

Curriculum Vitae

Henrik Birn
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Uddannelse og erhvervelse af akademisk grad:

2006: Dr. Med. ved Det Sundhedsvidenskabelige Fakultet, Aarhus Universitet

1998: PhD ved Det Sundhedsvidenskabelige Fakultet, Aarhus Universitet

1993: Medicinsk embedseksamen, Aarhus Universitet.

1993: Diplomeksamen i medicinsk forskning, Det Sundhedsvidenskabelige Fakultet, Aarhus Universitet.

1984 - 1985: Student ved Dickinson College, Carlisle, PA, USA.

1984: Mat fys. studentereksamen. Risskov Amtsgymnasium.

Ansættelser:

2010 - Professor MSO ved Anatomisk Institut, Aarhus Universitet og afdelingslæge ved Nyremedicinsk afdeling, Århus Universitetshospital Skejby.

2008 - 2009: Advanced Renal Trainee ved The Westmead-Gosford Renal Training Network, Sydney, Australien (godkendt som del af hoveduddannelse i nefrologi)

2004 - 2009: Hoveduddannelsesansættelse i intern medicin: nefrologi ved Aalborg og Skejby Sygehuse. Samtidig ekstern lektor ved Anatomisk Institut, Aarhus Universitet.

2003 - 2004: Introduktionsreservelæge ved Medicinsk afdeling, Århus Amtssygehus (orlov fra lektorat).

1999 - 2000: Introduktionsreservelæge ved Nefrologisk afdeling, Skejby Sygehus (orlov fra lektorat).

1999 - 2004: Lektor ved Cellebiologisk Afdeling, Aarhus Universitet.

1998: Assisterende distriktslæge ved Sygehuset i Maniitsoq, Grønland (orlov fra adjunktur)

1996 - 2000: Adjunkt ved Cellebiologisk Afdeling, Aarhus Universitet.

1994 - 1996: PhD-stipendiat ved Cellebiologisk Afdeling, Aarhus Universitet.

1993 - 1994: Turnus reservelæge, medicinsk og kirurgisk afd., Kolding Sygehus.

Videnskabeligt:

Forskning fokuseret på at afklare de celle- og molekylærbiologiske mekanismer bag protein-reabsorption i den proximale tubulus med henblik på at afdække deres betydning for den tubulære reabsorption af en række essentielle molekyler, herunder albumin, folat og vitamin B12. Arbejdet har bidraget til forståelsen af tubulusfunktionen og den øgede opmærksomhed omkring tubulus' vigtige rolle i omsætningen og homeostasen af essentielle biologiske substanser. I alt 42 publicerede arbejder i danske og internationale tidsskrifter. Præsenteret mere end 20 abstracts som poster og foredrag ved mere end 15 internationale kongresser. Medarrangør af skandinavisk elektronmikroskopikongres. I alt 1226 citationer; H-indeks beregnet til 18 (per 06.09.2009).

Deltaget i arbejdsgruppe under Dansk Nefrologisk Selskab og Dansk Selskab for Klinisk Biokemi om metoder til vurdering af nyrefunktion og proteinuri .

Referee ved American Journal of Kidney Disease, American Journal of Physiology, The Journal of Physiology, The Biochemical Journal, The Journal of Nutrition, Journal of Clinical Immunology, Nephrology, Dialysis, Transplantation samt Developmental Biology.

Vejledning og undervisning:

Vejleder for forskningsårsstuderende og PhD-studerende ved Cellebiologisk afdeling, Aarhus Universitet. Præ- og postgraduat undervisning ved Aarhus Universitet. Prægraduat undervisning i kemi, cytologi, histologi samt makroskopisk anatomi. Eksaminator i makroskopisk anatomi. Postgraduat underviser ved kurser i elektronmikroskopi og kursus i forskningstræning for kommende nefrologer.

