

Record 20 of 77

Author(s): Fellous, TG (Fellous, Tariq G.); Guppy, NJ (Guppy, Naomi J.); Brittan, M (Brittan, Mairi); Alison, MR (Alison, Malcolm R.)
Title: Cellular pathways to beta-cell replacement
Source: DIABETES-METABOLISM RESEARCH AND REVIEWS, 23 (2): 87-99 FEB 2007
ISSN: 1520-7552

Record 21 of 77

Author(s): Crutchlow, MF (Crutchlow, Michael F.); Stoffers, DA (Stoffers, Doris A.)
Title: Maximizing endogenous beta-cell regeneration
Source: CURRENT OPINION IN ORGAN TRANSPLANTATION, 12 (1): 55-62 FEB 2007
ISSN: 1087-2418

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Author(s): Gurr, W (Gurr, Werner); Shaw, M (Shaw, Margaret); Li, YX (Li, Yanxia); Sherwin, R (Sherwin, Robert)
Title: RegII is a beta-cell protein and autoantigen in diabetes of NOD mice
Source: DIABETES, 56 (1): 34-40 JAN 2007
ISSN: 0012-1797

Record 23 of 77

Author(s): Arnaud-Dabernat, S (Arnaud-Dabernat, Sandrine); Kritzik, M (Kritzik, Marcie); Kayali, AG (Kayali, Ayse G.); Zhang, YQ (Zhang, You-Qing); Liu, GX (Liu, Guoxun); Ungles, C (Ungles, Cory); Sarvetnick, N (Sarvetnick, Nora)
Title: FGFR3 is a negative regulator of the expansion of pancreatic epithelial cells
Source: DIABETES, 56 (1): 96-106 JAN 2007
ISSN: 0012-1797

Record 24 of 77

Author(s): Moss, LG (Moss, Larry G.); Rhodes, CJ (Rhodes, Christopher J.)
Title: beta-cell regeneration - Epithelial mesenchymal transition pre-EMTpted by lineage tracing?
Source: DIABETES, 56 (1): 281-282 JAN 2007
ISSN: 0012-1797

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Author(s): Casellas, A (Casellas, Alba); Salavert, A (Salavert, Ariana); Agudo, J (Agudo, Judith); Ayuso, E (Ayuso, Eduard); Jimenez, V (Jimenez, Veronica); Moya, M (Moya, Marta); Munoz, S (Munoz, Sergio); Franckhauser, S (Franckhauser, Sylvie); Bosch, F (Bosch, Fatima)
Title: Expression of IGF-I in pancreatic islets prevents lymphocytic infiltration and protects mice from type 1 diabetes
Source: DIABETES, 55 (12): 3246-3255 DEC 2006
ISSN: 0012-1797

Record 26 of 77

Author(s): Yin, DP (Yin, Dening); Tao, J (Tao, Jing); Lee, DD (Lee, David. D.); Shen, JK (Shen, Jikun); Hara, M (Hara, Manami); Lopez, J (Lopez, James); Kuznetsov, A (Kuznetsov, Andrey); Philipson, LH (Philipson, Louis H.); Chong, AS (Chong, Anita S.)
Title: Recovery of islet beta-cell function in streptozotocin-induced diabetic mice - An indirect role for the spleen
Source: DIABETES, 55 (12): 3256-3263 DEC 2006
ISSN: 0012-1797

Record 27 of 77

Author(s): Peshavaria, M (Peshavaria, Mina); Larmie, BL (Larmie, Brooke L.); Lausier, J (Lausier, James); Satish, B (Satish, Basanthi); Habibovic, A (Habibovic, Aida); Roskens, V (Roskens, Violet); LaRock, K (LaRock, Kyla); Everill, B (Everill, Brian); Leahy, JL (Leahy, Jack L.); Jetton, TL (Jetton, Thomas L.)
Title: Regulation of pancreatic beta-cell regeneration in the normoglycemic 60% partial-pancreatectomy mouse
Source: DIABETES, 55 (12): 3289-3298 DEC 2006
ISSN: 0012-1797

Record 28 of 77

Author(s): Georgia, S (Georgia, Senta); Bhushan, A (Bhushan, Anil)
Title: p27 regulates the transition of beta-cells from quiescence to proliferation
Source: DIABETES, 55 (11): 2950-2956 NOV 2006
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Record 29 of 77

Author(s): Zhao, HL (Zhao, H. -L.)
Title: Comment on: Meier JJ, Lin JC, Butler AE, Galasso R, Martinez DS, Butler PC (2006) direct evidence of attempted beta cell regeneration in an 89-year-old patient with recent-onset type 1 diabetes. Diabetologia 49 : 1838-1844
Source: DIABETOLOGIA, 49 (11): 2801-2802 NOV 2006
ISSN: 0012-186X

Record 30 of 77

Author(s): Meier, JJ (Meier, J. J.); Lin, JC (Lin, J. C.); Butler, AE (Butler, A. E.); Galasso, R (Galasso, R.); Martinez, DS (Martinez, D. S.); Butler, PC (Butler, P. C.)

Title: Response to comment on: Meier JJ, Lin JC, Butler AE, Galasso R, Martinez DS, Butler PC (2006) direct evidence of attempted beta cell regeneration in an 89-year-old patient with recent-onset type 1 diabetes. *Diabetologia* 49 : 1838-1844

Source: *DIABETOLOGIA*, 49 (11): 2803-2804 NOV 2006
ISSN: 0012-186X

Record 31 of 77

Author(s): Li, YX; Ge, L; Dong, WP; Lu, DR; Tan, JM

Title: Protection of human islets from induction of apoptosis and improved islet function with HO-1 gene transduction

Source: *CHINESE MEDICAL JOURNAL*, 119 (19): 1639-1645 OCT 5 2006
ISSN: 0366-6999

Record 32 of 77

Author(s): Noguchi, H; Matsumoto, S

Title: Protein transduction technology offers a novel therapeutic approach for diabetes

