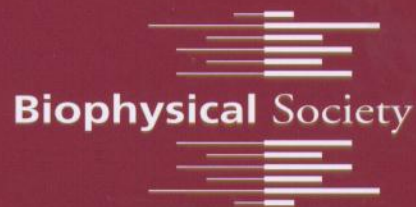
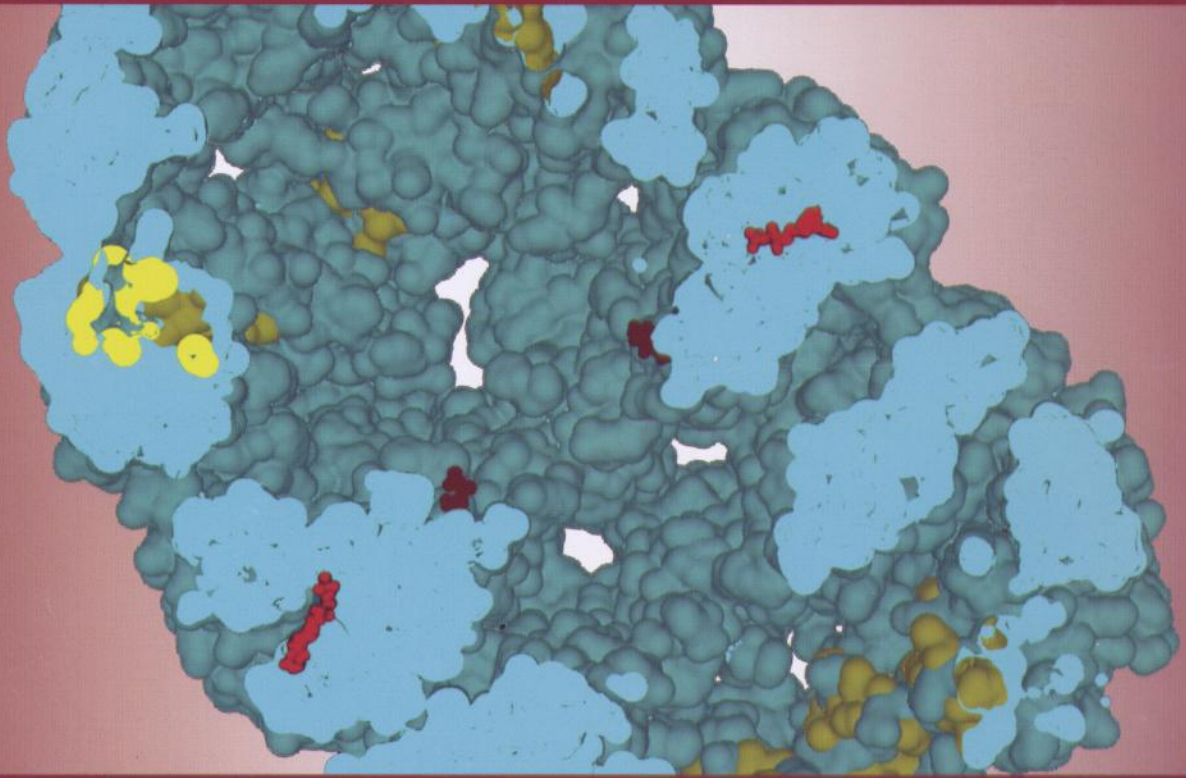


# Program



55<sup>th</sup> Annual Meeting  
March 5–9, 2011  
Baltimore, Maryland



1615-Pos BOARD #B525  
FREQUENCY INDUCED ALTERATIONS IN CALCIUM SIGNALING.  
Kiphan Haizlip, Paul Janssen.

1616-Pos BOARD #B526  
SPONTANEOUS OSCILLATORY CONTRACTION (SPOC):  
QUANTIFYING THE CONTRACTILE PERFORMANCE OF HUMAN  
CARDIOMYOCYTES. **Cristobal G. dos Remedios**, James E. Robinson,  
Keesha Whan, Filip Braet, Yingying Su, Theresia Kraft, Jolanda van der Velden,  
Steven B. Marston, Marja Steenman, Peter S. Macdonald, Sean Lal.

1617-Pos BOARD #B527  
MITOCHONDRIAL INTERACTOSOME IN ENERGY METABOLISM  
IN HEALTHY AND CANCER CELLS. **Marcela A. Gonzalez-Granillo**,  
Mina Karu-Varikmaa, Merle Saaremäe, Lauriane Michel, Tuuli Kaambre,  
Mihir Saks, Rita Guzun.

1618-Pos BOARD #B528  
ASSESSMENT OF CARDIAC FUNCTION IN CHROMOSOME 14  
CONGENIC STRAINS USING PRESSURE-VOLUME  
MEASUREMENTS. **Kirsty Foote**, Martin W. McBride, Delyth Graham,  
Kimon Douglas, Sarah Kettlewell, Godfrey L. Smith, Anna F. Dominiczak,  
Christopher M. Loughrey.

