BIOGRAPHICAL SKETCH: LARS TOMANEK

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PROFESSIONAL PREPARATION

Undergraduate Institution:	University of Konstanz, Germany	Biology	BS	1993
Graduate Institutions:	University of Konstanz, Germany	Biology	MS	1995
	Oregon State University, Corvallis (With Dr. George Somero)	Zoology	PhD	1999
Postdoctoral Institutions:	Stanford University, Hopkins Marine Station (Dr. George Somero)			1999-2003
	University of California, Davis, CA (Dr. Dietmar Kültz)			2003-2005

APPOINTMENTS

Assistant Professor: Biological Sciences Department and Center for Coastal Marine Sciences, California Polytechnic State University, San Luis Obispo, CA 2005 - present

PUBLICATIONS

Harley, CDG, AR Hughes, K Hultgren, BG Miner, CJB Sorte, CS Thornber, LF Rodrigues, L Tomanek and S Williams (2006):
The impacts of climate change in coastal marine systems.
Ecology Letters 9, 228-241.

Tomanek, L. (2005):
Two-dimensional gel analysis of the heat-shock response in marine snails (genus *Tegula*): interspecific variation in protein expression and acclimation ability.
Journal of Experimental Biology 208, 3133 - 3143.

Tomanek, L., and E. Sanford (2003).
Heat-shock protein 70 (Hsp70) as a biochemical stress indicator: an experimental field test in two congeneric intertidal gastropods (genus *Tegula*).
Biological Bulletin 205, 276 - 284.

Tomanek, L. (2002).
The heat-shock response: its variation, regulation and ecological importance in intertidal gastropods (genus *Tegula*).
Integrative and Comparative Biology 42, 797-807.

Tomanek, L., and B. Helmuth (2002).
Physiological ecology of rocky intertidal organisms: a synergy of concepts.
Integrative and Comparative Biology 42, 771-775.

Tomanek, L., and G. N. Somero (2002).

Interspecific and acclimation-induced variation in levels of heat-shock protein 70 (hsp70) and 90 (hsp90) and heat-shock transcription factor-1 (HSF-1) in congeneric marine snails (genus *Tegula*): implications for regulation of *hsp* gene expression.
Journal of Experimental Biology 205, 677-685.

- *The following two publications are the "textbook" examples for the ecological importance of the heat-shock response in "Biochemical Adaptation" by P. Hochachka and G. Somero, "Eckert Animal Physiology" by K. French, D. Randall and W. Burggren and "Animal Physiology" (under selected references) by R. Hill, G. Wyse and M. Anderson.*

Tomanek, L., and G. N. Somero (2000).
Time course and magnitude of synthesis of heat-shock proteins in congeneric marine snails (genus *Tegula*) from different tidal heights.
Physiological and Biochemical Zoology 73, 249 – 256.

Tomanek, L., and G. N. Somero (1999).
Evolutionary and acclimation-induced variation in the heat-shock responses of congeneric marine snail species (genus *Tegula*) from different thermal habitats: implications for limits of thermotolerance and biogeography.
Journal of Experimental Biology 202, 2925 - 2936.

Other Publications (Not Including Abstracts):

As a contributor to the *Outside* section of the *Journal of Experimental Biology* I published the following articles:

Blind against hypoxia stress (2004).

Squirrels reveal bits of hibernome (2004).

A switch for silencing γ-globin (2005).

Warm hearts prepare rats for being short of breath (2005).

Henle's loop and the osmotic stress proteome (2006).

Snake venom(e)'s post-translational modifications (2006).

Pitfall or promise: proteomics for non-model organisms (2006).

AWARDS AND HONORS

Scholander Award Finalist (American Physiological Society, 2002).

Dr. Earl H. Myers and Ethel M. Myers Grant for Oceanographic and Marine Biology, 1997.

