

**SMALL GTPases AT DIFFERENT SCALES:  
PROTEINS, MEMBRANES, CELLS**

Monday, September 24 – Friday, September 28, 2012

Monday	7:00 pm	<b>1</b> Ras: From Protein to Membrane I
Tuesday	9:00 am	<b>2</b> Ras: From Protein to Membrane II
Tuesday	2:00 pm	<b>3</b> Poster Session
Tuesday	4:30 pm	<i>Chinese Tea and Beer Tasting</i>
Tuesday	7:00 pm	<b>4</b> Ras: Intracellular Processes
Wednesday	9:00 am	<b>5</b> Rho: Proteins, Membranes, Cells I
Wednesday	2:00 pm	<i>Visit to Old Suzhou</i>
Wednesday	7:00 pm	<b>6</b> Rho: Proteins, Membranes, Cells II
Thursday	9:00 am	<b>7</b> Rab: Proteins, Membranes, Cells
Thursday	2:00 pm	<b>8</b> Rab and other GTPases
Thursday	6:00 pm	Cocktails and Banquet
Friday	9:00 am	<b>9</b> Simulations and other GTPases

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Oral presentation sessions are located in the Watson Auditorium  
Poster session and Chinese Tea & Beer Tasting are in the Poster Hall  
Cocktail social hour is held in the Long Hall.  
Old Suzhou visit departs from the hotel lobby.

Mealtimes and locations are as follows:

Breakfast	Octagon	7:00am - 9:00am
Lunch	Suz Garden	12:00pm - 1:30pm
Supper	Suz Garden	6:00pm - 7:30pm

More information will be available at CSHA office.  
(Map at the end of this abstract book)

## PROGRAM

MONDAY, September 24—7:00 PM

### **SESSION 1** RAS: FROM PROTEIN TO MEMBRANE I

**Chairperson:** **J. Ding**, Shanghai Institutes for Biological Sciences, CAS, Shanghai, China

#### **Catalysis of small GTPases by their respective GAP's**

Klaus Gerwert [25']

Presenter affiliation: Ruhr-University Bochum, Bochum, Germany;  
CAS Max Planck Partner Institute (PICB), Shanghai, China.

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#### **Gibbs energy determinants of lipoprotein insertion into lipid membranes—The case study of Ras proteins**

Roland Winter [25']

Presenter affiliation: TU Dortmund University, Dortmund, Germany.

2

#### **Computational studies of Ras dynamics, membrane binding and assembly**

Alemayehu A. Gorge [25']

Presenter affiliation: University of Texas Medical School in Houston, Houston, Texas.

3

#### **Arl3-specific ciliary targeting of myristoylated cargo by UNC119**

Shehab Ismail, Yong Xiang-Chen, Mandy Miertzschke, Ingrid Vetter, Caroline Koerner, Alfred Wittinghofer [10']

Presenter affiliation: Max Planck Institute for Molecular Physiology, Dortmund, Germany.

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TUESDAY, September 25—9:00 AM

**SESSION 2** RAS: FROM PROTEIN TO MEMBRANE II

**Chairperson:** **K. Gerwert**, Ruhr-University Bochum / CAS-Max-Planck-Institute, PICB, Shanghai, China

**Rho-mDia pathway in the cell, the tissue and the body**

Shuh Narumiya [25']

Presenter affiliation: Kyoto University Graduate School of Medicine, Kyoto, Japan.

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**Targeting excited states by small molecules—A new strategy for modulating the activity of small GTPases**

Hans Robert Kalbitzer, Michael Spoerner, Ina Rosnizeck, Christian Herrmann, Burkhard König [25']

Presenter affiliation: University of Regensburg, Regensburg, Germany.

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**Spatiotemporal control of Ras plasma membrane interactions**

John F. Hancock, Kwang-Jin Cho, Yong Zhou, Dharini van der Hoeven, Travis Rodkey [25']

Presenter affiliation: University of Texas Medical School, Houston, Texas.

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**Fast scouting of K-Ras4B at the plasma membrane of living cells by spot variable fluorescence correlation spectroscopy**

Tomasz Trombik, Cyrille Billaudeau, Sébastien Mailfert, Verena Ruprecht, Yoav Henis, stefan Wieser, Didier A. Marquet [25']

Presenter affiliation: Centre d'Immunologie de Marseille-Luminy, Marseille, France.

