

Bibliography

- Abecasis, G.R., Altshuler, D., Auton, A., Brooks, L.D., Durbin, R.M., Gibbs, R.A., Hurles, M.E., McVean, G.A., 2010. A map of human genome variation from population-scale sequencing. *Nature* 467, 1061-1073.
- Abecasis, G.R., Auton, A., Brooks, L.D., DePristo, M.A., Durbin, R.M., Handsaker, R.E., Kang, H.M., Marth, G.T., McVean, G.A., 2012. An integrated map of genetic variation from 1,092 human genomes. *Nature* 491, 56-65.
- Agathon, A., Thisse, B., Thisse, C., 2001. Morpholino knock-down of antivin1 and antivin2 upregulates nodal signaling. *Genesis* 30, 178-182.
- Ahlgren, U., Pfaff, S.L., Jessell, T.M., Edlund, T., Edlund, H., 1997. Independent requirement for ISL1 in formation of pancreatic mesenchyme and islet cells. *Nature* 385, 257-260.
- Al-Dosari, M.S., Al-Muhsen, S., Al-Jazaeri, A., Mayerle, J., Zenker, M., Alkuraya, F.S., 2008. Johanson-Blizzard syndrome: report of a novel mutation and severe liver involvement. *American journal of medical genetics. Part A* 146A, 1875-1879.
- Alexa, A., Rahnenfuhrer, J., Lengauer, T., 2006. Improved scoring of functional groups from gene expression data by decorrelating GO graph structure. *Bioinformatics* 22, 1600-1607.
- Alexander, J., Rothenberg, M., Henry, G.L., Stainier, D.Y., 1999. casanova plays an early and essential role in endoderm formation in zebrafish. *Developmental biology* 215, 343-357.
- Alexander, J., Stainier, D.Y., 1999. A molecular pathway leading to endoderm formation in zebrafish. *Current biology : CB* 9, 1147-1157.
- Alexandrov, A., Colognori, D., Steitz, J.A., 2011. Human eIF4AIII interacts with an eIF4G-like partner, NOM1, revealing an evolutionarily conserved function outside the exon junction complex. *Genes & development* 25, 1078-1090.
- Amsterdam, A., Burgess, S., Golling, G., Chen, W., Sun, Z., Townsend, K., Farrington, S., Haldi, M., Hopkins, N., 1999. A large-scale insertional mutagenesis screen in zebrafish. *Genes & development* 13, 2713-2724.
- Amsterdam, A., Nissen, R.M., Sun, Z., Swindell, E.C., Farrington, S., Hopkins, N., 2004. Identification of 315 genes essential for early zebrafish development. *Proceedings of the National Academy of Sciences of the United States of America* 101, 12792-12797.
- Amsterdam, A., Varshney, G.K., Burgess, S.M., 2011. Retroviral-mediated Insertional Mutagenesis in Zebrafish. *Methods in cell biology* 104, 59-82.
- Anders, S., Huber, W., 2010. Differential expression analysis for sequence count data. *Genome biology* 11, R106.eerrrr

Anderson, K.R., Singer, R.A., Balderes, D.A., Hernandez-Lagunas, L., Johnson, C.W., Artinger, K.B., Sussel, L., 2011. The L6 domain tetraspanin Tm4sf4 regulates endocrine pancreas differentiation and directed cell migration. *Development* 138, 3213-3224.

Anderson, K.R., Torres, C.A., Solomon, K., Becker, T.C., Newgard, C.B., Wright, C.V., Hagman, J., Sussel, L., 2009a. Cooperative transcriptional regulation of the essential pancreatic islet gene NeuroD1 (beta2) by Nkx2.2 and neurogenin 3. *The Journal of biological chemistry* 284, 31236-31248.

Anderson, R.M., Bosch, J.A., Goll, M.G., Hesselson, D., Dong, P.D., Shin, D., Chi, N.C., Shin, C.H., Schlegel, A., Halpern, M., Stainier, D.Y., 2009b. Loss of Dnmt1 catalytic activity reveals multiple roles for DNA methylation during pancreas development and regeneration. *Developmental biology* 334, 213-223.

Andre, M., Ando, S., Ballagny, C., Durliat, M., Poupart, G., Briancon, C., Babin, P.J., 2000. Intestinal fatty acid binding protein gene expression reveals the cephalocaudal patterning during zebrafish gut morphogenesis. *The International journal of developmental biology* 44, 249-252.

Aoki, T.O., David, N.B., Minchiotti, G., Saint-Etienne, L., Dickmeis, T., Persico, G.M., Strahle, U., Mourrain, P., Rosa, F.M., 2002a. Molecular integration of casanova in the Nodal signalling pathway controlling endoderm formation. *Development* 129, 275-286.

Aoki, T.O., Mathieu, J., Saint-Etienne, L., Rebagliati, M.R., Peyrieras, N., Rosa, F.M., 2002b. Regulation of nodal signalling and mesendoderm formation by TARAM-A, a TGFbeta-related type I receptor. *Developmental biology* 241, 273-288.

Appel, B., Fritz, A., Westerfield, M., Grunwald, D.J., Eisen, J.S., Riley, B.B., 1999. Delta-mediated specification of midline cell fates in zebrafish embryos. *Current biology : CB* 9, 247-256.

Argenton, F., Zecchin, E., Bortolussi, M., 1999. Early appearance of pancreatic hormone-expressing cells in the zebrafish embryo. *Mechanisms of development* 87, 217-221.

Arkhipova, V., Wendik, B., Devos, N., Ek, O., Peers, B., Meyer, D., 2012. Characterization and regulation of the hb9/mnx1 beta-cell progenitor specific enhancer in zebrafish. *Developmental biology* 365, 290-302.

Armistead, J., Khatkar, S., Meyer, B., Mark, B.L., Patel, N., Coghlan, G., Lamont, R.E., Liu, S., Wiechert, J., Cattini, P.A., Koetter, P., Wrogemann, K., Greenberg, C.R., Entian, K.D., Zelinski, T., Triggs-Raine, B., 2009. Mutation of a gene essential for ribosome biogenesis, EMG1, causes Bowen-Conradi syndrome. *American journal of human genetics* 84, 728-739.

Armistead, J., Triggs-Raine, B., 2014. Diverse diseases from a ubiquitous process: the ribosomopathy paradox. *FEBS letters* 588, 1491-1500.

Artavanis-Tsakonas, S., Rand, M.D., Lake, R.J., 1999. Notch signaling: cell fate control and signal integration in development. *Science* 284, 770-776.

Ashburner, M., Ball, C.A., Blake, J.A., Botstein, D., Butler, H., Cherry, J.M., Davis, A.P., Dolinski, K., Dwight, S.S., Eppig, J.T., Harris, M.A., Hill, D.P., Issel-Tarver, L., Kasarskis, A., Lewis, S., Matese, J.C., Richardson, J.E., Ringwald, M., Rubin, G.M., Sherlock, G., 2000.

Gene ontology: tool for the unification of biology. The Gene Ontology Consortium. Nature genetics 25, 25-29.

Azuma, M., Toyama, R., Laver, E., Dawid, I.B., 2006. Perturbation of rRNA synthesis in the bap28 mutation leads to apoptosis mediated by p53 in the zebrafish central nervous system. The Journal of biological chemistry 281, 13309-13316.

Balciunas, D., Davidson, A.E., Sivasubbu, S., Hermanson, S.B., Welle, Z., Ekker, S.C., 2004. Enhancer trapping in zebrafish using the Sleeping Beauty transposon. BMC genomics 5, 62.

Barlow, J.L., Drynan, L.F., Hewett, D.R., Holmes, L.R., Lorenzo-Abalde, S., Lane, A.L., Jolin, H.E., Pannell, R., Middleton, A.J., Wong, S.H., Warren, A.J., Wainscoat, J.S., Boultwood, J., McKenzie, A.N., 2010. A p53-dependent mechanism underlies macrocytic anemia in a mouse model of human 5q- syndrome. Nature medicine 16, 59-66.

Ben-Shem, A., Garreau de Loubresse, N., Melnikov, S., Jenner, L., Yusupova, G., Yusupov, M., 2011. The structure of the eukaryotic ribosome at 3.0 Å resolution. Science 334, 1524-1529.

Benjamini Y, Hochberg Y, 1995. Controlling the false discovery rate: a practical and powerful approach to multiple testing. J Roy Stat Soc B, 289-300.

Berghmans, S., Murphey, R.D., Wienholds, E., Neuberg, D., Kutok, J.L., Fletcher, C.D., Morris, J.P., Liu, T.X., Schulte-Merker, S., Kanki, J.P., Plasterk, R., Zon, L.I., Look, A.T., 2005. tp53 mutant zebrafish develop malignant peripheral nerve sheath tumors. Proceedings of the National Academy of Sciences of the United States of America 102, 407-412.

Bernstein, K.A., Baserga, S.J., 2004. The small subunit processome is required for cell cycle progression at G1. Molecular biology of the cell 15, 5038-5046.

Bernstein, K.A., Bleichert, F., Bean, J.M., Cross, F.R., Baserga, S.J., 2007. Ribosome biogenesis is sensed at the Start cell cycle checkpoint. Molecular biology of the cell 18, 953-964.

Bertrand, J.Y., Chi, N.C., Santoso, B., Teng, S., Stainier, D.Y., Traver, D., 2010. Haematopoietic stem cells derive directly from aortic endothelium during development. Nature 464, 108-111.

Betard, C., Rasquin-Weber, A., Brewer, C., Drouin, E., Clark, S., Verner, A., Darmond-Zwaig, C., Fortin, J., Mercier, J., Chagnon, P., Fujiwara, T.M., Morgan, K., Richter, A., Hudson, T.J., Mitchell, G.A., 2000. Localization of a recessive gene for North American Indian childhood cirrhosis to chromosome region 16q22-and identification of a shared haplotype. American journal of human genetics 67, 222-228.

Biemar, F., Argenton, F., Schmidtke, R., Epperlein, S., Peers, B., Driever, W., 2001. Pancreas development in zebrafish: early dispersed appearance of endocrine hormone expressing cells and their convergence to form the definitive islet. Developmental biology 230, 189-203.

Binot, A.C., Manfroid, I., Flasse, L., Winandy, M., Motte, P., Martial, J.A., Peers, B., Voz, M.L., 2010. Nkx6.1 and nkx6.2 regulate alpha- and beta-cell formation in zebrafish by acting on pancreatic endocrine progenitor cells. *Developmental biology* 340, 397-407.

Bjornson, C.R., Griffin, K.J., Farr, G.H., 3rd, Terashima, A., Himeda, C., Kikuchi, Y., Kimelman, D., 2005. Eomesodermin is a localized maternal determinant required for endoderm induction in zebrafish. *Developmental cell* 9, 523-533.

Blackburn, P.R., Campbell, J.M., Clark, K.J., Ekker, S.C., 2013. The CRISPR System-Keeping Zebrafish Gene Targeting Fresh. *Zebrafish* 10, 116-118.

Boglev, Y., Badrock, A.P., Trotter, A.J., Du, Q., Richardson, E.J., Parslow, A.C., Markmiller, S.J., Hall, N.E., de Jong-Curtain, T.A., Ng, A.Y., Verkade, H., Ober, E.A., Field, H.A., Shin, D., Shin, C.H., Hannan, K.M., Hannan, R.D., Pearson, R.B., Kim, S.H., Ess, K.C., Lieschke, G.J., Stainier, D.Y., Heath, J.K., 2013. Autophagy induction is a Tor- and Tp53-independent cell survival response in a zebrafish model of disrupted ribosome biogenesis. *PLoS genetics* 9, e1003279.

Bolze, A., Mahlaoui, N., Byun, M., Turner, B., Trede, N., Ellis, S.R., Abhyankar, A., Itan, Y., Patin, E., Brebner, S., Sackstein, P., Puel, A., Picard, C., Abel, L., Quintana-Murci, L., Faust, S.N., Williams, A.P., Baretto, R., Duddridge, M., Kini, U., Pollard, A.J., Gaud, C., Frange, P., Orbach, D., Emile, J.F., Stephan, J.L., Sorensen, R., Plebani, A., Hammarstrom, L., Conley, M.E., Selleri, L., Casanova, J.L., 2013. Ribosomal protein SA haploinsufficiency in humans with isolated congenital asplenia. *Science* 340, 976-978.

Bonafe, L., Schmitt, K., Eich, G., Giedion, A., Superti-Furga, A., 2002. RMRP gene sequence analysis confirms a cartilage-hair hypoplasia variant with only skeletal manifestations and reveals a high density of single-nucleotide polymorphisms. *Clinical genetics* 61, 146-151.

Boniface, E.J., Lu, J., Victoroff, T., Zhu, M., Chen, W., 2009. FlEx-based transgenic reporter lines for visualization of Cre and Flp activity in live zebrafish. *Genesis* 47, 484-491.

Boocock, G.R., Morrison, J.A., Popovic, M., Richards, N., Ellis, L., Durie, P.R., Rommens, J.M., 2003. Mutations in SBDS are associated with Shwachman-Diamond syndrome. *Nature genetics* 33, 97-101.

Boultwood, J., Pellagatti, A., Wainscoat, J.S., 2012. Haploinsufficiency of ribosomal proteins and p53 activation in anemia: Diamond-Blackfan anemia and the 5q- syndrome. *Advances in biological regulation* 52, 196-203.

Bowen, P., Conradi, G.J., 1976. Syndrome of skeletal and genitourinary anomalies with unusual facies and failure to thrive in Hutterite sibs. *Birth defects original article series* 12, 101-108.

Butterfield, R.J., Stevenson, T.J., Xing, L., Newcomb, T.M., Nelson, B., Zeng, W., Li, X., Lu, H.M., Lu, H., Farwell Gonzalez, K.D., Wei, J.P., Chao, E.C., Prior, T.W., Snyder, P.J., Bonkowsky, J.L., Swoboda, K.J., 2014. Congenital lethal motor neuron disease with a novel defect in ribosome biogenesis. *Neurology* 82, 1322-1330.

Campbell, L.J., Willoughby, J.J., Jensen, A.M., 2012. Two types of Tet-On transgenic lines for doxycycline-inducible gene expression in zebrafish rod photoreceptors and a gateway-based tet-on toolkit. *PloS one* 7, e51270.

