BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
Henning, Susan J.	Professor of Medicine and Cellular & Molecular Physiology
eRA COMMONS USER NAME (credential, e.g., agency login) shenning	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Melbourne, Melbourne, Australia	B.S.	1966	Chemistry / Biochemistry
University of Melbourne, Melbourne, Australia	Ph.D.	1971	Biochemistry
Stanford University, Palo Alto, CA	Postdoctoral	1971-1974	Pediatrics
Fels Research Institute, Philadelphia, PA	Postdoctoral	1974-1975	Biochemistry

A. Positions and Honors.

Positions and Employment

1975-1979 Assistant Professor of Biology, Temple University
1979-1984 Associate Professor of Biology, University of Houston
1984-1989 Professor of Biology, University of Houston
1989-2007 Professor of Pediatrics and Molecular and Cellular Biology, Baylor College of Medicine
2007-pres Professor of Medicine and Cellular & Molecular Physiology, University of North Carolina

Other Experience and Professional Memberships

1979-1982 Member, Maternal and Child Health Committee, NICHD
1984-1997 Member, Editorial Board, American Journal of Physiology
1989-1991 Member, General Medicine A2 Study Section, NIH
1999-2001 Vice-Chair, Growth, Development and Nutrition Section, Am. Gastroenterological Assn.
2001-2003 Chair, Growth, Development and Aging Section, Am. Gastroenterological Assn.
2004-2008 Member, NIDDK-C Committee (reviews training and career applications)
2009-present Member, 2DK1 GRB-2 Study Section (reviews fellowships)

Honors

1974 Walter J. Gores Award for Teaching Excellence, Stanford University
1989-1999 NIH MERIT Award
1999 National Honoree, Graduate Women in Sci. for outstanding achievement in scientific research
1999 First Annual Research Teaching Award, Baylor College of Medicine, Department of Pediatrics
2006 Elected as Fellow of the American Gastroenterology Association
2007 Distinguished Service Award, North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition (NASPGHAN)
2008 Selected as one of the first group of "Outstanding AGA Women in Science."
2009 Selected as Davenport Distinguished Lecturer by GI Section of the Amer. Physiol. Soc.

B. Selected peer-reviewed publications. (selected from a total of 103 papers and 12 chapters/reviews)

1. Henning, S.J. Plasma concentrations of total and free corticosterone during development in the rat. *Am. J. Physiol*. 235: E451-E456, 1978.
2. Henning, S.J. and J.M. Sims. Delineation of the glucocorticoid-sensitive period of intestinal development in the rat. *Endocrinology* 104: 1158-1163, 1979.

