Curriculum Vitae

Douglas A. Melton, Ph.D.

Harvard University ▪ Department of Molecular and Cellular Biology
7 Divinity Avenue ▪ Cambridge, MA 02138
dmelton@harvard.edu ▪ (617) 495-1812

Professional Profile

- Dr. Melton has become a leading researcher and public advocate in the field of human embryonic stem cells.
- Dr. Melton is an Investigator of the Howard Hughes Medical Institute and the Thomas Dudley Cabot Professor in the Natural Sciences at Harvard University. He is also a co-director of Harvard's Stem Cell Institute and Harvard's Center for Genomic Research.
- The goal of his work is to make pancreatic tissue for transplantation into people with diabetes. To this end, his laboratory has significantly advanced the understanding of the genes and cells that normally make the pancreas during animal development and they are using that information to instruct embryonic stem cells to make pancreatic tissue.

Scientific Positions

- **Thomas Dudley Cabot Professor in the Natural Sciences**, Harvard University, Department of Molecular and Cellular Biology, Cambridge, Massachusetts, 1999-Present
- **Howard Hughes Medical Institute Investigator**, 1994-Present
- **Associate Member**, Children's Hospital, Boston, Massachusetts, 1994-Present
- **Biologist (Medicine)**, Massachusetts General Hospital, Boston, Massachusetts, 1993-Present
- **Professor of Molecular and Cellular Biology**, Harvard University, Cambridge, Massachusetts, 1988-Present
- **John L. Loeb Associate Professor of the Natural Sciences**, Harvard University, Cambridge, Massachusetts, 1987-1988
- **Associate Professor**, Department of Biochemistry and Molecular Biology, Harvard University, Cambridge, Massachusetts, 1984-1987
- **Assistant Professor**, Department of Biochemistry and Molecular Biology, Harvard University, Cambridge, Massachusetts, 1981-1984

University Education

- **Ph.D. in Molecular Biology**, Trinity College & MRC Laboratory of Molecular Biology, Cambridge University, Cambridge, England, 1980 (Supervisor: J.B. Gurdon)
- **B.A. in History and Philosophy of Science**, Cambridge University, Cambridge, England, 1975-1977
- **B.S. in Honors Biology**, University of Illinois, Champaign-Urbana, Illinois, 1971-1975

Academic Honors

- Eliot P. Joslin Medal, 2002
- Member, Institute of Medicine of the National Academy of Sciences, 2001
- Honorary Member, Japanese Biochemical Society, 1996

- Member, National Academy of Sciences, 1995
- Member, American Academy of Arts and Sciences, 1995
- Richard Lounsbery Award, National Academy of Science, 1995
- George Ledlie Prize, 1991
- American Society of Biochemistry & Molecular Biology Young Investigator Award, 1991
- Searle Scholar Award, 1983-1986
- Camille and Henry Dreyfus Award, 1981
- Max Perutz Prize, 1981
- Marshall Scholarship, awarded for study at Cambridge University, 1975-1978
- Edmund J. James Scholar, University of Illinois, 1971-1975; Phi Beta Kappa, 1975

Scientific Journals

- Editorial Board of Proceedings of the National Academy of Sciences, 2003-2004
- Editor of electronic journal Regenerative Medicine, 2003-2004
- Advisory Board, Genome Biology, 2003-2004
- USA Editor of Development, 2003
- Editor at Neurobiology, 2003
- Editor at Cytokine & Growth Factor Reviews, 2003
- Review Board Editor at Science, 1997-2001

Publications

1. Laskey, R.A. and Melton, D.A. (1977) Synthesis of SV40 DNA in eggs of Xenopus laevis in the absence of viral gene expression. Inserm 69: 253-258.

2. Gottesfeld, J. and Melton, D.A. (1978) The length of nucleosome associated DNA is the samein both transcribed and non-transcribed regions of chromatin. Nature 273: 317-319.

3. Cortese, R., Melton, D.A., Tranquilla, T. and Smith, J.D. (1978) Cloning of nematode tRNA genes and their expression in the frog ooctye. Nucleic Acids Research 5: 4593-4611.