1619-Pos BOARD #B529  
DIFFERENTIATION OF H9C2 CELLS ENABLES TO ASSESS THE  
INSULIN-INDUCED GLUCOSE UPTAKE: A NOVEL *EX VIVO*  
MODEL TO INVESTIGATE INSULIN-RESISTANT MYOCARDIUM.  
**Mamoru Nobuhara**, Masao Saotome, Tomoyuki Watanabe,  
Ayuposhi Urushida, Hideki Katoh, Hiroshi Satoh, Hideharu Hayashi.

## Actin & Actin-binding Proteins I (Boards #B530-#B548)

1620-Pos BOARD #B530  
CONSERVATION OF DYNAMICAL CONFORMATIONAL CHANGES  
OF SKELETAL MUSCLE ACTIN FILAMENT. **Atsuko H. Iwane**,  
Masatoshi Morimatsu, Toshio Yanagida.

1621-Pos BOARD #B531  
MODELING THE MECHANICAL PROPERTY OF SINGLE ACTIN  
FILAMENT. **Jin Seob Kim**, Osman N. Yagurtcu, Sean X. Sun.

1622-Pos BOARD #B532  
PROBING F-ACTIN STABILITY AND MECHANICS USING  
STRUCTURE-BASED COMPUTATIONAL MODELING.  
**Philip Bransford**, Roger Kamm, Mark Bathe.

1623-Pos BOARD #B533  
STRESS ACCUMULATION ORIGINATING FROM MECHANICAL  
ASYMMETRY PROMOTES ACTIN FILAMENT SEVERING AT  
BOUNDARIES OF BARE AND COFILIN-DECORATED SEGMENTS.  
**Benoit Roland**, Cristian Suarez, Laurent Blanchoin, Jean-Louis Martiel,  
Bernique M. De La Cruz.

1624-Pos BOARD #B534  
FAST MAGIC ANGLE SAMPLE SPINNING NMR YIELDS A  
VIEW OF THE F-ACTIN - COFILIN COMPLEX WITH ATOMIC  
RESOLUTION. **Andrew H. Butterworth**, Si Yan, Dmitri Kudryashov,  
Andreas Reiler, Tatyana Polenova.

1625-Pos BOARD #B535  
OBSERVATIONS OF TWIST AND DISORDER IN F-ACTIN FROM  
COFILIN BINDING. **Diana Y. Wong**, David Sept.

1626-Pos BOARD #B536  
ACTIN FILAMENTS STABILIZE LOCALLY AT RANDOM SITES.  
**Thomas Niedermayer**, Antoine Jégou, Guillaume Romet-Lemonne,  
Anne-France Carlier, Reinhard Lipowsky.

1627-Pos BOARD #B537  
MECHANISM OF ACTIN NUCLEATION BY ARP2/3 COMPLEX  
VISUALIZED BY SINGLE MOLECULE FLUORESCENCE.  
**Benjamin A. Smith**, Karen Daugherty-Clarke, Bruce Goode, **Jeff Gelles**.

1628-Pos BOARD #B538  
ACTIN POLYMERIZATION DYNAMICS - INSIGHTS FROM *IN*  
*VITRO* TIRF MICROSCOPY. **Balakrishnan Kannan**, Märten Larsson,  
Chang Lin Lee, Maria Hernandez-Valladares, Robert C. Robinson.

1629-Pos BOARD #B539  
ATP HYDROLYSIS ENERGY TRANSFER IN THE PROFILIN-  
MEDIATED ACTIN POLYMERIZATION. **Elena G. Yarmola**,  
Ruslan Petrukhin, Danila A. Korytov, Reuben E. Judd.

1630-Pos BOARD #B540 INTERNATIONAL TRAVEL  
AWARDEE  
THE EFFECT OF TOXOFILIN ON THE STRUCTURE OF  
MONOMERIC ACTIN. Veronika Kollár, Livia Czimbalek, Beáta Bugyi,  
Miklós Nyitrai, **Gábor Hild**.

1631-Pos BOARD #B541 INTERNATIONAL TRAVEL  
AWARDEE  
*SACCHAROMYCES CEREVISIAE* GLYCOLYTIC ENZYMES  
ARE STABILIZED BY ASSOCIATION WITH ACTIN.  
**Daniela Araiza Olivera Toro**, Armando Zepeda Bastida,  
Adela Mújica Miranda, Salvador Uribe Carvajal.

1632-Pos BOARD #B542  
ACYL CHAIN SPECIFICITY OF THE INHIBITION OF  
ACTIN POLYMERIZATION BY THE INTERACTION OF  
LYSOPHOSPHATIDIC ACID AND VILLIN. **Richard M. Epanand**,  
Seema Khurana, Raquel F. Epanand.

