Technical Research Documents and Medical Publications for:

Diabetes

Insulin secreting cell malfunction or cells are destroyed in patients with diabetes. Stem cells from teeth have been shown to differentiate into insulin secreting cells. Cells from teeth haven't been used to treat diabetes in animals yet, however they nearly identical in form and function to mesenchymal stem cells from bone marrow that have been shown to revert type 1 diabetes in mice.

PAPER 1:

Transplantation of Stem Cells Obtained from Murine Dental Pulp Improves Pancreatic Damage, Renal Function and Painful Diabetic Neuropathy in Diabetic Type 1 Mouse Model.

Guimarães, E. T., et al. "Transplantation of Stem Cells Obtained from Murine Dental Pulp Improves Pancreatic Damage, Renal Function and Painful Diabetic Neuropathy in Diabetic Type 1 Mouse Model." *Cell transplantation* (2012).

http://www.ncbi.nlm.nih.gov/pubmed/23068779

PAPER 2:

Differentiation of Dental Pulp Stem Cells Into Islet Like Aggregates.

Govindasamy V, Ronald VS, Abdullah AN, Ganesan Nathan KR, Ab Aziz ZA, Abdullah M, Musa S, Abu Kasim NH, Bhonde RR.

J Dent Res. 2011 Feb 18. [Epub ahead of print]. PMID: 21335539

http://www.ncbi.nlm.nih.gov/pubmed/21335539

**This research was performed using dental pulp stem cells *in vitro* (in a dish).

PAPER 3:

Systemic administration of multipotent mesenchymal stromal cells reverts hyperglycemia and prevents nephropathy in type 1 diabetic mice.

Ezquer FE, Ezquer ME, Parrau DB, Carpio D, Yañez AJ, Conget PA.

Biol Blood Marrow Transplant. 2008 Jun;14(6):631-40. PMID: 18489988

http://www.ncbi.nlm.nih.gov/pubmed/18489988

**This research was performed using bone marrow MSCs, which function similarly to dental pulp stem cells in other studies.

PAPER 4:

Mesenchymal stem cells: Stem cell therapy perspectives for type 1 diabetes.

Vija L, Farge D, Gautier J-F, Vexiau P, Dumitrache C, Bourgarit A, Verrecchia F, Larghero J.

Diabetes and Metabolism. 2009 Apr;35(2):85-93. PMID: 19230736

http://www.ncbi.nlm.nih.gov/pubmed/19230736

**This research was performed using bone marrow MSCs, which function similarly to dental pulp stem cells in other studies.

PAPER 5:

Reversal of hyperglycemia in diabetic rats by portal vein transplantation of islet-like cells generated from bone marrow mesenchymal stem cells.

Wu XH, Liu CP, Xu KF, Mao XD, Zhu J, Jiang JJ, Cui D, Zhang M, Xu Y, Liu C.

World J Gastroenterol. 2008 Jun 28;13(24):3342-9. PMID: 17659673

http://www.ncbi.nlm.nih.gov/pubmed/17659673

**This research was performed using bone marrow MSCs, which function similarly to dental pulp stem cells in other studies.

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http://www.stemcellscurediabetes.com/A-cure-for-type-I-diabete.htm

http://news.harvard.edu/gazette/story/2015/01/steering-stem-cell-trafficking-into-pancreas-reverses-type-1-diabetes/

http://www.webmd.com/diabetes/news/20141009/stem-cell-success-raises-hopes-of-type-1-diabetes-cure

http://www.viacord.com/treatments-and-research/emerging-research/juvenile-diabetes/

http://news.nationalgeographic.com/news/2014/10/141009-stem-cell-therapy-diabetes-science/

http://www.bostonglobe.com/business/2015/03/23/biotech-startup-semma-therapeutics-will-commercialize-diabetes-therapy-from-harvard-stem-cell-lab/0mNy15btP8OuBOQ1gzjMuJ/story.html

http://www.technologyreview.com/featuredstory/535036/a-pancreas-in-a-capsule/