4. Gurdon, J.B., Melton, D.A. and DeRobertis, E. (1979) Genetics in an oocyte. Ciba Foundation Series 66: 63-80.

5. Melton, D.A. and Cortese, R. (1979) Transcription of cloned tRNA genes and the nuclear partitioning of a tRNA precursor. Cell 18: 1165-1172.

6. Melton, D.A., DeRobertis, E., and Cortese, R. (1980) RNA processing: order and intracellular location of the events involved in the maturation of a spliced tRNA. Nature 284: 143-148.

7. Cortese, R., Harland, R. and Melton, D.A. (1980) *In vivo* transcription of tRNA genes: single stranded vs. double stranded templates. Proc. Natl. Acad. Sci. USA 77: 4147-4151.

8. Gurdon, J.B. and Melton, D.A. (1981) Gene transfer in amphibian eggs and oocytes. Ann. Rev. Genetics 15: 189-218.

9. Miller, J. and Melton, D.A. (1981) A transcriptionally active pseudogene in Xenopus laevis oocyte 5S DNA. Cell 24: 829-835.

10. Ciliberto, G., Castagnoli, L., Melton, D.A., and Cortese, R. (1982) Promoter of a eucaryotic tRNA gene is composed of three non-contiguous regions. Proc. Natl. Acad. Sci. USA 79: 1195-1199.

11. Ciampi, S., Melton, D.A., and Cortese, R. (1982) Site directed mutagenesis of a tRNA gene: base alterations in the coding region affect transcription. Proc. Nat. Acad. Sci. USA 79: 1388-1392.

12. Tranquilla, T., Cortese, R., Melton, D.A., and Smith, J.D. (1982) Sequences of four tRNA genes from Caenorhabditis elegans and the expression of C. elegans tRNA in Xenopus oocytes. Nucleic Acids Research 10: 7919-7934.

13. Green, M.R., Maniatis, T. and Melton, D.A. (1983) Human ß globin pre-mRNA synthesized *in vitro* is accurately spliced in Xenopus oocyte nuclei. Cell 32: 681-694.

14. Perry, H. and Melton, D.A. (1983) A rapid increase in acetylcholinesterase mRNA during ascidian embyrogenesis as demonstrated by microinjection into Xenopus laevis oocytes. Cell Differentiation 13: 233-238.

15. Krieg, P. and Melton, D.A. (1984) Formation of the 3' end of histone mRNA by post-transcriptional processing. Nature 308: 203-206.

16. Melton, D.A., Krieg, P.A., Rebagliati, M.R., Maniatis, T., Zinn, K., and Green, M.R. (1984) Efficient *in vitro* synthesis of biologically active RNA and RNA hybridization probes from plasmids containing a bacteriophage SP6 promoter. Nucleic Acids Research 12: 7035-7056.

17. Krieg, P.A. and Melton, D.A. (1984) Functional messenger RNAs are produced by SP6 *in vitro* transcription of cloned DNAs. Nucleic Acids Research 12: 7057-7070.

18. Melton, D.A. (1985) Injected anti-sense RNAs specifically block messenger RNA translation *in vivo*. Proc. Natl. Acad. Sci. USA 82: 144-148.

19. Rebagliati, M.R., Weeks, D.L., Harvey, R.P. and Melton, D.A. (1985) Identification and cloning of localized maternal RNAs from Xenopus eggs. Cell 42: 769-777.

20. Kreig, P. A. and Melton, D. A. (1985) Developmental regulation of a gastrula-specific gene injected into fertilized Xenopus eggs. EMBO J. 4: 3463-3471.

21. Weeks, D.L., Rebagliati, M.R., Harvey, R.P. and Melton, D.A. (1985) Localized maternal mRNAs in Xenopus laevis eggs. Cold Spring Harbor Symp. Quant. Biol. L: 21-30.

22. Krieg, P.A., Rebagliati, M.R., Weeks, D.L., and Melton, D.A. (1986) Gene Activation during Xenopus embryogenesis. pp. 357-369. In Gametogenesis and the Early Embryo, ed. by J. Gall. Alan Liss, Inc., N.Y.