8

**Conformational dynamics in different Ras superfamily members as potential fine tuning mechanism for protein activity**

Michael Spoerner, Tanja Meierhofer, Ina C. Rosnizeck, Hans Robert Kalbitzer [10']

Presenter affiliation: Regensburg University, Regensburg, Germany.

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**SESSION 3**      POSTER SESSION

**Dimerization of N-Ras at POPC model membranes revealed by ATR-FTIR spectroscopy, FRET measurements and molecular modeling**

Peter S. Bachler, Jörn Güldenhaupt, Till H. Rudack, Herbert Waldmann, Carsten Kötting, Klaus Gerwert

Presenter affiliation: Lehrstuhl für Biophysik, Bochum, Germany.

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**Modeling transient association of proteins with the plasma membrane by spot variation fluorescence correlation spectroscopy**

Cyrille Billaudeau, Sébastien Mailfert, Tomasz Trombik, Verena Ruprecht, Stephan Wieser, Didier A. Marguet

Presenter affiliation: Centre d'Immunologie de Marseille-Luminy, Marseille cedex 09, France.

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**Rab26 mediates selective targeting of synaptic vesicles to the autophagic pathway**

Beyenech Binotti, Nathan J. Pavlos, Dirk Wenzel, John JE. Chua, Reinhard Jahn

Presenter affiliation: Max Planck Institute for Biophysical Chemistry, Göttingen, Germany.

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**Biophysical characterization of the Ras-Nore1-MST1 interaction**

Swaantje Brinkmann, Diana Constantinescu, Fabian Klumpers, Christian Herrmann

Presenter affiliation: Ruhr-University Bochum, Bochum, Germany.

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**Icmt deficiency accelerates the progression of a K-Ras-driven mouse model of pancreatic ductal adenocarcinoma**

Helen Court, Michael Hackman, Kyoung Eun Lee, George Miller, Dafna Bar-Sagi, Martin Bergo, Mark R. Philips

Presenter affiliation: NYU School of Medicine, New York, New York.

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**Modulation of the function of RasGAP by the NF2 tumor suppressor merlin**

Yan Cui, Susann Schirmer, Tobias Sperka, Helen Morrison

Presenter affiliation: Leibniz Institute for Age Research - Fritz Lipmann Institute (FLI), Jena, Germany.

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<b>Rab9 and retromer regulates recycling of specific luminal protein mediating cell-extracellular matrix interaction required for epithelial tube length control</b>	
<u>Bo Dong</u> , Shigeo Hayashi Presenter affiliation: Riken Center for Developmental Biology, Kobe, Japan.	16
<b>Asymmetric distribution of phosphatidylserine on the inner leaflet of plasma membrane facilitates Rac1 localization to the leading edge of migrating cells</b>	
<u>Jing-Ming Dong</u> , Yuen-Wai Ng, Edward Manser Presenter affiliation: sGSK Lab, Neuroscience Research Partnership, Singapore.	17
<b>Melanoma oncogenomics nominates RRAGD as a therapeutic intervention target</b>	
<u>Banu Eskiocak</u> , Hailei Zhang, Ian R. Watson, Chang-Jiun Wu, Lynda Chin, Michael A. White Presenter affiliation: University of Texas Southwestern Medical Center, Dallas, Texas.	18
<b>The small GTPase Rif triggers formation of actin stress fibre in epithelial cells</b>	
<u>Lifei Fan</u> , Stephanie Pellegrin, Harry Mellor Presenter affiliation: University of Bristol, Bristol, United Kingdom; Inner Mongolia University, Hohhot, China.	19
<b>The <math>\beta_2</math>-adrenergic receptor—A GEF for <math>G\alpha_s</math></b>	
<u>Yvonne Fretter</u> , Grit Schröter, Jörn Güldenhaupt, Jonas Schartner, Carsten Kötting, Mathias Lübben, Klaus Gerwert Presenter affiliation: Ruhr-University Bochum, Bochum, Germany.	20
<b>ATR-FTIR-spectroscopic investigation of membrane-bound Ras</b>	
<u>Jörn Güldenhaupt</u> , Gemma Triola, Herbert Waldmann, Carsten Kötting, Klaus Gerwert Presenter affiliation: Ruhr Universität Bochum, Bochum, Germany.	21
<b>Site-selective fluorescent labeling of human guanylate protein 1 for quantitative FRET studies</b>	
<u>Carola S. Hengstenberg</u> , Thomas O. Peulen, Christian Herrmann, Claus A.M. Seidel Presenter affiliation: Ruhr-University Bochum, Bochum, Germany.	22