Cano, D.A., Hebrok, M., Zenker, M., 2007. Pancreatic development and disease. *Gastroenterology* 132, 745-762.

Castle, C.D., Cassimere, E.K., Denicourt, C., 2012. LAS1L interacts with the mammalian Rix1 complex to regulate ribosome biogenesis. *Molecular biology of the cell* 23, 716-728.

Castle, C.D., Cassimere, E.K., Lee, J., Denicourt, C., 2010. Las1L is a nucleolar protein required for cell proliferation and ribosome biogenesis. *Molecular and cellular biology* 30, 4404-4414.

Castle, C.D., Sardana, R., Dandekar, V., Borgianini, V., Johnson, A.W., Denicourt, C., 2013. Las1 interacts with Grc3 polynucleotide kinase and is required for ribosome synthesis in *Saccharomyces cerevisiae*. *Nucleic acids research* 41, 1135-1150.

Chagnon, P., Michaud, J., Mitchell, G., Mercier, J., Marion, J.F., Drouin, E., Rasquin-Weber, A., Hudson, T.J., Richter, A., 2002. A missense mutation (R565W) in cirrhin (FLJ14728) in North American Indian childhood cirrhosis. *American journal of human genetics* 71, 1443-1449.

Charette, J.M., Baserga, S.J., 2010. The DEAD-box RNA helicase-like Utp25 is an SSU processome component. *RNA* 16, 2156-2169.

Chen, A.T., Zon, L.I., 2009. Zebrafish blood stem cells. *Journal of cellular biochemistry* 108, 35-42.

Chen, J., Ng, S.M., Chang, C., Zhang, Z., Bourdon, J.C., Lane, D.P., Peng, J., 2009. p53 isoform delta113p53 is a p53 target gene that antagonizes p53 apoptotic activity via BclxL activation in zebrafish. *Genes & development* 23, 278-290.

Chen, J., Ruan, H., Ng, S.M., Gao, C., Soo, H.M., Wu, W., Zhang, Z., Wen, Z., Lane, D.P., Peng, J., 2005. Loss of function of def selectively up-regulates Delta113p53 expression to arrest expansion growth of digestive organs in zebrafish. *Genes & development* 19, 2900-2911.

Chen, S., Li, C., Yuan, G., Xie, F., 2007. Anatomical and histological observation on the pancreas in adult zebrafish. *Pancreas* 34, 120-125.

Chen, Y., Schier, A.F., 2001. The zebrafish Nodal signal Squint functions as a morphogen. *Nature* 411, 607-610.

Cheng, P.Y., Lin, C.C., Wu, C.S., Lu, Y.F., Lin, C.Y., Chung, C.C., Chu, C.Y., Huang, C.J., Tsai, C.Y., Korzh, S., Wu, J.L., Hwang, S.P., 2008. Zebrafish cdx1b regulates expression of downstream factors of Nodal signaling during early endoderm formation. *Development* 135, 941-952.

Cheng, W., Guo, L., Zhang, Z., Soo, H.M., Wen, C., Wu, W., Peng, J., 2006. HNF factors form a network to regulate liver-enriched genes in zebrafish. *Developmental biology* 294, 482-496.

Choi, Y.B., Ko, J.K., Shin, J., 2004. The transcriptional corepressor, PELP1, recruits HDAC2 and masks histones using two separate domains. *The Journal of biological chemistry* 279, 50930-50941.

Chung, W.S., Shin, C.H., Stainier, D.Y., 2008. Bmp2 signaling regulates the hepatic versus pancreatic fate decision. *Developmental cell* 15, 738-748.

Chung, W.S., Stainier, D.Y., 2008. Intra-endodermal interactions are required for pancreatic beta cell induction. *Developmental cell* 14, 582-593.

Cipolli, M., 2001. Shwachman-Diamond syndrome: clinical phenotypes. *Pancreatology* 1, 543-548.

Clark, K.J., Voytas, D.F., Ekker, S.C., 2011. A TALE of two nucleases: gene targeting for the masses? *Zebrafish* 8, 147-149.

Cmejla, R., Cmejlova, J., Handrkova, H., Petrak, J., Pospisilova, D., 2007. Ribosomal protein S17 gene (RPS17) is mutated in Diamond-Blackfan anemia. *Human mutation* 28, 1178-1182.

Collins, J.E., White, S., Searle, S.M., Stemple, D.L., 2012. Incorporating RNA-seq data into the zebrafish Ensembl genebuild. *Genome research* 22, 2067-2078.

Collombat, P., Hecksher-Sorensen, J., Broccoli, V., Krull, J., Ponte, I., Mundiger, T., Smith, J., Gruss, P., Serup, P., Mansouri, A., 2005. The simultaneous loss of Arx and Pax4 genes promotes a somatostatin-producing cell fate specification at the expense of the alpha- and beta-cell lineages in the mouse endocrine pancreas. *Development* 132, 2969-2980.

Collombat, P., Mansouri, A., Hecksher-Sorensen, J., Serup, P., Krull, J., Gradwohl, G., Gruss, P., 2003. Opposing actions of Arx and Pax4 in endocrine pancreas development. *Genes & development* 17, 2591-2603.

Collombat, P., Xu, X., Ravassard, P., Sosa-Pineda, B., Dussaud, S., Billestrup, N., Madsen, O.D., Serup, P., Heimberg, H., Mansouri, A., 2009. The ectopic expression of Pax4 in the mouse pancreas converts progenitor cells into alpha and subsequently beta cells. *Cell* 138, 449-462.

Culp, P., Nusslein-Volhard, C., Hopkins, N., 1991. High-frequency germ-line transmission of plasmid DNA sequences injected into fertilized zebrafish eggs. *Proceedings of the National Academy of Sciences of the United States of America* 88, 7953-7957.

Cvejic, A., Hall, C., Bak-Maier, M., Flores, M.V., Crosier, P., Redd, M.J., Martin, P., 2008. Analysis of WASp function during the wound inflammatory response--live-imaging studies in zebrafish larvae. *Journal of cell science* 121, 3196-3206.

Dai, M.S., Arnold, H., Sun, X.X., Sears, R., Lu, H., 2007. Inhibition of c-Myc activity by ribosomal protein L11. *The EMBO journal* 26, 3332-3345.

Dalgin, G., Ward, A.B., Hao le, T., Beattie, C.E., Nechiporuk, A., Prince, V.E., 2011. Zebrafish mnx1 controls cell fate choice in the developing endocrine pancreas. *Development* 138, 4597-4608.

Danilova, N., Sakamoto, K.M., Lin, S., 2008. Ribosomal protein S19 deficiency in zebrafish leads to developmental abnormalities and defective erythropoiesis through activation of p53 protein family. *Blood* 112, 5228-5237.

Danilova, N., Sakamoto, K.M., Lin, S., 2011. Ribosomal protein L11 mutation in zebrafish leads to haematopoietic and metabolic defects. *British journal of haematology* 152, 217-228.

Dauwerse, J.G., Dixon, J., Seland, S., Ruivenkamp, C.A., van Haeringen, A., Hoefsloot, L.H., Peters, D.J., Boers, A.C., Daumer-Haas, C., Maiwald, R., Zweier, C., Kerr, B., Cobo, A.M., Toral, J.F., Hoogeboom, A.J., Lohmann, D.R., Hehr, U., Dixon, M.J., Breuning, M.H., Wieczorek, D., 2011. Mutations in genes encoding subunits of RNA polymerases I and III cause Treacher Collins syndrome. *Nature genetics* 43, 20-22.

Davidson, A.E., Balciunas, D., Mohn, D., Shaffer, J., Hermanson, S., Sivasubbu, S., Cliff, M.P., Hackett, P.B., Ekker, S.C., 2003. Efficient gene delivery and gene expression in zebrafish using the Sleeping Beauty transposon. *Developmental biology* 263, 191-202.

Davuluri, G., Gong, W., Yusuff, S., Lorent, K., Muthumani, M., Dolan, A.C., Pack, M., 2008. Mutation of the zebrafish nucleoporin elys sensitizes tissue progenitors to replication stress. *PLoS genetics* 4, e1000240.

de Bruijn, E., Cuppen, E., Feitsma, H., 2009. Highly Efficient ENU Mutagenesis in Zebrafish. *Methods Mol Biol* 546, 3-12.

de Jong, J.L., Zon, L.I., 2005. Use of the zebrafish system to study primitive and definitive hematopoiesis. *Annual review of genetics* 39, 481-501.

de Jong-Curtain, T.A., Parslow, A.C., Trotter, A.J., Hall, N.E., Verkade, H., Tabone, T., Christie, E.L., Crowhurst, M.O., Layton, J.E., Shepherd, I.T., Nixon, S.J., Parton, R.G., Zon, L.I., Stainier, D.Y., Lieschke, G.J., Heath, J.K., 2009. Abnormal nuclear pore formation triggers apoptosis in the intestinal epithelium of elys-deficient zebrafish. *Gastroenterology* 136, 902-911.

de Pater, E., Clijsters, L., Marques, S.R., Lin, Y.F., Garavito-Aguilar, Z.V., Yelon, D., Bakkers, J., 2009. Distinct phases of cardiomyocyte differentiation regulate growth of the zebrafish heart. *Development* 136, 1633-1641.

Dennis, G., Jr., Sherman, B.T., Hosack, D.A., Yang, J., Gao, W., Lane, H.C., Lempicki, R.A., 2003. DAVID: Database for Annotation, Visualization, and Integrated Discovery. *Genome biology* 4, P3.

Devos, N., Deflorian, G., Biemar, F., Bortolussi, M., Martial, J.A., Peers, B., Argenton, F., 2002. Differential expression of two somatostatin genes during zebrafish embryonic development. *Mechanisms of development* 115, 133-137.

Dick, A., Mayr, T., Bauer, H., Meier, A., Hammerschmidt, M., 2000. Cloning and characterization of zebrafish smad2, smad3 and smad4. *Gene* 246, 69-80.

dilorio, P., Alexa, K., Choe, S.K., Etheridge, L., Sagerstrom, C.G., 2007. TALE-family homeodomain proteins regulate endodermal sonic hedgehog expression and pattern the anterior endoderm. *Developmental biology* 304, 221-231.

dilorio, P.J., Moss, J.B., Sbrogna, J.L., Karlstrom, R.O., Moss, L.G., 2002. Sonic hedgehog is required early in pancreatic islet development. *Developmental biology* 244, 75-84.

Dinman, J.D., Berry, M.J., 2007. Translational Control in Biology and Medicine. Cold Spring Harbor Laborator Press, New York.

Djiotsa, J., Verbruggen, V., Giacomotto, J., Ishibashi, M., Manning, E., Rinkwitz, S., Manfroid, I., Voz, M.L., Peers, B., 2012. Pax4 is not essential for beta-cell differentiation in zebrafish embryos but modulates alpha-cell generation by repressing arx gene expression. *BMC developmental biology* 12, 37.

Doherty, L., Sheen, M.R., Vlachos, A., Choesmel, V., O'Donohue, M.F., Clinton, C., Schneider, H.E., Sieff, C.A., Newburger, P.E., Ball, S.E., Niewiadomska, E., Matysiak, M., Glader, B., Arceci, R.J., Farrar, J.E., Atsidaftos, E., Lipton, J.M., Gleizes, P.E., Gazda, H.T., 2010. Ribosomal protein genes RPS10 and RPS26 are commonly mutated in Diamond-Blackfan anemia. *American journal of human genetics* 86, 222-228.

Donati, G., Brightenti, E., Vici, M., Mazzini, G., Trere, D., Montanaro, L., Derenzini, M., 2011. Selective inhibition of rRNA transcription downregulates E2F-1: a new p53-independent mechanism linking cell growth to cell proliferation. *Journal of cell science* 124, 3017-3028.

Donati, G., Montanaro, L., Derenzini, M., 2012. Ribosome biogenesis and control of cell proliferation: p53 is not alone. *Cancer research* 72, 1602-1607.

Dong, P.D., Munson, C.A., Norton, W., Crosnier, C., Pan, X., Gong, Z., Neumann, C.J., Stainier, D.Y., 2007. Fgf10 regulates hepatopancreatic ductal system patterning and differentiation. *Nature genetics* 39, 397-402.

Dong, P.D., Provost, E., Leach, S.D., Stainier, D.Y., 2008. Graded levels of Ptf1a differentially regulate endocrine and exocrine fates in the developing pancreas. *Genes & development* 22, 1445-1450.

Dooley, C.M., Scahill, C., Fenyes, F., Kettleborough, R.N., Stemple, D.L., Busch-Nentwich, E.M., 2013. Multi-allelic phenotyping - A systematic approach for the simultaneous analysis of multiple induced mutations. *Methods*.

Doseff, A.I., Arndt, K.T., 1995. LAS1 is an essential nuclear protein involved in cell morphogenesis and cell surface growth. *Genetics* 141, 857-871.

Dosil, M., Bustelo, X.R., 2004. Functional characterization of Pwp2, a WD family protein essential for the assembly of the 90 S pre-ribosomal particle. *The Journal of biological chemistry* 279, 37385-37397.

Dougan, S.T., Warga, R.M., Kane, D.A., Schier, A.F., Talbot, W.S., 2003. The role of the zebrafish nodal-related genes squint and cyclops in patterning of mesendoderm. *Development* 130, 1837-1851.

Dragon, F., Gallagher, J.E., Compagnone-Post, P.A., Mitchell, B.M., Porwancher, K.A., Wehner, K.A., Wormsley, S., Settlage, R.E., Shabanowitz, J., Osheim, Y., Beyer, A.L., Hunt, D.F., Baserga, S.J., 2002. A large nucleolar U3 ribonucleoprotein required for 18S ribosomal RNA biogenesis. *Nature* 417, 967-970.

Draptchinskaia, N., Gustavsson, P., Andersson, B., Pettersson, M., Willig, T.N., Dianzani, I., Ball, S., Tchernia, G., Klar, J., Matsson, H., Tentler, D., Mohandas, N., Carlsson, B., Dahl,

N., 1999. The gene encoding ribosomal protein S19 is mutated in Diamond-Blackfan anaemia. *Nature genetics* 21, 169-175.

