Abstracts of papers presented at the 2004 meeting on

MOLECULAR CHAPERONES & THE HEAT SHOCK RESPONSE

May 5–May 9, 2004

Arranged by

James Bardwell, University of Michigan
Elizabeth Craig, University of Wisconsin, Madison
Jonathan Weissman, University of California, San Francisco

Cold Spring Harbor Laboratory
Cold Spring Harbor, New York
WEDNESDAY, May 5—7:30 PM

SESSION 1  DISEASES OF PROTEIN MISFOLDING

Chairperson:  S. Lindquist, Whitehead Institute, Cambridge, Massachusetts

Lindquist, S., Whitehead Institute, Cambridge, Massachusetts: Hsp104 and prion inheritance.

Morimoto, R.I., Morley, J., Brignull, H., Kim, S., Holmberg, C., Garcia, S., Nollen, E., Plasterk, R., Dept. of Biochemistry, Molecular Biology and Cell Biology, Rice Institute for Biomedical Research, Northwestern University, Evanston, Illinois; Hubrecht Institute, Utrecht, The Netherlands: Protein misfolding and protein quality control—Modulators of neurodegenerative diseases and aging.

Toogun, T.A., Barnes, J., Bannai, Y., Freeman, B.C., Dept. of Cell and Structural Biology, University of Illinois, Urbana: Dynamic behavior of genomic complexes induced by the p23 molecular chaperones.

Hu, Y., Mivechi, N.F., Institute of Molecular Medicine and Genetics, Dept. of Radiology, Medical College of Georgia, Augusta: Hsf4b—A heat shock transcription regulated MAP kinase scaffold for a dual specificity tyrosine phosphotase.

Wacker, J.L., Zareie, M.H., Sarikaya, M., Muchowski, P.J., Depts. of Pharmacology, Materials Science and Engineering, University of Washington, Seattle: Kinetic destabilization of pre-fibrillar, polyglutamine intermediates by Hsp70 and Hsp40.

Chernoff, Y.O., Allen, K.D., Wegryn, R.D., Mueller, S., Newnam, G.P., School of Biology and Institute for Bioengineering and Bioscience, Georgia Institute of Technology, Atlanta: Modulation of prion formation, propagation and aggregation by Hsp levels in yeast.

Jones, G., Song, Y., Chung, S., Masison, D.C., Laboratory of Biochemistry and Genetics, NIDDK, National Institutes of Health, Bethesda, Maryland: Propagation of yeast [PSI'] prion impaired by factors that regulate Hsp70 substrate binding.
SESSION 2 QUALITY CONTROL AND PROTEIN TRAFFICKING

Chairperson: R. Kopito, Stanford University, California

Kopito, R., Stanford University, California.

Nagata, K., Hosokawa, N., Dept. of Molecular Cellular Biology, Institute for Frontier Medical Sciences, Kyoto University and CREST, JST, Japan: Is EDEM a lectin-like chaperone involved in ERAD?—EDEM, soluble EDEM and more...

Dalbey, R.E., Ohio State University, Columbus: YidC—An essential protein involved in membrane protein folding and insertion.

Hendershot, L.M., Meunier, L., Shen, Y., Chung, K.T., Dept. of Genetics and Tumor Cell Biology, St. Jude Children's Research Hospital, Memphis, Tennessee: Organization of ER chaperones and implications for protein folding.

Collet, J.-F., Masip, L., Pan, J., Haldar, S., Penner-Hahn, J.E., Peisach, D., Xu, Z., DeLisa, M., Georgiou, G., Bardwell, J.C.A., Depts. of Molecular, Cellular and Developmental Biology, Chemistry, Life Sciences Institute, University of Michigan, Ann Arbor; Dept. of Chemical Engineering, University of Texas, Austin: An engineered pathway for the formation of protein disulfide bonds.

Furukawa, Y., O'Halloran, T.V., Depts. of Chemistry, Biochemistry, Molecular Biology and Cell Biology, Northwestern University, Evanston, Illinois: Mild oxidative stress triggers disulfide-based oligomerization of immature forms of superoxide dismutase (SOD1).

Gross, E., Kaiser, C., Fass, D., Dept. of Structural Biology, Weizmann Institute of Science, Rehovot, Israel; Dept. of Biology, Massachusetts Institute of Technology, Cambridge: Structure of Ero1p, source of disulfide bonds for oxidative protein folding in the cell.

Inaba, K., Takahashi, Y.-h., Ito, K., Institute for Virus Research, Kyoto University; PRESTO, CREST, Japan Science and Technology Corporation: DsbB elicits a red-shift of bound ubiquinone during the catalysis of DsbB oxidation.

SESSION 3 POSTER SESSION I


Ahrman, E., Aquilina, A., Robinson, C., Emanuelsson, C.S., Dept. of Biochemistry, Lund University, Sweden; Dept. of Chemistry, University of Cambridge, United Kingdom: Nanoelectrospray mass spectrometry shows that the chloroplast small heat shock protein Hsp21 is a dodecamer.

Alanen, H.I., Williamson, R.A., Howard, M.J., Salo, K.E.H.S., Kellokumpu, S., Ruddock, L.W., Dept. of Biochemistry, University of Oulu, Finland; Dept. of Biosciences, University of Kent, United Kingdom: Functional characterization of human ERp27, a new non-catalytic endoplasmic reticulum located PDI-family member.

Anckar, J., Hietakangas, V., Denessiouk, K., Thiele, D.J., Sistonen, L., Depts. of Biology, Biochemistry and Pharmacy, Turk University Centre for Biotechnology, University of Turku, Abo Akademi University, Finland; Dept. of Pharmacology and Cancer Biology, Duke University Medical Center, Durham, North Carolina: Differential sumoylation of HSF1 and HSF2 DNA-binding domains.
### Molecular Depts.

- Antoine, W., Stewart, J.M., de los Reyes, B., University of Arkansas, Fayetteville: OsSlt1 and OsSlt2—Rice orthologs of the Slt gene family, a new heat shock protein family specific to plants.

- Arlander, S.J.H., 1 Toft, D.O., 2 Karnitz, L.M., 1,3,4 Depts. of 1 Molecular Pharmacology and Experimental Therapeutics, 2 Biochemistry and Molecular Biology, Mayo Graduate Schools, Divs. of 3 Developmental Oncology Research, 4 Radiation Oncology, Mayo Clinic and Foundation, Rochester, Minnesota: Hsp90 inhibition depletes Chk1 and sensitizes tumor cells to replication stress.