<b>A survey of host GTPases co-opted by <i>Legionella pneumophila</i></b> <u>Andree M. Hubber</u> , Hiroki Nagai Presenter affiliation: Osaka University, Suita, Osaka, Japan.	23
<b>Biochemical characterization of human guanylate binding protein 2 (hGBP2)</b> <u>Semra Ince</u> , Adrian Syguda, Christian Herrmann Presenter affiliation: Ruhr-University Bochum, Bochum, Germany.	24
<b>FTIR-spectroscopic investigations of GTPase-GEF (guanine nucleotide exchange factor) interactions</b> <u>Sarah Jenrich</u> , Philipp Pinkerneil, Klaus Gerwert, Carsten Kötting Presenter affiliation: Ruhr-University Bochum, Bochum, Germany.	25
<b>Recombinant farnesylated Ras homolog enriched in brain (Rheb) studied by multidimensional NMR spectroscopy in solution</b> <u>Katharina Jockers</u> , Raphael Stoll Presenter affiliation: Ruhr-University of Bochum, Bochum, Germany.	26
<b>Revealing conformational substates of lipidated N-Ras protein by pressure modulation</b> <u>Shobhna Kapoor</u> , Herbert Waldmann, Roland Winter Presenter affiliation: Technische Universität Dortmund, Dortmund, Germany.	27
<b>Ras-related small GTPases, Rap1 and RhoA collectively induce the phagocytosis of serum-opsonized zymosan particles in macrophage</b> <u>Jae-Gyu Kim</u> , Mi-Young Moon, Hee-Jun Kim, Yi Li, Dong-Keun Song, Jun-Sub Kim, Jae-Yong Lee, Jaebong Kim, Sung-Chan Kim, Jae-Bong Park Presenter affiliation: Hallym University, Chuncheon, South Korea.	28
<b>Biophysical characterization of the Ras-Nore1-MST1 interaction</b> Swaantje Brinkmann, Diana Constantinescu, <u>Fabian Klumpers</u> , Christian Herrmann Presenter affiliation: Ruhr-University Bochum, Bochum, Germany.	29
<b>Rab35 regulates Arf6 activity through centaurin <math>\beta</math>2/ACAP2 during neurite outgrowth—A novel cross-talk between Rab and Arf</b> <u>Hotaka Kobayashi</u> , Mitsunori Fukuda Presenter affiliation: Graduate School of Life Sciences, Tohoku University, Sendai, Miyagi, Japan.	30

<b>Regulation of border cell migration by a G-protein signaling protein</b> <u>Sujung Lee</u> , Jeongsil Kim-Ha Presenter affiliation: Sejong University, Seoul, South Korea.	31
<b>MicroRNA-708 regulates ovarian cancer cell migration/invasion via modulation of Rap1B</b> <u>Kai-Ti Lin</u> , Yu-Ming Yeh, Lu-Hai Wang Presenter affiliation: National Health Research Institutes, Miaoli County, Taiwan.	32
<b>Biophysical investigations on the GαS subunit of heterotrimeric G proteins</b> <u>Daniel Mann</u> , Till Rudack, Grit Schröter, Steffen Wolf, Carsten Kötting, Klaus Gerwert Presenter affiliation: Ruhr University, Bochum, Germany.	33
<b>Small GTPase Rab12 regulates constitutive degradation of transferrin receptor</b> <u>Takahide Matsui</u> , Takashi Itoh, Mitsunori Fukuda Presenter affiliation: Tohoku University, Sendai, Miyagi, Japan.	34
<b>The Rac activator Tiam1 is regulated by aPKC phosphorylation</b> <u>Kenji Matsuzawa</u> , Takashi Watanabe, Shujie Wang, Toshinori Matsui, Mai Kakeno, Kozo Kaibuchi Presenter affiliation: Nagoya University Graduate School of Medicine, Nagoya, Japan.	35
<b>GTPase of immune associated protein (Gimap5 -/-) gene predisposes to diabetes and gastrointestinal diseases in bio-breeding (BB) rats</b> <u>Daniel H. Moralejo</u> , Williams Osborne, Ake Lernmark Presenter affiliation: Keeling Center for Comparative Medicine and Research, University of Texas, MD Anderson Cancer Center, Bastrop, Texas.	36
<b>Reversible adenylylation of Rab proteins</b> <u>Matthias P. Mueller</u> , Roger S. Goody, Aymelt Itzen Presenter affiliation: MPI of Molecular Physiology, Dortmund, Germany.	37
<b>ATR-FTIR spectroscopic investigations of immobilized proteins</b> <u>Philipp Pinkerneil</u> , Jörn Güldenhaupt, Klaus Gerwert, Carsten Kötting Presenter affiliation: Ruhr-University Bochum, Bochum, Germany.	38

