainchild - StemRx Bioscience Solutions Pvt. Ltd. in the year 2011. This was to focus on in-depth research in the field of Regenerative Medicine and Cell Based Therapy which he believes is the solution to address the limitations of conventional therapeutic modalities. To

this effect, he underwent and continues to undergo intensive training in the United States. He has devised personalized treatment protocols in cell-based therapy for more than 75 health conditions. Mahajan has published 20+ research articles in international and national journals. He has a patent for Avascular Necrosis and is on the board for reviewing scholarly articles for various international journals. Dr. Mahajan has received many international awards for his pioneering research work in regenerative medicine.