

Seppo Vainio – CV

Education and positions

1987	Master of Sciences, University of Helsinki
1992	Doctor of Philosophy, animal physiology, organogenesis, University of Helsinki
1996	Docent, University of Helsinki
1997-	Professor of Developmental Biology, University of Oulu
2007-2008	Senior scientist of the Academy of Finland
2013-	Visiting Professor, University of Ulm, Germany

Selected scientific advisory functions

1996-	Nominator of candidates for the Kyoto Life Sciences Price, Japan
2007-	Nominator of candidates for the Inamori Science Price, Japan
2008-	Nominator of the Medix Award
2007-	Evaluation of professorships (x2)
1999-	Evaluator of Docentships (x4)
1996-	External examiner for doctoral dissertations (x12)
2009-	Opponent of Doctoral dissertations (x7)
2002-	Evaluator for The Wellcome Trust, UK, The National Kidney Research Fund, UK, Kidney Research UK, Biological Sciences Research Council, UK, Programme of Developmental Biology and Interactive Physiology, Ministere de la Recherche, France, French National Agency for Research (ANR), INSERM, France Fondation Recherche Médicale, France, Swedish Research Council, European Commission, Research Academy of Norway Biotechnology

Honors and awards

1999	Physiologist of the year in Finland
1999	Discovery of the year in Biocenter Oulu
2001	Best research article among Finnish Developmental Biologists
2004	Discovery of the year in Biocenter Oulu
2009	Discovery of the year in Biocenter Oulu, Rank position two
2011	Discovery of the year in Biocenter Oulu

Selected publications

Cheddad A, Nord C, Hörnblad A, Prunskaitė-Hyyryläinen R, Eriksson M, Georgsson F, Vainio SJ, Ahlgren U. Improving signal detection in emission optical projection tomography via single source multi-exposure image fusion. *Opt Express*. 21(14):16584-604, 2013.

Parviainen H, Schrade A, Kiiveri S, Prunskaitė-Hyyryläinen R, Haglund C, Vainio S, Wilson DB, Arola J, Heikinheimo M. Expression of Wnt and TGF- β pathway components and key adrenal transcription factors in adrenocortical tumors: Association to carcinoma aggressiveness. *Pathol Res Pract*. 209(8):503-9, 2013.