<b>Ras homolog enriched in brain (Rheb) enhances apoptosis—A cellular and structural approach</b>	
<u>Veena Nambiar Potheraveedu</u> , Christoph G. Goemans, Sascha Karassek, Katharina Jockers, Raphael Stoll, Rolf Heumann	
Presenter affiliation: Ruhr University of Bochum, Bochum, Germany.	39
<b>Roles of mDia, a Rho effector and actin nucleator, in developing nervous system</b>	
<u>Dean Thumkeo</u> , Ryota Shinohara, Shuh Narumiya	
Presenter affiliation: Kyoto University Faculty of Medicine, Sakyo-ku, Kyoto, Japan.	40
<b>QM/MM pathway calculations on the hydrolysis mechanism of GTP in Ras</b>	
<u>Steffen Wolf</u> , Till Rudack, Wenjin Li, Jürgen Schlitter, Frauke Gräter, Carsten Kötting, Klaus Gerwert	
Presenter affiliation: PICB Shanghai, Shanghai, China; Ruhr-University Bochum, Bochum, Germany.	41
<b>Cytotoxic necrotizing factor-Y increases <i>Yersinia</i> effector translocation by irreversibly activating Rac</b>	
<u>Manuel Wolters</u> , Erin C. Boyle, Julia Schwab, Martin Aepfelbacher	
Presenter affiliation: University Medical Center Hamburg-Eppendorf, Hamburg, Germany.	42
<b>Rab GTPases essential for development and pathogenesis of <i>Magnaporthe oryzae</i></b>	
Dongmei Zhang, Shuyang Liu, Guangpu Li, Guodong Lu, Zonghua Wang, <u>Jie Zhou</u>	
Presenter affiliation: Fujian Agriculture and Forestry University, Fuzhou, China.	43
<b>Plasma membrane depolarization alters K-ras-specific nanocluster spatiotemporal dynamics</b>	
<u>Yong Zhou</u> , Jialie Luo, Hongzhen Hu, John F. Hancock	
Presenter affiliation: University of Texas Medical School, Houston, Texas.	44

TUESDAY, September 25—7:00 PM

**SESSION 4** RAS: INTRACELLULAR PROCESSES

**Chairperson:** **S. Narumiya**, Kyoto University, Kyoto, Japan

**The RA and PH domains of RIAM Act as a proximity detector for Rap1 and PI(4,5)P<sub>2</sub>**

Joseph Wynne, Jinhua Wu, Wenjuan Su, Stevan R. Hubbard, Mark R. Philips [25']

Presenter affiliation: NYU School of Medicine, New York, New York. 45

**Small GTPase in metabolic control—A tale of GAP and GEF for Ral**

Xiao-Wei Chen [25']

Presenter affiliation: University of Michigan, Ann Arbor, Michigan. 46

**Coordination of cellular growth and self-renewal programs by Ras-like GTPases and the exocyst**

Brian Bodemann, Yi-Hung Ou, Jonathan Cooper, Michael White [25']

Presenter affiliation: UT Southwestern Medical Center, Dallas, Texas. 47

**Therapeutic strategies for targeting aberrant Ras and Rho small GTPase signaling for cancer treatment**

Channing J. Der [25']

Presenter affiliation: University of North Carolina at Chapel Hill, Chapel Hill, North Carolina. 48

WEDNESDAY, September 26—9:00 AM

**SESSION 5** RHO: PROTEINS, MEMBRANES, CELLS I

**Chairperson:** **R. Goody**, Max Planck Institute, Dortmund, Germany

**Ras chaperons for cancer therapy**

Yoel Kloog [25']

Presenter affiliation: Tel Aviv University, Tel Aviv, Israel. 49

**Ego3 functions as a homodimer to mediate the interaction between Gtr1-Gtr2 and Ego1 within the TORC1 activatory EGO complex**

Tianlong Zhang, Marie-Pierre Péli-Gulli, Hui Yang, Claudio De Virgilio, Jianping Ding [25']

Presenter affiliation: Institute of Biochemistry and Cell Biology, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences, Shanghai, China.