Driever, W., Solnica-Krezel, L., Schier, A.F., Neuhauss, S.C., Malicki, J., Stemple, D.L., Stainier, D.Y., Zwartkruis, F., Abdelilah, S., Rangini, Z., Belak, J., Boggs, C., 1996. A genetic screen for mutations affecting embryogenesis in zebrafish. *Development* 123, 37-46.

Drygin, D., Rice, W.G., Grummt, I., 2010. The RNA polymerase I transcription machinery: an emerging target for the treatment of cancer. *Annual review of pharmacology and toxicology* 50, 131-156.

Du, A., Hunter, C.S., Murray, J., Noble, D., Cai, C.L., Evans, S.M., Stein, R., May, C.L., 2009. Islet-1 is required for the maturation, proliferation, and survival of the endocrine pancreas. *Diabetes* 58, 2059-2069.

Durie, P.R., 1996. Inherited and congenital disorders of the exocrine pancreas. *The Gastroenterologist* 4, 169-187.

Ebert, B.L., Pretz, J., Bosco, J., Chang, C.Y., Tamayo, P., Galili, N., Raza, A., Root, D.E., Attar, E., Ellis, S.R., Golub, T.R., 2008. Identification of RPS14 as a 5q- syndrome gene by RNA interference screen. *Nature* 451, 335-339.

Eisen, J.S., Smith, J.C., 2008. Controlling morpholino experiments: don't stop making antisense. *Development* 135, 1735-1743.

Emelyanov, A., Parinov, S., 2008. Mifepristone-inducible LexPR system to drive and control gene expression in transgenic zebrafish. *Developmental biology* 320, 113-121.

Eschrich, D., Buchhaupt, M., Kotter, P., Entian, K.D., 2002. Nep1p (Emg1p), a novel protein conserved in eukaryotes and archaea, is involved in ribosome biogenesis. *Current genetics* 40, 326-338.

Esni, F., Ghosh, B., Biankin, A.V., Lin, J.W., Albert, M.A., Yu, X., MacDonald, R.J., Civin, C.I., Real, F.X., Pack, M.A., Ball, D.W., Leach, S.D., 2004. Notch inhibits Ptf1 function and acinar cell differentiation in developing mouse and zebrafish pancreas. *Development* 131, 4213-4224.

Farrar, J.E., Nater, M., Caywood, E., McDevitt, M.A., Kowalski, J., Takemoto, C.M., Talbot, C.C., Jr., Meltzer, P., Esposito, D., Beggs, A.H., Schneider, H.E., Grabowska, A., Ball, S.E., Niewiadomska, E., Sieff, C.A., Vlachos, A., Atsidaftos, E., Ellis, S.R., Lipton, J.M., Gazda, H.T., Arceci, R.J., 2008. Abnormalities of the large ribosomal subunit protein, Rpl35a, in Diamond-Blackfan anemia. *Blood* 112, 1582-1592.

Favareto, F., Caprino, D., Micalizzi, C., Rosanda, C., Boeri, E., Mori, P.G., 1989. New clinical aspects of Pearson's syndrome. Report of three cases. *Haematologica* 74, 591-594.

Feil, R., Wagner, J., Metzger, D., Chambon, P., 1997. Regulation of Cre recombinase activity by mutated estrogen receptor ligand-binding domains. *Biochemical and biophysical research communications* 237, 752-757.

- Feng, H., Langenau, D.M., Madge, J.A., Quinkertz, A., Gutierrez, A., Neuberg, D.S., Kanki, J.P., Look, A.T., 2007. Heat-shock induction of T-cell lymphoma/leukaemia in conditional Cre/lox-regulated transgenic zebrafish. *British journal of haematology* 138, 169-175.
- Field, H.A., Dong, P.D., Beis, D., Stainier, D.Y., 2003a. Formation of the digestive system in zebrafish. II. Pancreas morphogenesis. *Developmental biology* 261, 197-208.
- Field, H.A., Ober, E.A., Roeser, T., Stainier, D.Y., 2003b. Formation of the digestive system in zebrafish. I. Liver morphogenesis. *Developmental biology* 253, 279-290.
- Finch, A.J., Hilcenko, C., Basse, N., Drynan, L.F., Goyenechea, B., Menne, T.F., Gonzalez Fernandez, A., Simpson, P., D'Santos, C.S., Arends, M.J., Donadieu, J., Bellanne-Chantelot, C., Costanzo, M., Boone, C., McKenzie, A.N., Freund, S.M., Warren, A.J., 2011. Uncoupling of GTP hydrolysis from eIF6 release on the ribosome causes Shwachman-Diamond syndrome. *Genes & development* 25, 917-929.
- Fisher, S., Grice, E.A., Vinton, R.M., Bessling, S.L., Urasaki, A., Kawakami, K., McCallion, A.S., 2006. Evaluating the biological relevance of putative enhancers using Tol2 transposon-mediated transgenesis in zebrafish. *Nature protocols* 1, 1297-1305.
- Flasse, L.C., Pirson, J.L., Stern, D.G., Von Berg, V., Manfroid, I., Peers, B., Voz, M.L., 2013. Ascl1b and Neurod1, instead of Neurog3, control pancreatic endocrine cell fate in zebrafish. *BMC biology* 11, 78.
- Freed, E.F., Bleichert, F., Dutca, L.M., Baserga, S.J., 2010. When ribosomes go bad: diseases of ribosome biogenesis. *Molecular bioSystems* 6, 481-493.
- Freed, E.F., Prieto, J.L., McCann, K.L., McStay, B., Baserga, S.J., 2012. NOL11, implicated in the pathogenesis of North American Indian childhood cirrhosis, is required for pre-rRNA transcription and processing. *PLoS genetics* 8, e1002892.
- Freedman, S.D., Blanco, P., Shea, J.C., Alvarez, J.G., 2000. Mechanisms to explain pancreatic dysfunction in cystic fibrosis. *The Medical clinics of North America* 84, 657-664, X.
- Fumagalli, S., Thomas, G., 2011. The role of p53 in ribosomopathies. *Seminars in hematology* 48, 97-105.
- Gaiano, N., Allende, M., Amsterdam, A., Kawakami, K., Hopkins, N., 1996. Highly efficient germ-line transmission of proviral insertions in zebrafish. *Proceedings of the National Academy of Sciences of the United States of America* 93, 7777-7782.
- Gallagher, J.E., Dunbar, D.A., Granneman, S., Mitchell, B.M., Osheim, Y., Beyer, A.L., Baserga, S.J., 2004. RNA polymerase I transcription and pre-rRNA processing are linked by specific SSU processome components. *Genes & development* 18, 2506-2517.
- Gao, W., Xu, L., Guan, R., Liu, X., Han, Y., Wu, Q., Xiao, Y., Qi, F., Zhu, Z., Lin, S., Zhang, B., 2011. Wdr18 is required for Kupffer's vesicle formation and regulation of body asymmetry in zebrafish. *PloS one* 6, e23386.
- Gartel, A.L., Radhakrishnan, S.K., 2005. Lost in transcription: p21 repression, mechanisms, and consequences. *Cancer research* 65, 3980-3985.

Gazda, H.T., Grabowska, A., Merida-Long, L.B., Latawiec, E., Schneider, H.E., Lipton, J.M., Vlachos, A., Atsidaftos, E., Ball, S.E., Orfali, K.A., Niewiadomska, E., Da Costa, L., Tchernia, G., Niemeyer, C., Meerpohl, J.J., Stahl, J., Schratt, G., Glader, B., Backer, K., Wong, C., Nathan, D.G., Beggs, A.H., Sieff, C.A., 2006. Ribosomal protein S24 gene is mutated in Diamond-Blackfan anemia. *American journal of human genetics* 79, 1110-1118.

Gazda, H.T., Preti, M., Sheen, M.R., O'Donohue, M.F., Vlachos, A., Davies, S.M., Kattamis, A., Doherty, L., Landowski, M., Buros, C., Ghazvinian, R., Sieff, C.A., Newburger, P.E., Niewiadomska, E., Matysiak, M., Glader, B., Atsidaftos, E., Lipton, J.M., Gleizes, P.E., Beggs, A.H., 2012. Frameshift mutation in p53 regulator RPL26 is associated with multiple physical abnormalities and a specific pre-ribosomal RNA processing defect in diamond-blackfan anemia. *Human mutation* 33, 1037-1044.

Gazda, H.T., Sheen, M.R., Vlachos, A., Choesmel, V., O'Donohue, M.F., Schneider, H., Darras, N., Hasman, C., Sieff, C.A., Newburger, P.E., Ball, S.E., Niewiadomska, E., Matysiak, M., Zaucha, J.M., Glader, B., Niemeyer, C., Meerpohl, J.J., Atsidaftos, E., Lipton, J.M., Gleizes, P.E., Beggs, A.H., 2008. Ribosomal protein L5 and L11 mutations are associated with cleft palate and abnormal thumbs in Diamond-Blackfan anemia patients. *American journal of human genetics* 83, 769-780.

Gelperin, D., Horton, L., Beckman, J., Hensold, J., Lemmon, S.K., 2001. Bms1p, a novel GTP-binding protein, and the related Tsr1p are required for distinct steps of 40S ribosome biogenesis in yeast. *RNA* 7, 1268-1283.

Georgala, P.A., Carr, C.B., Price, D.J., 2011. The role of Pax6 in forebrain development. *Developmental neurobiology* 71, 690-709.

Gittes, G.K., 2009. Developmental biology of the pancreas: a comprehensive review. *Developmental biology* 326, 4-35.

Glasgow, E., Tomarev, S.I., 1998. Restricted expression of the homeobox gene prox 1 in developing zebrafish. *Mechanisms of development* 76, 175-178.

Gnugge, L., Meyer, D., Driever, W., 2004. Pancreas development in zebrafish. *Methods in cell biology* 76, 531-551.

Godinho, L., Mumm, J.S., Williams, P.R., Schroeter, E.H., Koerber, A., Park, S.W., Leach, S.D., Wong, R.O., 2005. Targeting of amacrine cell neurites to appropriate synaptic laminae in the developing zebrafish retina. *Development* 132, 5069-5079.

Goessling, W., North, T.E., Lord, A.M., Ceol, C., Lee, S., Weidinger, G., Bourque, C., Strijbosch, R., Haramis, A.P., Puder, M., Clevers, H., Moon, R.T., Zon, L.I., 2008. APC mutant zebrafish uncover a changing temporal requirement for wnt signaling in liver development. *Developmental biology* 320, 161-174.

Goldfeder, M.B., Oliveira, C.C., 2010. Utp25p, a nucleolar *Saccharomyces cerevisiae* protein, interacts with U3 snoRNP subunits and affects processing of the 35S pre-rRNA. *The FEBS journal* 277, 2838-2852.

Golling, G., Amsterdam, A., Sun, Z., Antonelli, M., Maldonado, E., Chen, W., Burgess, S., Haldi, M., Artzt, K., Farrington, S., Lin, S.Y., Nissen, R.M., Hopkins, N., 2002. Insertional

mutagenesis in zebrafish rapidly identifies genes essential for early vertebrate development. *Nature genetics* 31, 135-140.

Gonzales, B., Henning, D., So, R.B., Dixon, J., Dixon, M.J., Valdez, B.C., 2005. The Treacher Collins syndrome (TCOF1) gene product is involved in pre-rRNA methylation. *Human molecular genetics* 14, 2035-2043.

Goobie, S., Popovic, M., Morrison, J., Ellis, L., Ginzberg, H., Boocock, G.R., Ehtesham, N., Betard, C., Brewer, C.G., Roslin, N.M., Hudson, T.J., Morgan, K., Fujiwara, T.M., Durie, P.R., Rommens, J.M., 2001. Shwachman-Diamond syndrome with exocrine pancreatic dysfunction and bone marrow failure maps to the centromeric region of chromosome 7. *American journal of human genetics* 68, 1048-1054.

Gradwohl, G., Dierich, A., LeMeur, M., Guillemot, F., 2000. neurogenin3 is required for the development of the four endocrine cell lineages of the pancreas. *Proceedings of the National Academy of Sciences of the United States of America* 97, 1607-1611.

Gripp, K.W., Curry, C., Olney, A.H., Sandoval, C., Fisher, J., Chong, J.X., Genomics, U.W.C.f.M., Pilchman, L., Sahraoui, R., Stabley, D.L., Sol-Church, K., 2014. Diamond-Blackfan anemia with mandibulofacial dystostosis is heterogeneous, including the novel DBA genes TSR2 and RPS28. *American journal of medical genetics. Part A* 164, 2240-2249.

Gritsman, K., Zhang, J., Cheng, S., Heckscher, E., Talbot, W.S., Schier, A.F., 1999. The EGF-CFC protein one-eyed pinhead is essential for nodal signaling. *Cell* 97, 121-132.

Haffter, P., Granato, M., Brand, M., Mullins, M.C., Hammerschmidt, M., Kane, D.A., Odenthal, J., van Eeden, F.J., Jiang, Y.J., Heisenberg, C.P., Kelsh, R.N., Furutani-Seiki, M., Vogelsang, E., Beuchle, D., Schach, U., Fabian, C., Nusslein-Volhard, C., 1996. The identification of genes with unique and essential functions in the development of the zebrafish, *Danio rerio*. *Development* 123, 1-36.

Halpern, M.E., Rhee, J., Goll, M.G., Akitake, C.M., Parsons, M., Leach, S.D., 2008. Gal4/UAS transgenic tools and their application to zebrafish. *Zebrafish* 5, 97-110.

Hans, S., Kaslin, J., Freudenreich, D., Brand, M., 2009. Temporally-controlled site-specific recombination in zebrafish. *PloS one* 4, e4640.

Hardy, M.E., Ross, L.V., Chien, C.B., 2007. Focal gene misexpression in zebrafish embryos induced by local heat shock using a modified soldering iron. *Developmental dynamics : an official publication of the American Association of Anatomists* 236, 3071-3076.

Harris, C.C., 1996. Structure and function of the p53 tumor suppressor gene: clues for rational cancer therapeutic strategies. *Journal of the National Cancer Institute* 88, 1442-1455.