1633-Pos BOARD #B543  
O-GLCNAC MODIFICATION OF HUMAN CARDIAC  $\alpha$ -ACTININ.  
**Man Ching Leung**, Andrew E. Messer, O'Neal Copeland, Steven B. Marston.

1634-Pos BOARD #B544  
MAPPING THE ACTIN-BINDING REGION IN THE TARP PROTEIN  
FROM CHLAMYDIA. James L. Tolchard, Lawrence A. Eaglen, Leah Morris,  
Ted Hackstadt, **Tharin M. A. Blumenschein**.

1635-Pos BOARD #B545 MINORITY BIOPHYSICIST  
TRAVEL AWARDEE  
MOLECULAR MOEDLING OF ACTIN-VINCULIN INTERACTIONS.  
**Shayna M. Atkins**.

1636-Pos BOARD #B546  
STRUCTURAL DYNAMICS OF THE ACTIN-BINDING DOMAINS  
IN DYSTROPHIN AND UTROPHIN. **Ava Y. Lin**, Ewa Prochniewicz,  
Zach James, Davin Henderson, James Ervasti, David D. Thomas.

1637-Pos BOARD #B547  
MONITORING THE REAL-TIME BINDING OF TROPOMYOSIN TO  
ACTIN USING TOTAL INTERNAL REFLECTION FLUORESCENCE  
MICROSCOPY. **William M. Schmidt**, Paul Leavis, William Lehman,  
Jeffrey Moore.

1638-Pos BOARD #B548  
TROPOMYOSIN ISOFORMS EXERT DIFFERENT EFFECTS ON  
POLYMERIZING ACTIN. Renjian Huang, **Chih-Lueh Albert Wang**.

## Cell and Bacterial Mechanics & Motility I (Boards #B549-#B578)

1639-Pos BOARD #B549  
THE INTERPLAY OF NONLINEARITY AND ARCHITECTURE IN  
CYTOSKELETAL MECHANICS. **Shenshen Wang**.

1640-Pos BOARD #B550  
USING MAGNETIC TWISTING CYTOMETRY TO STUDY  
MONOCYTE ACTIVATION. **Matthias Irmscher**, Holger Kress,  
Arthur M. de Jong, Menno W. J. Prins.

1641-Pos BOARD #B551  
REGULATION OF CELL-SURFACE ADHESION DURING  
AMOEBOID MIGRATION. **Colin P. McCann**, Meghan Driscoll,  
Carole A. Parent, Wolfgang Losert.

1642-Pos BOARD #B552  
DYNAMICS OF WOUND REPAIR IN THE LAMELLIPODIA.  
**Maxime F. Fournier**, Chiara Gabella, Jean-Jacques Meister, Ivo F. Sbalzarini,  
Alexander B. Verkhovskiy.

1643-Pos BOARD #B553  
ADHESION DYNAMICS AND DUROTAXIS IN MIGRATING CELLS.  
**Ben Harland**, Sam Walcott, Sean X. Sun.

Control/Tracking Number: 11-A-2240-BPS

Activity: Abstract

Current Date/Time: 10/2/2010 11:24:52 PM

SACCHAROMYCES CEREVISIAE GLYCOLYTIC ENZYMES ARE STABILIZED BY ASSOCIATION WITH ACTIN.

Author Block: Daniela Araiza Olivera Toro<sup>1,2</sup>, Armando Zepeda Bastida<sup>1,2</sup>, Adela Mújica Miranda<sup>3</sup>, Salvador Uribe Carvajal<sup>1</sup>.

<sup>1</sup>Universidad Nacional Autonoma de México, Mexico, Mexico, <sup>2</sup>Instituto de Fisiología Celular, México, Mexico, <sup>3</sup>Cinvestav IPN, Mexico, Mexico.

Abstract:

The cell contains constant concentrations of solutes and macromolecules except during stress, when compatible solutes accumulate in the cytosol. Molecular crowding in the cell results in protein association that allows the channeling of intermediates and thus increasing metabolic efficiency. Multienzymatic complexes (or metabolons) are anchored in a dynamic cytoskeleton. It is suggested that the efficiency of cellular metabolism depends on the enzymatic organization. In addition, metabolon probably protect enzymes in a metabolic pathway from the deleterious effects of stress. It was decided to examine whether glycolytic enzymes associate with actin and whether association confers higher stability to the different enzymes. Enzyme association was assessed by co-immunoprecipitation of actin with glycolytic enzymes in the presence or absence of compatible solutes. The whole fermentation pathway was also assayed in the presence of increasing compatible solutes. Actin stabilized the glycolytic pathway making a more efficient pathway even in the presence of a compatible solute. By contrast, depolymerization of actin did not affect fermentation.

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Presentation Preference (Complete): Poster Only

Topic (Complete): 6E Actin & Actin-binding Proteins ; 1G Enzymes

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