



THE UNIVERSITY of TEXAS

HEALTH SCIENCE CENTER AT HOUSTON

SCHOOL of HEALTH INFORMATION SCIENCES

JOHN P. MCGOVERN LECTURESHIP IN BIOMEDICAL COMPUTING AND IMAGING

How Muscle Works: Actin Activation of Myosin ATPase



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Muscle contraction involves the cyclic interaction of the myosin cross-bridges with the actin filament, coupled to steps in the hydrolysis of ATP. Each cross-bridge while bound to actin undergoes a conformational change, which moves the actin filament past the myosin filaments. X-ray crystallography has revealed the structural basis of the power stroke but it is still not clear why the binding of actin weakens that of nucleotide and vice versa. By fitting atomic models of actin and the myosin cross-bridge into high resolution cryo-electron microscope 3-D reconstructions, Dr. Schröder will show the molecular basis of this linkage: the closing of the actin-binding cleft when actin binds is structurally coupled to the opening of the nucleotide binding pocket.

Dr. Schröder is group leader at the Max-Planck-Institute. In collaboration with Max-Planck Director Kenneth Holmes, Dr. Schröder has published seminal papers in the last decade (Nature, 1993 364:171-4 and Nature, 2003 425:423-7) that elucidate the molecular basis of muscle contraction. Dr. Schröder passed his Habilitation at the Faculty of Physics, University Heidelberg in 2000, in Energy-filtering Transmission Electron Microscopy.



DATE: Wednesday, October 8, 2003

TIME: 4:00PM – 5:30PM

**PLACE: Trevisio Restaurant, 6th floor,
John P. McGovern Medical Center Commons,
6550 Bertner Ave., Houston, TX 77030**

Parking in the Commons will be validated by Trevisio Restaurant
For information contact Dr. Yao Cong at 713.500.3967