Source: *JOURNAL OF HEPATO-BILIARY-PANCREATIC SURGERY*, 13 (4): 306-313 2006
ISSN: 0944-1166

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Author(s): Planas, R; Alba, A; Carrillo, J; Puertas, MC; Ampudia, R; Pastor, X; Okamoto, H; Takasawa, S; Gurr, W; Pujol-Borrell, R; Verdagner, J; Vives-Pi, M

Title: Reg (regenerating) gene overexpression in islets from non-obese diabetic mice with accelerated diabetes: role of IFN beta

Source: *DIABETOLOGIA*, 49 (10): 2379-2387 OCT 2006
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Author(s): Miszta-Lane, H; Mirbolooki, M; Shapiro, AMJ; Lakey, JRT

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Source: *MEDICAL HYPOTHESES*, 67 (4): 909-913 2006
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Author(s): Elbein, SC; Wang, XQ; Karim, MA; Chu, WS; D Silver, K

Title: Analysis of coding variants in the betacellulin gene in type 2 diabetes and insulin secretion in African American subjects - art. no. 62

Source: BMC MEDICAL GENETICS, 7: 62-62 JUL 25 2006

ISSN: 1471-2350

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Author(s): Silver, KD; Magnuson, VL; Tolea, M; Wang, J; Hagopian, WA; Mitchell, BD

Title: Association of a polymorphism in the betacellulin gene with type 1 diabetes mellitus in two populations

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Author(s): Meivar-Levy, I; Ferber, S

Title: Regenerative medicine: Using liver to generate pancreas for treating diabetes

Source: ISRAEL MEDICAL ASSOCIATION JOURNAL, 8 (6): 430-434 JUN 2006

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Author(s): Meier, JJ; Lin, JC; Butler, AE; Galasso, R; Martinez, DS; Butler, PC

Title: Direct evidence of attempted beta cell regeneration in an 89-year-old patient with recent-onset type 1 diabetes

Source: DIABETOLOGIA, 49 (8): 1838-1844 AUG 2006

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Author(s): Balamurugan, AN; Chang, Y; Bertera, S; Sands, A; Shankar, V; Trucco, M; Bottino, R

Title: Suitability of human juvenile pancreatic islets for clinical use

Source: DIABETOLOGIA, 49 (8): 1845-1854 AUG 2006

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Title: Ectopic expression of neurogenin 3 in neonatal pig pancreatic precursor cells induces (trans)differentiation to functional alpha cells

Source: DIABETOLOGIA, 49 (8): 1855-1863 AUG 2006

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Author(s): Oyama, K; Minami, K; Ishizaki, K; Fuse, M; Miki, T; Seino, S

Title: Spontaneous recovery from hyperglycemia by regeneration of pancreatic beta-cells in Kir6.2G132S transgenic mice

Source: DIABETES, 55 (7): 1930-1938 JUL 2006

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Author(s): Graf, R; Schiesser, M; Reding, T; Appenzeller, P; Sun, LK; Fortunato, F; Perren, A; Bimmler, D

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Title: Human bone marrow mesenchymal stem cells transfected with human insulin genes can secrete insulin stably

Source: ANNALS OF CLINICAL AND LABORATORY SCIENCE, 36 (2): 127-136 SPR 2006

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Title: Ghrelin prevents development of diabetes at adult age in streptozotocin-treated newborn rats
Source: DIABETOLOGIA, 49 (6): 1264-1273 JUN 2006
ISSN: 0012-186X

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Title: Islet transplantation, stem cell transfer and regenerative therapy in diabetes mellitus
Source: DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT, 131 (16): 903-906 APR 21 2006
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Title: Prevention of nutritionally induced diabetes by rosiglitazone in the gerbil *Psammomys obesus*
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Source: DIABETOLOGIA, 48 (11): 2221-2228 NOV 2005
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Title: In vitro neogenesis of human islets reflects the plasticity of differentiated human pancreatic cells
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Source: DIABETOLOGIA, 48 (11): 2200-2202 NOV 2005
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Author(s): Hill, DJ

Title: Development of the endocrine pancreas
Source: REVIEWS IN ENDOCRINE & METABOLIC DISORDERS, 6 (3): 229-238 AUG 2005
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Title: Expression and localization of Reg IV in human neoplastic and non-neoplastic tissues: Reg IV expression is associated with intestinal and neuroendocrine differentiation in gastric adenocarcinoma
Source: JOURNAL OF PATHOLOGY, 207 (2): 185-198 OCT 2005
ISSN: 0022-3417

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Title: MafA expression and insulin promoter activity are induced by nicotinamide and related compounds in INS-1 pancreatic beta-cells

Source: DIABETES, 55 (3): 742-750 MAR 2006

ISSN: 0012-1797

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Source: DIABETES, 55 (2): 269-272 FEB 2006

ISSN: 0012-1797

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Title: Clusterin induces differentiation of pancreatic duct cells into insulin-secreting cells

Source: DIABETOLOGIA, 49 (2): 311-320 FEB 2006

ISSN: 0012-186X

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Author(s): De Breuck, S; Baeyens, L; Bouwens, L

Title: Expression and function of leukaemia inhibitory factor and its receptor in normal and regenerating rat pancreas

Source: DIABETOLOGIA, 49 (1): 108-116 JAN 2006

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Author(s): Otonkoski, T; Gao, R; Lundin, K

Title: Stem cells in the treatment of diabetes

Source: ANNALS OF MEDICINE, 37 (7): 513-520 2005

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Title: Combination therapy with epidermal growth factor and gastrin increases beta-cell mass and reverses hyperglycemia in diabetic NOD mice
Source: DIABETES, 54 (9): 2596-2601 SEP 2005
ISSN: 0012-1797

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Title: Autophagic cell death of pancreatic acinar cells in serine protease inhibitor Kazal type 3-deficient mice
Source: GASTROENTEROLOGY, 129 (2): 696-705 AUG 2005
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Source: AMERICAN JOURNAL OF TRANSPLANTATION, 5 (9): 2135-2142 SEP 2005
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Source: AMERICAN JOURNAL OF PATHOLOGY, 167 (2): 429-436 AUG 2005
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Title: Regenerative medicine of the pancreatic beta cells
Source: JOURNAL OF HEPATO-BILIARY-PANCREATIC SURGERY, 12 (3): 218-226 2005
ISSN: 0944-1166