- Atomi, Y., 1 Ohto, E., 1 Yamaguchi, T., 1 Fujita, Y., 1 Harada, T., 2 Tanaka, M., 1 Dept. of Life Science, University of Tokyo, 2 Faculty of Science, Kyoto University, Japan: Role of α-crystallin for cellular dynamics tolerance in muscle cell—Unusual cell/mitochondria motilities with the antisense modification by time-lapse images.


- Bali, M., 1 Zhang, B., 1 Ran, F., 1 Morano, K.A., 2 Michels, C.A., 1 Depts. of 1 Biology and Biochemistry, Queens College and the Graduate School of CUNY, Flushing, New York; 2 Dept. of Microbiology and Molecular Genetics, University of Texas Medical School, Houston: The Hsp90 molecular chaperone complex regulates maltose induction and stability of the *Saccharomyces MAL* gene transcription activator.

- Bando, Y., 1,2 Katayama, T., 2,3 Taniguchi, M., 2,3 Tohyama, M., 2,3 1 Dept. of Anatomy, Asahikawa Medical College, 2 Dept. of Anatomy and Neuroscience, Osaka University Graduate School of Medicine, 3 Core Research for Evolutionary Science and Technology, Japan Science and Technology (CREST/JST), Saitama: GRP94 (94kDa glucose-regulated protein) suppresses ischemic neuronal cell death against ischemia/reperfusion injury.

- Barral, J.M., 1 Agashe, V.R., 1 Guha, S., 1 Chang, H.-C., 1 Genevaux, P., 2 Hayer-Hartl, M., 1 Stemp, M., 1 Georgopoulos, C., 2 Hartl, F.U., 1 Dept. of Cellular Biochemistry, Max-Planck Institute of Biochemistry, Martinsried, Germany; 2 Département de Biochimie Médicale, Centre Médical Universitaire, Genève, Switzerland: Different folding pathways in eukaryotes vs. prokaryotes for certain multi-domain proteins.
Brode, S., Javid, B., MacAry, P., Cooke, A., Lehner, P., Cambridge Institute for Medical Research, Dept. of Pathology, University of Cambridge, United Kingdom: The adjuvanticity of Hsp70—Dissection of in vivo and in vitro activity.

Bross, P., Hansen, J., Nielsen, M.N., Kruhøffer, M., Georgopoulos, C., Ang, D., Corydon, T.J., Ørntoft, T., Bolund, L., Gregersen, N. Research Unit for Molecular Medicine, Molecular Diagnostic Laboratory, Aarhus University Hospital, Dept. of Human Genetics, University of Aarhus, Denmark; Centre Medical Universitaire, Geneva, Switzerland: Investigation of the effects of the V72I mutation in human Hsp60 that is associated with hereditary spastic paraplegia.


Burch-Smith, T., Dinesh-Kumar, S.P., Dept. of Molecular, Cellular and Developmental Biology, Yale University, New Haven, Connecticut: The molecular characterization of Hsp90 functions in plant innate immunity.


Carrio, M.M., Villaverde, A., Institut de Biotechnologia i de Biomedicina, Departament de Genética i de Microbiologia, Universitat Autònoma de Barcelona, Spain: Molecular chaperones embedded into bacterial inclusion bodies.


Chadli, A., Graham, J.D., Wood, W.M., Gordon, D.F., Horwitz, K.B. Dept. of Biochemistry and Molecular Biology, Mayo Clinic, Rochester, Minnesota; Dept. of Endocrinology, University of Colorado Health Sciences Center, Denver: Characterization of CRIP100—A novel tetrapeptide repeat protein that interacts with progesterone receptors and Hsp90.

Chang, Y., Trouillet, D., Nykänen, P., Ralli, M., Yorrick, G., Reiner, O., Sistonen, L., Morange, M., Mezger, V. CRNS UMR 8541, Laboratoire de Biologie Moléculaire du Stress, CNRS UMR 8542, École Normale Supérieure, Paris, France; Dept. of Biology, Åbo Akademi University and Turku Centre for Biotechnology, University of Turku, Finland; Dept. of Molecular Genetics, Weizmann Institute, Rehovot, Israel: Mice lacking Hsf2, an atypical heat shock factor, display neuronal migration defects during cerebral cortex development.


Compton, S.A., Eimore, L.W., Holt, S.E., Dept. of Pharmacology and Toxicology, Pathology, Human Genetics, Massey Cancer Center, Virginia Commonwealth University, Richmond: Hsp90 and p23—A functional association with telomerase and telomeres?


Connell, P., Christians, E., Soorappan, R., Benjamin, I., Dept. of Internal Medicine, Div. of Cardiology, University of Texas Southwestern Medical Center, Dallas; University of Utah, Salt Lake City: Role of G6PD-mediated reductive stress in αB-crystallin cardiomyopathy.

Dou, F., He, H., Llauger, L., Vilenchik, M., Greengard, P., Chiosis, G. Fisher Center for Research on Alzheimer's Disease and Laboratory of Molecular and Cellular Neuroscience, Rockefeller University, Dept. of Medicine, Memorial Sloan-Kettering Cancer Center, New York, New York: Novel Hsp90-interfering agents in the treatment of neurodegenerative diseases.
Duennwald, M., Lindquist, S., Whitehead Institute for Biomedical Research, Cambridge, Massachusetts: Endoplasmic reticulum stress as a major cause for huntingtin toxicity.


Fan, C.-Y., Lee, S., Ren, H.-Y., Cyr, D.M., Dept. of Cell and Developmental Biology, University of North Carolina, Chapel Hill: Mechanisms for specification of Hsp70 action by type I and type II Hsp40s.

Felts, S.J., Kim, J., Argon, Y., Chiosis, G., Dept. of Biochemistry and Molecular Biology, Mayo College of Medicine, Rochester, Minnesota; Dept. of Pathology, University of Pennsylvania, Philadelphia; Dept. of Medicine, Memorial Sloan-Kettering Cancer Center, New York, New York: Identification of Hsp90-targeting drugs having different specificities for various family members.

Ferguson, S.B., Nelson, H.C.M., Dept. of Biochemistry and Biophysics, University of Pennsylvania School of Medicine, Philadelphia: PKA represses Hsf1 activity in S. cerevisiae.