23. Harvey, R.P., Tabin, C. and Melton, D.A. (1986) Embryonic expression and nuclear localization of Xenopus homeobox (Xhox) gene products. EMBO J. 5: 1237-1244.

24. Melton, D. A. and Rebagliati, M.R. (1986) Antisense RNA injections in fertilized eggs as a test for the function of localized mRNAs. JEEM 97: 211-221.

25. Rebagliati, M.R. and Melton, D.A. (1987) Antisense RNA injections in frog eggs reveal an RNA duplex unwinding activity. Cell 48:599-605.

26. Kintner, C.R. and Melton, D.A. (1987) Expression of N-CAM RNA in ectoderm is an early response to neural induction. Development 99:311-325.

27. Krieg, P.A. and Melton, D.A. (1987) An enhancer responsible for activating transcription at the mid-blastula transition in Xenopus development. PNAS 84:2331-2335.

28. Weeks, D.L. and Melton, D.A. (1987) A maternal RNA localized to the animal pole of Xenopus eggs encodes a subunit of mitochondrial ATPase. PNAS 84:2798-2802.

29. Melton, D.A. (1987) Translation of messenger RNA in injected frog oocytes. Methods in Enzymology, Guide to Molecular Cloning, ed by S. Berger and A. Kimmel. Vol.152:288-296.

30. Krieg, P.A. and Melton, D.A. (1987) In vitro RNA synthesis with SP6 RNA polymerase. Methods in Enzymology, Recombinant DNA, ed by R. Wu. Part F. Vol 155:397-415.

31. Ruiz i Altaba, A., Perry-O'Keefe, H., and Melton, D.A. (1987) Xfin: an embryonic gene encoding a multifingered protein in Xenopus. EMBO J. 6:3065-3070.

32. Melton, D.A. (1987) Translocation of a localized maternal mRNA to the vegetal pole of Xenopus oocytes. Nature 328:80-82.

33. Weeks, D.L. and Melton, D.A. (1987) A maternal messenger RNA localized to the vegetal hemisphere in Xenopus eggs codes for a growth factor related to TGF-□. Cell 51:861-86.

34. Harvey, R.P. and Melton, D.A. (1988) Microinjection of synthetic Xhox-1A homeobox mRNA disrupts somite formation in developing Xenopus embryos. Cell 53:687-697.

35. Mercola, M., Melton, D.A. and Stiles, C.D. (1988) Platelet-derived growth factors A chain is maternally encoded in Xenopus embryos. Science 241:1223-1225.

36. Yisraeli, J. and Melton, D.A. (1988) The maternal mRNA Vg1 is correctly localized following injection into Xenopus oocytes. Nature 336:592-595.

37. Krieg, P.A., Varnum, S.M., Wormington, M.W. and Melton, D.A. (1989) The mRNA encoding elongation factor 1-□□(EF1□) is a major transcript at the midblastula transition in Xenopus. Dev. Biol. 133:93-100.

38. Ruiz i Altaba, A. and Melton, D.A. (1989) Involvement of the Xenopus homeobox gene Xhox3 in pattern formation along the anterior-posterior axis. Cell 57:317-326.

39. Ruiz i Altaba, A. and Melton, D.A. (1989) Bimodal and graded expression of the Xenopus homeobox gene Xhox3 during embryonic development. Development 106:173-183.

40. Whitman, M. and Melton, D.A. (1989) Induction of mesoderm by a viral oncogene in early Xenopus embryos. Science 244:803-806.

41. Melton, D.A., Ruiz i Altaba, A., Yisraeli, J. and Sokol, S. (1989) Localization of mRNA and axis formation during Xenopus embryogenesis. CIBA Foundation Symposium 144:16-36.

42. Ruiz i Altaba, A. and Melton, D.A. (1989) Interaction between peptide growth factors and homeobox genes in the establishment of anterior-posterior polarity in frog embryos. Nature 341:33-38.

