

Developmental Biology 13e, Chapter 22 Literature Cited

Ahlgren, U., J. Jonsson and H. Edlund. 1996. The morphogenesis of the pancreatic mesenchyme is uncoupled from that of the pancreatic epithelium in IPF/PDX1-deficient mice. *Development* 122: 1409–1416.

Apelqvist, A., U. Ahlgren and H. Edlund. 1997. Sonic hedgehog directs specialised mesoderm differentiation in the intestine and pancreas. *Curr. Biol.* 7: 801–804.

Bayha, E., M. C. Jørgensen, P. Serup and A. Grapin-Botton. 2009. Retinoic acid signaling organizes endodermal organ specification along the entire antero-posterior axis. *PLoS ONE* 4: e5845.

Bossard, P. and K. S. Zaret. 2000. Repressive and restrictive mesodermal interactions with gut endoderm: Possible relation to Meckel's diverticulum. *Development* 127: 4915–4923.

Buczacki, S. J. and 6 others. 2013. Intestinal label-retaining cells are secretory precursors expressing Lgr5. *Nature* 495: 65–69.

Burlison, J. S., Q. Long, Y. Fujitani, C. V. Wright and M. A. Magnuson. 2008. Pdx-1 and Ptfla concurrently determine fate specification of pancreatic multipotent progenitor cells. *Dev. Biol.* 316: 74–86.

Carlson, B. M. 1981. *Patten's Foundations of Embryology*. McGraw-Hill, New York.

Cebra-Thomas, J. A., J. Bromer, R. Gardner, G. K. Lam, H. Sheipe and S. F. Gilbert. 2003. T-box gene products are required for mesenchymal induction of epithelial branching in the embryonic mouse lung. *Dev. Dyn.* 22: 82–90.

Chevalier, N. R., N. Dacher, C. Jacques, L. Langlois, C. Guedj and O. Faklaris. 2019. Embryogenesis of the peristaltic reflex. *J. Physiol.* 597: 2785–2801.

Chung, W.-S., C. H. Shin and D. Y. R. Stainier. 2008. Bmp2 signaling regulates the hepatic versus pancreatic fate decision. *Dev. Cell.* 15: 738–48.

Crump, J. G., L. Maves, N. D. Lawson, B. M. Weinstein and C. B. Kimmel. 2004. An essential role for FGFs in endoderm pouch formation influences later craniofacial skeletal patterning.

Development 131: 5703–5716.

DeLeve, L. D. 2013. Liver sinusoidal endothelial cells and liver regeneration. *J. Clin. Invest.* 123: 1861–1866.

Dhawan, S., S. Georgia, S. I. Tschen, G. Fan and A. Bhushan. 2011. Pancreatic β cell identity is maintained by DNA methylation-mediated repression of *Arx*. *Dev. Cell* 20: 419–429.

Ding, B. S. and 12 others. 2010. Inductive angiocrine signals from sinusoidal endothelium are required for liver regeneration. *Nature* 468: 310–315.

Dong, P. D., E. Provost, S. D. Leach and D. Y. Stainier. 2008. Graded levels of Ptfla differentially regulate endocrine and exocrine fates in the developing pancreas. *Genes Dev.* 22: 1445–1450.

Dunn, N. R., S. D. Vincent, L. Oxburgh, E. J. Robertson and E. K. Bikoff. 2004. Combinatorial activities of Smad2 and Smad3 regulate mesoderm formation and patterning in the mouse embryo. *Development* 131: 1717–1728.

Fawkner-Corbett D. and 13 others. 2021. Spatiotemporal analysis of human intestinal development at single-cell resolution. *Cell* 184: 810–826.e23.

Fishman, M. P. and D. A. Melton. 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: 201–207.

Franklin, V., P. L. Khoo, H. Bildsoe, N. Wong, S. Lewis and P. P. Tam. 2008. Regionalisation of the endoderm progenitors and morphogenesis of the gut portals of the mouse embryo. *Mech. Dev.* 125: 587–600.