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Author(s): Kozawa, J; Tokui, Y; Moriwaki, M; Li, M; Ohmoto, H; Yuan, M; Zhang, J; Iwahashi, H; Imagawa, A; Yamagata, K; Tochino, Y; Shimomura, I; Higashiyama, S; Miyagawa, J

Title: Regenerative and therapeutic effects of heparin-binding epidermal growth factor-like growth factor on diabetes by gene transduction through retrograde pancreatic duct injection of adenovirus vector

Source: PANCREAS, 31 (1): 32-42 JUL 2005
ISSN: 0885-3177

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Title: Hepatic regeneration promotes engraftment of intraportally transplanted islet cells

Source: SURGERY, 137 (6): 612-619 JUN 2005
ISSN: 0039-6060

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Author(s): Ruhnke, M; Ungefroren, H; Nussler, A; Martin, F; Brulport, M; Schormann, W; Hengstler, JG; Klapper, W; Ulrichs, K; Hutchinson, JA; Soria, B; Parwaresch, RM; Heeckt, P; Kremer, B; Fandrich, F

Title: Differentiation of in vitro-modified human peripheral blood monocytes into hepatocyte-like and pancreatic islet-like cells

Source: GASTROENTEROLOGY, 128 (7): 1774-1786 JUN 2005
ISSN: 0016-5085

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Author(s): Bloch, K; Vardi, P

Title: Toxin-based selection of insulin-producing cells with improved defense properties for islet cell transplantation

Source: DIABETES-METABOLISM RESEARCH AND REVIEWS, 21 (3): 253-261 MAY-JUN 2005
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Author(s): Biason-Lauber, A; Boehm, B; Lang-Muritano, M; Gauthier, BR; Brun, T; Wollheim, CB; Schoenle, EJ

Title: Association of childhood type 1 diabetes mellitus with a variant of PAX4: possible link to beta cell regenerative capacity

Source: DIABETOLOGIA, 48 (5): 900-905 MAY 2005
ISSN: 0012-186X

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Author(s): Tiedge, M

Title: Beta cell regeneration meets autoimmunity: PAX4 variants in type 1 diabetes

Source: DIABETOLOGIA, 48 (5): 803-804 MAY 2005

ISSN: 0012-186X

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Author(s): Hermann, M; Pirkebner, D; Draxl, A; Margreiter, R; Hengster, P

Title: In the search of potential human islet stem cells: Is tetranectin showing us the way?

Source: TRANSPLANTATION PROCEEDINGS, 37 (2): 1322-1325 MAR 2005

ISSN: 0041-1345

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Author(s): Miao, G; Ito, T; Uchikoshi, F; Tanemura, M; Kawamoto, K; Shimada, K; Nozawa, M; Matsuda, H

Title: Beneficial effects of pancreas transplantation: Regeneration of pancreatic islets in the spontaneously diabetic torii rat

Source: TRANSPLANTATION PROCEEDINGS, 37 (1): 226-228 JAN-FEB 2005

ISSN: 0041-1345

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Author(s): Silver, K; Tolea, M; Wang, J; Pollin, TI; Yao, F; Mitchell, BD

Title: The Exon 1 Cys7Gly polymorphism within the betacellulin gene is associated with type 2 diabetes in African Americans

Source: DIABETES, 54 (4): 1179-1184 APR 2005

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Author(s): Sekikawa, A; Fukui, H; Fujii, S; Takeda, J; Nanakin, A; Hisatsune, H; Seno, H; Takasawa, S; Okamoto, H; Fujimori, T; Chiba, T

Title: REG I alpha protein may function as a trophic and/or anti-apoptotic factor in the development of gastric cancer

Source: GASTROENTEROLOGY, 128 (3): 642-653 MAR 2005

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Author(s): Baeyens, L; De Breuck, S; Lardon, J; Mfopou, JK; Rooman, I; Bouwens, L
Title: In vitro generation of insulin-producing beta cells from adult exocrine pancreatic cells
Source: DIABETOLOGIA, 48 (1): 49-57 JAN 2005
ISSN: 0012-186X

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Author(s): Ferris, WF; Woodroof, CW
Title: The increase in pancreatic endocrine mass after brief occlusion of the main pancreatic duct is primarily due to islet expansion and does not solely originate from islet neogenesis
Source: PANCREAS, 30 (1): E1-E9 JAN 2005
ISSN: 0885-3177

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Author(s): Shufaro, Y; Reubinoff, BE
Title: Therapeutic applications of embryonic stem cells
Source: BEST PRACTICE & RESEARCH IN CLINICAL OBSTETRICS & GYNAECOLOGY, 18 (6): 909-927 DEC 2004
ISSN: 1521-6934