43. Whitman, M. and Melton, D.A. (1989) Growth factors in early embryogenesis. Annual Review of Cell Biology 5:93-117.

44. Kondiah, P., Sands, M.J., Smith, J.M., Fields, A., Roberts, A.B., Sporn, M.B., and Melton, D.A. (1990) Identification of a novel transforming growth factor-□ (TGF-□5) mRNA in *Xenopus laevis.* The Journal of Biological Chemistry 265:1089-1093.

45. Ruiz i Altaba, A. and Melton, D.A. (1990) Axial patterning and the establishment of polarity in the frog embryo. Trends in Genetics 6: 57-64.

46. Tannahill, D. and Melton, D.A. (1989) Localized synthesis of the VG1 protein during early Xenopus development. Development 106(4):775-785.

47. Yisraeli, J. Sokol, S. and Melton, D.A. (1989) The process of localizing a maternal messenger RNA in Xenopus oocytes. Development 1989 Supplement: 31-36.

48. Yisraeli, J., Sokol, S. and Melton, D.A. (1990) A two-step model for the localization of maternal *Xenopus* oocytes: Involvement of microtubules and microfilaments in the tanslocation and anchoring of Vg1 mRNA. Development 108:289-298.

49. Woolf, T.M., Jennings, C.G.B., Rebagliati, M. and Melton, D.A.(1990) The stability, toxicity and effectiveness of unmodified and phosphorothioate antisense oigodeoxynucleotides in Xenopus oocytes and embryos. Nucleic Acids Research 18(7): 1763-1769.

50. Sokol, S., Wong, G. and Melton, D.A. (1990) A mouse macrophage factor induces head structures and organizes a body axis in Xenopus. Science 249:561-564.

51. Thomsen, G., Woolf, T., Whitman, M., Sokol, S., Vaughan, J., Vale, W., and Melton, D.A. (1990) Activins are expressed in early Xenopus embryogenesis and can induce axial mesoderm and anterior structures. Cell 63(3): 485-493.

52. Mitrani, E. Ziv, T., Thomsen, J., Shimoni, Y., Melton, D.A., and Bril, A. (1990) Activin can induce the formation of axial structures and is expressed in the hypoblast of the chick. Cell 63(3): 495-501.

53. Melton, D.A. (1991) Pattern formation during animal development. Science 252: 234-241.

54. Sokol, S. and Melton, D.A. (1991) Induction of Xenopus animal pole cells by activin reveals a preexistent pattern in the responding cells. Nature 351:409-411.

55. Gururajan, R., Perry-O'Keefe, H., Melton, D.A. and Weeks, D.L. (1991) The Xenopus localized messenger RNA An3 may encode an ATP-dependent RNA helicase. Nature 349: 717-719.

56. Sokol, S., Christian, J., Moon, R. and Melton, D.A. (1991) Injected Wnt but not activin RNA induces a complete dorsal axis in Xenopus embryos. Cell 67: 741-752.

57. Mowry, K.L. and Melton, D.A. (1992) A 340-nt RNA sequence element directs vegetal localization in Xenopus oocytes. Science 255: 991-994.

58. Ruiz i Altaba, A., Choi, T., and Melton, D.A. (1992) Expression of the Xhox3 homeobox protein in Xenopus embryos: Blocking its early function suggests the requirement of Xhox3 for normal posterior development. Development Growth & Differentiation 33:651-669.

59. Jessell, T.M. and Melton, D.A. (1992) Diffusible factors in vertebrate embryonic induction. Cell 68:257-270.

60. Whitman, M. and Melton, D.A. (1992) Involvement of p21ras in Xenopus mesoderm induction. Nature 357:252-254.

61. Hemmati-Brivanlou, A., Wright, D.A., and Melton, D.A. (1992) Embryonic expression and functional analysis of a Xenopus activin receptor. Developmental Dynamics 194:1-11.

62. Woolf, T., Melton, D., and Jennings, C.G. (1992) Specificity of antisense oligonucleotides in vivo. PNAS 89:7305-7309.