3. D'Agostino, J.B. and S.J. Henning. Role of thyroxine in coordinate control of corticosterone and CBG in postnatal development. *Am. J. Physiol*. 242: E33-E39, 1982.
4. Henning, S.J. and L.L. Leeper. Coordinate loss of glucocorticoid responsiveness by intestinal enzymes during postnatal development. *Am. J. Physiol*. 242: G89-G94, 1982.
5. Martin, G.R. and S.J. Henning. Relative importance of corticosterone and thyroxine in the postnatal development of sucrase and maltase in rat small intestine. *Endocrinology* 111: 912-918, 1982.
6. Martin, G.R. and S.J. Henning. Enzymic development of the small intestine: are glucocorticoids necessary? *Am. J. Physiol*. 246: G695-G699, 1984.
7. Leeper, L.L. and S.J. Henning. Development and tissue distribution of sucrase-isomaltase mRNA in the rat. *Am. J. Physiol*. 258: G52-G58, 1990.
8. Chandrasena, G., I. Sunitha, C. Lau, N.N. Nanthakumar and S.J. Henning. Expression of sucrase-iso-maltase mRNA along the villus-crypt axis in the rat small intestine. *Cell. Mol. Biol.* 38:243-254 1992.
9. Nanthakumar, N., and S.J. Henning. Ontogeny of sucrase-isomaltase gene expression in rat intestine: Response to glucocorticoids. *Am. J. Physiol*. 264: G306-G311, 1993.
10. Sandberg, J.W., C. Lau, M. Jacomino, M. Finegold, and S.J. Henning. Improving access to intestinal stem cells as a step toward intestinal gene transfer. *Human Gene Therapy* 5: 323-329, 1994.
11. Nanthakumar, N.N. and S.J. Henning. Distinguishing normal and glucocorticoid-induced maturation of the intestine using bromodeoxyuridine. *Am. J. Physiol*. 268: G139-G145, 1995.
12. Lau, C., H.E. Soriano, F.D. Ledley, M.J. Finegold, J.H. Wolfe, E.H. Birkenmeier and S.J. Henning. Retroviral gene transfer into the intestinal epithelium. *Hum. Gene Ther*. 6: 1145-1151, 1995.
13. Jacomino, M., C. Lau, S.Z. James, P. Shukla and S.J. Henning. Gene transfer into fetal rat intestine. *Hum. Gene Ther*. 7: 1757-1762, 1996.
14. Jacomino, M., P. Shukla and S.J. Henning. Use of amphotropic retroviral vectors for gene transfer in human colon carcinoma cells. *Hum. Gene Ther*. 8: 835-841, 1997.
15. Oesterreicher, T.J., L.L. Leeper, M.J. Finegold, G.J. Darlington and S.J. Henning. Intestinal maturation in mice lacking CCAAT/enhancer-binding protein α (C/EBPα). *Biochem. J*. 330: 1165-1171, 1998.
16. Oesterreicher, T.J., N.N. Nanthakumar, J.H. Winston, and S.J. Henning. Rat trehalase: cDNA cloning and mRNA expression in adult rat tissues and during intestinal ontogeny. *Am. J. Physiol*. 274: R1220-R1227, 1998.
17. Leeper, L.L., M.C. McDonald, J.P. Heath, and S.J. Henning. Sucrase-isomaltase ontogeny: Synergism between glucocorticoids and thyroxine reflects increased mRNA and no change in cell migration. *Biochem. Biophys. Res. Commun*. 246: 765-770, 1998.
18. Henning, S.J., T.J. Oesterreicher, D.E. Osterholm, D. Lottaz, D. Hahn and E.E. Sterchi. Meprin mRNA in rat intestine during normal and glucocorticoid-induced maturation: divergent patterns of expression of α and β subunits. *FEBS Letters* 462: 368-372, 1999.
19. Hwang, S.T. and S.J. Henning. Hormonal regulation of expression of ileal bile acid binding protein (IBABP) in suckling rats. *Am. J. Physiol*. 278: R1555-R1563, 2000.
20. Solomon, N.S., H. Gartner, T.J. Oesterreicher and S.J. Henning. Development of glucocorticoid-responsiveness in mouse intestine. *Pediatr. Res.* 49: 1-7, 2001.
21. Hwang, S.T. and S.J. Henning. Ontogenic regulation of components of ileal bile acid absorption. *Exp. Biol. Med*. 226:674-680, 2001.
22. Oesterreicher, T.J., D.C. Markesich and S.J. Henning. Cloning, characterization and mapping of the mouse trehalase (*Treh*) gene. *Gene* 270:211-220, 2001.
23. Gartner, H, P. Shukla, D.C. Markesich, N.S. Solomon, T.J. Oesterreicher and S.J. Henning. Developmental expression of trehalase: role of transcriptional activation. *Biochim. Biophys. Acta* 1574:329-336, 2002.
24. Hwang, S.T., N.L. Urizar, D.D. Moore and S.J. Henning. Bile acids regulate the ontogenic expression of ileal bile acid binding protein in the rat via the farnesoid X receptor. *Gastroenterology* 122:1483-1492, 2002.
25. Gartner H., M.C. Graul, T.J. Oesterreicher, M.J. Finegold and S. J. Henning. Development of the fetal intestine in mice lacking the glucocorticoid receptor (GR). *J. Cell. Physiol*. 194:80-87, 2003.
26. Oesterreicher T.J. and S.J. Henning. Rapid induction of GATA transcription factors in developing mouse intestine following glucocorticoid administration. *Am. J. Physiol*. 286:G947-53, 2004.