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肝・膵再生医療の必要性

➤ 肝再生

- 慢性肝疾患の終末像は肝硬変
- 肝硬変患者は約25万人
- 肝移植以外に根治療法無し
- ドナー不足は深刻

➤ 膵再生

- 糖尿病の終末像はインスリン欠乏
- 糖尿病患者は約740万人
- インスリン治療は根治療法とならない
- 膵・膵島移植ではドナー不足が深刻

肝臓・膵臓への再生医療の 実現を目指して

—ヒト体性幹細胞を用いた肝細胞・膵細胞
分化培養法の確立と臨床応用—

○大阪大学医学部附属病院未来医療センター

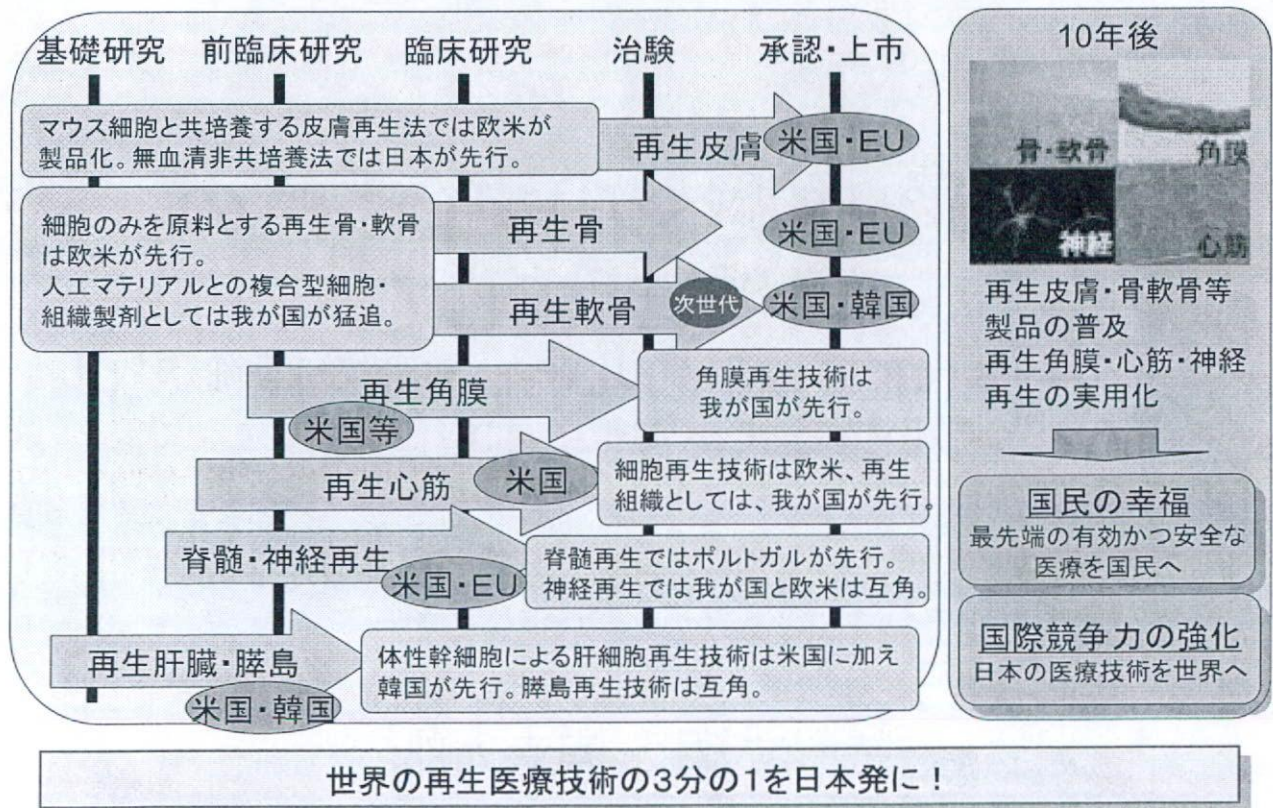
特任准教授 松山晃文

神戸大学大学院医学系研究科細胞分子医学

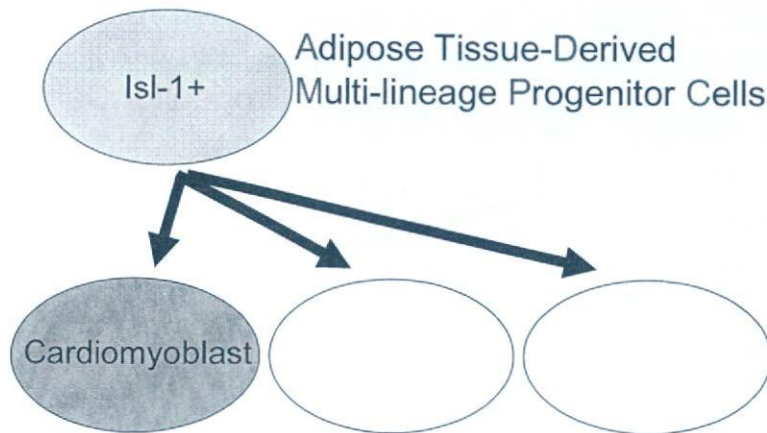
特命准教授 南幸太郎

これまでの成果

わが国における再生医療研究

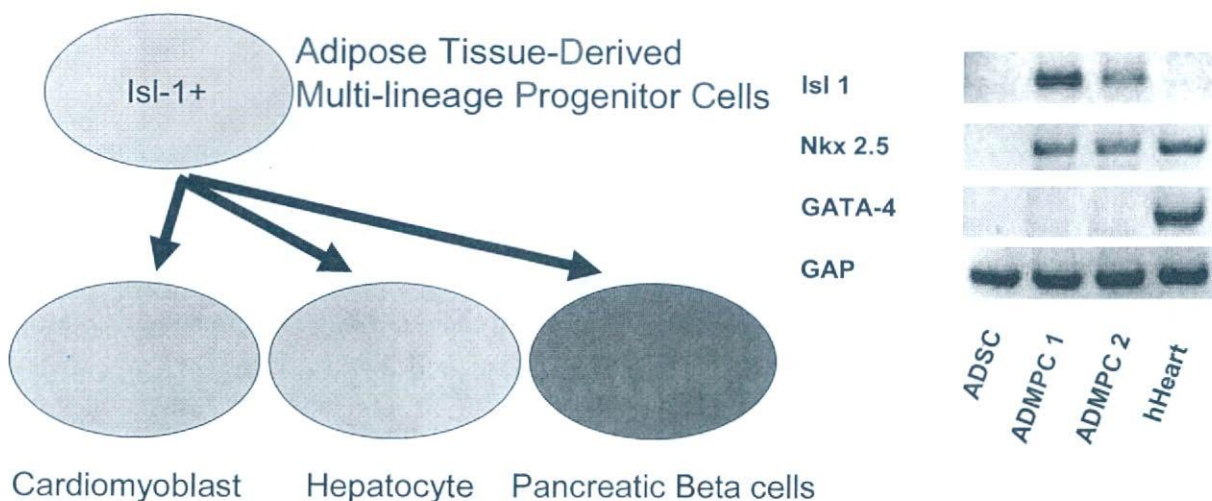


心筋分化系の確立

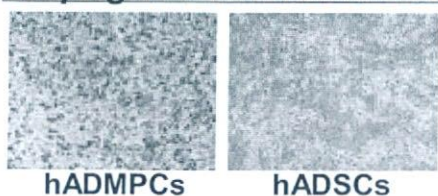


Okura H, Komoda H, Matsuyama A and Sawa Y.