63. Sokol, S. and Melton, D.A. (1992) Interaction of Wnt and activin mesoderm induction in Xenopus. Dev. Biol. 154:348-355.

64. Hemmati-Brivanlou, A. and Melton, D.A. (1992) A truncated activin receptor inhibits mesoderm induction and formation of axial structures in Xenopus embryos. Nature 359: 609-614.

65. Dohrmann, C.E., Hemmati-Brivanlou, A., Thomsen, G.H., Fields, A., Woolf, T.M., and Melton, D.A. (1993) Expression of activin mRNA during early development in *Xenopus laevis.* Devel. Biol. 157:474-483.

66. Steinbeisser, H., De Robertis, E.M., Ku, M., Kessler, D.S., and Melton, D.A. (1993) Xenopus axis formation: induction of *goosecoid* by injected *Wnt* and activin mRNAs. Development 118:499-507.

67. Ku, M., and Melton, D.A. (1993) Xwnt-11: A maternally expressed Xenopus Wnt gene. Development 119: 1161-1173.

68. Thomsen, J. and Melton, D.A. (1993) Processed Vg1 protein is an axial mesoderm inducer in Xenopus. Cell 74: 433-441.

69. Klein, P.S., and Melton, D.A. (1994) Hormonal regulation of embryogenesis: The formation of mesoderm in *Xenopus Laevis*. Endocrine Reviews.v.15:326-341.

70. Hemmati-Brivanlou, A., and Melton, D.A. (1994) Inhibition of activin receptor signaling promotes neuralization in *Xenopus laevis.* Cell. 77:273-281.

71. Hemmati-Brivanlou, A., Kelly, O.G., and Melton, D.A. (1994) Follistatin, an antagonist of activin, is expressed in the Spemann organizer and displays direct neuralizing activity. Cell. 77:283-295.

72. Wilson, P. A., and Melton, D.A. (1994) Mesodermal patterning by an inducer gradient depends on secondary cell-cell communication. Current Biology. v.4:676-686.

73. Klein, P. and Melton, D.A. (1994) Translation initiation factor 4E induces mesoderm in *Xenopus laevis* embryos. Science. 265:803-806.

74. Graff, J.M., Thies, R.S., Song, J.J., Celeste, A.J. and Melton, D.A. (1994) Studies with a Xenopus BMP receptor suggest that ventral mesoderm-inducing signals override dorsal signals in Vivo. Cell. 79:169-179.

75. Kessler, D. S., and Melton, D.A. (1994) Vertebrate embryonic induction: Mesodermal and neural patterning. Science. 266:596-604.

76. Kelly, O.G., and Melton, D.A. (1995) Induction and patterning of the vertebrate nervous system. Trends in Genetics. v.11:273-278.

77. Kessler, D. S., and Melton, D.A. (1995) Induction of dorsal mesoderm by soluble, mature Vg1 protein. Development 121:2155-2164.

78. Reilly, K. M., and Melton, D.A. (1996) The role of short-range and long-range signaling in mesoderm induction and patterning during Xenopus development. Seminars in Cell & Developmental Biology. v.7:77-85.

79. Henry, G. L., Brivanlou, I. H., Kessler, D. S., Hemmati-Brivanlou, A. and Melton, D. A. (1996) TGF-ß signals and a prepattern in *Xenopus laevis* endodermal development. Development. 122:1007-1015.

80. Dohrmann, C. E., Kessler, D. S. and Melton, D. A. (1996) Induction of axial mesoderm by zDVR-1, the zebrafish orthologue of *Xenopus* Vg1. Developmental Biology. 175:108-117.

81. Graff, J. M., Bansal, A. and Melton, D. A. (1996) *Xenopus* mad proteins transduce distinct subsets of signals for the TGF-ß superfamily. Cell. 85:479-487.

82. Newfeld, S. J., Chartoff, E. H., Graff, J. M., Melton, D. A. and Gelbart, W. M. (1996) *Mothers against dpp* encodes a conserved cytoplasmic protein required in DPP/TGF-ß responsive cells. Development. 122:2099-2108.