27. Agbemafle, B.M., Oesterreicher, T.J., Shaw, CA and S.J. Henning. Immediate early genes of glucocorticoid action on the developing intestine. *Am. J. Physiol.* 288:G897-906, 2005.
28. Dekaney C.M., J.M. Rodriguez, M. C. Graul and S.J. Henning. Isolation and characterization of a putative intestinal stem cell fraction from mouse jejunum. *Gastroenterology* 129:1567-1580, 2005
29. Dekaney C.M., J.M. Rodriguez, M. C. Graul and S. J. Henning Isolation of gut SP cells does not automatically enrich for stem cells. Reply. *Gastroenterology*, 130: 1012-1014, 2006
30. Yaylaoglu, M.B., B.M. Agbemafle, T.J. Oesterreicher, M.J. Finegold, C. Thaller and S. J. Henning. Diverse patterns of cell-specific gene expression in response to glucocorticoid in the developing small intestine. *Am. J. Physiol.* 291:G1041-1050, 2006
31. Helmrath, M.A., J.J. Fong, C.M. Dekaney, and S.J. Henning. Rapid expansion of intestinal secretory lineages following a massive small bowel resection in mice. *Am. J. Physiol.* 292:G215-222, 2007
32. Shroyer, N.F., M.A. Helmrath, V.Y.C.Wang, B. Antalffy, S.J. Henning, and H.Y. Zoghbi. Intestine specific ablation of *Math 1* in mice reveals a role in cellular homeostasis. *Gastroenterology* 132 (7):2478-88, 2007
33. Dekaney, C.M., J.J. Fong, R.J. Rigby, P.K.Lund, S.J. Henning, and M.A. Helmrath. Expansion of intestinal stem cells associated with long-term adaptation following ileocecal resection in mice. *Am. J. Physiol*. 293:G1013-1022, 2007
34. Gulati, A.S., S.A. Ochsner, S.J. Henning. Molecular properties of side population-sorted cells from mouse small intestine. *Am. J. Physiol.* 294:G286-294, 2008
35. Dekaney, C.M., D.C. von Allmen, A.P. Garrison, R.J. Rigby, P.K. Lund, S.J. Henning, M.A. Helmrath. Bacterial-dependent up-regulation of intestinal bile acid binding protein and transport is FXR-mediated following ileo-cecal resection. *Surgery* 144:174-181, 2008
36. Garrison, A.P., C.M. Dekaney, D.C. von Allmen, P.K. Lund, S.J. Henning and M.A. Helmrath. Early but not late administration of Glucagon-Like Peptide-2 following ileo-cecal resection augments putative intestinal stem cell expansion. *Am J Physiol* 296: G643 - G650, 2009
37. McLin, V.A., S.J. Henning, and M. Jamrich. The role of the visceral mesoderm in the development of the gastrointestinal tract. *Gastroenterology* 136: 2074-2091, 2009
38. Dekaney, C.M., A.S. Gulati, A.P. Garrison, M.A. Helmrath, and S.J. Henning. Regeneration of intestinal stem/progenitor cells following doxorubicin treatment of mice. *Am J Physiol* 297: G461-G470, 2009

C. Research Support.

Ongoing Research Support

R01 DK 069585-05 Henning (PI) 08/01/05-07/31/10
NIH/NIDDK
Analysis and Applications of Intestinal Stem Cells
The aims of this project are to isolate and characterize intestinal epithelial stem cells via: a) *in vivo* transplantation; and b) gene expression profiling. In addition, potential stem cell markers will be assessed by high throughput *in situ* hybridization.
Role: PI

U01 DK 085547 Henning (PI) 09/30/09-08/31/14
NIH/NIDDK
Collaborative Approaches to the Study of Intestinal Epithelial Stem Cells
This is an application to participate in an intestinal stem cell consortium. The three proposed studies are: 1. to improve isolation methods for intestinal stem cells; 2. to develop *in vivo* functional assays to demonstrate stemness; and 3. to study the behavior of intestinal stem cells during development.
Role: PI

NC Biotechnology Center Lund (PI) 12/01/08 - 11/30/10

Identification, Isolation, Molecular Phenotyping and Propagation of Intestinal Stem Cells (ISC) as Model Systems for Tissue Regeneration and Drug Discovery
Fluorescent reporters will be used to track normal and regenerating intestinal stem cells (ISC) after radiation and isolate ISC to define their molecular phenotype. Purified ISC cultures will be developed for drug discovery and transplantation.
Role: Co-Investigator

FDHN/AGA Research Scholar Award Mori-Akiyama (PI) 07/01/08-06/30 /10
The Role of SOX9 in the Intestinal Epithelium and Colorectal Cancer Progression
The aim of this project is to identify the direct target genes of SOX9 in the intestinal epithelium by ChIP on chip analysis. The second aim is to characterize the role of SOX9 in tumorigenesis using mouse model.
Role: Mentor

California Inst. for Regen. Med. Grikscheit (PI) 01/01/09 – 12/31/13
The Role of the Intestinal Stem Cell Niche in Tissue-Engineered Small Intestine
The major goals of this project are to identify and overcome hurdles to using tissue engineered intestine as a potential future human therapy.
Role: Mentor

Completed Research Support

K08 DK067395-05 Helmrath (PI) 07/01/04-06/30/09
NIH/NIDDK
Role of Secretory Lineages during Intestinal Adaptation
The aims of this project were to study the role of secretory lineages in the adaptive response of the small intestine to resection.
Role: Mentor

UNC-SURF Kreuk (PI) 05/01/08-07/31/08
UNC-Summer Undergraduate Research Fellowship
A Co-culture System for Intestinal Stem Cells
This was a summer project performed by Lieselotte Kreuk under the mentorship of Susan J. Henning, Ph.D. The project examined the hypothesis that intestinal myofibroblasts are critical for the proliferation and differentiation of intestinal stem cells.
Role: Mentor

NIH T32 DK07664-17 Henning (PI) 07/01/06-06/30/11
NIH/NIDDK
Research Training in Pediatric Gastroenterology
This grant provides salary support for research training of M.D. and Ph.D. postdoctoral fellows. Fellows are distributed through laboratories of 18 mentors. Dr. Henning stepped down as P.I., when she relocated to UNC – Chapel Hill in August 2007. She remains as a consultant.
Role: PI