Fukuma, M., Allen, J., Sargent, K., Lipson, K., Urano, F., Programs in Gene Function and Expression and Molecular Medicine, University of Massachusetts Medical School, Worcester: Endoplasmic reticulum stress in pancreatic β-cells and juvenile diabetes.

Gabai, V.L., Budanova, K., Sherman, M.Y., Boston University School of Medicine, Massachusetts: Depletion of Hsp72 sensitizes cancer cells to radiation, proteasome inhibitors and conventional drugs by downregulation of ERK and NF-kB signaling pathways.


Giraud, Y., Adebayo, J., Stevens, N., Carper, S.W., Dept. of Chemistry and UNLV Cancer Research Center, University of Nevada, Las Vegas: Hsp27 inhibits apoptosis induced by an adenosine receptor in human breast cancer cell lines.

Gotoh, T., Oyadomari, S., Tajiri, S., Endo, M., Terada, K., Mori, M., Dept. of Molecular Genetics, Graduate School of Medical Sciences, Kumamoto University, Japan: Nitric oxide- and ER stress-mediated apoptosis and its prevention by Hsp70-DnaJ chaperone pairs.

Gottwald, E., Institute for Medical Engineering and Biophysics, Forschungszentrum Karlsruhe, Germany: Intracellular HSP72 detection in HL60 cells using a flow cytometry system based on microfluidic analysis.
Guo, Y., 1 Yan, L.-J., 2 Yuhanna, I.S., 3 Christians, E., 2 Sathyanaarayanan, S., 2 Moore, G., 2 Gottlieb, R., 4 Robbins, J., 5 Wawrousek, E., 6 Sohal, P.W., 2 Bolli, R., 1 Benjamin, I.J., 1,8 1 Div. of Cardiology, University of Louisville, Kentucky; Depts. of 2 Internal Medicine, 3 Pediatrics, University of Texas Southwestern Medical Center, Dallas; 4 Dept. of Molecular and Experimental Medicine, Scripps Research Institute, La Jolla, California; 5 Children’s Hospital Medical Center, University of Cincinnati, Ohio; 6 NEI, National Institutes of Health, Bethesda, Maryland; 7 Dept. of Molecular Pharmacology and Toxicology, University of Southern California, Los Angeles; 8 University of Utah, Salt Lake City: Novel roles for cytosolic chaperones in mitochondrial nOS expression and ROS production.

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Gupta, S., Knowlton, A.A., Dept. of Cardiovascular Medicine, University of California, Davis: Membrane localization of HSP60 in failing hearts.

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Gur, E., 1 Biran, D., 1 Genevaux, P., 2 Georgopoulos, C., 2 Ron, E.Z., 1 1 Dept. of Molecular Microbiology and Biotechnology, George S. Wise Faculty of Life Sciences, Tel Aviv University, Israel; 2 Département de Biochimie Médicale, Centre Médical Universitaire, Université de Genève, Switzerland: The E. coli DjiA and CbpA proteins can substitute for DnaJ in DnaK-mediated protein disaggregation.

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Hainzl, O., Wegele, H., Richter, K., Buchner, J., Technische Universität München, Germany: Cns1, a yeast Hsp90 TPR co-chaperone is a novel activator of the yeast Hsp70 (Ssa1) ATPase.

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Hall Skalaet, A., King, L.B., Monroe, J.G., Dept. of Pathology and Laboratory Medicine, University of Pennsylvania School of Medicine, Philadelphia: Qualitative differences in the unfolded protein response characterize cell fate decisions of B lymphocytes.

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Hansen, J., Bross, P., Gregersen, N., Research Unit for Molecular Medicine, Aarhus University Hospital and Faculty of Health Sciences, Denmark: Differential handling of wild type medium chain acyl-coA dehydrogenase (MCAD) and a disease-causing mutant variant by E. coli protein quality control proteases.

71

Harada, Y., 1 Sato, C., 1,2 Kitajima, K., 1,2,3 1 Graduate School of Bioagicultural Science, 2 Institute of Advanced Research, 3 Bioscience Biotechnology Center, Nagoya University, Japan: A heat shock protein-like, sialic acid-binding lectin on the egg surface is involved in the sperm-egg interaction during sea urchin fertilization.

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Harris, S.F., Shiau, A.K., Agard, D.A., Howard Hughes Medical Institute, Dept. of Biochemistry and Biophysics, University of California, San Francisco: Crystal structure of htpG, the E. coli Hsp90.

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Haslbeck, M., Braun, N., Stromer, T., Richter, B., Model, N., Weinkauf, S., Buchner, J., Technische Universität München, Germany: Hsp42 is the general small heat shock protein in the cytosol of S. cerevisiae.

75

Heikkila, J.J., 1 Kaldis, A., 1 Atkinson, B.G., 2 1 Dept. of Biology, University of Waterloo, 2 Dept. of Biology, University of Western Ontario, Canada: Molecular chaperone function of the R. catesbeiana HSP30.

76

Hiniker, A., 1 Bardwell, J.C.A., 2 1 Medical Scientist Training Program, 2 Dept. of Molecular, Cellular and Developmental Biology, University of Michigan, Ann Arbor: In vivo substrate specificity of periplasmic disulfide oxidoreductases.

77

Hoefling, N., N., Kamal, A., 2 Mestril, R., 1 1 Dept. of Cellular and Molecular Physiology, Loyola University Chicago, Maywood, Illinois; 2 Conforma Therapeutics Corporation, San Diego, California: Hsp90 inhibitors induce the heat shock response and confer cardioprotection against simulated ischemia.

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THURSDAY, May 6—4:30 PM
Wine and Cheese Party

THURSDAY, May 6—7:30 PM

SESSION 4
CELLULAR RESPONSE TO STRESS
Chairperson: C. Gross, University of California, San Francisco

Gross, C., University of California, San Francisco.

Hartl, F.U., Agashe, V.R., Guha, S., Chang, H.-C., Geneveaux, P., Hayer-Hartl, M., Stemp, M., Georgopoulos, C., Barral, J., Dept. of Cellular Biochemistry, Max-Planck Institute of Biochemistry, Martinsried, Germany; Département de Biochimie Médicale Universitaire, Université de Genève, Switzerland: Protein folding in the cytosol.

Hultgren, S., Washington University School of Medicine, St. Louis, Missouri.

Winter, J., Linke, K., Jatzek, A., Hoffmann, J., Jakob, U., Dept. of Molecular, Cellular and Developmental Biology, University of Michigan, Ann Arbor: Fighting oxidative heat stress in vivo involves activation of Hsp33 and inactivation of DnaK.