83. Klein, P. S. and Melton, D. A. (1996) A molecular mechanism for the effect of lithium on development. Proc. Nat. Acad. Sci. 93:8455-8459.

84. Reilly, K. M., and Melton, D.A. (1996) Short-range signaling by candidate morphogens of the TGFß family and the evidence for a relay mechanism of induction. Cell. 86:743-754.7:77-85.

85. Hemmati-Brivanlou, A. and Melton, D. A. (1997) Vertebrate Neural Induction. Annual Reviews for Neuroscience. 20:43-60.

86. Joseph, E. M. and Melton, D. A. (1997) *Xnr4:* A *Xenopus* Nodal-Related Gene Expressed in 87. Kim, S. K., Hebrok, M. and Melton, D. A. (1997) Notochord to endoderm signaling is required for pancreas development. Development. 124:4243-4252.

87. Kim, S. K., Hebrok, M. and Melton, D. A. (1997) Notochord to endoderm signaling is required for pancreas development. Development 124:4243-4252.

88. Kim, S. K., Hebrok, M. and Melton, D. A. (1997) Pancreas development in the chick embryo. Cold Spring Harbor Symposia on Quantitative Biology. LXII, 377-383.

89. Hebrok, M., Kim, S. K. and Melton, D. A. (1998) Notochord repression of endodermal Sonic hedgehog permits pancreas development. Genes & Development. 12:1705-1713.

90. Henry, G. L. and Melton, D. A. (1998) Mixer, a novel homeobox gene, is required for endoderm development. Science. 281:91-96.

91. Joseph, E. M. and Melton, D. A. (1998) Mutant Vg1 ligands disrupt endoderm and mesoderm formation in *Xenopus* embryos. Development. 125:2677-2685.

92. Kim, S.K. and Melton, D.A. (1998) Pancreas development is promoted by cyclopamine, a Hedgehog signaling inhibitor. Proc. Nat. Acad. Sci. 95:13036-13041.

93. Hebrok, M., Kim, S.K. and Melton, D.A. (1999) Screening for novel pancreatic genes expressed during embryogenesis. Diabetes. 48:1550-1556.

94. Wells, J. M. and Melton, D. A. (1999) Vertebrate endoderm development. Annu. Rev. Cell Dev. Biol. 15:393-410.

95. Grapin-Botton, A. and Melton, D.A. (2000) Endoderm development: from patterning to organogenesis. Trends Genet. 16:124-130.

96. Wells, J.M. and Melton, D.A. (2000) Early mouse endoderm is patterned by soluble factors from adjacent germ layers. Development 127:1563-1572.

97. Ramalho-Santos , M., Melton, D.A., and McMahon, A.P. (2000) Hedgehog signals regulate multiple aspects of gastrointestinal development. Development 127:2763-2772.

98. Lammert, E., Brown, J. and Melton, D.A. (2000) Notch gene expression during pancreatic organogenesis. Mech. Dev. 94:199-203.

99. Kelly O.G. and Melton, D.A. (2000) Development of the pancreas in xenopus laevis. Dev Dyn. 218:615-627.

100. Kim, S.K., Hebrok , M., Li, E., Oh, S.P., Schrewe, H., Harmon , E.B., Lee, J.S., and Melton, D.A. (2000) Activin receptor patterning of foregut organogenesis. Genes Dev. 14:1866-1871.

101. Schuldiner , M., Yanuka , O., Itskovitz-Eldor , J., Melton, D.A., and Benvenisty ,N. (2000) Effects of eight growth factors in the differentiation of cells derived from human embryonic stem cells. Proc. Natl. Acad. Sci. USA. 97 (21): 11307-11312.

102. Hebrok , M., Kim, S.K., St. Jacques, B., McMahon, A.P., and Melton, D.A. (2000) Regulation of pancreas development by hedgehog signaling. Development 127: 4905-4913.

103. Grapin-Botton, A., Majithia, A.R., and Melton, D.A. (2001) Key events of pancreas formation are triggered in gut endoderm by ectopic expression of pancreatic regulatory genes. Genes Dev 15:444-454.