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**Structural insight into the Rag GTPase mediated mTOR complex 1 activation**

Rui Gong, Li Li, Yi Liu, Ping Wang, Huirong Yang, Ling Wang, Jingdong Cheng, Kun-Liang Guan, Yanhui Xu [25']

Presenter affiliation: Fudan University, Shanghai, China.

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**Cdc42 dynamics explains the emergence of septin ring in budding yeast**

Andrew B. Goryachev [25']

Presenter affiliation: University of Edinburgh, Edinburgh, United Kingdom.

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**The Guanine Nucleotide Exchange Factor Vav3 regulates glial progenitor differentiation in response to the neural stem cell niche environment**

Stefanie Hahn, Veronika Luft, Sören Moritz, Masabumi Shibuya, Jacqueline Reinhard, Klaus D. Fischer, Alexander von Holst, Andreas Faissner [10']

Presenter affiliation: Ruhr-University, Bochum, Germany.

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WEDNESDAY, September 26—7:00 PM

**SESSION 6** RHO: PROTEINS, MEMBRANES, CELLS II

**Chairperson:** **M. Fukuda**, Tohoku University, Miyagi, Japan

**Rho GTPases as targets of bacterial protein toxins**

Klaus Aktories [25']

Presenter affiliation: University of Freiburg, Freiburg, Germany.

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**Liprin- $\alpha$  suppresses Rho-mDia mediated stress fiber formation**

Toshimasa Ishizaki, Satoko Sakamoto [25']

Presenter affiliation: Kyoto University Faculty of Medicine, Kyoto, Japan.

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**Regulation and signaling of plexin—A tale of two dimers and two small GTPases**

Xuewu Zhang, Yuxiao Wang, Huawei He, Nishi Srivastava, Christopher W. Cowan [25']

Presenter affiliation: UT Southwestern Medical Center, Dallas, Texas. 56

**PAKs have different modes of kinase activation**

Yohendran Baskaran, Yuen-Wai Ng, Jing-Ming Dong, Ed Manser [25']

Presenter affiliation: sGSK Group, Singapore. 57

THURSDAY, September 27—9:00 AM

**SESSION 7** RAB: PROTEINS, MEMBRANES, CELLS

**Chairperson:** **K. Aktories**, University of Freiburg, Freiburg, Germany

**The structural and mechanistic basis for Rab cycling and targeting**

Roger S. Goody [25']

Presenter affiliation: Max-Planck Institute for Molecular Physiology, Dortmund, Germany. 58

**Structural insights into mechanisms for acceleration of GTP hydrolysis by Rab GAPs from host and pathogen perspectives**

Ashwini Mishra, Mike Irwin, Andrew Malaby, Craig Roy, David Lambright [25']

Presenter affiliation: UMASS Medical School, Worcester, Massachusetts. 59

**Structurally distinct bacterial TBC-like GAPs link Arf GTPase to Rab1 inactivation to counteract host defenses**

Yongqun Zhu [10']

Presenter affiliation: Life Sciences Institute, Zhejiang University, Hangzhou, China. 60

**The Rab family small GTPases regulate membrane trafficking in melanocytes**

Mitsunori Fukuda [25']

Presenter affiliation: Tohoku University, Graduate School of Life Sciences, Sendai, Japan. 61

**Mechanistic studies of the Ras-superfamily by time-resolved FTIR spectroscopy**

Carsten Kötting, Klaus Gerwert [10']

Presenter affiliation: Ruhr-University Bochum, Bochum, Germany.

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THURSDAY, September 27—2:00 PM

**SESSION 8** RAB AND OTHER GTPases

**Chairperson:** **D. Lambright**, University of Massachusetts Medical School, Worcester, Massachusetts, USA

**Rab10 controls biogenesis of plasmalemmal precursor vesicles and asymmetric membrane addition during neuronal polarization**

Yang Liu, Xiao-Hui Xu, Tong Wang, Cai-Yun Deng, Jiu-Lin Du, Zhen-Ge Luo [25']

Presenter affiliation: Chinese Academy of Sciences, Shanghai, China.