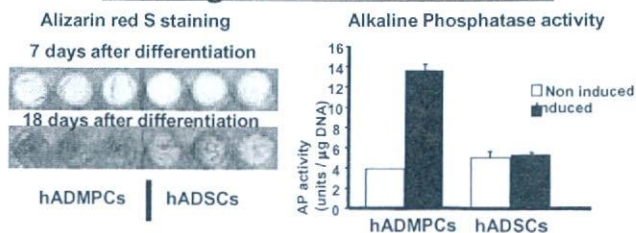
新規幹細胞の発見 ADMPC (脂肪組織由来多系統前駆細胞)



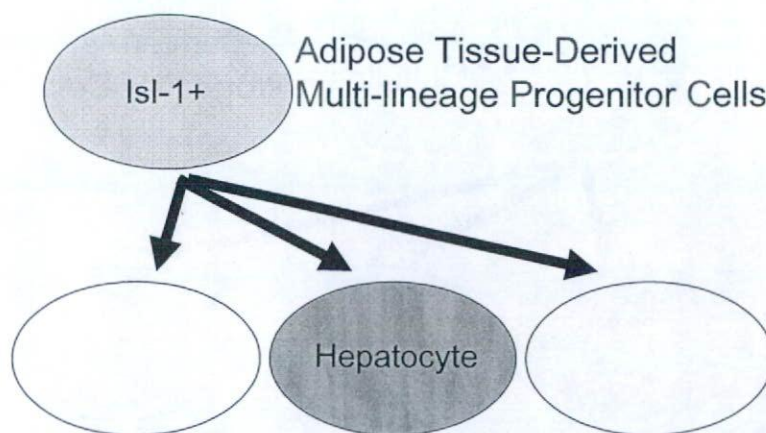
Adipogenic differentiation



Osteogenic differentiation

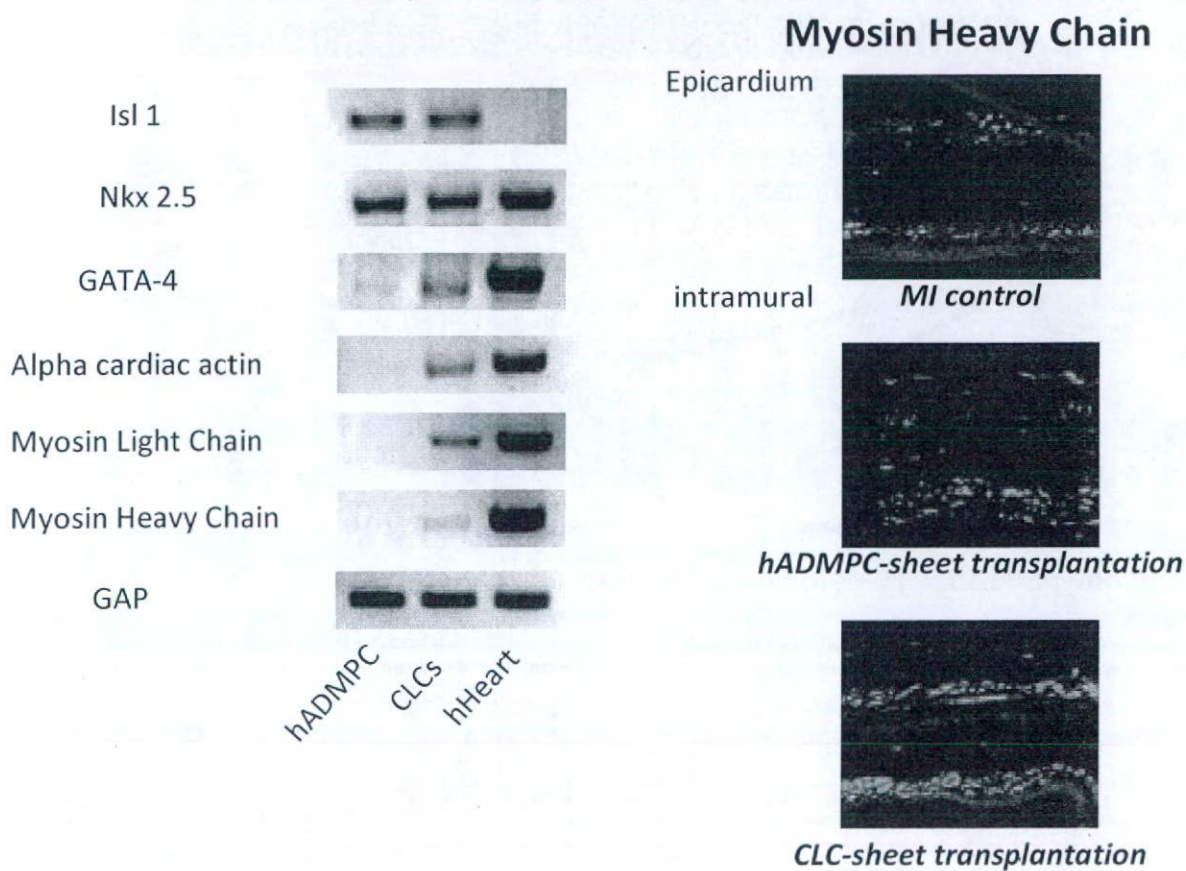


肝細胞分化系の確立

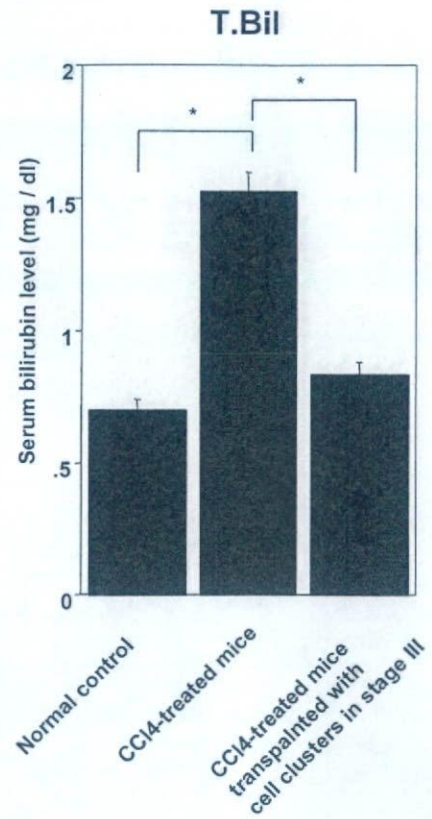
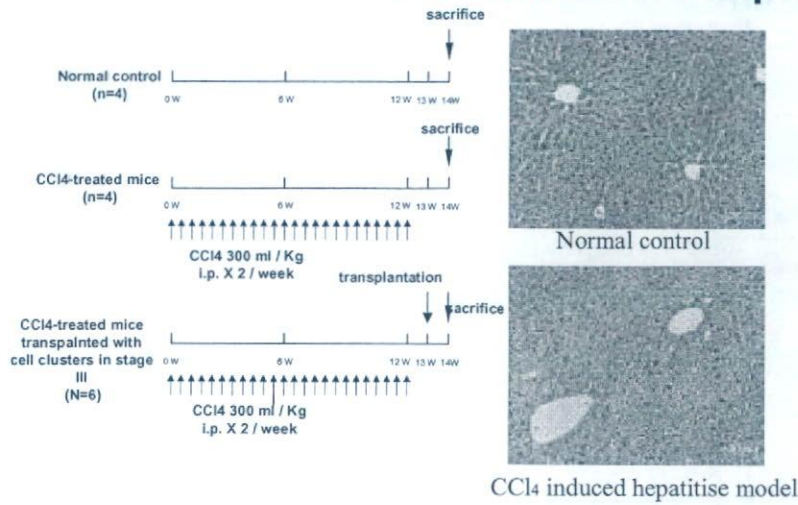