104. Huang,, H., Vogel , S.S., Liu , N, Melton, D.A., and Lin, S. (2001) Analysis of pancreatic development in living transgenic zebrafish embryos. Mol Cell Endocrinol. 177:117-124.

105. Lammert, E., Cleaver, O. and Melton, D. (2001) Induction of pancreatic differentiation by signals from blood vessels. Science 294 (5542): 564-567.

106. Fishman, M.P. and Melton D.A. (2002) Pancreatic lineage analysis using a retroviral vector in embryonic mice demonstrates a common progenitor for endocrine and exocrine cells. Int J Dev Biol 46 (2): 201-7.

107. Gu, G. Dubauskaite J. and Melton D.A. (2002) Direct evidence for the pancreatic lineage: NGN3+ cells are islet progenitors and are distinct from duct progenitors. Development 129 (10): 2447-57.

108. Scearce, L.M., Brestelli, J.E., McWeeney, S.K., Lee, C.S., Massarelli, J., Pinney, D.F., Pizarro, A., Stoeckert, C.J., Clifton, S.W., Permutt, M.A., Brown, J., Melton, D.A., and K.H. Kaestner. (2002) Functional genomics of the endocrine pancreas: The pancreas clone set and PancChip, new resources for diabetes research. Diabetes 51: 1997-2004.

109. Ramalho-Santos M, Yoon S, Matsuzaki Y, Mulligan RC, Melton DA. (2002) "Stemness": transcriptional profiling of embryonic and adult stem cells. Science: 298(5593):597-600.

110. Gu G, Brown JR, Melton DA. (2003) Direct lineage tracing reveals the ontogeny of pancreatic cell fates during mouse embryogenesis. Mech Dev.:120(1):35-43.

111. Rajagopal J, Anderson WJ, Kume S, Martinez OI, Melton DA. (2003) Insulin staining of ES cell progeny from insulin uptake. Science. 299(5605):363.

112. Lammert E, Cleaver O, Melton D. (2003) Role of endothelial cells in early pancreas and liver development. Mech Dev. 120(1):59-64.

113. Chiang, M.K. Melton, D.A. (2003) Single-cell transcript analysis of pancreas development. Dev. Cell. 4(3):383-393.

114. Brivanlou A.H., Gage FH, Jaenisch R., Jessell T., Melton D., Rossant J. (2003) Stem cells. Setting standards for human embryonic stem cells. Science 300: 5621:913-916.

115. Cleaver, O. Melton, D.A. (2003) Endothelial signaling during development. Nat. Med. 6)661-668. Review.

116. Lammert E. Gu G. McLaughlin M., Brown D., Brekken R., Murtaugh LC, Gerber HP, Ferrara N., Melton D.A. (2003) Role of VEGF-A in vascularization of pancreatic islets. Curr Biol. 13(12):1070-1074.

117. Kumar M., Jordan N., Melton, D., Grapin-Botton A. (2003) Signals from lateral plate mesoderm instruct endoderm toward a pancreatic fate. Dev Biol. 259(1):109-122.

118. Kumar M., Melton D. (2003) Pancreas specification: a budding question. Curr Opin Genet Dev 13(4):401-407.

119. Murtaugh LC, Melton DA (2003) Genes, signals, and lineages in pancreas development. Annu Rev Cell Dev Biol. 19:71-89. Review.

120. Murtaugh LC, Stanger BZ, Kwan KM, Melton DA. (2003) Notch signaling controls multiple steps of pancreatic differentiation. Proc Natl Acad Sci USA. Dec 9; 100(25): 14920-5.

121. Gu G., Wells JM, Dombkowski D., Preffer F., Aronow B., Melton DA. (2004) Global expression analysis of gene regulatory pathways during endocrine pancreatic development. Jan; 131 (1):165-179.

122. Cowan C.A., Klimanskaya I, McMahon J., Atienza J., Witmyer J., Zucker JP, Wang S., Morton CC, McMahon AP, Powers D, and Melton DA. (2004) Derivation of embryonic stem-cell lines from human blastocysts. N Engl J Med 350;13, 1353-1356.