Kandror, P., Bretschneider, N., Kreydin, E., Cavalieri, D., Goldberg, A.L., Dept. of Cell Biology, Harvard Medical School, Boston, Bauer Center for Genomic Research, Harvard University, Cambridge, Massachusetts: Trehalose and certain heat shock proteins are induced at near-freezing temperatures (0 - 10°C) and protect yeast against freezing.

Müller, J.P., Linde, D., Köllner, T., Kawaguchi, S., Vassylev, D.G., Yokoyama, S., Volkmer-Engert, R., Swaging, J., van Wely, K., Driesen, A.J.M., Institute of Molecular Biology, University of Jena; Institute for Medical Immunology, Charité, Berlin, Germany; RIKEN Harima Institute Kouto, Japan; Dept. of Microbiology, Groningen Biomolecular Sciences and Biotechnology Institute, University of Groningen, The Netherlands: CsaA proteins—An eubacterial protein family with chaperone-specific activities.

Gong, W.J., Golic, K.G., Dept. of Biology, University of Utah, Salt Lake City: Loss of Hsp70 in Drosophila is pleiotropic, with effects on thermostolerance, neurodegeneration and aging.

Glatz, A., Horváth, I., Balogi, Z., Balogh, G., Puskás, L.G., Jósvay, K., Liberek, K., Debreczeny, M., Hunyadi-Gulyás, É., Medzhiradszky, K.F., Goloubinoff, P., Vigh, L., Biological Research Centre, Szeged, Hungary; University of Gdansk, Poland; University of Lausanne, Switzerland: The emerging role for small Hsps in the regulation of composition and dynamics of cell membranes.

FRIDAY, May 7—9:00 AM

SESSION 5
CHAPERONE FUNCTION IN DISEASE, AGING AND DEVELOPMENT
Chairperson: R. Morimoto, Northwestern University, Evanston, Illinois

Selkoe, D.J., Harvard Medical School and Brigham and Women's Hospital, Boston, Massachusetts: Soluble oligomers of misfolded proteins as diffusible neurotoxins in Alzheimer's and Parkinson's diseases.

Hsu, A., Murphy, C., Kenyon, C., University of California, San Francisco: Regulation of aging and age-related disease by DAV016 and heat-shock factor.

McClellan, A.J., Frydman, J., Dept. of Biological Sciences and BioX Program, Stanford University, California: Active chaperone participation required for triage of misfolded cytosolic proteins.


Argon, Y., Simen, B.B., Ahmed, N.T., Ostrovsky, O., Gidalevitz, T., Wanderling, S., Dept. of Pathology, Children's Hospital and University of Pennsylvania, Philadelphia; Dept. of Pathology, University of Chicago, Illinois: The endoplasmic reticulum chaperone GRP94 is essential for specific differentiation steps during development.

Noorwez, S.M., Malhotra, R., McDowell, J.H., Smith, K.A., Krebs, M.P., Kaushal, S. Dept. of Ophthalmology, College of Medicine, University of Florida, Gainesville; Dept. of Medicine, University of Minnesota, Minneapolis; Dept. of Biological Sciences, Illinois State University, Normal: Retinoids assist the cellular folding of the Autosomal Dominant Retinitis Pigmentosa opsin mutant P23H.


Kim, J., Ou, Y., Esmail, M., Badano, J., Katsanis, N., Rattner, J., Leroux, M, Dept. of Molecular Biology and Biochemistry, Simon Fraser University, Burnaby; Dept. of Cell Biology and Anatomy, University of Calgary, Canada; McKusick-Nathan Institute of Genetic Medicine, Johns Hopkins University, Baltimore, Maryland: BBS6, a divergent relative of the chaperonin CCT.

Iizuka, R., So, S., Inobe, T., Yoshida, T., Zako, T., Kuwajima, K., Yohda, M., Dept. of Biotechnology and Life Sciences, Tokyo University of Agriculture and Technology; Dept. of Physics, Graduate School of Science, University of Tokyo, Japan: Role of the helical protrusion in the conformational change and molecular chaperone activity of the Archaeal group II chaperonin.

Immormino, R., Dollins, D.E., Gewirth, D.T., Dept. of Biochemistry, Duke University Medical Center, Durham, North Carolina: The structural basis for ligand regulation in GRP94, the endoplasmic reticulum Hsp90 chaperone.

Inobe, T., Kuwajima, K., Dept. of Physics, University of Tokyo, Japan: α value analysis of an allosteric transition of GroEL based on a single-pathway model.

Inoue, Y., Taguchi, H., Yoshida, M., Chemical Resources Laboratory, Tokyo Institute of Technology; Dept. of Integrated Biosciences, Graduate School of Frontier Sciences, University of Tokyo, Japan: Interaction of Hsp104 with yeast prion fibrils.

Iwawaki, T., Kohno, K., Miura, M., Nara Institute of Science and Technology (NAIST); PRESTO, Kawaguchi; PROBRAN, Tokyo, Graduate School of Pharmaceutical Science, University of Tokyo, Japan: An ER stress-monitoring mouse (ERAI mouse) highlights the importance of physiological unfolded protein response in vivo.

Jensen, K., Elmore, L., Holt, S., Depts. of Human Genetics, Pathology, Massey Cancer Center, Virginia Commonwealth University, Richmond: The effect of overexpression of heat shock factor (HSF1) on telomerase activity and tumorigenicity.

Johnson, J.L., Weekes, J., Flom, G., University of Idaho, Moscow: Allele-specific interactions of YDJ1 and STT1 and the effect of these mutations on Hsp90 signaling in S. cerevisiae.
Kapri, E., Adam, Z., Robert H. Smith Institute of Plant Sciences and Genetics in Agriculture, Hebrew University of Jerusalem, Rehovot, Israel: DegP1 protease in *Arabidopsis* plants—Possible role in degradation of oxidatively damaged membrane proteins.

Kawata, Y., Hongo, K., Uemura, C., Hirai, H., Tsunemi, J., Higurashi, T., Mizobata, T., Dept. of Biotechnology, Faculty of Engineering, Dept. of Biomedical Science, Graduate School of Medical Science, Tottori University, Japan: ATPase/ADPase-dependent chaperonin activites of hyperthermophilic group II thermosomes in the presence of cobalt or manganese ion.