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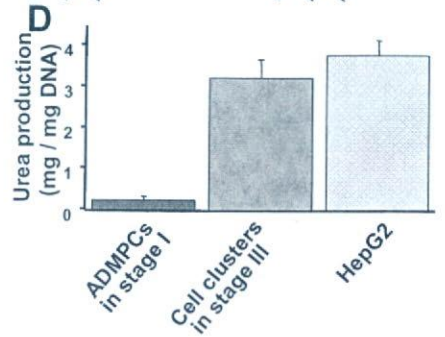
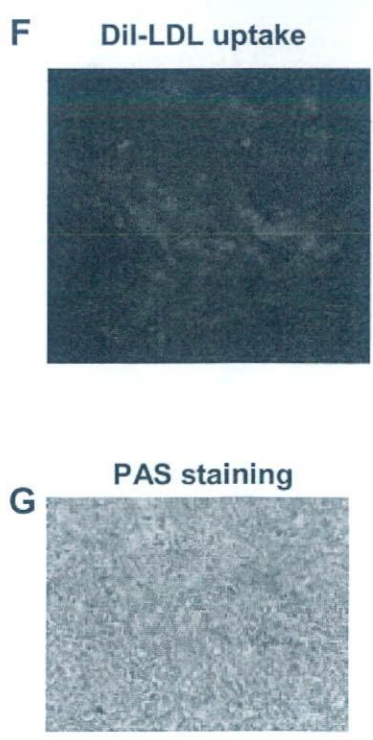
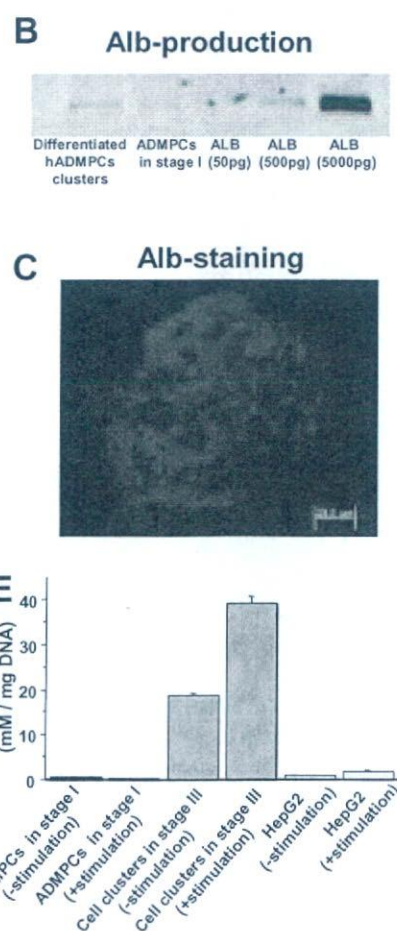
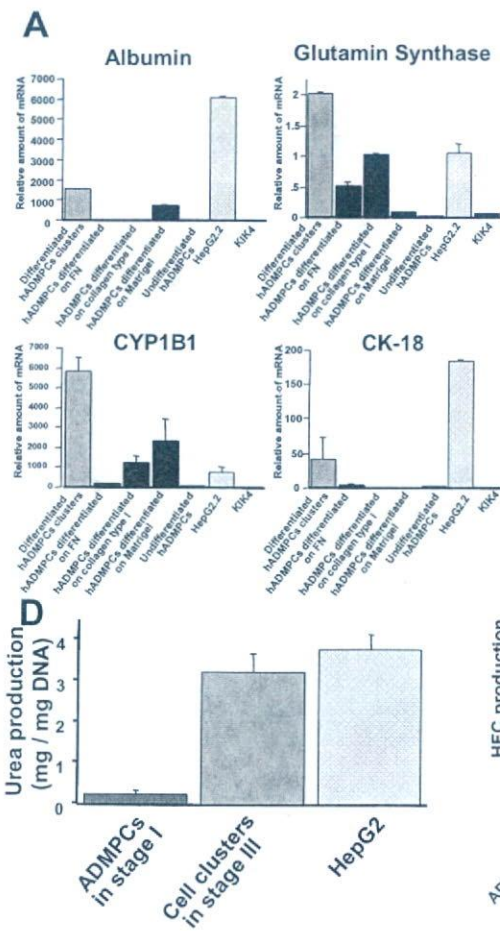
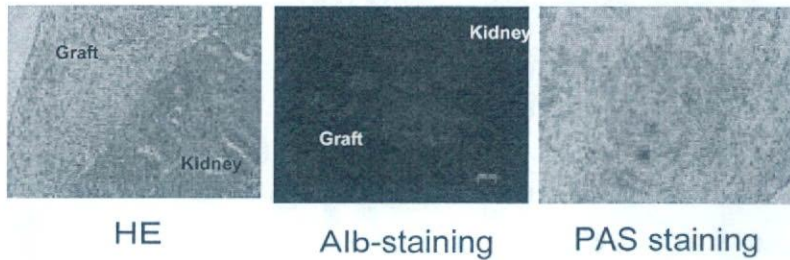
ADMPCからの心筋芽様細胞への分化