Harris, M.A., Clark, J., Ireland, A., Lomax, J., Ashburner, M., Foulger, R., Eilbeck, K., Lewis, S., Marshall, B., Mungall, C., Richter, J., Rubin, G.M., Blake, J.A., Bult, C., Dolan, M., Drabkin, H., Eppig, J.T., Hill, D.P., Ni, L., Ringwald, M., Balakrishnan, R., Cherry, J.M., Christie, K.R., Costanzo, M.C., Dwight, S.S., Engel, S., Fisk, D.G., Hirschman, J.E., Hong, E.L., Nash, R.S., Sethuraman, A., Theesfeld, C.L., Botstein, D., Dolinski, K., Feierbach, B., Berardini, T., Mundodi, S., Rhee, S.Y., Apweiler, R., Barrell, D., Camon, E., Dimmer, E., Lee, V., Chisholm, R., Gaudet, P., Kibbe, W., Kishore, R., Schwarz, E.M., Sternberg, P., Gwinn,

M., Hannick, L., Wortman, J., Berriman, M., Wood, V., de la Cruz, N., Tonellato, P., Jaiswal, P., Seigfried, T., White, R., 2004. The Gene Ontology (GO) database and informatics resource. *Nucleic acids research* 32, D258-261.

Harrison, K.A., Thaler, J., Pfaff, S.L., Gu, H., Kehrl, J.H., 1999. Pancreas dorsal lobe agenesis and abnormal islets of Langerhans in Hlx9-deficient mice. *Nature genetics* 23, 71-75.

Harscoet, E., Dubreucq, B., Palauqui, J.C., Lepiniec, L., 2010. NOF1 encodes an Arabidopsis protein involved in the control of rRNA expression. *PloS one* 5, e12829.

Harvey, S.A., Sealy, I., Kettleborough, R., Fenyes, F., White, R., Stemple, D., Smith, J.C., 2013. Identification of the zebrafish maternal and paternal transcriptomes. *Development* 140, 2703-2710.

Hatta, K., Kimmel, C.B., Ho, R.K., Walker, C., 1991. The cyclops mutation blocks specification of the floor plate of the zebrafish central nervous system. *Nature* 350, 339-341.

He, H., Sun, Y., 2007. Ribosomal protein S27L is a direct p53 target that regulates apoptosis. *Oncogene* 26, 2707-2716.

Heijnen, H.F., van Wijk, R., Pereboom, T.C., Goos, Y.J., Seinen, C.W., van Oirschot, B.A., van Dooren, R., Gastou, M., Giles, R.H., van Solinge, W., Kuijpers, T.W., Gazda, H.T., Bierings, M.B., Da Costa, L., MacInnes, A.W., 2014. Ribosomal protein mutations induce autophagy through S6 kinase inhibition of the insulin pathway. *PLoS genetics* 10, e1004371.

Heindl, K., Martinez, J., 2010. Nol9 is a novel polynucleotide 5'-kinase involved in ribosomal RNA processing. *The EMBO journal* 29, 4161-4171.

Heiss, N.S., Knight, S.W., Vulliamy, T.J., Klauck, S.M., Wiemann, S., Mason, P.J., Poustka, A., Dokal, I., 1998. X-linked dyskeratosis congenita is caused by mutations in a highly conserved gene with putative nucleolar functions. *Nature genetics* 19, 32-38.

Heller, R.S., Jenny, M., Collombat, P., Mansouri, A., Tomasetto, C., Madsen, O.D., Mellitzer, G., Gradwohl, G., Serup, P., 2005. Genetic determinants of pancreatic epsilon-cell development. *Developmental biology* 286, 217-224.

Heller, R.S., Stoffers, D.A., Liu, A., Schedl, A., Crenshaw, E.B., 3rd, Madsen, O.D., Serup, P., 2004. The role of Brn4/Pou3f4 and Pax6 in forming the pancreatic glucagon cell identity. *Developmental biology* 268, 123-134.

Henseleit, K.D., Nelson, S.B., Kuhlbrodt, K., Hennings, J.C., Ericson, J., Sander, M., 2005. NKX6 transcription factor activity is required for alpha- and beta-cell development in the pancreas. *Development* 132, 3139-3149.

Her, G.M., Chiang, C.C., Chen, W.Y., Wu, J.L., 2003. In vivo studies of liver-type fatty acid binding protein (L-FABP) gene expression in liver of transgenic zebrafish (*Danio rerio*). *FEBS letters* 538, 125-133.

Herbert, T.P., Proud, C.G., 2007. *Translational Control In Biology and Medicine*. Cold Spring Harbor Laboratory Press, New York.

Hesselson, D., Anderson, R.M., Stainier, D.Y., 2011. Suppression of Ptf1a activity induces acinar-to-endocrine conversion. *Current biology* : CB 21, 712-717.

Hildebrand, H., Borgstrom, B., Bekassy, A., Erlanson-Albertsson, C., Helin, I., 1982. Isolated co-lipase deficiency in two brothers. *Gut* 23, 243-246.

Hinitz, Y., Osborn, D.P., Hughes, S.M., 2009. Differential requirements for myogenic regulatory factors distinguish medial and lateral somitic, cranial and fin muscle fibre populations. *Development* 136, 403-414.

Ho, R.K., Kane, D.A., 1990. Cell-autonomous action of zebrafish spt-1 mutation in specific mesodermal precursors. *Nature* 348, 728-730.

Holmberg Olausson, K.N., M.; Lindström, M.S., 2012. p53 -Dependent and -Independent Nucleolar Stress Responses. *Cells* 1, 774-798.

Howe, K., Clark, M.D., Torroja, C.F., Torrance, J., Berthelot, C., Muffato, M., Collins, J.E., Humphray, S., McLaren, K., Matthews, L., McLaren, S., Sealy, I., Caccamo, M., Churcher, C., Scott, C., Barrett, J.C., Koch, R., Rauch, G.J., White, S., Chow, W., Kilian, B., Quintais, L.T., Guerra-Assuncao, J.A., Zhou, Y., Gu, Y., Yen, J., Vogel, J.H., Eyre, T., Redmond, S., Banerjee, R., Chi, J., Fu, B., Langley, E., Maguire, S.F., Laird, G.K., Lloyd, D., Kenyon, E., Donaldson, S., Sehra, H., Almeida-King, J., Loveland, J., Trevanion, S., Jones, M., Quail, M., Willey, D., Hunt, A., Burton, J., Sims, S., McLay, K., Plumb, B., Davis, J., Clee, C., Oliver, K., Clark, R., Riddle, C., Elliott, D., Threadgold, G., Harden, G., Ware, D., Mortimer, B., Kerry, G., Heath, P., Phillimore, B., Tracey, A., Corby, N., Dunn, M., Johnson, C., Wood, J., Clark, S., Pelan, S., Griffiths, G., Smith, M., Glithero, R., Howden, P., Barker, N., Stevens, C., Harley, J., Holt, K., Panagiotidis, G., Lovell, J., Beasley, H., Henderson, C., Gordon, D., Auger, K., Wright, D., Collins, J., Raisen, C., Dyer, L., Leung, K., Robertson, L., Ambridge, K., Leongamornlert, D., McGuire, S., Gilderthorp, R., Griffiths, C., Manthravadi, D., Nichol, S., Barker, G., Whitehead, S., Kay, M., Brown, J., Murnane, C., Gray, E., Humphries, M., Sycamore, N., Barker, D., Saunders, D., Wallis, J., Babbage, A., Hammond, S., Mashreghi-Mohammadi, M., Barr, L., Martin, S., Wray, P., Ellington, A., Matthews, N., Ellwood, M., Woodmansey, R., Clark, G., Cooper, J., Tromans, A., Grafham, D., Skuce, C., Pandian, R., Andrews, R., Harrison, E., Kimberley, A., Garnett, J., Fosker, N., Hall, R., Garner, P., Kelly, D., Bird, C., Palmer, S., Gehring, I., Berger, A., Dooley, C.M., Ersan-Urun, Z., Eser, C., Geiger, H., Geisler, M., Karotki, L., Kirn, A., Konantz, J., Konantz, M., Oberlander, M., Rudolph-Geiger, S., Teucke, M., Osoegawa, K., Zhu, B., Rapp, A., Widaa, S., Langford, C., Yang, F., Carter, N.P., Harrow, J., Ning, Z., Herrero, J., Searle, S.M., Enright, A., Geisler, R., Plasterk, R.H., Lee, C., Westerfield, M., de Jong, P.J., Zon, L.I., Postlethwait, J.H., Nusslein-Volhard, C., Hubbard, T.J., Roest Crollius, H., Rogers, J., Stemple, D.L., 2013. The zebrafish reference genome sequence and its relationship to the human genome. *Nature* 496, 498-503.

Huang, C.J., Jou, T.S., Ho, Y.L., Lee, W.H., Jeng, Y.T., Hsieh, F.J., Tsai, H.J., 2005. Conditional expression of a myocardium-specific transgene in zebrafish transgenic lines. *Developmental dynamics* : an official publication of the American Association of Anatomists 233, 1294-1303.

Huang da, W., Sherman, B.T., Lempicki, R.A., 2009a. Bioinformatics enrichment tools: paths toward the comprehensive functional analysis of large gene lists. *Nucleic acids research* 37, 1-13.

- Huang da, W., Sherman, B.T., Lempicki, R.A., 2009b. Systematic and integrative analysis of large gene lists using DAVID bioinformatics resources. *Nature protocols* 4, 44-57.
- Huang, H., Liu, N., Lin, S., 2001. Pdx-1 knockdown reduces insulin promoter activity in zebrafish. *Genesis* 30, 134-136.
- Huang, P., Zhu, Z., Lin, S., Zhang, B., 2012. Reverse genetic approaches in zebrafish. *Journal of genetics and genomics = Yi chuan xue bao* 39, 421-433.
- Huang, W., Wang, G., Delaspre, F., Vitery Mdel, C., Beer, R.L., Parsons, M.J., 2014. Retinoic acid plays an evolutionarily conserved and biphasic role in pancreas development. *Developmental biology* 394, 83-93.
- Hwang, W.Y., Fu, Y., Reyon, D., Maeder, M.L., Tsai, S.Q., Sander, J.D., Peterson, R.T., Yeh, J.R., Joung, J.K., 2013. Efficient genome editing in zebrafish using a CRISPR-Cas system. *Nature biotechnology* 31, 227-229.
- Iadevaia, V., Calderola, S., Biondini, L., Gismondi, A., Karlsson, S., Dianzani, I., Loreni, F., 2010. PIM1 kinase is destabilized by ribosomal stress causing inhibition of cell cycle progression. *Oncogene* 29, 5490-5499.
- Iadevaia, V., Zhang, Z., Jan, E., Proud, C.G., 2012. mTOR signaling regulates the processing of pre-rRNA in human cells. *Nucleic acids research* 40, 2527-2539.
- Ibrahim, A.F., Hedley, P.E., Cardle, L., Kruger, W., Marshall, D.F., Muehlbauer, G.J., Waugh, R., 2005. A comparative analysis of transcript abundance using SAGE and Affymetrix arrays. *Functional & integrative genomics* 5, 163-174.
- Imrie, J.R., Fagan, D.G., Sturgess, J.M., 1979. Quantitative evaluation of the development of the exocrine pancreas in cystic fibrosis and control infants. *The American journal of pathology* 95, 697-708.
- Indra, A.K., Warot, X., Brocard, J., Bornert, J.M., Xiao, J.H., Chambon, P., Metzger, D., 1999. Temporally-controlled site-specific mutagenesis in the basal layer of the epidermis: comparison of the recombinase activity of the tamoxifen-inducible Cre-ER(T) and Cre-ER(T2) recombinases. *Nucleic acids research* 27, 4324-4327.
- Ip, W.F., Dupuis, A., Ellis, L., Beharry, S., Morrison, J., Stormon, M.O., Corey, M., Rommens, J.M., Durie, P.R., 2002. Serum pancreatic enzymes define the pancreatic phenotype in patients with Shwachman-Diamond syndrome. *The Journal of pediatrics* 141, 259-265.
- Ivics, Z., Hackett, P.B., Plasterk, R.H., Izsvak, Z., 1997. Molecular reconstruction of Sleeping Beauty, a Tc1-like transposon from fish, and its transposition in human cells. *Cell* 91, 501-510.
- Jackson, R.J., Hellen, C.U., Pestova, T.V., 2010. The mechanism of eukaryotic translation initiation and principles of its regulation. *Nature reviews. Molecular cell biology* 11, 113-127.
- Jansen, G., Hazendonk, E., Thijssen, K.L., Plasterk, R.H., 1997. Reverse genetics by chemical mutagenesis in *Caenorhabditis elegans*. *Nature genetics* 17, 119-121.