Administrativt:

Medlem af Det lægevidenskabelige Studienævn 1990-92 samt Det lægevidenskabelige Fakultetsråd 1992-93.

Priser:

Jytte Mommsen født Købler's legat, Dansk Nefrologisk Selskab, 2007.

Roche legat, Dansk Nefrologisk Selskab, 2006.

Rejselegat, Aarhus Universitet, 1993.

Familie:

Gift med Lene Boldrup Birn, specialtandlæge i ortodonti.

To sønner, Anton (12 år) og Magnus (9 år).

Bosiddende i Risskov ved Århus

Publikationer

- 1) Birn, H., and Christensen, E. I. The distribution of calcitonin in rat kidney: an immunocytochemical study. *Contrib.Nephrol.* 83, 75-81. 1990.
- 2) Birn, H., Selhub, J., and Christensen, E. I. Internalization and intracellular transport of folate-binding protein in rat kidney proximal tubule. *Am.J.Physiol.* 264, C302-C310. 1993.
- 3) Birn, H., Christensen, E. I., and Nielsen, S. Kinetics of endocytosis in renal proximal tubule studied with ruthenium red as membrane marker. *Am.J.Physiol.* 264, F239-F250. 1993.
- 4) Birn, H., and Christensen E.I.. Localization and degradation of calcitonin in renal proximal tubule of rat visualized by immunocytochemistry. *Renal Physiol. Biochem.* 16, 167-181. 1993.
- 5) Elkjær, M. L., Birn, H., Agre, P., Christensen, E. I., and Nielsen, S. Effects of microtubule disruption on endocytosis, membrane recycling and polarized distribution of Aquaporin-1 and gp330 in proximal tubule cells. *Eur.J.Cell Biol.* 67, 57-72. 1995.
- 6) Nielsen, S., Marples, D., Birn, H., Mohtashami, M., Dalby, N. O., Trimble, M., and Knepper, M. Expression of VAMP-2-like protein in kidney collecting duct intracellular vesicles. Colocalization with Aquaporin-2 water channels. *J.Clin.Invest.* 96, 1834-1844. 1995.
- 7) Hines, A. E., Birn, H., Teglbjaerg, P. S., and Sinkjaer, T. Fiber type composition of articular branches of the tibial nerve at the knee joint in man. *Anat.Rec.* 246, 573-578. 1996.
- 8) Moestrup, S. K., Birn, H., Fischer, P. B., Petersen, C. M., Verroust, P. J., Sim, R. B., Christensen, E. I., and Nexø, E. Megalin-mediated endocytosis of transcobalamin-vitamin-B12 complexes suggests a role of the receptor in vitamin-B12 homeostasis. *Proc.Natl.Acad.Sci.U.S.A.* 93, 8612-8617. 1996.
- 9) Birn, H., Crüger, D., Hansen, S. I., Holm, J., and Høier-Madsen, M. Distribution and characterization of high-affinity folate binding proteins in rat yolk sac and human coelomic fluid.. Editors: Pfliegerer, W. and Rokos, H. In: *Chemistry and Biology of pteridines and folates*, 349-352, 1997. Berlin, Blackwell Science.
