

Lawrence B. Schook, Ph.D. Professor of Comparative Genomics Director, Agricultural Genomics and Public Policy Program Theme Leader, Institute for Genomic Biology University of Illinois

Lawrence Schook received his Ph.D. from the Wayne State School of Medicine and was a Fellow at the Institute of Clinical Immunology, Berne, Switzerland and the University of Michigan. He was Director, Food Animal Biotechnology Center and Associate Dean of Research at the University of Minnesota from 1993-2000. He was selected as a University Scholar, University of Illinois and has received the Funk Award in Agriculture and the Pfizer Award for Animal Health. His work has focused on the mechanisms of innate immunity, improving animal health, and using the pig as a biomedical model. He is on the Boards of the Illinois Biotechnology Association and the Agricultural and Food Governing Board of BIO. He currently is serving as the Co-Chair of the Swine Genome Sequencing Consortium and as the Senior author of the NIH Swine Genome White Paper.

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Research Interests:

Functional genomics with an emphasis on optimizing intestinal function to promote animal health and productivity. Our laboratory is focused on using comparative genomics to study animal health and development across species. Ongoing studies include a functional nutritional genomics project in collaboration with Professor George Fahey. This model is exploring the changes in gene expression during growth in young dogs compared to aged animals on different diets. These studies are designed to identify pathways that lead to wellness in aged animals and how through nutritional intervention diseases of aged animals can be avoided or ameliorated. Our efforts also address the interaction of animal health and nutrition. We are establishing in vitro gastrointestinal epithelial systems as technology platforms to study changes in gene expression during responses to pathogens. Finally, another major focus in our program is to develop animal models based on functional genomics to study mucosal development. In collaboration with Professor Rex Gaskins, of the Department of Animal Sciences, we are developing artificial intestinal crypts using microtechnolgy and laser capture micrscopy to explore gene expression of individual cells as they differentiate from the crypt stem cells. This will allow us to identify regulatory signals from nutritional sources and endogenous microbiota promoting epithelial differentiation.

Representative Publications

Paszek, A.A., P.J. Wilkie, G.H. Flickinger, G.A. Rohrer, L.J. Alexander, C.W. Beattie, and L.B. Schook. (2002) Mapping carcass composition and meat quality traits in swine. Animal Biotech. 12:155-166.

Gellin, J., S. Brown, J. Graves, M. Rothschild, L. Schook, J. Womack and M. Yerle. (2000) Comparative gene mapping workshop: progress in agriculturally important animals. Mammal. Gen., 11:140-144.

Paszek, A.A., P.J. Wilkie, G.H. Flickinger, G.A. Rohrer, L.J. Alexander, C.W. Beattie, and L.B. Schook. (1999) Interval mapping of growth in divergent swine cross. Mammalian Genome, 10:117-122.

Tumbleson, M. and L.B. Schook (Editors). (1996) Swine in Biomedical Research. Plenum Publishing, New York, NY. Volume 1 and Volume 2, pp. 904.