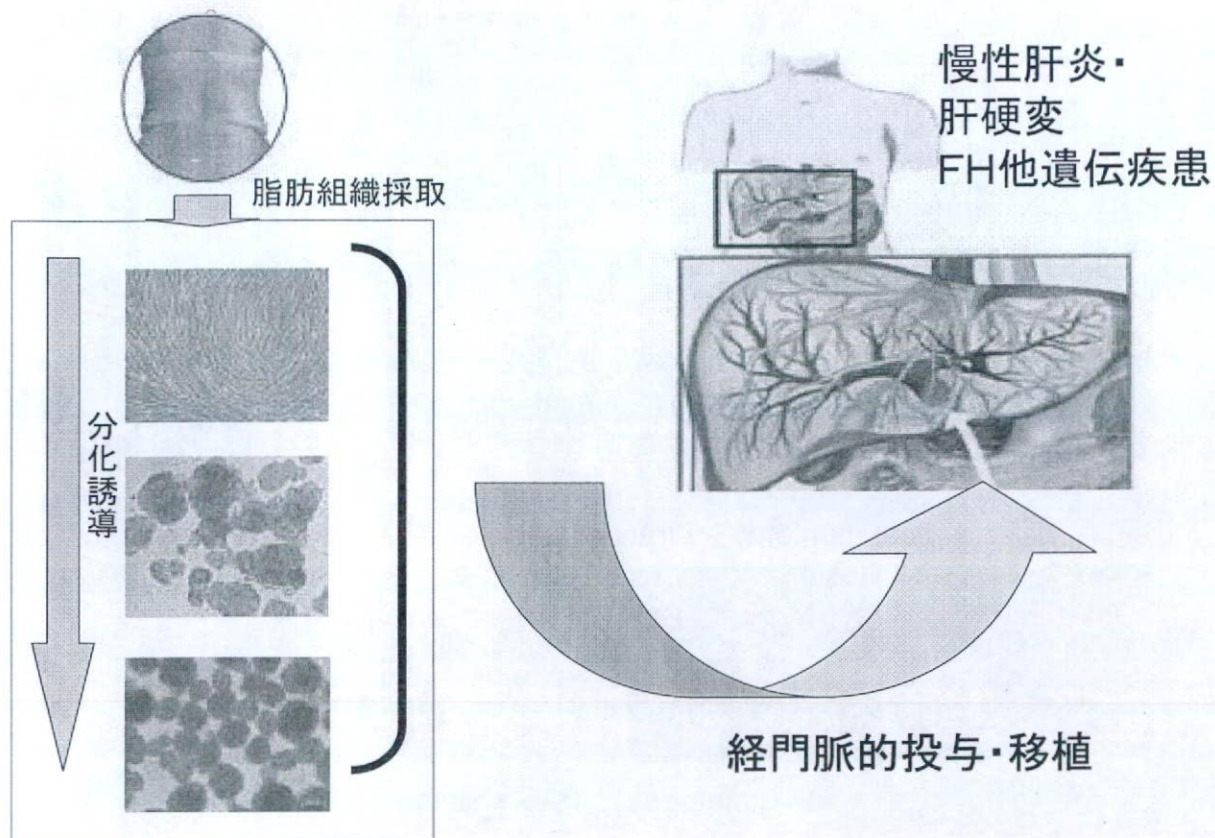
Regenerated hepatocyte improved liver-dysfunction due to chronic hepatitis



