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## Therapeutic application of clinical grade umbilical cord tissue derived mesenchymal stem cells for human diseases

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Mesenchymal stem cells (MSCs) are non-hematopoietic multi-potent stem cells that can be derived from multiple sources like bone marrow, adipose tissue, cord blood, cord tissue, placenta and amniotic fluid. Human mesenchymal stem cells are considered very important for clinical use in treatment of inflammatory, autoimmune and degenerative conditions because MSCs have immunomodulatory and regenerative properties. We have developed a protocol to produce clinical grade MSCs using animal-origin-free and xeno-free serum from umbilical cord tissues (UCT) in the GMP facility. We further characterized these cGMP grade MSCs using the criteria described by The Mesenchymal and Tissue Stem Cell Committee of the International Society for Cell Therapy (ISCT). MSCs were further performed the quality control on these MSCs and used for the clinical therapy. With the approval of clinical protocol by institutional Ethics Committee, the pilot study on five patients with Rheumatic Arthritis was initiated. The inclusion criteria were properly defined and administration of injection containing one million/kg body weight was performed. The assessment of the progression of disease components were evaluated using biochemical and pathological markers. After 6 months, the overall disease symptomatology was improved with improvement in the disease parameters. Surprisingly, Rheumatoid factor positivity was changed to negatively in one patient indicating the potential mechanism based therapeutic activity of UCTMSCs against autoimmune conditions.

## **Biography**

Arati Inamdar research presents a unique blend in the modeling plant and invertebrate systems to evaluate the biological activities of environmental biogenic compounds. Currently, the focus is on the organic chemicals emitted by fungi which Dr. Inamdar's research has shown to cause neurotoxic effects. Dr. Inamdar has a multifaceted expertise in genetics, neurobiology and toxicology. Dr. Inamdar has also involved with Stem Cell based therapeutic company in India. She has published scholarly articles in various journals and has reviewed multiple original and review articles. She has been invited to national and international conferences to present her research.

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