Fried, S. and 9 others. 2020. Extrahepatic cholangiocyte obstruction is mediated by decreased glutathione, Wnt and Notch signaling pathways in a toxic model of biliary atresia. *Sci Rep.* 10: 7 599.

Fukumachi, H. and S. Takayama. 1980. Epithelial-mesenchymal interaction in differentiation of duodenal epithelium of fetal rats in organ culture. *Experientia* 36: 335–336.

Goldman, O., S. Han, W. Hamou, V. Jodon de Villeroche, G. Uzan, H. Lickert and V. Gouon-Evans. 2014. Endoderm generates endothelial cells during liver development. *Stem Cell Rep.* 3: 556–565.

Goldstein, A. M., K. C. Brewer, A. M. Doyle, N. Nagy and D. J. Roberts. 2005. BMP signaling is necessary for neural crest cell migration and ganglion formation in the enteric nervous system. *Mech. Dev.* 122: 821–833.

Gordillo, M., T. Evans and V. Gouon-Evans. 2015. Orchestrating liver development. *Development* 142: 2094–2108.

Goss, A. M. and 7 others. 2009. Wnt2/2b and beta-catenin signaling are necessary and sufficient to specify lung progenitors in the foregut. *Dev. Cell* 17: 290–298.

Graham, A. and J. Richardson. 2012. Developmental and evolutionary origins of the pharyngeal apparatus. *EvoDevo* 3: 24.

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

Gualdi, R., P. Bossard, M. Zheng, Y. Hamada, J. R. Coleman and K. S. Zaret. 1996. Hepatic specification of the gut endoderm in vitro: Cell signaling and transcriptional control. *Genes Dev.* 10: 1670–1682.

Gumpel-Pinot, M., S. Yasugi and T. Mizuno. 1978. Différenciation d'épithéliums endodermiques associés au mésoderme splanchnique. *Comp. Rend. Acad. Sci.* 286: 117–120.

Harris-Johnson, K. S., E. T. Domyan, C. M. Vezina and X. Sun. 2009. Beta-catenin promotes respiratory progenitor identity in mouse foregut. *Proc. Natl. Acad. Sci. USA* 106: 16287–16292.

Hebrok, M., S. Kim and D. A. Melton. 1998. Notochord repression of endodermal Sonic hedgehog permits pancreas development. *Genes Dev.* 12: 1705–1713.

Henry, G. L. and D. A. Melton. 1998. *Mixer*, a homeobox gene required for endoderm development. *Science* 281: 91–96.

Hirai, H., T. Tani and N. Kikyo . 2010. Structure and functions of powerful transactivators: VP16, MyoD and FoxA. *Int. J. Dev. Biol.* 54: 1589–1596

Holland,, L. Z. and N. D. Holland. 2021. Cephalochordates: A window into vertebrate origins. *Curr. Top. Dev. Biol.* 141:119–147.

Horb, M. E., C. N. Shen, D. Tosh and J. M. Slack. 2003. Experimental conversion of liver to pancreas. *Curr. Biol.* 13: 105–115.

Hu, J. and 12 others. 2014. Endothelial cell-derived angiopoietin-2 controls liver regeneration as a spatiotemporal rheostat. *Science* 343: 416–419.

Hudson, C., D. Clements, R. V. Friday, D. Stott and H. R. Woodland. 1997. Xsox17-a and -b mediate endoderm formation in *Xenopus*. *Cell* 91: 397–405.

Huycke, T. R. and 6 others. 2019. Genetic and mechanical regulation of intestinal smooth muscle development. *Cell* 79: 90–105.

Isaacson, D., J. Shen, D. McCready, M. Calvert, G. Cunha and L. Baskin. 2017. Dichotomous branching of human fetal lung demonstrated with light sheet fluorescence microscopy. *Am. J. Respir. Crit. Care Med.* 196: 1476–1477.

Jonas, H. 1966. *The Phenomenon of Life: Toward a Philosophical Biology*. Evanston: Northwestern University Press.