Scholar of the Studienstiftung des deutschen Volkes, 1989 - 1994

TEACHING ACTIVITIES

Assistant Professor

Introduction to Organismal Form and Function (BIO 162; freshman level introduction to animal and plant physiology)
Principles of Physiology (BIO 361; junior level introduction to the basic principles of cellular physiology)
Integrative Systems and Stress Physiology (BIO 502; graduate level course in physiology with an emphasis on stress physiology and a laboratory emphasis on systems physiology, proteomics in particular)
Conceptual Issues in Biology (BIO 590; graduate seminar about the philosophy of biology)

Lecturer

Applied biology for designers and artists, California College of the Arts, San Francisco, 2004 and 2005 (undergraduate course).

Co-instructor (lectures and laboratory sessions)

Marine environmental physiology, Stanford University, summer 2001 and 2003.

Teaching assistant (lectures and laboratory sessions)

Marine invertebrates, Oregon State University, Hatfield Marine Science Center, 1995.
Human anatomy and physiology, Oregon State University, 1995.
Systematic zoology, University of Konstanz, 1994.

Invited teaching/public lectures

Over twenty lectures on issues from "Science and society", and "Biological effects of global climate change" to "Biology and industrial design: what adaptations and ecosystems can teach us" given to grade-school, high-school, and mechanical engineering students at Stanford University as well as corporate engineers, and several Rotary and Kiwanis Clubs.

SYNERGISTIC ACTIVITIES

Reviewer

Journals: American Journal of Physiology, American Naturalist, Biological Journal of the Linnean Society, Biological Bulletin, Comparative Physiology and Biochemistry, Ecology Letters, Journal of Experimental Biology, Journal of Experimental Marine Biology and Ecology, Journal of Thermal Biology, Marine Biology, Oecologia, Pesticide Biochemistry and Physiology, Physiological and Biochemical Zoology, Proceedings of the National Academy of Sciences of the U.S.A., Proteomics, Animals Genetics

Textbooks: Berg, Tymoczko and Stryer: Biochemistry (6th edition). **R. Hill, G. Wyse and M. Anderson: Animal Physiology (2nd edition).**

Granting agencies: National Science Foundation, National Sea Grant, U.S. Civilian Research & Development Foundation, CA Sea Grant

Symposia organized

"*Physiological ecology of rocky intertidal organisms: From molecules to ecosystems*", organized for the 2002 meeting of the Society for Integrative and Comparative Biology, Anaheim, California, January 2002 (together with Dr. Brian Helmuth); supported by NSF grant 0131317.

"Temperature-dependent biogeography of aquatic ectotherms: From genes to the effects of climate change", organized for the 2004 meeting of the German Zoological Society, Rostock (together with Dr. Hans-Otto Pörtner).

Collaborations with industry and non-profit organizations

Biomimicry Guild: A product development project for a Fortune500 company with the goal to mimic nature's design solutions, 2004.
BioRad: Collaboration with a biotechnology company, a leader in electrophoresis and proteomics, 2005-2006.

GRANT SUPPORT

Office of Naval Research (ONR)
California State University Program for Education and Research in Biotechnology (CSUPERB)
The David and Lucile Packard Foundation
National Science Foundation (NSF)

COLLABORATORS AND OTHER AFFILIATIONS

Collaborators: Dr. Dietmar Kültz, University of California, Davis; Drs Mark Moline and Dean Wendt, Cal Poly; Dr. George Somero, Stanford University; Dr. Peter Fields, Franklin and Marshall.

Graduate and Postdoctoral Advisors: Doctoral advisor: Dr. George Somero, Stanford University. Postdoctoral advisor: Dr. George Somero, Stanford University, Dr. Dietmar Kültz, University of California, Davis.

Present graduate students (MS): S. Charles Cahill, Lauren Hitt and Jeremy LaBarge.

Past and present undergraduate students (Senior or research project in environmental proteomics): Jeremy LaBarge, Megan Segal, Lauren Hitt (Biochemistry), Sarah Johnson, Jakob Valenzuela, Jay Hann (Mathematics), Shara Morgenthaler, Yessica Flores, Daniel Harris, Loredana Serafini, Ashley Nichols (Computer Science), Daniel Magee