- Jefferies, H.B., Fumagalli, S., Dennis, P.B., Reinhard, C., Pearson, R.B., Thomas, G., 1997. Rapamycin suppresses 5'TOP mRNA translation through inhibition of p70s6k. *The EMBO journal* 16, 3693-3704.
- Jia, Q., Zhang, Q., Zhang, Z., Wang, Y., Zhang, W., Zhou, Y., Wan, Y., Cheng, T., Zhu, X., Fang, X., Yuan, W., Jia, H., 2013. Transcriptome Analysis of the Zebrafish Model of Diamond-Blackfan Anemia from RPS19 Deficiency via p53-Dependent and -Independent Pathways. *PloS one* 8, e71782.
- Jiang, Z., Song, J., Qi, F., Xiao, A., An, X., Liu, N.A., Zhu, Z., Zhang, B., Lin, S., 2008. Exdpf is a key regulator of exocrine pancreas development controlled by retinoic acid and ptf1a in zebrafish. *PLoS biology* 6, e293.
- Jin, S.B., Zhao, J., Bjork, P., Schmekel, K., Ljungdahl, P.O., Wieslander, L., 2002. Mrd1p is required for processing of pre-rRNA and for maintenance of steady-state levels of 40 S ribosomal subunits in yeast. *The Journal of biological chemistry* 277, 18431-18439.
- Jinek, M., Chylinski, K., Fonfara, I., Hauer, M., Doudna, J.A., Charpentier, E., 2012. A programmable dual-RNA-guided DNA endonuclease in adaptive bacterial immunity. *Science* 337, 816-821.
- Jones, N.C., Lynn, M.L., Gaudenz, K., Sakai, D., Aoto, K., Rey, J.P., Glynn, E.F., Ellington, L., Du, C., Dixon, J., Dixon, M.J., Trainor, P.A., 2008. Prevention of the neurocristopathy Treacher Collins syndrome through inhibition of p53 function. *Nature medicine* 14, 125-133.
- Jones, N.L., Hofley, P.M., Durie, P.R., 1994. Pathophysiology of the pancreatic defect in Johanson-Blizzard syndrome: a disorder of acinar development. *The Journal of pediatrics* 125, 406-408.
- Jonsson, J., Carlsson, L., Edlund, T., Edlund, H., 1994. Insulin-promoter-factor 1 is required for pancreas development in mice. *Nature* 371, 606-609.
- Kanehisa, M., Goto, S., 2000. KEGG: kyoto encyclopedia of genes and genomes. *Nucleic acids research* 28, 27-30.
- Kawaguchi, Y., Cooper, B., Gannon, M., Ray, M., MacDonald, R.J., Wright, C.V., 2002. The role of the transcriptional regulator Ptf1a in converting intestinal to pancreatic progenitors. *Nature genetics* 32, 128-134.
- Kawakami, K., 2007. Tol2: a versatile gene transfer vector in vertebrates. *Genome biology* 8 Suppl 1, S7.
- Kawakami, K., Shima, A., Kawakami, N., 2000. Identification of a functional transposase of the Tol2 element, an Ac-like element from the Japanese medaka fish, and its transposition in the zebrafish germ lineage. *Proceedings of the National Academy of Sciences of the United States of America* 97, 11403-11408.
- Kawakami, K., Takeda, H., Kawakami, N., Kobayashi, M., Matsuda, N., Mishina, M., 2004. A transposon-mediated gene trap approach identifies developmentally regulated genes in zebrafish. *Developmental cell* 7, 133-144.

Kelly, A., Hurlstone, A.F., 2011. The use of RNAi technologies for gene knockdown in zebrafish. *Briefings in functional genomics* 10, 189-196.

Kettleborough, R.N., Bruijn, E., Eeden, F., Cuppen, E., Stemple, D.L., 2011. High-throughput target-selected gene inactivation in zebrafish. *Methods in cell biology* 104, 121-127.

Kettleborough, R.N., Busch-Nentwich, E.M., Harvey, S.A., Dooley, C.M., de Bruijn, E., van Eeden, F., Sealy, I., White, R.J., Herd, C., Nijman, I.J., Fenyes, F., Mehroke, S., Scahill, C., Gibbons, R., Wali, N., Carruthers, S., Hall, A., Yen, J., Cuppen, E., Stemple, D.L., 2013. A systematic genome-wide analysis of zebrafish protein-coding gene function. *Nature* 496, 494-497.

Kikuchi, Y., Trinh, L.A., Reiter, J.F., Alexander, J., Yelon, D., Stainier, D.Y., 2000. The zebrafish bonnie and clyde gene encodes a Mix family homeodomain protein that regulates the generation of endodermal precursors. *Genes & development* 14, 1279-1289.

Kikuchi, Y., Verkade, H., Reiter, J.F., Kim, C.H., Chitnis, A.B., Kuroiwa, A., Stainier, D.Y., 2004. Notch signaling can regulate endoderm formation in zebrafish. *Developmental dynamics : an official publication of the American Association of Anatomists* 229, 756-762.

Kim, H.J., Sumanas, S., Palencia-Desai, S., Dong, Y., Chen, J.N., Lin, S., 2006. Genetic analysis of early endocrine pancreas formation in zebrafish. *Mol Endocrinol* 20, 194-203.

Kimmel, C.B., 1989. Genetics and early development of zebrafish. *Trends in genetics : TIG* 5, 283-288.

Kimmel, C.B., Ballard, W.W., Kimmel, S.R., Ullmann, B., Schilling, T.F., 1995. Stages of embryonic development of the zebrafish. *Developmental dynamics : an official publication of the American Association of Anatomists* 203, 253-310.

Kimmel, R.A., Onder, L., Wilfinger, A., Ellertsottir, E., Meyer, D., 2011. Requirement for Pdx1 in specification of latent endocrine progenitors in zebrafish. *BMC biology* 9, 75.

Kimura, S.H., Ikawa, M., Ito, A., Okabe, M., Nojima, H., 2001. Cyclin G1 is involved in G2/M arrest in response to DNA damage and in growth control after damage recovery. *Oncogene* 20, 3290-3300.

Kinkel, M.D., Eames, S.C., Alonso, M.R., Prince, V.E., 2008. Cdx4 is required in the endoderm to localize the pancreas and limit beta-cell number. *Development* 135, 919-929.

Kinkel, M.D., Prince, V.E., 2009. On the diabetic menu: zebrafish as a model for pancreas development and function. *BioEssays : news and reviews in molecular, cellular and developmental biology* 31, 139-152.

Knight, R.D., Mebus, K., d'Angelo, A., Yokoya, K., Heanue, T., Roehl, H., 2011. Ret signalling integrates a craniofacial muscle module during development. *Development* 138, 2015-2024.

Knoll-Gellida, A., Andre, M., Gattegno, T., Forgue, J., Admon, A., Babin, P.J., 2006. Molecular phenotype of zebrafish ovarian follicle by serial analysis of gene expression and proteomic profiling, and comparison with the transcriptomes of other animals. *BMC genomics* 7, 46.

Ko, M.S., 2001. Embryogenomics: developmental biology meets genomics. *Trends in biotechnology* 19, 511-518.

Korzh, S., Emelyanov, A., Korzh, V., 2001. Developmental analysis of ceruloplasmin gene and liver formation in zebrafish. *Mechanisms of development* 103, 137-139.

Kotani, T., Nagayoshi, S., Urasaki, A., Kawakami, K., 2006. Transposon-mediated gene trapping in zebrafish. *Methods* 39, 199-206.

Krapp, A., Knofler, M., Ledermann, B., Burki, K., Berney, C., Zoerkler, N., Hagenbuchle, O., Wellauer, P.K., 1998. The bHLH protein PTF1-p48 is essential for the formation of the exocrine and the correct spatial organization of the endocrine pancreas. *Genes & development* 12, 3752-3763.

Kressler, D., Hurt, E., Bassler, J., 2010. Driving ribosome assembly. *Biochimica et biophysica acta* 1803, 673-683.

Kruidering, M., Evan, G.I., 2000. Caspase-8 in apoptosis: the beginning of "the end"? *IUBMB life* 50, 85-90.

Lafontaine, D.L.J., Tollervey, D., 2006. Ribosomal RNA. In: eLS. John Wiley & Sons, Ltd: Chichester.

Lamont, R.E., Loredo-Osti, J., Roslin, N.M., Mauthe, J., Coghlan, G., Nylen, E., Frappier, D., Innes, A.M., Lemire, E.G., Lowry, R.B., Greenberg, C.R., Triggs-Raine, B.L., Morgan, K., Wrogemann, K., Fujiwara, T.M., Zelinski, T., 2005. A locus for Bowen-Conradi syndrome maps to chromosome region 12p13.3. *American journal of medical genetics. Part A* 132A, 136-143.

Lancman, J.J., Zvenigorodsky, N., Gates, K.P., Zhang, D., Solomon, K., Humphrey, R.K., Kuo, T., Setiawan, L., Verkade, H., Chi, Y.I., Jhala, U.S., Wright, C.V., Stainier, D.Y., Dong, P.D., 2013. Specification of hepatopancreas progenitors in zebrafish by hnf1ba and wnt2bb. *Development* 140, 2669-2679.

Landowski, M., O'Donohue, M.F., Buros, C., Ghazvinian, R., Montel-Lehry, N., Vlachos, A., Sieff, C.A., Newburger, P.E., Niewiadomska, E., Matysiak, M., Glader, B., Atsidaftos, E., Lipton, J.M., Beggs, A.H., Gleizes, P.E., Gazda, H.T., 2013. Novel deletion of RPL15 identified by array-comparative genomic hybridization in Diamond-Blackfan anemia. *Human genetics* 132, 1265-1274.

Lane, D.P., 1992. Cancer. p53, guardian of the genome. *Nature* 358, 15-16.

Langenau, D.M., Feng, H., Berghmans, S., Kanki, J.P., Kutok, J.L., Look, A.T., 2005. Cre/lox-regulated transgenic zebrafish model with conditional myc-induced T cell acute lymphoblastic leukemia. *Proceedings of the National Academy of Sciences of the United States of America* 102, 6068-6073.

Langenau, D.M., Keefe, M.D., Storer, N.Y., Guyon, J.R., Kutok, J.L., Le, X., Goessling, W., Neuberg, D.S., Kunkel, L.M., Zon, L.I., 2007. Effects of RAS on the genesis of embryonal rhabdomyosarcoma. *Genes & development* 21, 1382-1395.

- Laue, K., Janicke, M., Plaster, N., Sonntag, C., Hammerschmidt, M., 2008. Restriction of retinoic acid activity by Cyp26b1 is required for proper timing and patterning of osteogenesis during zebrafish development. *Development* 135, 3775-3787.
- Le, X., Langenau, D.M., Keefe, M.D., Kutok, J.L., Neuberg, D.S., Zon, L.I., 2007. Heat shock-inducible Cre/Lox approaches to induce diverse types of tumors and hyperplasia in transgenic zebrafish. *Proceedings of the National Academy of Sciences of the United States of America* 104, 9410-9415.
- Lee, R.C., Feinbaum, R.L., Ambros, V., 1993. The *C. elegans* heterochronic gene lin-4 encodes small RNAs with antisense complementarity to lin-14. *Cell* 75, 843-854.
- Leulliot, N., Bohnsack, M.T., Graille, M., Tollervey, D., Van Tilbeurgh, H., 2008. The yeast ribosome synthesis factor Emg1 is a novel member of the superfamily of alpha/beta knot fold methyltransferases. *Nucleic acids research* 36, 629-639.
- Lewis, J.D., Tollervey, D., 2000. Like attracts like: getting RNA processing together in the nucleus. *Science* 288, 1385-1389.
- Li, H., Arber, S., Jessell, T.M., Edlund, H., 1999. Selective agenesis of the dorsal pancreas in mice lacking homeobox gene Hlx9. *Nature genetics* 23, 67-70.
- Li, H., Durbin, R., 2009. Fast and accurate short read alignment with Burrows-Wheeler transform. *Bioinformatics* 25, 1754-1760.
- Li, J., Tan, J., Zhuang, L., Banerjee, B., Yang, X., Chau, J.F., Lee, P.L., Hande, M.P., Li, B., Yu, Q., 2007. Ribosomal protein S27-like, a p53-inducible modulator of cell fate in response to genotoxic stress. *Cancer research* 67, 11317-11326.
- Lin, S., Gaiano, N., Culp, P., Burns, J.C., Friedmann, T., Yee, J.K., Hopkins, N., 1994. Integration and germ-line transmission of a pseudotyped retroviral vector in zebrafish. *Science* 265, 666-669.
- Lin, Y.Y., White, R.J., Torelli, S., Cirak, S., Muntoni, F., Stemple, D.L., 2011. Zebrafish Fukutin family proteins link the unfolded protein response with dystroglycanopathies. *Human molecular genetics* 20, 1763-1775.
- Lipton, J.M., Ellis, S.R., 2009. Diamond-Blackfan anemia: diagnosis, treatment, and molecular pathogenesis. *Hematology/oncology clinics of North America* 23, 261-282.
- Liu, J., Hunter, C.S., Du, A., Ediger, B., Walp, E., Murray, J., Stein, R., May, C.L., 2011. Islet-1 regulates Arx transcription during pancreatic islet alpha-cell development. *The Journal of biological chemistry* 286, 15352-15360.
- Liu, J., Walp, E.R., May, C.L., 2012. Elevation of transcription factor Islet-1 levels in vivo increases beta-cell function but not beta-cell mass. *Islets* 4, 199-206.
- Liu, J.M., Lipton, J.M., Ellis, S.R., 2013. Genetics of Ribosomopathies. In: eLS. John Wiley & Sons, Ltd: Chichester.

Liu, P.C., Thiele, D.J., 2001. Novel stress-responsive genes EMG1 and NOP14 encode conserved, interacting proteins required for 40S ribosome biogenesis. *Molecular biology of the cell* 12, 3644-3657.

Liu, X., Kim, C.N., Yang, J., Jemmerson, R., Wang, X., 1996. Induction of apoptotic program in cell-free extracts: requirement for dATP and cytochrome c. *Cell* 86, 147-157.

Ludwig, L.S., Gazda, H.T., Eng, J.C., Eichhorn, S.W., Thiru, P., Ghazvinian, R., George, T.I., Gotlib, J.R., Beggs, A.H., Sieff, C.A., Lodish, H.F., Lander, E.S., Sankaran, V.G., 2014. Altered translation of GATA1 in Diamond-Blackfan anemia. *Nature medicine* 20, 748-753.

Lunde, K., Belting, H.G., Driever, W., 2004. Zebrafish pou5f1/pou2, homolog of mammalian Oct4, functions in the endoderm specification cascade. *Current biology : CB* 14, 48-55.

Mack, D.R., Forstner, G.G., Wilschanski, M., Freedman, M.H., Durie, P.R., 1996. Shwachman syndrome: exocrine pancreatic dysfunction and variable phenotypic expression. *Gastroenterology* 111, 1593-1602.

Mahlaoui, N., Minard-Colin, V., Picard, C., Bolze, A., Ku, C.L., Tournilhac, O., Gilbert-Dussardier, B., Pautard, B., Durand, P., Devictor, D., Lachassinne, E., Guillois, B., Morin, M., Gouraud, F., Valensi, F., Fischer, A., Puel, A., Abel, L., Bonnet, D., Casanova, J.L., 2011. Isolated congenital asplenia: a French nationwide retrospective survey of 20 cases. *The Journal of pediatrics* 158, 142-148, 148 e141.