Jonnson, J., L. Carlsson, T. Edlund and H. Edlund. 1994. Insulin-promote-factor 1 is required for pancreas development in mice. *Nature* 371: 606–609.

Jung, J., M. Zheng, M. Goldfarb and K. S. Zaret. 1999. Initiation of mammalian liver development from endoderm by fibroblast growth factors. *Science* 284: 1998–2003.

Kanai-Azuma, M. and 10 others. 2002. Depletion of definitive gut endoderm in *Sox17*-null mutant mice. *Development* 129: 2367–2379.

Karolak, J. A., T. Gambin, P. Szafranski and P. Stankiewicz. 2021. Potential interactions between the TBX4-FGF10 and SHH-FOXF1 signaling during human lung development revealed using ChIP-seq. *Respir. Res.* 22: 26

Kedinger, M., P. M. Simon-Assman, F. Bouziges, C. Arnold, E. Alexandre and K. Haffen. 1990. Smooth muscle actin expression during rat gut development and induction in fetal skin fibroblastic cells associated with intestinal embryonic epithelium. *Differentiation* 43: 87–97.

Kim, B.-M., G. Buchner, I. Miletich, P. T. Sharpe and R. A. Shivdasani. 2005. The stomach mesenchymal transcription factor Barx1 specifies gastric epithelial identity through inhibition of transient Wnt signaling. *Dev. Cell* 8: 611–622.

Kim, H. Y., M. F. Pang, V. D. Varner, L. Kojima, E. Miller, D. C. Radisky and C. M. Nelson. 2015. Localized smooth muscle differentiation is essential for epithelial bifurcation during branching morphogenesis of the mammalian lung. *Dev. Cell* 34: 719–726.

Kim, H. Y., V. D. Varner and C. M. Nelson. 2013 Apical constriction initiates new bud formation during monopodial branching of the embryonic chicken lung. *Development* 140: 3146–3155.

Kishimoto K. and 8 others. 2020. Bidirectional Wnt signaling between endoderm and mesoderm confers tracheal identity in mouse and human cells. *Nat. Commun.* 11: 4159.

Kishimoto, K. and 7 others. 2018. Synchronized mesenchymal cell polarization and differentiation shape the formation of the murine trachea and esophagus. *Nat. Commun.* 9: 2816.

Kwon, G. S., M. Viotti and A. K. Hadjantonakis. 2008. The endoderm of the mouse embryo arises by dynamic widespread intercalation of embryonic and extraembryonic lineages. *Dev. Cell.* 15: 509–520.

Lammert, E., O. Cleaver and D. A. Melton. 2001. Induction of pancreatic differentiation by signals from blood vessels. *Science* 294: 564–567.

Langman, J. 1981. *Medical Embryology*, 4th Ed. Williams & Wilkins, Baltimore, MD.

Lawson, K. A., J. J. Meneses and R. A. Pedersen. 1986. Cell fate and cell lineage in the endoderm of the presomite mouse embryo, studied with an intracellular tracer. *Dev. Biol.* 115: 325–339.

Le Douarin, N. 1975. An experimental analysis of liver development. *Med. Biol.* 53: 427–455.

Lee, C. D., J. R. Friedman, J. T. Fulmer and K. H. Kaestner. 2005. The initiation of liver development is dependent on Foxa transcription factors. *Nature* 435: 944–947.

Lorent, K. and 13 others. 2015. Identification of a plant isoflavonoid that causes biliary atresia. *Sci. Transl. Med.* 7: 286ra67.

Lowe, C. J. 2021. Molecular insights into deuterostome evolution from hemichordate developmental biology. *Curr. Top. Dev. Biol.* 141: 75–117.

Lüdtke, T. H. and 9 others. 2016. Tbx2 and Tbx3 act downstream of Shh to maintain canonical Wnt Signaling during branching morphogenesis of the murine lung. *Dev. Cell.* 39: 239–253.