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**Rab GTPases function coordinately to regulate phagosome maturation in *C. elegans***

Pengfei Guo, Jianhua Yin, Yanwei Wu, Jiming Liu, Shiya Cheng, Xiaochen Wang [25']

Presenter affiliation: National Institute of Biological Sciences, Beijing, China.

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**Elucidation of Rab GTPase membrane targeting using chemical probes**

Yaowen Wu [10']

Presenter affiliation: Max Planck Institute of Molecular Physiology, Dortmund, Germany.

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**Spatio-temporal regulation of GTP exchange and hydrolysis of Arl1p at the late-Golgi**

Kuan-Yu Chen, Pei-Chin Tsai, Ya-Wen Liu, Fang-Jen S. Lee [25']

Presenter affiliation: National Taiwan University, Taipei, Taiwan.

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**Discovery of chemical probes targeting leukemia associated Rho GEF by NMR fragment screening**

Rongsheng MA, Jia GAO, Jihui Wu, Yunyu Shi, Ke Ruan [10']

Presenter affiliation: University of Science and Technology of China, Hefei, Anhui, China.

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**Structural and functional analysis of the calmodulin-binding domain of Rac1 GTPase**

Bing Xu, Prashen Chelikani, Rajinder P. Bhullar [10']

Presenter affiliation: University of Manitoba, Winnipeg, Canada. 68

**Rho signaling and cardiomyopathy**

Xiangsheng Yang, Jiang Chang [10']

Presenter affiliation: Texas A&M Health Science Center-IBT, Houston, Texas. 69

**Rab22 essential for biogenesis of NGF signaling endosomes**

Liang Wang, Guangpu Li [10']

Presenter affiliation: University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma; Fujian A & F University, Fuzhou, China. 70

**Rab5 signaling pathway in fission yeast cells**

Masaaki Miyamoto, Yuta Tsukamoto, Chisako Katayama, Takuya Goto [10']

Presenter affiliation: Kobe University, Kobe, Japan. 71

**Rab7-dependent microautophagy in gastrulating mouse embryo**

Yoh Wada, Nobuyuki Kawamura, Ge-Hong Sun-Wada, Akihiro

Harada, Shunsuke Takasuga, Takehiko Sasaki, Minako Aoyama [10']  
Presenter affiliation: Osaka University, Ibaraki, Japan. 72

THURSDAY, September 27—6:00 PM

**COCKTAILS and BANQUET**

FRIDAY, September 28—9:00 AM

**SESSION 9** SIMULATIONS AND OTHER GTPases

**Chairperson:** **K. Gerwert**, Ruhr-University Bochum / CAS-Max-Planck-Institute, PICB, Shanghai, China

**The nature of the activation of GTPases—Simulating the allosteric action of G-proteins**

Arieh Warshel [25']

Presenter affiliation: University of Southern California, Los Angeles, California. 73

**Modeling chemical steps of enzymatic hydrolysis of GTP**

Alexander Nemukhin, Bella Grigorenko [25']

Presenter affiliation: M.V. Lomonosov Moscow State University,  
Moscow, Russia; Russian Academy of Sciences, Moscow, Russia.

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**Ras and GAP drive the geometry and charge of GTP into a pre-catalytic state as revealed by combining FTIR and QM/MM simulations**

Till Rudack, Fei Xia, Jürgen Schlitter, Carsten Kötting, Klaus Gerwert [10']

Presenter affiliation: Ruhr-University Bochum, Bochum, Germany.

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**Nucleotide hydrolysis triggers major structural changes in human guanylate binding protein 1 (hGBP1)**

Christian Herrmann [25']

Presenter affiliation: Ruhr University Bochum, Bochum, Germany.

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**Regulation of Son of sevenless by the membrane-actin linker protein ezrin**

Katja J. Geissler, Tobias Sperka, Reinhard Seifert, Sebastian Peuker, Peter Herrlich, Helen Morrison [10']

Presenter affiliation: Leibniz Institute of Age Research, Fritz Lipmann Institute (FLI), Jena, Germany.

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**Genetic deletion of *Rala* and *Ralb* small GTPases reveals redundant functions in development and tumorigenesis**

Pascal Peschard, Afshan McCarthy, Valerie Leblanc-Dominguez, Maggie Yeo, Sabrina Guichard, Christopher J. Marshall [10']

Presenter affiliation: Institute of Cancer Research, London, United Kingdom.

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