Manfroid, I., Delporte, F., Baudhuin, A., Motte, P., Neumann, C.J., Voz, M.L., Martial, J.A., Peers, B., 2007. Reciprocal endoderm-mesoderm interactions mediated by fgf24 and fgf10 govern pancreas development. *Development* 134, 4011-4021.

Manfroid, I., Ghaye, A., Naye, F., Detry, N., Palm, S., Pan, L., Ma, T.P., Huang, W., Rovira, M., Martial, J.A., Parsons, M.J., Moens, C.B., Voz, M.L., Peers, B., 2012. Zebrafish sox9b is crucial for hepatopancreatic duct development and pancreatic endocrine cell regeneration. *Developmental biology* 366, 268-278.

Marioni, J.C., Mason, C.E., Mane, S.M., Stephens, M., Gilad, Y., 2008. RNA-seq: an assessment of technical reproducibility and comparison with gene expression arrays. *Genome research* 18, 1509-1517.

Markmiller, S., Cloonan, N., Lardelli, R.M., Doggett, K., Keightley, M.C., Boglev, Y., Trotter, A.J., Ng, A.Y., Wilkins, S.J., Verkade, H., Ober, E.A., Field, H.A., Grimmond, S.M., Lieschke, G.J., Stainier, D.Y., Heath, J.K., 2014. Minor class splicing shapes the zebrafish transcriptome during development. *Proceedings of the National Academy of Sciences of the United States of America* 111, 3062-3067.

Marneros, A.G., 2013. BMS1 is mutated in aplasia cutis congenita. *PLoS genetics* 9, e1003573.

Martin, S.E., Caplen, N.J., 2007. Applications of RNA interference in mammalian systems. *Annual review of genomics and human genetics* 8, 81-108.

Mathavan, S., Lee, S.G., Mak, A., Miller, L.D., Murthy, K.R., Govindarajan, K.R., Tong, Y., Wu, Y.L., Lam, S.H., Yang, H., Ruan, Y., Korzh, V., Gong, Z., Liu, E.T., Lufkin, T., 2005.

Transcriptome analysis of zebrafish embryogenesis using microarrays. PLoS genetics 1, 260-276.

Matthews, R.P., Lorent, K., Manoral-Mobias, R., Huang, Y., Gong, W., Murray, I.V., Blair, I.A., Pack, M., 2009. TNFalpha-dependent hepatic steatosis and liver degeneration caused by mutation of zebrafish S-adenosylhomocysteine hydrolase. Development 136, 865-875.

Mavropoulos, A., Devos, N., Biemar, F., Zecchin, E., Argenton, F., Edlund, H., Motte, P., Martial, J.A., Peers, B., 2005. sox4b is a key player of pancreatic alpha cell differentiation in zebrafish. Developmental biology 285, 211-223.

Mayer, A.N., Fishman, M.C., 2003. Nil per os encodes a conserved RNA recognition motif protein required for morphogenesis and cytodifferentiation of digestive organs in zebrafish. Development 130, 3917-3928.

Mayer, C., Grummt, I., 2006. Ribosome biogenesis and cell growth: mTOR coordinates transcription by all three classes of nuclear RNA polymerases. Oncogene 25, 6384-6391.

McCallum, C.M., Comai, L., Greene, E.A., Henikoff, S., 2000. Targeted screening for induced mutations. Nature biotechnology 18, 455-457.

McCann, K.L., Baserga, S.J., 2013. Genetics. Mysterious ribosomopathies. Science 341, 849-850.

Menne, T.F., Goyenechea, B., Sanchez-Puig, N., Wong, C.C., Tonkin, L.M., Ancliff, P.J., Brost, R.L., Costanzo, M., Boone, C., Warren, A.J., 2007. The Shwachman-Bodian-Diamond syndrome protein mediates translational activation of ribosomes in yeast. Nature genetics 39, 486-495.

Metzger, D., Clifford, J., Chiba, H., Chambon, P., 1995. Conditional site-specific recombination in mammalian cells using a ligand-dependent chimeric Cre recombinase. Proceedings of the National Academy of Sciences of the United States of America 92, 6991-6995.

Meyer, A., Schartl, M., 1999. Gene and genome duplications in vertebrates: the one-to-four (-to-eight in fish) rule and the evolution of novel gene functions. Current opinion in cell biology 11, 699-704.

Mikkola, H.K., Orkin, S.H., 2005. Gene targeting and transgenic strategies for the analysis of hematopoietic development in the mouse. Methods in molecular medicine 105, 3-22.

Milewski, W.M., Duguay, S.J., Chan, S.J., Steiner, D.F., 1998. Conservation of PDX-1 structure, function, and expression in zebrafish. Endocrinology 139, 1440-1449.

Mirabello, L., Macari, E.R., Jessop, L., Ellis, S.R., Myers, T., Giri, N., Taylor, A.M., McGrath, K.E., Humphries, J.M., Ballew, B.J., Yeager, M., Boland, J.F., He, J., Hicks, B.D., Burdett, L., Alter, B.P., Zon, L., Savage, S.A., 2014. Whole-exome sequencing and functional studies identify RPS29 as a novel gene mutated in multicase Diamond-Blackfan anemia families. Blood 124, 24-32.

Misra, R.P., Duncan, S.A., 2002. Gene targeting in the mouse: advances in introduction of transgenes into the genome by homologous recombination. Endocrine 19, 229-238.

Molven, A., Wright, C.V., Bremiller, R., De Robertis, E.M., Kimmel, C.B., 1990. Expression of a homeobox gene product in normal and mutant zebrafish embryos: evolution of the tetrapod body plan. *Development* 109, 279-288.

Mudumana, S.P., Wan, H., Singh, M., Korzh, V., Gong, Z., 2004. Expression analyses of zebrafish transferrin, ifabp, and elastaseB mRNAs as differentiation markers for the three major endodermal organs: liver, intestine, and exocrine pancreas. *Developmental dynamics : an official publication of the American Association of Anatomists* 230, 165-173.

Muller, F., Blader, P., Rastegar, S., Fischer, N., Knochel, W., Strahle, U., 1999. Characterization of zebrafish smad1, smad2 and smad5: the amino-terminus of smad1 and smad5 is required for specific function in the embryo. *Mechanisms of development* 88, 73-88.

Mullins, M.C., Hammerschmidt, M., Haffter, P., Nusslein-Volhard, C., 1994. Large-scale mutagenesis in the zebrafish: in search of genes controlling development in a vertebrate. *Current biology : CB* 4, 189-202.

Narla, A., Ebert, B.L., 2010. Ribosomopathies: human disorders of ribosome dysfunction. *Blood* 115, 3196-3205.

Naya, F.J., Huang, H.P., Qiu, Y., Mutoh, H., DeMayo, F.J., Leiter, A.B., Tsai, M.J., 1997. Diabetes, defective pancreatic morphogenesis, and abnormal enteroendocrine differentiation in BETA2/neuroD-deficient mice. *Genes & development* 11, 2323-2334.

Naye, F., Voz, M.L., Detry, N., Hammerschmidt, M., Peers, B., Manfroid, I., 2012. Essential roles of zebrafish bmp2a, fgf10, and fgt24 in the specification of the ventral pancreas. *Molecular biology of the cell* 23, 945-954.

Neuhauß, S.C., Solnica-Krezel, L., Schier, A.F., Zwartkruis, F., Stemple, D.L., Malicki, J., Abdelilah, S., Stainier, D.Y., Driever, W., 1996. Mutations affecting craniofacial development in zebrafish. *Development* 123, 357-367.

Ng, A.N., de Jong-Curtain, T.A., Mawdsley, D.J., White, S.J., Shin, J., Appel, B., Dong, P.D., Stainier, D.Y., Heath, J.K., 2005. Formation of the digestive system in zebrafish: III. Intestinal epithelium morphogenesis. *Developmental biology* 286, 114-135.

Nguyen, A.T., Emelyanov, A., Koh, C.H., Spitsbergen, J.M., Parinov, S., Gong, Z., 2012. An inducible kras(V12) transgenic zebrafish model for liver tumorigenesis and chemical drug screening. *Disease models & mechanisms* 5, 63-72.

Ni, J., Clark, K.J., Fahrenkrug, S.C., Ekker, S.C., 2008. Transposon tools hopping in vertebrates. *Briefings in functional genomics & proteomics* 7, 444-453.

Nissim, S., Sherwood, R.I., Wucherpfennig, J., Saunders, D., Harris, J.M., Esain, V., Carroll, K.J., Frechette, G.M., Kim, A.J., Hwang, K.L., Cutting, C.C., Elledge, S., North, T.E., Goessling, W., 2014. Prostaglandin E2 regulates liver versus pancreas cell-fate decisions and endodermal outgrowth. *Developmental cell* 28, 423-437.

Noel, E.S., Casal-Sueiro, A., Busch-Nentwich, E., Verkade, H., Dong, P.D., Stemple, D.L., Ober, E.A., 2008. Organ-specific requirements for Hdac1 in liver and pancreas formation. *Developmental biology* 322, 237-250.

Nolan, P.M., Hugill, A., Cox, R.D., 2002. ENU mutagenesis in the mouse: application to human genetic disease. *Briefings in functional genomics & proteomics* 1, 278-289.

Nousbeck, J., Spiegel, R., Ishida-Yamamoto, A., Indelman, M., Shani-Adir, A., Adir, N., Lipkin, E., Bercovici, S., Geiger, D., van Steensel, M.A., Steijlen, P.M., Bergman, R., Bindereif, A., Choder, M., Shalev, S., Sprecher, E., 2008. Alopecia, neurological defects, and endocrinopathy syndrome caused by decreased expression of RBM28, a nucleolar protein associated with ribosome biogenesis. *American journal of human genetics* 82, 1114-1121.

Nüsslein-Volhard, C., Dahm, R., 2002. *Zebrafish*. Oxford University Press.

O'Donohue, M.F., Choesmel, V., Faubladier, M., Fichant, G., Gleizes, P.E., 2010. Functional dichotomy of ribosomal proteins during the synthesis of mammalian 40S ribosomal subunits. *The Journal of cell biology* 190, 853-866.

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

Odenthal, J., Nusslein-Volhard, C., 1998. fork head domain genes in zebrafish. *Development genes and evolution* 208, 245-258.

Offield, M.F., Jetton, T.L., Labosky, P.A., Ray, M., Stein, R.W., Magnuson, M.A., Hogan, B.L., Wright, C.V., 1996. PDX-1 is required for pancreatic outgrowth and differentiation of the rostral duodenum. *Development* 122, 983-995.

Ohlsson, H., Karlsson, K., Edlund, T., 1993. IPF1, a homeodomain-containing transactivator of the insulin gene. *The EMBO journal* 12, 4251-4259.

Oleykowski, C.A., Bronson Mullins, C.R., Godwin, A.K., Yeung, A.T., 1998. Mutation detection using a novel plant endonuclease. *Nucleic acids research* 26, 4597-4602.

Oltvai, Z.N., Milliman, C.L., Korsmeyer, S.J., 1993. Bcl-2 heterodimerizes in vivo with a conserved homolog, Bax, that accelerates programmed cell death. *Cell* 74, 609-619.

Pack, M., Solnica-Krezel, L., Malicki, J., Neuhauss, S.C., Schier, A.F., Stemple, D.L., Driever, W., Fishman, M.C., 1996. Mutations affecting development of zebrafish digestive organs. *Development* 123, 321-328.

Pan, F.C., Wright, C., 2011. Pancreas organogenesis: from bud to plexus to gland. *Developmental dynamics : an official publication of the American Association of Anatomists* 240, 530-565.

Pan, X., Wan, H., Chia, W., Tong, Y., Gong, Z., 2005. Demonstration of site-directed recombination in transgenic zebrafish using the Cre/loxP system. *Transgenic research* 14, 217-223.

Panse, V.G., Johnson, A.W., 2010. Maturation of eukaryotic ribosomes: acquisition of functionality. *Trends in biochemical sciences* 35, 260-266.

Parinov, S., Kondrichin, I., Korzh, V., Emelyanov, A., 2004. Tol2 transposon-mediated enhancer trap to identify developmentally regulated zebrafish genes in vivo. *Developmental dynamics : an official publication of the American Association of Anatomists* 231, 449-459.

- Park, S.W., Davison, J.M., Rhee, J., Hruban, R.H., Maitra, A., Leach, S.D., 2008. Oncogenic KRAS induces progenitor cell expansion and malignant transformation in zebrafish exocrine pancreas. *Gastroenterology* 134, 2080-2090.
- Parrella, S., Aspesi, A., Quarello, P., Garelli, E., Pavesi, E., Carando, A., Nardi, M., Ellis, S.R., Ramenghi, U., Dianzani, I., 2014. Loss of GATA-1 full length as a cause of Diamond-Blackfan anemia phenotype. *Pediatric blood & cancer* 61, 1319-1321.
- Parsons, M.J., Pisharath, H., Yusuff, S., Moore, J.C., Siekmann, A.F., Lawson, N., Leach, S.D., 2009. Notch-responsive cells initiate the secondary transition in larval zebrafish pancreas. *Mechanisms of development* 126, 898-912.
- Patton, E.E., Zon, L.I., 2001. The art and design of genetic screens: zebrafish. *Nature reviews. Genetics* 2, 956-966.
- Pauls, S., Zecchin, E., Tiso, N., Bortolussi, M., Argenton, F., 2007. Function and regulation of zebrafish nkx2.2a during development of pancreatic islet and ducts. *Developmental biology* 304, 875-890.
- Pisharath, H., Rhee, J.M., Swanson, M.A., Leach, S.D., Parsons, M.J., 2007. Targeted ablation of beta cells in the embryonic zebrafish pancreas using *E. coli* nitroreductase. *Mechanisms of development* 124, 218-229.
- Plasterk, R.H., 2002. RNA silencing: the genome's immune system. *Science* 296, 1263-1265.
- Pogoda, H.M., Solnica-Krezel, L., Driever, W., Meyer, D., 2000. The zebrafish forkhead transcription factor FoxH1/Fast1 is a modulator of nodal signaling required for organizer formation. *Current biology : CB* 10, 1041-1049.
- Popovic, M., Goobie, S., Morrison, J., Ellis, L., Ehtesham, N., Richards, N., Boocock, G., Durie, P.R., Rommens, J.M., 2002. Fine mapping of the locus for Shwachman-Diamond syndrome at 7q11, identification of shared disease haplotypes, and exclusion of TPST1 as a candidate gene. *European journal of human genetics : EJHG* 10, 250-258.
- Popperl, H., Rikhof, H., Chang, H., Haffter, P., Kimmel, C.B., Moens, C.B., 2000. lazarus is a novel pbx gene that globally mediates hox gene function in zebrafish. *Molecular cell* 6, 255-267.
- Poulain, M., Furthauer, M., Thisse, B., Thisse, C., Lepage, T., 2006. Zebrafish endoderm formation is regulated by combinatorial Nodal, FGF and BMP signalling. *Development* 133, 2189-2200.
- Poulain, M., Lepage, T., 2002. Mezzo, a paired-like homeobox protein is an immediate target of Nodal signalling and regulates endoderm specification in zebrafish. *Development* 129, 4901-4914.
- Powell, G.T., Wright, G.J., 2011. Jamb and jamc are essential for vertebrate myocyte fusion. *PLoS biology* 9, e1001216.