- Heliot C, Desgrange A, Buisson I, Prunskaitė-Hyyryläinen R, Shan J, Vainio S, Umbhauer M, Cereghini S. HNF1B controls proximal-intermediate nephron segment identity in vertebrates by regulating Notch signalling components and *Irx1/2*. *Development* 140(4):873-85, 2013.
- Andersson ER, Saltó C, Villaescusa JC, Cajanek L, Yang S, Bryjova L, Nagy II, Vainio SJ, Ramirez C, Bryja V, Arenas E. Wnt5a cooperates with canonical Wnts to generate midbrain dopaminergic neurons in vivo and in stem cells. *Proc Natl Acad Sci U S A* 110(7):E602-10, 2013.
- Haghighi Poodeh S, Salonurmi T, Nagy I, Koivunen P, Vuoristo J, Räsänen J, Sormunen R, Vainio S, Savolainen MJ. Alcohol-induced premature permeability in mouse placenta-yolk sac barriers in vivo. *Placenta* 33(10): 866-73, 2012.
- Vainio S. How the developing mammalian kidney assembles its thousands of nephrons: Fgfs as stemness signals. *Dev Cell* 22(6):1125-6, 2012.
- Halt K, Vainio S. In vitro induction of nephrogenesis in mouse metanephric mesenchyme with lithium introduction and ureteric bud recombination. *Methods Mol Biol* 886:23-30,2012.
- Murugan S, Saarela U, Airene K, Shan J, Skovorodkin I, Ylä-Herttua S, Vainio SJ. Conditional expression of Lodavin, an avidin-tagged LDL receptor, for biotin-mediated applications in vivo. *Genesis* 50(9):693-9, 2012.
- Murugan S, Shan J, Kühl SJ, Tata A, Pietilä I, Kühl M, Vainio SJ. WT1 and Sox11 regulate synergistically the promoter of the *Wnt4* gene that encodes a critical signal for nephrogenesis. *Exp Cell Res* 318(10):1134-45, 2012.
- Renkema KY, Winyard PJ, Skovorodkin IN, Levtchenko E, Hindryckx A, Jeanpierre C, Weber S, Salomon R, Antignac C, Vainio S, Schedl A, Schaefer F, Knoers NV, Bongers EM; EUCAKUT consortium. Novel perspectives for investigating congenital anomalies of the kidney and urinary tract (CAKUT). *Nephrol Dial Transplant* 26(12):3843-51,2011.
- Chi L, Saarela U, Railo A, Prunskaitė-Hyyryläinen R, Skovorodkin I, Anthony S, Katsu K, Liu Y, Shan J, Salgueiro AM, Belo JA, Davies J, Yokouchi Y, Vainio SJ. A secreted BMP antagonist, Cer1, fine tunes the spatial organization of the ureteric bud tree during mouse kidney development. *PLoS One* 2011;6(11):e27676.
- Veikkolainen V, Naillat F, Railo A, Chi L, Manninen A, Hohenstein P, Hastie N, Vainio S, Elenius K. ErbB4 modulates tubular cell polarity and lumen diameter during kidney development. *J Am Soc Nephrol* 23(1):112-22, 2012.
- Heinonen KM, Vanegas JR, Brochu S, Shan J, Vainio SJ, Perreault C. Wnt4 regulates thymic cellularity through the expansion of thymic epithelial cells and early thymic progenitors. *Blood* 118(19):5163-73,2011.
- Pietilä I, Ellwanger K, Railo A, Jokela T, Barrantes Idel B, Shan J, Niehrs C, Vainio SJ. Secreted Wnt antagonist Dickkopf-1 controls kidney papilla development coordinated by Wnt-7b signalling. *Dev Biol* 353(1):50-60, 2011.
- Naillat F, Prunskaitė-Hyyryläinen R, Pietilä I, Sormunen R, Jokela T, Shan J, Vainio SJ. Wnt4/5a signalling coordinates cell adhesion and entry into meiosis during presumptive ovarian follicle development. *Hum Mol Genet* 19(8):1539-50, 2010.

Nagy II, Railo A, Rapila R, Hast T, Sormunen R, Tavi P, Räsänen J, Vainio SJ. Wnt-11 signalling controls ventricular myocardium development by patterning N-cadherin and beta-catenin expression. *Cardiovasc Res*. 85(1):100-9, 2010.

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Michos O, Gonçalves A, Lopez-Rios J, Tiecke E, Naillat F, Beier K, Galli A, Vainio S, Zeller R. Reduction of BMP4 activity by gremlin 1 enables ureteric bud outgrowth and GDNF/WNT11 feedback signalling during kidney branching morphogenesis. *Development* 134(13):2397-405, 2007.

Chi L, Itäranta P, Zhang S, Vainio S. Sprouty2 is involved in male sex organogenesis by controlling fibroblast growth factor 9-induced mesonephric cell migration to the developing testis. *Endocrinology* 147(8):3777-88, 2006.

Itäranta P, Chi L, Seppänen T, Niku M, Tuukkanen J, Peltoketo H, Vainio S. Wnt-4 signaling is involved in the control of smooth muscle cell fate via Bmp-4 in the medullary stroma of the developing kidney. *Dev Biol*. 293(2):473-83, 2006.

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Chi L, Zhang S, Lin Y, Prunskaitė-Hyyryläinen R, Vuolteenaho R, Itäranta P, Vainio S. Sprouty proteins regulate ureteric branching by coordinating reciprocal epithelial Wnt11, mesenchymal Gdnf and stromal Fgf7 signalling during kidney development. *Development* 131(14):3345-56, 2004.

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26: Lin Y, Zhang S, Rehn M, Itäranta P, Tuukkanen J, Heljäsvaara R, Peltoketo H, Pihlajaniemi T, Vainio S. Induced repatterning of type XVIII collagen expression in ureter bud from kidney to lung type: association with sonic hedgehog and ectopic surfactant protein C. *Development* 128(9):1573-85, 2001.

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Vainio S, Karavanova I, Jowett A, Thesleff I. Identification of BMP-4 as a signal mediating secondary induction between epithelial and mesenchymal tissues during early tooth development. *Cell* 75(1):45-58, 1993.