Matsumoto, K., H. Yoshitomi, J. Rossant and K. S. Zaret. 2001. Liver organogenesis promoted by endothelial cells prior to vascular function. *Science* 294: 559–563.

McLin, V. A., S. A. Rankin and A. M. Zorn. 2007. Repression of Wnt/beta-catenin signaling in the anterior endoderm is essential for liver and pancreas development. *Development* 134: 2207–2217.

Metzger, R. J., O. D. Klein, G. R. Martin and M. A. Krasnow. 2008. The branching programme of mouse lung development. *Nature* 453: 745–750.

Montalbano, A. P., S. Hawgood and C. R. Mendelson. 2013. Mice deficient in surfactant protein A (SP-A) and SP-D or in TLR2 manifest delayed parturition and decreased expression of inflammatory and contractile genes. *Endocrinology* 154: 483–498.

Moore-Scott, B. A. and N. R. Manley. 2005. Differential expression of sonic hedgehog along the anterior-posterior axis regulates patterning of pharyngeal pouch endoderm and pharyngeal endoderm-derived organs. *Dev. Biol.* 278: 323–335.

Mu, T. and 22 others. 2020. Embryonic liver developmental trajectory revealed by single-cell RNA sequencing in the Foxa2^{eGFP} mouse. *Commun. Biol.* 3: 642.

Nerurkar, N. L., C. Lee, L. Mahadevan and C. J. Tabin. 2019. Molecular control of macroscopic forces drives formation of the vertebrate hindgut. *Nature* 565: 480–484.

Nowotschin, S. and 13 others. 2019. The emergent landscape of the mouse gut endoderm at single-cell resolution. *Nature* 569: 361–367.

Ober, E. A., H. Verkade, H. A. Field and D. Y. Stainier. 2006. Mesodermal Wnt2b signalling positively regulates liver specification. *Nature* 442: 688–691.

Odom, D. T. and 12 others. 2004. Control of pancreas and liver gene expression by HNF transcription factors. *Science* 303: 1378–1381.

Offield, M. F. and 7 others. 1996. PDX-1 is required for pancreatic outgrowth and differentiation of the rostral duodenum. *Development* 122: 983–995.

Okada, T. S. 1960. Epithelio-mesenchymal interactions in the regional differentiation of the digestive tract in the amphibian embryo. *Roux Arch. Entwick. Mech.* 152: 1–21.

Pagliuca, F. W. and 8 others. 2014. Generation of functional human pancreatic beta cells in vitro. *Cell* 159: 428–439.

Pander, C. H. 1817. *Beiträge zur Entwicklungsgeschichte des Hühnchens im Eye*. Brönnér, Würzburg.

Pardo-Saganta, A., P. R. Tata, B. M. Law, B. Saez, R. D. Chow, M. Prabhu, T. Gridley and J. Rajagopal. 2015. Parent stem cells can serve as niches for their daughter cells. *Nature* 523: 597–601.

Parviz, F., C. Matullo, W. D. Garrison, L. Savatski, J. W. Adamson, G. Ning, K. H. Kaestner, J. M. Rossi, K. S. Zaret and S. A. Duncan. 2003. Hepatocyte nuclear factor 4a controls the development of the hepatic diverticulum and liver morphogenesis. *Nat. Genet.* 34: 292–296.

Reizel, Y. and 9 others. 2021. FoxA-dependent demethylation of DNA initiates epigenetic memory of cellular identity. *Dev. Cell.* 56: 602–612.e4.

Rezania, A. and 12 others. 2014. Reversal of diabetes with insulin-producing cells derived in vitro from human pluripotent stem cells. *Nat. Biotechnol.* 32: 1121–1133.

Roberts, D. J., D. M. Smith, D. J. Goff and C. J. Tabin. 1998. Epithelial-mesenchymal signaling during the regionalization of the chick gut. *Development* 125: 2791–2801.