- 10) Birn, H., Verroust, P. J., Nexø, E., Hager, H., Jacobsen, C., Christensen, E. I., and Moestrup, S. K. Characterization of an epithelial 460 kDa protein that facilitates endocytosis of intrinsic factor-vitamin B12 and binds receptor-associated protein. *J.Biol.Chem.* 272, 26497-26504. 1997.
- 11) Birn, H., Nielsen, S., and Christensen, E. I. Internalization and apical to basolateral transport of folate in rat kidney proximal tubule. *Am.J.Physiol.* 272, F70-F78. 1997.
- 12) Christensen, E. I. and Birn, H. Hormone, growth factor, and vitamin handling by proximal tubule cells. *Curr.Opin.Nephrol.Hypertens.* 6, 20-27. 1997.
- 13) Christensen, E. I., Birn, H., Verroust, P., and Moestrup, S. K. Membrane receptors for endocytosis in the renal proximal tubule. *Int.Rev.Cytol.* 180:237-84, 237-284. 1998.
- 14) Nielsen, R., Birn, H., Moestrup, S. K., Nielsen, M., Verroust, P., and Christensen, E. I. Characterization of a kidney proximal tubule cell line, LLC-PK1, expressing endocytotic active megalin. *J.Am.Soc.Nephrol.* 9, 1767-1776. 1998.
- 15) Christensen, E.I., Birn, H., Verroust, P, and Moestrup, S.K. Megalin mediated endocytosis in renal proximal tubule. *Renal Failure* 20, 191-199. 1998.
- 16) Holm, J., Hansen, S. I., Høier Madsen, M., Birn, H., and Helkjær, P. E. High-affinity folate receptor in human ovary, serous ovarian adenocarcinoma, and acites: Radioligand binding mechanism, molecular size, ionic properties, hydrophobic domain, and immunoreactivity. *Arch.Biochem.Biophys.* 366, 183-191, 1999.
- 17) Birn, H., Vorum, H., Verroust, P.J., Moestrup, S.K., and Christensen, E.I. Receptor-associated protein is important for normal processing and megalin in kidney proximal tubules. *J. Am Soc. Nephrol.* 11, 191-202, 2000.
- 18) Christensen, E.I., and Birn, H. Renal handling of albumin in normal rat. *Kidney Int.* 57, 1207-1209, 2000.
- 19) Birn, H., Fyfe, J., Jacobsen, C., Mounier, F., Verroust, P.J., Ørskov, H., Willnow, T.E., Moestrup, S.K., and Christensen, E.I. Cubilin is an albumin binding protein important for renal tubular albumin reabsorption. *J. Clin. Invest.* 105, 1353-1361, 2000.
- 20) Zhai, X.Y., Nielsen, R., Birn, H., Drumm, K., Mildenerger, S., Freudinger, R., Moestrup, S.K., Christensen, E.I., and Gekle, M. Cubilin and megalin mediated uptake of albumin in cultured proximal tubule cells of Opssum kidney. *Kidney Int.* 58, 1523-2533, 2000.
- 21) Nielsen R., Sørensen B.S., Birn H., Christensen E.I., and Nexø E. Transcellular transport of vitamin B(12) in LLC PK1 renal proximal tubule cells. *J. Am. Soc. Nephrol.* 12, 1099-1106, 2001.
- 22) Christensen, E.I., and Birn, H. Megalin and cubilin: synergistic endocytic receptors in renal proximal tubule. *Am. J.*