Kern, R., Malki, A., Liebart, J.-C., Dubucs, C., Yu, M.H., Richarme, G., Institut Jacques Monod, Université Paris 7, France: Protein isoaspartate methyltransferase is a multicopy suppressor of protein aggregation in *E. coli*.

Kim, I., Park, T.-G., Cho, J.W., Kang, B.-S., Kim, C.-Y., Dept. of Pharmacology, Biomedical Research Institute, Kyungpook National University School of Medicine, Daegu, Korea: Heat-shock response is associated with enhanced contractility of vascular smooth muscle in isolated rat aorta.

Kim, S.-Y., Craig, E., Dept. of Biochemistry, University of Wisconsin, Madison: Absence of the ribosome-associated Hsp70 chaperone Ssb results in increased cation influx and accumulation.

Kimata, Y., Shimizu, Y., Oikawa, D., Kimata, Y., Kohno, K., Nara Institute of Science and Technology, Japan: A role of BiP/Kar2 as an adjustor for the ER stress-sensing protein Ire1.

Klein, G., Raina, S., Central Medical University, University of Geneva, Switzerland: Signal transduction pathways in response to protein misfolding in the extracytoplasm in *E. coli*.

Kimata, Y., Shimizu, Y., Oikawa, D., Kimata, Y., Kohno, K., Nara Institute of Science and Technology, Japan: A role of BiP/Kar2 as an adjustor for the ER stress-sensing protein Ire1.

Klein, G., Raina, S., Central Medical University, University of Geneva, Switzerland: Altered stress response in a genetic background that exhibits only conditional synthetic lethality of deletion of both dnaK and tig genes.
Landsverk, M.L., Hutagalung, A.H., Epstein, H.F., Depts. of Biochemistry and Molecular Biology, Neurology, Baylor College of Medicine, Houston; Dept. of Neuroscience and Cell Biology, University of Texas Medical Branch, Galveston; Dept. of Cell Biology, Yale University School of Medicine, New Haven, Connecticut: UCS-domain chaperones target myosin motor domains.

Lappi, A.K., Lensink, M.F., Alanen, H.I., Salo, K.E.H., Lobell, M., Juffer, A.H., Ruddock, L.W., Dept. of Biochemistry, University of Oulu, Finland; Dept. of Biosciences, University of Kent, United Kingdom: Proton transfer reactions in the catalytic mechanisms of PDI.

Lee, A.-H., Iwakoshi, N.N., Glimcher, L.H., Dept. of Immunology and Infectious Diseases, Harvard School of Public Health, Boston, Massachusetts: XBP-1 regulates a subset of endoplasmic reticulum chaperone genes in the unfolded protein response.


Lee, U., Vierling, E., Dept. of Biochemistry and Molecular Biophysics, University of Arizona, Tucson: Genetic analysis reveals that the coiled-coil domain of Hsp100/ClpB interacts with NBD1 to play an essential role in thermotolerance.

Lewicki, D., Frausto, S., Zhang, J., Frasier, M., LaFerla, F., Wolozin, B., Loyola University Medical Center, Maywood, Illinois; University of California, Irvine: Characterization of transgenic mice over-expressing parkin.


Luo, S., Baumeister, P., Yang, S., Abcouwer, S.F., Mao, C., Lee, A.S., Dept. of Biochemistry and Molecular Biology and USC/Norris Comprehensive Cancer Center, University of Southern California Keck School of Medicine, Los Angeles; Dept. of Biochemistry and Molecular Biology, University of New Mexico School of Medicine, Albuquerque: The Grp78/Bip promoter is negatively regulated by a repressive mechanism in vivo.

Ma, Y., Hendershot, L.M., Dept. of Genetics and Tumor Cell Biology, St. Jude Children's Research Hospital, Department of Molecular Sciences, University of Tennessee Health Science Center, Memphis: Divergence and convergence of the ER stress response pathway.

Marcu, M.G., Scroggins, B.T., Wang, D., Cotter, R.J., Neckers, L., Urologic Oncology Branch, Center for Cancer Research, NCI, National Institutes of Health, Bethesda; Dept. of Pharmacology and Molecular Sciences, Johns Hopkins University School of Medicine, Baltimore, Maryland: Acetylation status of Hsp90 affects cochaperone complexes and client protein association and stability.


Meinander, A., Tran, S.E.F., Sistonen, L., Eriksson, J.E., Turku Centre for Biotechnology, Depts. of Biochemistry and Pharmacy, Biology, Abo Akademi University, Dept. of Biology, University of Turku, Finland: The death receptor inhibitor FLIP as a stress sensor.
Menezes, R., Amaral, C., Rodrigues-Pousada, C., Genomics and Stress Laboratory, Instituto de Tecnologia e Quimica Biológica (ITQB), Oeiras, Portugal: Yap8 regulation in S. cerevisiae under arsenic.

Meriin, A.B., Zhang, X.Q., Sherman, M.Y., Boston University School of Medicine, Massachusetts: Cellular factors involved in aggregation and toxicity of polypeptides with polyglutamine domains.

Miller, C., Cox, M., Dept. of Environmental Health Sciences, Tulane University Health Sciences Center, New Orleans: Hsp90-p23 complexes and Ah receptor signaling.

Miller, V.M.,\(^1\)\(^2\) Gouvion, C.M.,\(^1\) Rebagliati, M.R.,\(^2\)\(^3\) Paulson, H.L.,\(^1\)\(^2\)\(^\text{Dept. of Anatomy and Cell Biology, University of Iowa Roy J. and Lucille A. Carver College of Medicine, Iowa City: CHIP suppresses polyglutamine aggregation and toxicity in vitro and in vivo.}

Min, J.-N., Zhang, Y., Mivechi, N.F., Institute of Molecular Medicine and Genetics and Dept. of Radiology, Medical College of Georgia, Augusta: Essential role for heat shock transcription factor binding protein1 (Hspbp1) during peri-implantation stage of embryonic development.