Prieto, J.L., McStay, B., 2007. Recruitment of factors linking transcription and processing of pre-rRNA to NOR chromatin is UBF-dependent and occurs independent of transcription in human cells. *Genes & development* 21, 2041-2054.

Provost, E., Wehner, K.A., Zhong, X., Ashar, F., Nguyen, E., Green, R., Parsons, M.J., Leach, S.D., 2012. Ribosomal biogenesis genes play an essential and p53-independent role in zebrafish pancreas development. *Development* 139, 3232-3241.

Provost, E., Weier, C.A., Leach, S.D., 2013. Multiple ribosomal proteins are expressed at high levels in developing zebrafish endoderm and are required for normal exocrine pancreas development. *Zebrafish* 10, 161-169.

Qin, W., Chen, Z., Zhang, Y., Yan, R., Yan, G., Li, S., Zhong, H., Lin, S., 2014. Nom1 mediates pancreas development by regulating ribosome biogenesis in zebrafish. *PLoS one* 9, e100796.

Reim, G., Mizoguchi, T., Stainier, D.Y., Kikuchi, Y., Brand, M., 2004. The POU domain protein spg (pou2/Oct4) is essential for endoderm formation in cooperation with the HMG domain protein casanova. *Developmental cell* 6, 91-101.

Reiter, A.K., Anthony, T.G., Anthony, J.C., Jefferson, L.S., Kimball, S.R., 2004. The mTOR signaling pathway mediates control of ribosomal protein mRNA translation in rat liver. *The international journal of biochemistry & cell biology* 36, 2169-2179.

Reiter, J.F., Kikuchi, Y., Stainier, D.Y., 2001. Multiple roles for Gata5 in zebrafish endoderm formation. *Development* 128, 125-135.

Ridanpaa, M., van Eenennaam, H., Pelin, K., Chadwick, R., Johnson, C., Yuan, B., vanVenrooij, W., Pruijn, G., Salmela, R., Rockas, S., Makitie, O., Kaitila, I., de la Chapelle, A., 2001. Mutations in the RNA component of RNase MRP cause a pleiotropic human disease, cartilage-hair hypoplasia. *Cell* 104, 195-203.

Roberts, I.M., 1990. Disorders of the pancreas in children. *Gastroenterology clinics of North America* 19, 963-973.

Robu, M.E., Larson, J.D., Nasevicius, A., Beiraghi, S., Brenner, C., Farber, S.A., Ekker, S.C., 2007. p53 activation by knockdown technologies. *PLoS genetics* 3, e78.

Rodaway, A., Takeda, H., Koshida, S., Broadbent, J., Price, B., Smith, J.C., Patient, R., Holder, N., 1999. Induction of the mesendoderm in the zebrafish germ ring by yolk cell-derived TGF-beta family signals and discrimination of mesoderm and endoderm by FGF. *Development* 126, 3067-3078.

Rosemary Siafakas, A., Richardson, D.R., 2009. Growth arrest and DNA damage-45 alpha (GADD45alpha). *The international journal of biochemistry & cell biology* 41, 986-989.

Rotig, A., Bourgeron, T., Chretien, D., Rustin, P., Munnich, A., 1995. Spectrum of mitochondrial DNA rearrangements in the Pearson marrow-pancreas syndrome. *Human molecular genetics* 4, 1327-1330.

Rotig, A., Colonna, M., Bonnefont, J.P., Blanche, S., Fischer, A., Saudubray, J.M., Munnich, A., 1989. Mitochondrial DNA deletion in Pearson's marrow/pancreas syndrome. *Lancet* 1, 902-903.

Roy, S., Qiao, T., Wolff, C., Ingham, P.W., 2001. Hedgehog signaling pathway is essential for pancreas specification in the zebrafish embryo. *Current biology : CB* 11, 1358-1363.

Rubbi, C.P., Milner, J., 2003. Disruption of the nucleolus mediates stabilization of p53 in response to DNA damage and other stresses. *The EMBO journal* 22, 6068-6077.

Sander, M., Neubuser, A., Kalamaras, J., Ee, H.C., Martin, G.R., German, M.S., 1997. Genetic analysis reveals that PAX6 is required for normal transcription of pancreatic hormone genes and islet development. *Genes & development* 11, 1662-1673.

Sander, M., Sussel, L., Conners, J., Scheel, D., Kalamaras, J., Dela Cruz, F., Schwitzgebel, V., Hayes-Jordan, A., German, M., 2000. Homeobox gene Nkx6.1 lies downstream of Nkx2.2 in the major pathway of beta-cell formation in the pancreas. *Development* 127, 5533-5540.

Sankaran, V.G., Ghazvinian, R., Do, R., Thiru, P., Vergilio, J.A., Beggs, A.H., Sieff, C.A., Orkin, S.H., Nathan, D.G., Lander, E.S., Gazda, H.T., 2012. Exome sequencing identifies GATA1 mutations resulting in Diamond-Blackfan anemia. *The Journal of clinical investigation* 122, 2439-2443.

Schier, A.F., 2013. Genomics: Zebrafish earns its stripes. *Nature* 496, 443-444.

Serafimidis, I., Heximer, S., Beis, D., Gavalas, A., 2011. G protein-coupled receptor signaling and sphingosine-1-phosphate play a phylogenetically conserved role in endocrine pancreas morphogenesis. *Molecular and cellular biology* 31, 4442-4453.

Shaham, O., Menuchin, Y., Farhy, C., Ashery-Padan, R., 2012. Pax6: a multi-level regulator of ocular development. *Progress in retinal and eye research* 31, 351-376.

Sheldon, W., 1964. Congenital Pancreatic Lipase Deficiency. *Archives of disease in childhood* 39, 268-271.

Sheppard, D.N., Welsh, M.J., 1999. Structure and function of the CFTR chloride channel. *Physiological reviews* 79, S23-45.

Shu, X., Cheng, K., Patel, N., Chen, F., Joseph, E., Tsai, H.J., Chen, J.N., 2003. Na,K-ATPase is essential for embryonic heart development in the zebrafish. *Development* 130, 6165-6173.

Signer, R.A., Magee, J.A., Salic, A., Morrison, S.J., 2014. Haematopoietic stem cells require a highly regulated protein synthesis rate. *Nature* 509, 49-54.

Sirotkin, H.I., Gates, M.A., Kelly, P.D., Schier, A.F., Talbot, W.S., 2000. Fast1 is required for the development of dorsal axial structures in zebrafish. *Current biology : CB* 10, 1051-1054.

Sjolund, K., Haggmark, A., Ihse, I., Skude, G., Karnstrom, U., Wikander, M., 1991. Selective deficiency of pancreatic amylase. *Gut* 32, 546-548.

- Slack, J.M., 1995. Developmental biology of the pancreas. *Development* 121, 1569-1580.
- Smith, L., Greenfield, A., 2003. DNA microarrays and development. *Human molecular genetics* 12 Spec No 1, R1-8.
- Solnica-Krezel, L., Schier, A.F., Driever, W., 1994. Efficient recovery of ENU-induced mutations from the zebrafish germline. *Genetics* 136, 1401-1420.
- Song, B., Zhang, Q., Zhang, Z., Wan, Y., Jia, Q., Wang, X., Zhu, X., Leung, A.Y., Cheng, T., Fang, X., Yuan, W., Jia, H., 2014. Systematic transcriptome analysis of the zebrafish model of diamond-blackfan anemia induced by RPS24 deficiency. *BMC genomics* 15, 759.
- Song, G., Li, Q., Long, Y., Gu, Q., Hackett, P.B., Cui, Z., 2012a. Effective gene trapping mediated by Sleeping Beauty transposon. *PLoS one* 7, e44123.
- Song, G., Li, Q., Long, Y., Hackett, P.B., Cui, Z., 2012b. Effective expression-independent gene trapping and mutagenesis mediated by Sleeping Beauty transposon. *Journal of genetics and genomics = Yi chuan xue bao* 39, 503-520.
- Song, J., Kim, H.J., Gong, Z., Liu, N.A., Lin, S., 2007. Vhnf1 acts downstream of Bmp, Fgf, and RA signals to regulate endocrine beta cell development in zebrafish. *Developmental biology* 303, 561-575.
- Sosa-Pineda, B., Chowdhury, K., Torres, M., Oliver, G., Gruss, P., 1997. The Pax4 gene is essential for differentiation of insulin-producing beta cells in the mammalian pancreas. *Nature* 386, 399-402.
- Soussi, T., Dehouche, K., Beroud, C., 2000. p53 website and analysis of p53 gene mutations in human cancer: forging a link between epidemiology and carcinogenesis. *Human mutation* 15, 105-113.
- Soyer, J., Flasse, L., Raffelsberger, W., Beucher, A., Orvain, C., Peers, B., Ravassard, P., Vermot, J., Voz, M.L., Mellitzer, G., Gradwohl, G., 2010. Rfx6 is an Ngn3-dependent winged helix transcription factor required for pancreatic islet cell development. *Development* 137, 203-212.
- St-Onge, L., Sosa-Pineda, B., Chowdhury, K., Mansouri, A., Gruss, P., 1997. Pax6 is required for differentiation of glucagon-producing alpha-cells in mouse pancreas. *Nature* 387, 406-409.
- Stachura, D.L., Traver, D., 2011. Cellular dissection of zebrafish hematopoiesis. *Methods in cell biology* 101, 75-110.
- Stafford, D., Prince, V.E., 2002. Retinoic acid signaling is required for a critical early step in zebrafish pancreatic development. *Current biology : CB* 12, 1215-1220.
- Stafford, D., White, R.J., Kinkel, M.D., Linville, A., Schilling, T.F., Prince, V.E., 2006. Retinoids signal directly to zebrafish endoderm to specify insulin-expressing beta-cells. *Development* 133, 949-956.
- Stormon, M.O., Durie, P.R., 2002. Pathophysiologic basis of exocrine pancreatic dysfunction in childhood. *Journal of pediatric gastroenterology and nutrition* 35, 8-21.

Streisinger, G., Walker, C., Dower, N., Knauber, D., Singer, F., 1981. Production of clones of homozygous diploid zebra fish (*Brachydanio rerio*). *Nature* 291, 293-296.

Stuart, G.W., McMurray, J.V., Westerfield, M., 1988. Replication, integration and stable germ-line transmission of foreign sequences injected into early zebrafish embryos. *Development* 103, 403-412.

Stuckenholz, C., Lu, L., Thakur, P., Kaminski, N., Bahary, N., 2009. FACS-assisted microarray profiling implicates novel genes and pathways in zebrafish gastrointestinal tract development. *Gastroenterology* 137, 1321-1332.

Subramanian, A., Tamayo, P., Mootha, V.K., Mukherjee, S., Ebert, B.L., Gillette, M.A., Paulovich, A., Pomeroy, S.L., Golub, T.R., Lander, E.S., Mesirov, J.P., 2005. Gene set enrichment analysis: a knowledge-based approach for interpreting genome-wide expression profiles. *Proceedings of the National Academy of Sciences of the United States of America* 102, 15545-15550.

Summerton, J., 1999. Morpholino antisense oligomers: the case for an RNase H-independent structural type. *Biochimica et biophysica acta* 1489, 141-158.

Summerton, J., Weller, D., 1997. Morpholino antisense oligomers: design, preparation, and properties. *Antisense & nucleic acid drug development* 7, 187-195.

Sun, C., Woolford, J.L., Jr., 1994. The yeast NOP4 gene product is an essential nucleolar protein required for pre-rRNA processing and accumulation of 60S ribosomal subunits. *The EMBO journal* 13, 3127-3135.

Sun, C., Woolford, J.L., Jr., 1997. The yeast nucleolar protein Nop4p contains four RNA recognition motifs necessary for ribosome biogenesis. *The Journal of biological chemistry* 272, 25345-25352.

Sun, Z., Hopkins, N., 2001. vhnf1, the MODY5 and familial GCKD-associated gene, regulates regional specification of the zebrafish gut, pronephros, and hindbrain. *Genes & development* 15, 3217-3229.

Talwar, P.K., Jhingran, A.G., 1991. Inland Fishes of India and Adjacent Countries. Taylor & Francis.

Tao, T., Shi, H., Guan, Y., Huang, D., Chen, Y., Lane, D.P., Chen, J., Peng, J., 2013a. Def defines a conserved nucleolar pathway that leads p53 to proteasome-independent degradation. *Cell research*.

Tao, T., Shi, H., Huang, D., Peng, J., 2013b. Def functions as a cell autonomous factor in organogenesis of digestive organs in zebrafish. *PloS one* 8, e58858.

Taylor, A.M., Humphries, J.M., White, R.M., Murphey, R.D., Burns, C.E., Zon, L.I., 2012. Hematopoietic defects in rps29 mutant zebrafish depend upon p53 activation. *Experimental hematology* 40, 228-237 e225.

Tehrani, Z., Lin, S., 2011. Antagonistic interactions of hedgehog, Bmp and retinoic acid signals control zebrafish endocrine pancreas development. *Development* 138, 631-640.