Physiol. 280, F562-F573, 2001.

- 23) Birn H, Willnow T.E., Nielsen R., Norden A.G., Bonsch C., Moestrup S.K., Nexø E., and Christensen E.I. Megalin is essential for renal proximal tubule reabsorption and accumulation of transcobalamin-B12. *Am. J. Physiol. Renal Physiol.* 282, F408-F416, 2002.
- 24) Verroust P.J., Birn H., Nielsen R., Kozyraki R., Christensen E.I.. The tandem endocytic receptors megalin and cubilin are important proteins in renal pathology. *Kidney Int.* 62, 745-756, 2002.
- 25) Christensen, E.I., and Birn, H. Megalin and cubilin: multifunctional endocytic receptors. *Nature Rev. Mol. Cell Biol.* 3, 256-266, 2002
- 26) Zhai, X.Y., Birn, H., Jensen, K.B., Thomsen, J.S., Andreasen, A., and Christensen, E.I. Digital three dimensional reconstruction and ultrastructure of the mouse proximal tubule. *J. Am Soc. Nephrol.* 14, 2003.
- 27) Birn, H., Leboulleux, M., Moestrup, S.K., Ronco, P.M., Aucouturier, P., and Christensen, E.I. Megalin, cubilin and immunoglobulin light chains: receptor-mediated uptake of light chains in kidney proximal tubule. Editors: Aucouturier, P., et al. In: *Monoclonal Gammopathies and the Kidney*, 37-48, 2003. Kluwer Academic Publishers.
- 28) Gburek, J., Birn, H., Verroust, P.J., Goj, B., Jacobsen, C., Moestrup, S.K., Willnow, T.E., and Christensen, E.I.. Renal uptake of myoglobin is mediated by the endocytic receptors megalin and cubilin. *Am. J. Physiol. Renal Physiol.* 285, F451-458, 2003.
- 29) Birn, H., Nexø, E., Christensen, E. I., and Nielsen, R. Diversity in rat tissue accumulation of vitamin B12 supports a distinct role for the kidney in vitamin homeostasis. *Nephrol. Dial. Transplant.* 18, 1095-1100, 2003.
- 30) Ohno Y., Birn H., and Christensen E.I.. In vivo confocal laser scanning microscopy and micropuncture in intact rat. *Nephron Exp. Nephrol.* 99, 17-25, 2005.
- 31) Birn H., Spiegelstein O., Christensen E.I., and Finnell R.H.. Renal tubular reabsorption of folate mediated by folate binding protein 1. *J. Am. Soc. Nephrol.* 16, 608-615, 2005.
- 32) Birn H., Zhai X., Holm J., Hansen S.I., Jacobsen C., Christensen E.I., and Moestrup S.K. Megalin binds and mediates cellular internalization of folate binding protein. *FEBS J.* 272, 4423-4430, 2005.
- 33) Malm J., Birn H., Frohm B., Hansen S.I., Hoier-Madsen M., and Holm J. A minor fraction of a high-affinity folate binding protein from the epididymis is associated with membranous vesicles and spermatozoa in human semen. *Int. J. Androl.* 28, 267-274, 2005.
- 34) Zhai X.Y., Thomsen J.S., Birn H., Kristoffersen I.B., Andreasen A., and Christensen E.I. Three-dimensional reconstruction of the mouse nephron. *J. Am. Soc. Nephrol.* 17, 77-78, 2006.
- 35) Birn H., and Christensen E.I. Renal albumin absorption in physiology and pathology. *Kidney Int.* 69, 440-449, 2006.
- 36) Thelle K., Christensen E.I., Vorum H., Orskov H., and Birn H. Characterization of proteinuria and tubular protein uptake in a new model of oral L-lysine administration in rats. *Kidney Int.* 69, 1333-40, 2006.
- 37) Birn H. The kidney in vitamin B12 and folate homeostasis: characterization of receptors for tubular uptake of vitamins and carrier proteins. *Am. J. Physiol. Renal Physiol.* 291, F22-36, 2006.
- 38) Christensen EI, Birn H, Rippe B, Maunsbach AB. Controversies in nephrology: renal albumin handling, facts, and artifacts! *Kidney Int.* 72, 1192-1194, 2007.
- 39) Birn H. Skal patienter med kronisk nyresvigt behandles med folinsyre, B6 og B12-vitamin? *Ugeskr. Laeger.* 170, 933-937, 2008
- 40) Petersen LJ, Birn H, Ladefoged SA, Randers E, Rehling M, Reinholdt B, Rossing P. Klinisk vurdering af ekskretorisk nyrefunktion. *Ugeskr. Laeger.* 171, 1090, 2009.
- 41) Birn H, Roger SD. Albuminuria - chasing the message, not the messenger. *Port. J. Nephrol. Hypert.* 23: 215-218, 2009.
- 42) Andreasen Struijk LN, Birn H, Teglbjærg PS, Haase J, Struijk JJ. Size and separability of the calcaneal and the medial and lateral plantar nerves in the distal tibial nerve. *Anat. Sci. Int.* 2009, In press.