Mizobata, T.,\(^1\)\(^2\) Taniguchi, M.,\(^1\) Yoshimi, T.,\(^2\) Hongo, K.,\(^1\)\(^2\) Kawata, Y.,\(^1\)\(^2\)\(^\text{Dept. of Biotechnology, Faculty of Engineering, Dept. of Biomedical Science, Graduate School of Medical Science, Tottori University, Japan: Probing the movements of the GroEL apical domain using stopped-flow fluorescence analysis.}


Montani, N.,\(^1\) Tagliavacca, L.,\(^2\) Ruffato, E.,\(^2\) Pasqualetto, E.,\(^2\) Sitia, R.,\(^2\) Schiaffonati, L.,\(^1\) Fra, A.M.,\(^1\) Dept. of Biomedical Sciences and Biotechnology, University of Brescia,\(^2\) Università Vita-Salute San Raffaele Scientific Institute, Milano, Italy: How B cells prepare for massive antibody production—Kinetic mRNA analyses of ER resident proteins and Ig subunits.

Motojima, F.,\(^1\) Taguchi, H.,\(^2\) Yoshida, M.,\(^1\) Chemical Resources Laboratory, Tokyo Institute of Technology,\(^2\) Dept. of Integrated Biosciences, Graduate School of Frontier Sciences, University of Tokyo, Japan: Substrate protein refolding in cis cavity of GroEL-GroES-nucleotide complex at high temperature.

Mueller, S.,\(^1\) Borschsenius, A.S.,\(^1\)\(^2\) Patterson, J.,\(^1\) Newmann, G.P.,\(^1\) Chernoff, Y.O.,\(^1\) School of Biology and Institute of Bioengineering and Bioscience, Georgia Institute of Technology, Atlanta;\(^2\) Dept. of Genetics and Breeding, St. Petersburg State University, Russia: Effects of homologous and heterologous chaperones on the yeast prion [PSI\(^+\)].


Nelson, R.F.,\(^1\)\(^2\)\(^4\) Miller, V.M.,\(^2\)\(^3\)\(^4\) Paulson, H.L.,\(^1\)\(^2\)\(^3\)\(^4\) Medical Scientist Training Program,\(^2\) Dept. in Neuroscience,\(^3\) Dept. in Genetics,\(^4\) Dept. of Neurology, University of Iowa Roy J. and Lucille A. Carver College of Medicine, Iowa City: Fbx2, a brain-specific F-box protein linked to ER-associated degradation, cooperates with CHIP to reduce mutant polyglutamine protein levels and aggregates.

Neta-Sharir, I.,\(^1\) Lurie, S.,\(^2\) Weiss, D.,\(^1\) Hebrew University, Jerusalem, Israel: The tomato Hsp21 protects photosystem II from oxidative damage and promotes color change during fruit maturation.

Nevitt, T., Pereira, J., Rodrigues-Pousada, C., Genomics and Stress Laboratory, Instituto de Tecnologia e Quimica Biológica (ITQB), Oeiras, Portugal: YAP4 gene regulation under osmotic and oxidative stress.

Nieto-Sotelo, J., Zárate, F., Martínez, L.M., Arroyo, B.L., Instituto de Biotecnología, Universidad Nacional Autónoma de México, Cuernavaca: Structural-function relationships in the middle region of S. cerevisiae Hsp104 protein. 150

Niggemann, M., Williams, D.B., University of Toronto, Canada: Polypeptide binding specificity of ER chaperone calnexin. 151

Niikura, Y., Kitagawa, K., Dept. of Molecular Pharmacology, St. Jude Children's Research Hospital, Memphis, Tennessee: The human SGT1-HSP90 complex is required for the assembly of kinetochore protein complexes. 152

Nikolay, R., Wiederkehr, T., Mayer, M., Bukau, B., ZMBH, University of Heidelberg, Germany: Biochemical characterization of the human E3 ligase CHIP and its interaction with Hsc70 and Hsp90. 153

Nishikawa, S.-i., Nakatsukasa, K., Umebayashi, K., Fukuda, R., Endo, T., Dept. of Chemistry, Graduate School of Science, Nagoya University, National Institute of Genetics, Mishima, Dept. of Biotechnology, University of Tokyo, Japan: O-mannosylation prevents aggregation of aberrant proteins independently of endoplasmic reticulum chaperones. 154

Nishiyama, M., Glockshuber, R., Institute for Molecular Biology and Biophysics, ETH Hönggerberg, Zürich, Switzerland: Identification and characterization of the chaperone-subunit complex binding domain from the type 1 pilus assembly platform FimD. 155

Nukina, N., Tanaka, M., Machida, Y., Nishikawa, Y., Akagi, T., Hashikawa, T., Fujisawa, T., Laboratory for Structural Neuropathology, Laboratory for Neural Architecture, RIKEN Brain Science Institute, Laboratory for Structural Biology, RIKEN Harima Institute, Japan: Structural basis for polyglutamine disease pathogenesis—Therapeutic strategy. 156

Ohno, E., Yamaguchi, T., Arai, R., Fujita, Y., Atomi, Y., University of Tokyo, Japan: Striation formation of GFP-αB crystallin in rat beating cardiac myocyte. 157

Pantos, C., Malliopoulou, V., Karamanoli, E., Mourouzis, I., Sfakianoudis, K., Cokinos, A.D., Assimacopoulos, P., Varonis, D., Cokinos, D.V., 1st Cardiology Dept., Onassis Cardiac Surgery Center, Dept. of Pharmacology, University of Athens, Greece: Long-term thyroxine administration results in heat shock protein 27 (HSP27) overexpression and protects the heart from ischaemia-reperfusion injury. 158

Pantos, C., Malliopoulou, V., Karamanoli, E., Mourouzis, I., Sfakianoudis, K., Assimacopoulos, P., Varonis, D., Cokinos, D.V., 1st Cardiology Dept., Onassis Cardiac Surgery Center, Dept. of Pharmacology, University of Athens, Greece: Involvement of p38 MAPK and JNK in the heat stress induced cardioprotection. 159

Peng, C.-W., Kieff, E., Dept. of Medicine and Microbiology and Molecular Genetics, Channing Laboratory, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts: Molecular chaperone and cochaperone coordinately modulate the regulatory function of EBV leader protein LP. 160

Perdrizet, G., Enderle, G., Rewinski, M., Kumar, R., Enderle, G., Berman, M., Hightower, L., Depts. of Biomedical Engineering, Molecular and Cell Biology, University of Connecticut, Storrs, Dept. of Pathology, Center for Wound Healing and Hyperbaric Medicine, University of Connecticut Health Center and Hartford Hospital: HSP70 is proinflammatory in vivo—Implications for chronic wound healing. 161

Peres Ben-Zvi, A., Kim, S., Morimoto, R., Dept. of Biochemistry, Molecular Biology and Cell Biology, Rice Institute for Biomedical Research, Northwestern University, Evanston, Illinois: Polyglutamine aggregate dissociation by human Hsp70. 162

Peng, M., Wen, S.F., van den IJssel, P., Prescott, A.R., Quinlan, R.A., School of Biological and Biomedical Sciences, University of Durham, Dept. of Biochemistry, Medical Science Institute, University of Dundee, United Kingdom: Desmin aggregate formation by R120G αB-crystallin is caused by altered filament interaction and is dependent upon network status in cells. 163

Petrucelli, L., Hutton, M., Mayo Clinic College of Medicine, Rochester, Minnesota: Hsp70 and CHIP regulate tau protein decisions. 164
Pigaga, V., Quinlan, R.A., School of Biological and Biomedical Sciences, University of Durham, United Kingdom: α-crystallin and protein misfolding in the eye lens.