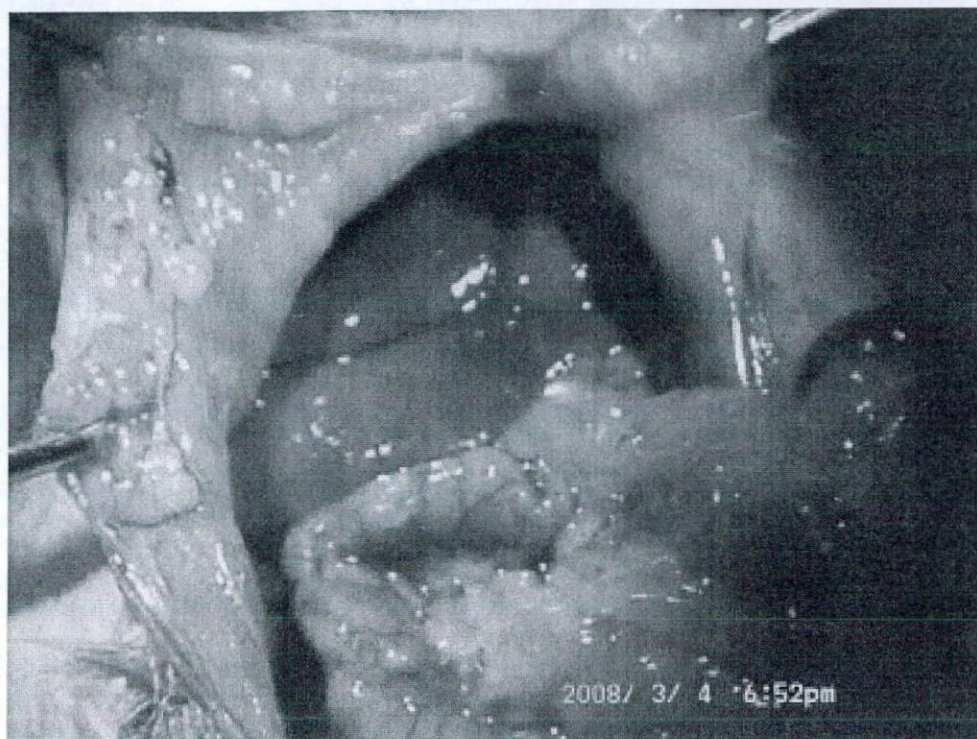
Transplantation onto subrenalcapsule



再生肝細胞・肝小葉と臨床応用



ラットで門脈注入モデルの確立 —臨床応用にむけたモデル動物の最適化—



General outline of the differentiation protocol

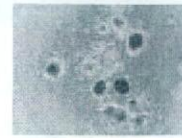
Stage 1
Expansion of ADMPCs



Stage 2
Generation of Adipospheres in suspension



Stage 3
Plating the Adipospheres in ITSF medium



Stage 4
Expansion of pancreatic progenitor cells
In N2 and B27 supplemented with bFGF



Stage 5
Withdrawal of bFGF and addition
of nicotinamide and exendin-4

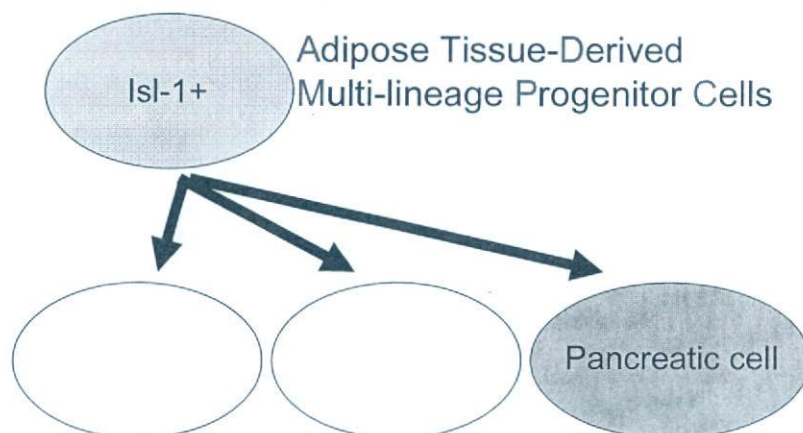


Stage 6
Formation of clusters in suspension



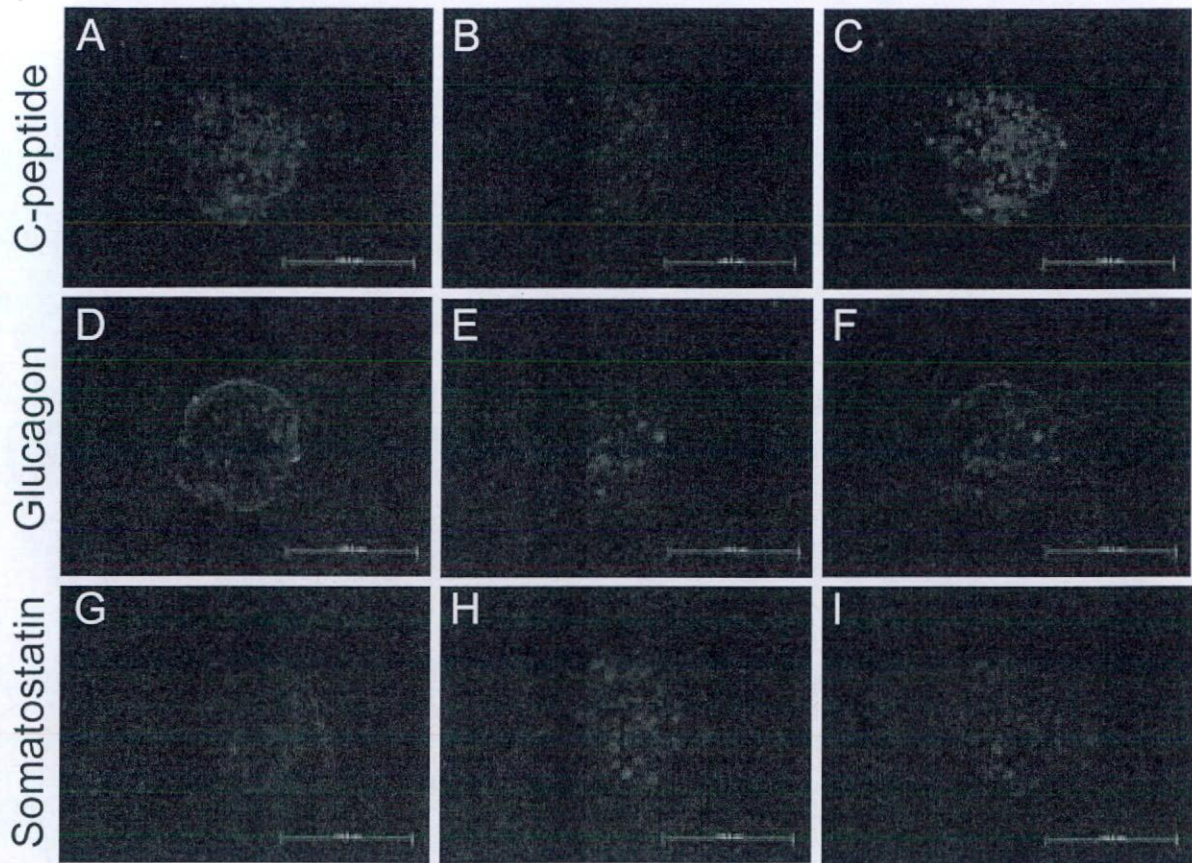
現在改良中

膵細胞分化培養系の確立



Matsuyama A, Okura H and Komoda H.

Insulin



RT-PCR analyses of pancreatic gene expression in several differentiation stages

