

Name: Andreas Lueck, D.N.Sc., M.Sc.  
Titles: Associate Dean of Academic Matters  
Professor and Chair, Department of Medical Biochemistry and Genetics

## Relevant Research Publications

**Lueck**, A., H.L. Yin, D.J. Kwiatkowski, and P.G. Allen (2000). Calcium regulation of gelsolin and adseverin: a natural test of the latch hypothesis. *Biochemistry* **39** (18), 5274-5279

Onda, H., A. **Lueck**, P.W. Marks, H. Warren, and D.J. Kwiatkowski (1999). *Tsc2<sup>+/-</sup>* mice develop tumors in multiple sites that express gelsolin and are influenced by genetic background. *J Clin Invest* **104** (6) 687-695

**Lueck**, A., D. Brown and D.J. Kwiatkowski (1998). The actin-binding proteins adseverin and gelsolin are both highly expressed but differentially localized in kidney and intestine. *J Cell Sci* **111**, 3633-3643.

Hinssen, H., L. Scheckel, A. **Lueck**, and A.M. Gressner (1995). The actin-binding protein gelsolin as an additional marker of the transformation of rat liver perisinusoidal lipocytes into myofibroblasts. *Cells of the Hepatic Sinusoid* **5**, 427-429.

**Lueck**, A., J. D'Haese and H. Hinssen (1995). A gelsolin-related protein from lobster muscle: cloning, sequence analysis, and expression. *Biochem J* **305**, 767-775.

## Abstracts

Onda, H. **A. Lueck**, J. Bandura, H. Warren, H. Zhang and D.J. Kwiatkowski (2000). Mouse models of tuberous sclerosis.

Fink, K.B., M. Endres, **A. Lueck** and D.J. Kwiatkowski (1999). Increased neurotransmitter release due to higher Ca<sup>2+</sup>-influx in mouse brain cortex and hippocampus of gelsolin deficient mice.

Strautz, B., **A. Lueck**, and H. Hinssen (1996). Biochemical properties of native and recombinant lobster gelsolin. *Eur J Cell Biol* **69** Suppl 42, 58.

**Lueck**, A., J. D'Haese and H. Hinssen (1995). Cloning and expression identifies the 100 kDa actin modulator from lobster muscle as gelsolin. *J Muscle Res Cell Motil* **16**, 189.

## Submitted

Hinssen, H., **A. Lueck**, L. Scheckel and A.M. Gressner. Cultured rat liver lipocytes show an increased level of gelsolin during transformation into myofibroblasts.

## Invited Speeches

- 3/1999 "Differential expression of adseverin and gelsolin in kidney and use of gelsolin as a tumor marker in renal carcinogenesis". Brigham and Women's Hospital, Division of Hematology.
- 12/1998 "Knockout mice: one way to understand the function of genes in vivo". Weser-Kolleg in Minden (Germany).
- 12/1998 "The actin-binding proteins gelsolin and adseverin: differential expression and localization in epithelial cells of kidney and intestine". University of Bielefeld (Germany), Department of Biology, Division of Developmental Biology.
- 4/1998 "Biochemical and immunohistochemical studies indicate that gelsolin and adseverin are functionally not redundant". "Cytoskeleton Club" at Harvard Medical School, Boston.
- 2/1998 "Is the differential expression and localization of adseverin and gelsolin in kidney and intestinal epithelial cells an indication for cell specific roles?" Massachusetts General Hospital, Boston, Renal Unit.
- 12/1996 "Gelsolin, small GTPases and the control of the actin cytoskeleton". University of Bielefeld (Germany), Department of Biology, Division of Developmental Biology.
- 10/1995 "Lobster gelsolin: a novel 80 kDa member of the gelsolin family from an invertebrate species that exhibits some unusual biochemical properties". Brigham and Women's Hospital, Boston, Division of Experimental Medicine.

## Research

### Past Projects

As a graduate student Dr. Lueck

- Isolated and characterized a gelsolin-like protein from lobster muscle
- Generated lobster tail muscle-specific cDNA library and isolated full-length clone for lobster gelsolin
- Developed an isolation and refolding procedure for bacterially expressed recombinant lobster gelsolin
- Examined the tissue distribution of various gelsolin-like proteins in a number of marine invertebrate species

After obtaining his doctoral degree he continued working on this projects and

- Generated, cloned and expressed several truncated versions of lobster gelsolin
- Initiated the purification, refolding and biochemical characterization of the bacterially expressed lobster gelsolin fragments
- Supervised undergraduate students

At Brigham and Women's Hospital (Harvard Medical School) in Boston he

- Examined and identified the precise tissue distribution and subcellular locations of the proteins gelsolin and adseverin in humans and mice
- Demonstrated that gelsolin is a tumor marker in Tsc2<sup>+/-</sup> mice
- Provided evidence for a structure-function relationship regarding the different sensitivity of gelsolin and adseverin for calcium-controlled activation
- Isolated and sequenced several full-length clones for murine rhoA from a cDNA library
- Generated and characterized several polyclonal antibodies against murine adseverin, tuberin, and hamartin
- Initiated the generation of an adseverin k.o. mouse
- Examined the effect of adseverin overexpression in cultured murine fibroblasts and kidney epithelial cells using an adenovirus-based system
- Analyzed growth progression and occurrence of kidney tumors in Tsc2<sup>+/-</sup> mice
- Characterized pathology of kidney tumors in Tsc2<sup>+/-</sup> mice
- Investigated the impact of Tsc2 heterozygosity in mouse strains with different genetic backgrounds

## **Present Research Projects and Future Research Plans**

Dr. Lueck presently discusses a number of research projects with potential collaborators, such as the Manipal Life Science Group in India, the German Cancer Research Center, and various groups in the US.

The main focus areas of these projects will be on Dengue Fever, cytoskeletal proteins in non-motile cells, and cancer research.

More details on these projects and other research developments will be published at appropriate times