Pirneskoski, A., K. Klappa, P., Lobell, M., Russell, S.J., Orru, S., Williamson, R.A., Byrne, L.J., Alanen, H.I., Salo, K.E.H., Kivirikko, K.I., Ruoppolo, M., Freedman, R.B., High, S., Ruddock, L.W., Depts. of Biochemistry, Medical Biochemistry and Molecular Biology, University of Oulu, Finland; School of Biological Sciences, University of Manchester, Dept. of Biological Sciences, University of Warwick, United Kingdom; CEINGE Biotecnologie Avanzate, Naples, Italy: The primary substrate binding site of the PDI family—Localization, molecular characterization and modulation.

Puorger, C, Vetsch, M., Glockshuber, R., Institute for Molecular Biology and Biophysics, ETH Hönggerberg, Zürich, Switzerland: Disassembly of type 1 pilus is kinetically hindered.

FRIDAY, May 7—7:30 PM

SESSION 7 REGULATION OF THE STRESS RESPONSE

Chairperson: D. Ron, New York University School of Medicine, New York

Marciniak, S., Yun, C., Oyadomari, S., Harding, H.P., Ron, D., Skirball Institute, New York University School of Medicine, New York: Dualism in the adaptive nature of the unfolded protein response.

Mori, K., Kyoto University, Japan.

Chen, H.-K., Fernandez-Funez, P., de Gouyon, B., Lam, Y.C., Kaytor, M.D., Patterson, C., Orr, H.T., Botas, J., Zoghbi, H.Y., Howard Hughes Medical Institute, Baylor College of Medicine, Houston, Texas; University of North Carolina, Chapel Hill; University of Minnesota, Minneapolis: The role of protein modification and degradation in the pathogenesis of SCA1.

Fujimoto, M., Izu, H., Nakamura, K., Takaki, E., Inouye, S., Nakai, A., Depts. of Biochemistry and Molecular Biology, Yamaguchi University School of Medicine, Japan: HSF4 regulates proliferation of epithelial cells and differentiation into fiber cells during mouse lens development.

Steel, G., Fullerton, D., Tyson, J., Stirling, C, School of Biological Sciences, University of Manchester, United Kingdom: Coordination of molecular chaperones in the lumen of the endoplasmic reticulum.

Huang, P., Gautschi, M., Rospert, S., Craig, E., Depts. of Biochemistry, Biomolecular Chemistry, University of Wisconsin, Madison; Institut für Biochemie und Molekularbiologie, Universität Freiburg, Germany: Ribosome-associated complex (RAC) as a modulator of Ssb’s chaperone function in S.cerevisiae.

Sha, B., Dept. of Cell Biology, Center for Biophysical Sciences and Engineering, University of Alabama, Birmingham: The crystal structure of the yeast Hsp40 Ydj1 complexed with its peptide substrate reveals the mechanism for Hsp40 molecular chaperone activity.

SATURDAY, May 8—9:00 AM

SESSION 8 CHAPERONES AND PROTEOLYSIS

Chairperson: T. Baker, Howard Hughes Medical Institute, Massachusetts Institute of Technology, Cambridge

Baker, T., Howard Hughes Medical Institute, Massachusetts Institute of Technology, Cambridge.


Bolon, D.N., Baker, T.A., Sauer, R.T., Dept. of Biology, Howard Hughes Medical Institute, Massachusetts Institute of Technology, Cambridge: Bivalent tethering of the SspB adaptor to the AAA+ protease ClpXP leads to efficient substrate handoff—A protein design study.


Forafonov, F., Picard, D., Dept. of Cell Biology, University of Geneva, Switzerland: The Hsp90 co-chaperone p23 (Sba1) of budding yeast.

Roe, S.M., Ali, M.M.U., Meyer, P., Vaughan, C.K., Panaretou, B., Piper, P.W., Prodromou, C., Pearl, L.H., Section of Structural Biology, Institute of Cancer Research, Chester Beatty Laboratories, Div. of Life Sciences, King's College London, Dept. of Biochemistry and Molecular Biology, University College London, United Kingdom: The structure of the C-terminal domain of p50 in the complex with the N-terminal domain of Hsp90 and the mechanism of regulation by p50.

Shirasu, K., Azevedo, C., Takahashi, A., Peart, J., Casais, C., Ichimura, K., Sainsbury Laboratory, John Innes Centre, Norwich, United Kingdom: Chaperone complex in plant disease resistance.
Rousseau, E., 1 Dehay, B., 1 Ben-Haïem, L., 2 Trotier, Y., 2 Morange, M., 1 Bertolotti, A., 1 Laboratoire de Génétique Moléculaire, CNRS UMR8541, Ecole Normale Supérieure, Paris, 1 Institut de Génétique et de Biologie Moléculaire et Cellulaire, INSERM-CNRS, Université Louis Pasteur, Illkirch, France: Aggregation of expanded polyglutamine proteins is modulated by subcellular environment.

Rowley, G., 1 Miticka, H., 4 Humphreys, S., 1 Fookes, M., 2 Thompson, A., 1 Stevenson, A., 1 Rezuchova, B., 4 Ivens, A., 2 Hinton, J., 4 Kormanec, J., 4 Roberts, M., 1, 1 University of Glasgow, 2 Sanger Institute, Cambridge, United Kingdom; 3 Institute of Food Research, Institute of Molecular Biology, Bratislava, Slovakia: S. typhimurium rpoE regulon.