123. Dor Y, Brown J, Martinez OI, and Melton DA. (2004) Adult pancreatic beta-cells are formed by self-duplication rather than stem-cell differentiation. Nature. May 6; 429(6987):41-46.

124. Anneren C., Cowan CA, and Melton DA. (2004) The Src family of tyrosine kinases is important for embryonic stem cell self-renewal. J. Biol. Chem.. May 10.1074.

125. Dor Y., Melton DA. (2004) How important are adult stem cells for tissue maintenance? Cell Cycle. Sep 19; 3 (9):1104-1106. Epub 2004 Sep 19.

126. Hansson M., Tonning A., Frandsen U., Petri A., Rajagopal J., Englund MC, Heller RS, Hakansson J., Fleckner J., Skold HN, Melton D., Semb H., and Serup P. (2004) Artifactual insulin release from differentiated embryonic stem cells. Diabetes. Oct; 53 (10):2603-9. the Spemann Organizer. Developmental Biology. 184:367-372.

127. Melton D.A., Daley G.Q. Jennings C.G. (2004) Altered nuclear transfer in stem-cell research - a flawed proposal. N Engl J Med. Dec. 30; 351 (27): 2791-2.

128. Shaywitz, D. and Melton, D.A. (2005) The Molecular Biography of the Cell. Cell 120(6): 729-731.

129. Stanger BZ, Datar R, Murtaugh LC, Melton DA. (2005) Direct regulation of intestinal fate by Notch. Proc Natl Acad Sci U S A. Aug 30;102(35):12443-8. Epub 2005 Aug 17.

130. Cowan CA, Atienza J, Melton DA, Eggan K. (2005) Nuclear reprogramming of somatic cells after fusion with human embryonic stem cells.
Science. Aug 26;309(5739):1369-73.

131. Boyer LA, Lee TI, Cole MF, Johnstone SE, Levine SS, Zucker JP, Guenther MG, Kumar RM, Murray HL, Jenner RG, Gifford DK, Melton DA, Jaenisch R, Young RA. (2005) Core transcriptional regulatory circuitry in human embryonic stem cells.
Cell. Sep 23;122(6):947-56.

132. Murtaugh LC, Law AC, Dor Y, Melton DA. (2005) Beta-catenin is essential for pancreatic acinar but not islet development. Development. 132(21):4663-74. Epub 2005 Sep 28

133. Melton DA (2006) Reversal of type I diabetes in mice. N Engl J Med. 2006 Jul 6;355(1):89-90.

134. Akutsu H, Cowan CA, Melton D. (2206) Human embryonic stem cells. Methods Enzymol. 2006;418:78-92.

135. Greenwood,AL, Li, S, Jones, K., and Melton, D.A. (2006) Notch signaling reveals developmental plasticity of Pax4(+) pancreatic endocrine progenitors and shunts them to a duct fate. Mech. Dev. 124:97-107.

136. Lee TI, Jenner RG, Boyer LA, Guenther MG, Levine SS, Kumar RM, Chevalier B, Johnstone SE, Cole MF, Isono K, Koseki H, Fuchikami T, Abe K, Murray HL, Zucker JP, Yuan B, Bell GW, Herbolsheimer E, Hannett NM, Sun K, Odom DT, Otte AP, Volkert TL, Bartel DP, Melton DA, Gifford DK, Jaenisch R, Young RA. (2006) Control of developmental regulators by Polycomb in human embryonic stem cells. Cell 125:301-313.

137. Nikolova G, Jabs N, Konstantinova I, Domogatskaya A, Tryggvason K, Sorokin L, Fassler R, Gu G, Gerber HP, Ferrara N, Melton DA, Lammert E. (2006) The vascular basement membrane: a niche for insulin gene expression and beta cell proliferation. Dev. Cell 10:397-405

138. Stanger BZ, Tanaka AJ, Melton DA. (2007) Organ size is limited by the number of embryonic progenitor cells in the pancreas but not the liver.
Nature. 2007 Jan 28