

# 28<sup>th</sup> European Diabetes Congress

July 17-18, 2019 | Edinburgh, Scotland

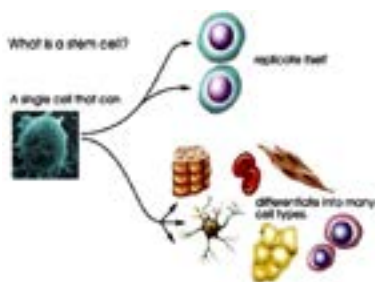


## Rohit Kapoor

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### Stem cell transplantation in type 1 diabetes

Diabetes is one of the top 10 leading causes of morbidity and mortality, affecting nearly 600 million people worldwide. B-cell replacement represents an attractive prospect for diabetes therapy but treatment options remain quite limited. There is increasing hope placed on insulin producing cells derived from human pluripotent stem cells, even as the approach faces continued challenges. The most effective protocols thus far have produced cells that express insulin, and have molecular characteristics that closely resemble genuine insulin-secreting cells. However, these cells demonstrate little sensitivity to glucose as issue that will hopefully be resolved in coming years. With the emerging technology in the stem cell science, fetal islet-like clusters (ILCs), obtained from both human and porcine pancreatic, have been evaluated for their potential as a source of beta cells. These ILCs contain a large proportion of undifferentiated progenitor cells that only differentiate into fully mature  $\beta$ -cells after transplantation. The human pancreas could become a valuable source of expandable beta cells progenitors in the future. Another important cell type being explored is mesenchymal stem cells from different human tissues like, bone marrow, umbilical cord, Placenta etc. Because of their Plasticity “Trans differentiation”. Researchers have tried directly injected Mesenchymal stem cells intravenously or directly into pancreatic artery and found promising results. Further, Islet Cells can be differentiated from mesenchymal stem cells and differentiated cells can be injected into patients directly. However, the mechanisms underlying the use of these cells needs to be further understood, and further research is needed to establish the safety and efficacy of these treatment methodologies/protocols. This review summarizes recent progress in obtaining cells that express insulin from different progenitor sources, and highlights the major pathways and genes involved in diabetic patients. My presentation will include introduction about mesenchymal stem cells, their origin and us abilities in Diabetes. There will be Discussion of study of stem cell therapy in Type 1 diabetic patients, including role of BCG vaccination in this study group and various informative results.



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## Recent Publications

1. Assesment of metabolic syndrome and clinical significance of brachial-ankle pulse wave velocity in type 2 diabetes mellitus patients; published in 2017 ILEX PUBLISHING HOUSE, Bucharest ,Roumania . Rom J Diabetes Nutr Metab Dis.24(3):213-226 doi:10.1515/rjdnmd-2017-0027
2. Association of SELP Polymorphins with Soluble P- Selectin Levels and Vascular Risk In Patients with Type 2 Diabetes Mellitus: A Case - Control Study; published in Biochemical Genetics
3. Ethnic differences in CAPN10 SNP - 19 in type 2 diabetes: a North - West Indian case-control study and evidence from meta-analysis; published in Genet. Res. Camb. (2013)
4. Chapter on Stem Cell Therapy Approaches in the Management of Diabetes in The Internatonal Textbook of Diabetes. Ch 116; P 802-807-Under the Aegis of Diabetes India.
5. Chapter on Biosimilar Insulin – As good as gold? In RSSDI Diabetes Update 2018.Ch 148.

## Biography

Rohit Kapoor, MD (Internal Medicine) has been practicing more than 25 years in the field of Cardiology & Diabetes. He is the Medical Director & HOD Cardiology department – Care Well Heart & Super Specialty Hospital. He has 87 research paper presentations in various National & International conferences. He has more than 10 publications in reputed journals. He has been Principal Investigator in 23 research studies. He has been invited as a speaker faculty in more than 140 conferences and chaired more than 50 conferences. He has been awarded various Fellowships like FACC (USA), FACP (USA), FISC, FCSI, FDI, and FRSSDI. Also, he has received various awards and honours. He has contributed 7 chapters in the Textbook of Cardiology & Diabetes. He is pioneer for Stem Cell Therapy in Type 1 Diabetes

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