The Treacher Collins Syndrome Collaborative Group, 1996. Positional cloning of a gene involved in the pathogenesis of Treacher Collins syndrome. The Treacher Collins Syndrome Collaborative Group. *Nature genetics* 12, 130-136.

Thiel, C.T., Horn, D., Zabel, B., Ekici, A.B., Salinas, K., Gebhart, E., Ruschendorf, F., Sticht, H., Spranger, J., Muller, D., Zweier, C., Schmitt, M.E., Reis, A., Rauch, A., 2005. Severely incapacitating mutations in patients with extreme short stature identify RNA-processing endoribonuclease RMRP as an essential cell growth regulator. *American journal of human genetics* 77, 795-806.

Thisse, B., Wright, C.V., Thisse, C., 2000. Activin- and Nodal-related factors control antero-posterior patterning of the zebrafish embryo. *Nature* 403, 425-428.

Thisse, C., Thisse, B., 2008. High-resolution *in situ* hybridization to whole-mount zebrafish embryos. *Nature protocols* 3, 59-69.

Thummel, R., Burkett, C.T., Brewer, J.L., Sarras, M.P., Jr., Li, L., Perry, M., McDermott, J.P., Sauer, B., Hyde, D.R., Godwin, A.R., 2005. Cre-mediated site-specific recombination in zebrafish embryos. *Developmental dynamics : an official publication of the American Association of Anatomists* 233, 1366-1377.

Thummel, R., Burkett, C.T., Hyde, D.R., 2006. Two different transgenes to study gene silencing and re-expression during zebrafish caudal fin and retinal regeneration. *TheScientificWorldJournal* 6 Suppl 1, 65-81.

Tiso, N., Filippi, A., Pauls, S., Bortolussi, M., Argenton, F., 2002. BMP signalling regulates anteroposterior endoderm patterning in zebrafish. *Mechanisms of development* 118, 29-37.

Tiso, N., Moro, E., Argenton, F., 2009. Zebrafish pancreas development. *Molecular and cellular endocrinology* 312, 24-30.

Tokino, T., Nakamura, Y., 2000. The role of p53-target genes in human cancer. *Critical reviews in oncology/hematology* 33, 1-6.

Townes, P.L., 1965. Trypsinogen Deficiency Disease. *The Journal of pediatrics* 66, 275-285.

Trede, N.S., Medenbach, J., Damianov, A., Hung, L.H., Weber, G.J., Paw, B.H., Zhou, Y., Hersey, C., Zapata, A., Keefe, M., Barut, B.A., Stuart, A.B., Katz, T., Amemiya, C.T., Zon, L.I., Bindereif, A., 2007. Network of coregulated spliceosome components revealed by zebrafish mutant in recycling factor p110. *Proceedings of the National Academy of Sciences of the United States of America* 104, 6608-6613.

Uechi, T., Nakajima, Y., Chakraborty, A., Torihara, H., Higa, S., Kenmochi, N., 2008. Deficiency of ribosomal protein S19 during early embryogenesis leads to reduction of erythrocytes in a zebrafish model of Diamond-Blackfan anemia. *Human molecular genetics* 17, 3204-3211.

Urnov, F.D., Rebar, E.J., Holmes, M.C., Zhang, H.S., Gregory, P.D., 2010. Genome editing with engineered zinc finger nucleases. *Nature reviews. Genetics* 11, 636-646.

Vadlamudi, R.K., Wang, R.A., Mazumdar, A., Kim, Y., Shin, J., Sahin, A., Kumar, R., 2001. Molecular cloning and characterization of PELP1, a novel human coregulator of estrogen receptor alpha. *The Journal of biological chemistry* 276, 38272-38279.

Valdez, B.C., Henning, D., So, R.B., Dixon, J., Dixon, M.J., 2004. The Treacher Collins syndrome (TCOF1) gene product is involved in ribosomal DNA gene transcription by interacting with upstream binding factor. *Proceedings of the National Academy of Sciences of the United States of America* 101, 10709-10714.

Van den Berghe, H., Cassiman, J.J., David, G., Fryns, J.P., Michaux, J.L., Sokal, G., 1974. Distinct haematological disorder with deletion of long arm of no. 5 chromosome. *Nature* 251, 437-438.

van Ruisen, F., Ruijter, J.M., Schaaf, G.J., Asgharnegad, L., Zwijnenburg, D.A., Kool, M., Baas, F., 2005. Evaluation of the similarity of gene expression data estimated with SAGE and Affymetrix GeneChips. *BMC genomics* 6, 91.

Varshney, G.K., Lu, J., Gildea, D.E., Huang, H., Pei, W., Yang, Z., Huang, S.C., Schoenfeld, D., Pho, N.H., Casero, D., Hirase, T., Mosbrook-Davis, D., Zhang, S., Jao, L.E., Zhang, B., Woods, I.G., Zimmerman, S., Schier, A.F., Wolfsberg, T.G., Pellegrini, M., Burgess, S.M., Lin, S., 2013. A large-scale zebrafish gene knockout resource for the genome-wide study of gene function. *Genome research* 23, 727-735.

Velculescu, V.E., Zhang, L., Vogelstein, B., Kinzler, K.W., 1995. Serial analysis of gene expression. *Science* 270, 484-487.

Verbruggen, V., Ek, O., Georlette, D., Delporte, F., Von Berg, V., Detry, N., Biemar, F., Coutinho, P., Martial, J.A., Voz, M.L., Manfroid, I., Peers, B., 2010. The Pax6b homeodomain is dispensable for pancreatic endocrine cell differentiation in zebrafish. *The Journal of biological chemistry* 285, 13863-13873.

Vesterlund, L., Jiao, H., Unneberg, P., Hovatta, O., Kere, J., 2011. The zebrafish transcriptome during early development. *BMC developmental biology* 11, 30.

Wallace, K.N., Pack, M., 2003. Unique and conserved aspects of gut development in zebrafish. *Developmental biology* 255, 12-29.

Wallace, K.N., Yusuff, S., Sonntag, J.M., Chin, A.J., Pack, M., 2001. Zebrafish hhx regulates liver development and digestive organ chirality. *Genesis* 30, 141-143.

Walsh, D., Mohr, I., 2011. Viral subversion of the host protein synthesis machinery. *Nature reviews. Microbiology* 9, 860-875.

Wan, H., Korzh, S., Li, Z., Mudumana, S.P., Korzh, V., Jiang, Y.J., Lin, S., Gong, Z., 2006. Analyses of pancreas development by generation of gfp transgenic zebrafish using an exocrine pancreas-specific elastaseA gene promoter. *Experimental cell research* 312, 1526-1539.

Wang, D., Jao, L.E., Zheng, N., Dolan, K., Ivey, J., Zonies, S., Wu, X., Wu, K., Yang, H., Meng, Q., Zhu, Z., Zhang, B., Lin, S., Burgess, S.M., 2007. Efficient genome-wide mutagenesis of zebrafish genes by retroviral insertions. *Proceedings of the National Academy of Sciences of the United States of America* 104, 12428-12433.

- Wang, Y., Rovira, M., Yusuff, S., Parsons, M.J., 2011. Genetic inducible fate mapping in larval zebrafish reveals origins of adult insulin-producing beta-cells. *Development* 138, 609-617.
- Wang, Z., Gerstein, M., Snyder, M., 2009. RNA-Seq: a revolutionary tool for transcriptomics. *Nature reviews. Genetics* 10, 57-63.
- Warga, R.M., Nusslein-Volhard, C., 1999. Origin and development of the zebrafish endoderm. *Development* 126, 827-838.
- Warner, J.R., Vilardell, J., Sohn, J.H., 2001. Economics of ribosome biosynthesis. *Cold Spring Harbor symposia on quantitative biology* 66, 567-574.
- Waters, D.L., Dorney, S.F., Gaskin, K.J., Gruca, M.A., O'Halloran, M., Wilcken, B., 1990. Pancreatic function in infants identified as having cystic fibrosis in a neonatal screening program. *The New England journal of medicine* 322, 303-308.
- Wei, C., Salichos, L., Wittgrove, C.M., Rokas, A., Patton, J.G., 2012. Transcriptome-wide analysis of small RNA expression in early zebrafish development. *RNA* 18, 915-929.
- Wendik, B., Maier, E., Meyer, D., 2004. Zebrafish *mnx* genes in endocrine and exocrine pancreas formation. *Developmental biology* 268, 372-383.
- Wienholds, E., van Eeden, F., Kosters, M., Mudde, J., Plasterk, R.H., Cuppen, E., 2003. Efficient target-selected mutagenesis in zebrafish. *Genome research* 13, 2700-2707.
- Wightman, B., Ha, I., Ruvkun, G., 1993. Posttranscriptional regulation of the heterochronic gene *lin-14* by *lin-4* mediates temporal pattern formation in *C. elegans*. *Cell* 75, 855-862.
- Wilfinger, A., Arkhipova, V., Meyer, D., 2013. Cell type and tissue specific function of islet genes in zebrafish pancreas development. *Developmental biology* 378, 25-37.
- Wilkins, B.J., Lorent, K., Matthews, R.P., Pack, M., 2013. p53-mediated biliary defects caused by knockdown of *cirh1a*, the zebrafish homolog of the gene responsible for North American Indian Childhood Cirrhosis. *PloS one* 8, e77670.
- Wong, A.C., Draper, B.W., Van Eenennaam, A.L., 2011a. FLPe functions in zebrafish embryos. *Transgenic research* 20, 409-415.
- Wong, C.C., Traynor, D., Basse, N., Kay, R.R., Warren, A.J., 2011b. Defective ribosome assembly in Shwachman-Diamond syndrome. *Blood* 118, 4305-4312.
- Xiong, X., Zhao, Y., He, H., Sun, Y., 2011. Ribosomal protein S27-like and S27 interplay with p53-MDM2 axis as a target, a substrate and a regulator. *Oncogene* 30, 1798-1811.
- Yang, H., Zhou, Y., Gu, J., Xie, S., Xu, Y., Zhu, G., Wang, L., Huang, J., Ma, H., Yao, J., 2013. Deep mRNA sequencing analysis to capture the transcriptome landscape of zebrafish embryos and larvae. *PloS one* 8, e64058.
- Yee, N.S., 2010. Zebrafish as a biological system for identifying and validating therapeutic targets and compounds. *Drug Discovery in Pancreatic Cancer*, 95-112.

- Yee, N.S., Gong, W., Huang, Y., Lorent, K., Dolan, A.C., Maraia, R.J., Pack, M., 2007. Mutation of RNA Pol III subunit rpc2/polr3b Leads to Deficiency of Subunit Rpc11 and disrupts zebrafish digestive development. *PLoS biology* 5, e312.
- Yee, N.S., Lorent, K., Pack, M., 2005. Exocrine pancreas development in zebrafish. *Developmental biology* 284, 84-101.
- Yee, N.S., Yusuff, S., Pack, M., 2001. Zebrafish pdx1 morphant displays defects in pancreas development and digestive organ chirality, and potentially identifies a multipotent pancreas progenitor cell. *Genesis* 30, 137-140.
- Yu, B., Mitchell, G.A., Richter, A., 2009. Cirhin up-regulates a canonical NF-kappaB element through strong interaction with Cirip/HIVEP1. *Experimental cell research* 315, 3086-3098.
- Zamore, P.D., 2002. Ancient pathways programmed by small RNAs. *Science* 296, 1265-1269.
- Zauberan, A., Flusberg, D., Haupt, Y., Barak, Y., Oren, M., 1995. A functional p53-responsive intronic promoter is contained within the human mdm2 gene. *Nucleic acids research* 23, 2584-2592.
- Zecchin, E., Filippi, A., Biemar, F., Tiso, N., Pauls, S., Ellertsottir, E., Gnugge, L., Bortolussi, M., Driever, W., Argenton, F., 2007. Distinct delta and jagged genes control sequential segregation of pancreatic cell types from precursor pools in zebrafish. *Developmental biology* 301, 192-204.
- Zecchin, E., Mavropoulos, A., Devos, N., Filippi, A., Tiso, N., Meyer, D., Peers, B., Bortolussi, M., Argenton, F., 2004. Evolutionary conserved role of ptf1a in the specification of exocrine pancreatic fates. *Developmental biology* 268, 174-184.
- Zenker, M., Mayerle, J., Lerch, M.M., Tagariello, A., Zerres, K., Durie, P.R., Beier, M., Hulskamp, G., Guzman, C., Rehder, H., Beemer, F.A., Hamel, B., Vanlieferinghen, P., Gershoni-Baruch, R., Vieira, M.W., Dumic, M., Auslender, R., Gil-da-Silva-Lopes, V.L., Steinlicht, S., Rauh, M., Shalev, S.A., Thiel, C., Ekici, A.B., Winterpacht, A., Kwon, Y.T., Varshavsky, A., Reis, A., 2005. Deficiency of UBR1, a ubiquitin ligase of the N-end rule pathway, causes pancreatic dysfunction, malformations and mental retardation (Johanson-Blizzard syndrome). *Nature genetics* 37, 1345-1350.
- Zenker, M., Mayerle, J., Reis, A., Lerch, M.M., 2006. Genetic basis and pancreatic biology of Johanson-Blizzard syndrome. *Endocrinology and metabolism clinics of North America* 35, 243-253, vii-viii.
- Zhang, S., Shi, M., Hui, C.C., Rommens, J.M., 2006. Loss of the mouse ortholog of the shwachman-diamond syndrome gene (Sbds) results in early embryonic lethality. *Molecular and cellular biology* 26, 6656-6663.
- Zhao, C., Andreeva, V., Gibert, Y., LaBonty, M., Lattanzi, V., Prabhudesai, S., Zhou, Y., Zon, L., McCann, K.L., Baserga, S., Yelick, P.C., 2014. Tissue specific roles for the ribosome biogenesis factor Wdr43 in zebrafish development. *PLoS genetics* 10, e1004074.

Zheng, W., Xu, H., Lam, S.H., Luo, H., Karuturi, R.K., Gong, Z., 2013. Transcriptomic analyses of sexual dimorphism of the zebrafish liver and the effect of sex hormones. PloS one 8, e53562.

Zorn, A.M., Wells, J.M., 2009. Vertebrate endoderm development and organ formation. Annual review of cell and developmental biology 25, 221-251.