Roberts, D. J., R. L. Johnson, A. C. Burke, C. E. Nelson, B. A. Morgan and C. Tabin. 1995. Sonic hedgehog is an endodermal signal inducing Bmp-4 and Hox genes during induction and regionalization of the chick hindgut. *Development* 121: 3163–3174.

Rossi, J. M., N. R. Dunn, B. I. Hogan and K. S. Zaret. 2001. Distinct mesodermal signals, including BMPs from the septum transversum mesenchyme, are required in combination for hepatogenesis from the endoderm. *Genes Dev.* 15: 998–2009.

Rothova, M., M. Thompson, H. Lickert and A. S. Tucker. 2012. Lineage tracing of the endoderm during oral development. *Dev. Dyn.* 241:1183–1191.

Sadler, T. W. 2009. *Langman's Medical Embryology*. Lippincott, Williams & Wilkins, Hagerstown, MD.

Savin, T., N. A. Kurpios, A. E. Shyer, P. Florescu, H. Liang, L. Mahadevan and C. J. Tabin. 2011. On the growth and form of the gut. *Nature* 476: 57–62.

Schmidt, C., F. Bladt, S. Goedecke, V. Brinkmann, W. Zschiesche, M. Sharpe, E. Gherardi and C. Birchmeier. 1995. Scatter factor/hepatocyte growth factor is essential for liver development. *Nature* 373: 699–702.

Shannon, J. M., L. D. Nielsen, S. A. Gebb and S. H. Randell. 1998. Mesenchyme specifies epithelial differentiation in reciprocal recombinants of embryonic lung and trachea. *Dev. Dyn.* 212: 482–494.

Sherwood, R. I., R. Maehr, E. O. Mazzoni and D. A. Melton. 2011. Wnt signaling specifies and patterns intestinal endoderm. *Mech. Dev.* 128: 387–400.

Shikaya, Y., Y.Takase, R. Tadokoro, R. Nakamura, M. Inaba and Y. Takahashi. 2021. Distribution map of peristaltic waves in the chicken embryonic gut reveals importance of ENS and inter-region cross talks along the gut axis. *BioRxiv* Dec. 9 2021 (preprint).

Shyer, A. E., T. R. Huycke, C. Lee, L. Mahadevan and C. J. Tabin. 2015. Bending gradients: How the intestinal stem cell gets its home. *Cell* 161: 569–580.

Shyer, A. E. and 7 others. 2013. Villification: How the gut gets its villi. *Science* 342: 212–218.

Smith, A. B. 2005. The pre-radial history of the echinoderms. *Geological Journal* 40: 255–280.

Spurlin, J. W. and C. M. Nelson. 2017. Building branched tissue structures: From single cell guidance to coordinated construction. *Philos. Trans. R. Soc. London B* 372: 20150527.

Stange, D. E. and 14 others. 2013. Differentiated Troy⁺ chief cells act as reserve stem cells to generate all lineages of the stomach epithelium. *Cell* 155: 357–368.

Stringer, E. J. and 13 others. 2012. Cdx2 determines the fate of postnatal intestinal endoderm. *Development* 139: 465–474.

Takayama, K. and 8 others. 2011. Efficient and directive generation of two distinct endoderm lineages from human ESCs and iPSCs by differentiation stage-specific SOX17 transduction. *PLoS ONE* 6: e21780.

Tata, P. R. and 11 others. 2013. Dedifferentiation of committed epithelial cells into stem cells in vivo. *Nature* 503: 218–223.

Theodosiou, A. and C. J. Tabin. 2005. *Sox9* and *Nkx2.5* determine the pyloric sphincter epithelium under the control of BMP signaling. *Dev. Biol.* 279: 481–490.

Tremblay, K. D. and K. S. Zaret. 2005. Distinct populations of endoderm cells converge to generate the embryonic liver bud and ventral foregut tissues. *Dev. Biol.* 280: 87–99.

