1. Record Nr. UNINA9910838275603321

Autore	Piemonti Lorenzo
Titolo	Pluripotent Stem Cell Therapy for Diabetes [[electronic resource] /] / edited by Lorenzo Piemonti, Jon Odorico, Timothy J . Kieffer, Valeria Sordi, Eelco de Koning
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2023
ISBN	3-031-41943-X
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (597 pages)
Altri autori (Persone)	OdoricoJon KiefferTimothy J. SordiValeria de KoningEelco
Disciplina	571.6 616.02774
Soggetti	Stem cells Regenerative medicine Biomaterials Cells Immunotherapy Developmental biology Stem Cell Biology Regenerative Medicine and Tissue Engineering Biomaterials-Cells Developmental Biology and Stem Cells
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Mimicking pancreas development with human pluripotent stem cells -- Pancreatic cell fate specification: insights into developmental mechanisms and their application for lineage reprogramming -- The evolution of methods for in vitro differentiation of stem cell derived islets -- Signaling pathways that govern the formation, expansion and maturation of pancreatic progenitors -- Building islets from the ground up using stem cells -- Pancreatic progenitor proliferation -- Selecting

biocompatible biomaterials for stem cell derived islet transplantation -- Scaffolds for encapsulation of stem-cell-derived cells -- 3d printing of new islets -- Biological scaffolds and hydrogels in islet organoids -- 3-D organoids of mesenchymal stromal and pancreatic islet cells -- Bioengineered insulin producing endocrine tissues -- Bioactive materials for cell encapsulation -- Strategies to boost islet graft oxygenation -- Vascularizing device strategies -- Immunogenicity of stem cell derived islets -- Immune evasive stem cell islets -- Encapsulation of stem cell-derived islets: recent progress -- Islet immunoengineering -- Stem cell genome editing tools -- Selection of SC-derived pancreatic progenitors and cell -- Considerations pertaining to implant sites for cell-based insulin replacement -- Safety switches in pluripotent stem cells -- Safety: teratoma risk -- Stem cell derived islets transplantation in non-human primates -- Social / Legal / Ethical issues pertaining to use of pluripotent stem cells -- Cost-effectiveness considerations for stem cell derived islet replacement therapy -- Lessons from clinical trials of islet cell replacement -- Scale up and Biomanufacturing of Stem Cell- derived Islets -- Minimal SC-cell properties for transplantation in diabetic patients -- Autologous stem cell islets for patients with chronic pancreatitis and diabetes -- Clinical Trials -- Modeling monogenic diabetes with stem cells -- Stem and progenitor cells in pancreas development, regeneration and drug screening. .

Sommario/riassunto

This is a unique book containing comprehensive coverage of pluripotent stem cell therapies for the treatment of diabetes. The greatest enthusiasm for treatment lies in the possibility of using stem cells to overcome the limits of islet transplantation. Organized into six parts, this book covers the development and differentiation of beta cells, bioengineering, immunoescape, preclinical model and translational approaches, beta cell replacement, and disease modeling. This is an ideal book for scientists, researchers, and clinicians working in the area of stem cell technology in the treatment of diabetes.