Uemura, M., H. Igarashi, A. Ozawa, N. Tsunekawa, M. Kurohmaru, M. Kanai-Azuma and Y. Kanai. 2015. Fate mapping of gallbladder progenitors in posteroventral foregut endoderm of mouse early somite-stage embryos. *J. Vet. Med. Sci.* 77: 587–591.

Veitch, E., J. Begbie, T. F. Schilling, M. M. Smith and A. Graham. 1999. Pharyngeal arch patterning in the absence of neural crest. *Curr. Biol.* 9: 1481–1484.

Vincent, S. D., N. R. Dunn, S. Hayashi, D. P. Norris and E. J. Robertson. 2003. Cell fate decisions within the mouse organizer are governed by graded Nodal signals. *Genes Dev.* 17: 1646–1662.

Viotti, M., A. C. Foley and A. K. Hadjantonakis. 2014a. Gutsy moves in mice: Cellular and molecular dynamics of endoderm morphogenesis. *Philos. Trans. R. Soc. London* 369B:

20130547.

- Viotti, M., S. Nowotschin and A. K. Hadjantonakis. 2014b. SOX17 links gut endoderm morphogenesis and germ layer segregation. *Nat. Cell Biol.* 16: 1146–1156.
- Wallace, K. N. and M. Pack. 2003. Unique and conserved aspects of gut development in zebrafish. *Dev. Biol.* 255: 12–29.
- Walton, K. D. and 8 others. 2012. Hedgehog-responsive mesenchymal clusters direct patterning and emergence of intestinal villi. *Proc. Natl. Acad. Sci. USA* 109: 15817–15822.
- Walton, K. D. and 10 others. 2016. Villification in the mouse: BMP signals control intestinal villus patterning. *Development* 143: 427–436.
- Weaver, M., N. R. Dunn and B. L. Hogan. 2000. Bmp4 and Fgf10 play opposing roles during lung bud morphogenesis. *Development* 127: 2695–2704
- Wessells, N. K. 1970. Mammalian lung development: Interactions in formulation and morphogenesis of tracheal buds. *J. Exp. Zool.* 175: 455–466.
- Woo, J., I. Miletich, B.-M. Kim, P. T. Sharpe and R. A. Shivdasani. 2011. Barx1-mediated inhibition of Wnt signaling in the mouse thoracic foregut controls tracheo-esophageal septation and epithelial differentiation. *PLOS ONE* 6: e22493.
- Xu, C. R., P. A. Cole, D. J. Meyers, J. Kormish, S. Dent and K. S. Zaret. 2011. Chromatin “prepattern” and histone modifiers in a fate choice for liver and pancreas. *Science* 332: 963–966.
- Yokouchi, Y., J. Sakiyama and A. Kuroiwa. 1995. Coordinate expression of *Abd-B* subfamily genes of the HoxA cluster in developing digestive tract of the chick embryo. *Dev. Biol.* 169: 76–89.
- Yoshitomi, H. and K. S. Zaret. 2004. Endothelial cell interactions initiate dorsal pancreas development by selectively inducing transcription factor Ptfla. *Development* 131: 807–814.
- Zaret, K. S. 2016. From endoderm to liver bud: Paradigms of cell type specification and tissue morphogenesis. *Curr. Top. Dev. Biol.* 117: 647–669.

Zaret, K. S. 2016. From endoderm to liver bud: Paradigms of cell type specification and tissue morphogenesis. *Curr. Top. Dev. Biol.* 117: 647–669.

Zhang, W., T. A. Yatskievych, R. K. Baker and P. B. Antin. 2004. Regulation of Hex gene expression and initial stages of avian hepatogenesis by BMP and FGF signaling. *Dev. Biol.* 268: 312–326.

Zhou, Q., A. C. Law, J. Rajagopal, W. J. Anderson, P. A. Gray and D. A. Melton. 2007. A multipotent progenitor domain guides pancreatic organogenesis. *Dev. Cell* 13: 103–114.

Zhou, Y. and 12 others. 2011. Latent TGF- β binding protein 3 identifies a second heart field in zebrafish. *Nature* 474: 645–648.