Rudella, A., 1 Peltier, J.-B., 1 Ripoll, P., 2 Friso, G., 1 Cai, Y., 1 Ytterberg, J., 1 Giacomelli, L., 1 van Wijk, K.J., 1 Depts. of 1 Plant Biology, 2 Theory and Simulation Sciences and Engineering, Cornell University, Ithaca, New York: Clp protease complexes from plastids and mitochondria of plants, their predicted 3-D structures and functional implications—a reverse genetics and proteomics approach.

Rüdiger, S., Freund, S.M.V., Fersht, A.R., Cambridge Centre for Protein Engineering, Cambridge University and Medical Research Council, United Kingdom: Monitoring interactions of Hsp90 with its substrate p53 and ATP at the molecular level using NMR and segmental labeling.


Russell, L., 1 Morishima, Y., 2 Pratt, W., 2 Chinkers, M., 1 Dept. of Pharmacology University of South Alabama, Mobile; 2 University of Michigan, Ann Arbor: An unexpected role for the Hsp organizer protein (Hop) in glucocorticoid regulation in living cells.

Satpute, P., Serio, T., Dept. of Molecular Biology, Cell Biology and Biochemistry, Brown University, Providence, Rhode Island: Sup35 prion conversion timing in vivo.

Schaffar, G., 1 Breuer, P., 1 Boteva, R., 2 Behrends, C., 1 Tzvetkov, N., 1 Sakahira, H., 1 Siegers, K., 1 Hayer-Hartl, M., 1 Hartl, F.U., 1 Dept. of Cellular Biochemistry, Max-Planck-Institute of Biochemistry, Martinsried, Germany; 2 Institute of Molecular Biology, Bulgarian Academy of Sciences, Sofia: Cellular toxicity of polyglutamine-expansion proteins—Mechanism of transcription factor deactivation.


Sevier, C.S., 1 Vala, A., 1 Gross, E., 2 Fass, D., 2 Kaiser, C.A., 1 Dept. of Biology, Massachusetts Institute of Technology, Cambridge; 2 Dept. of Structural Biology, Weizmann Institute of Science, Rehovot, Israel: Intracellular mechanisms for specific disulfide bond formation and transfer between proteins.

Shaner, L., 1 Trott, A., 1 Goeckeler, J.L., 2 Brodsky, J.L., 2 Morano, K.A., 1 Dept. of Microbiology and Molecular Genetics, University of Texas Medical School, Houston; 2 Dept. of Biological Sciences, University of Pittsburgh, Pennsylvania: The function of the yeast molecular chaperone Sse1 is mechanistically distinct from the closely related Hsp70 family.


Shimohata, N., Akiyama, Y., Ito, K., Institute for Virus Research, Kyoto University, Japan: SecY alterations that lead to abnormal membrane protein assembly.

Song, C., 1,2 Wang, Q., 2 Li, C.-C., 1,2 SAIC-Frederick, 2 Laboratory of Cancer Prevention, CCR, NCI, National Institutes of Health, Bethesda, Maryland: Chaperone activity of p97-VCP in preventing protein aggregation.

Sorensen, S., Ranheim, T., Leren, T.P., Kulseth, M.A., Dept. of Medical Genetics, Rikshospitalet University Hospital, Oslo, Norway: Accumulation of mutant LDL-receptor in ER leads to ER-stress.
Sorgjerd, K.,1 Jonsson, B.-H.,1 Kelly, J.W.,2 Blond, S.Y.,3
Hammarström, P.,1 IFM-Dept. of Chemistry, Linköping University,
Sweden;2 Skaggs Institute of Chemical Biology and Dept. of
Chemistry, Scripps Research Institute, La Jolla, California;3 Center
for Pharmaceutical Biotechnology, Dept. of Medicinal Chemistry
and Pharmacognosy, College of Pharmacy, University of Illinois,
Chicago: The chaperone BiP binds the highly amyloidogenic CNS
disease associated transthyretin mutant D18G.

Soti, C., Sreedhar, A.S., Kalmar, E., Petak, I., Csermely, P., Depts. of
Medical Chemistry and Pathology, Semmelweis University,

Sriburi, R.,1 Jackowski, S.,2 Mori, K.,3 Brewer, J.W.,1 Dept. of
Microbiology and Immunology, Stritch School of Medicine, Loyola
University Chicago, Maywood, Illinois;2 Div. of Protein Science,
Dept. of Infectious Diseases, St. Jude Children's Research Hospital,
Memphis, Tennessee;3 Dept. of Biophysics, Graduate School of
Science, Kyoto University, Japan: XBP1—A link between the
unfolded protein response and lipid biosynthesis.

Stockton, J.D., Merkert, M.C., Kellaris, K.V., University of California,
Berkeley: Chaperones on the wrong site of the fence—Cytosolic
BiP and PDI family members and their affect on translocation of the
prion protein.

Strbuncelj, M., Kusmierczyk, A., Serio, T., Dept. of Molecular Biology,
Cellular Biology and Biochemistry, Brown University, Providence,
Rhode Island: Quality control of co-translational folding and
interaction with the Sup35 prion cycle.

Summer, H., Bruderer, R., Weber-Ban, E., Institute for Molecular
Biology and Biophysics, ETH Hönggerberg, Zürich, Switzerland:
Isolation and characterization of a new AAA-protein from A.
fulgidas.

Terada, K.,1 Yomogida, K.,2 Imai, T.,2 Kiyonari, H.,3 Takeda, N.,4
Kadomatsu, T.,1 Yano, M.,1 Aizawa, S.,3 Mori, M.,1 Dept. of
Molecular Genetics, Graduate School of Medical Science,4 Div. of
Transgenic Technology, CARD, Kumamoto University,2 Dept. of
Science for Laboratory Animal Exp. Research Institute for Microbial
Diseases, Osaka University,3 Laboratory for Animal Research and
Genetics Engineering, RIKEN, CDB, Japan: Defect of
spermiogenesis in DjA1 cochaperone knockout mouse.

Thibault, G., Djokic, J., Houry, W.A., Dept. of Biochemistry, University
of Toronto, Canada: Substrate recognition and degradation by
CipXP chaperone-protease complex of E. coli.

Tiberio, L.,1 Fenaroli, A.,1 Maroni, P.,2 Bendinelli, P.,2 Piccoletti, R.,2
Schiaffonati, L.,1 Dipartimento di Scienze Biomediche e
Biotecnologie, Università degli Studi di Brescia,1 Istituto di Patologia
Generale, Università degli Studi di Milano, Italy: In vivo heat shock
response in the brain—Signaling pathway and transcription factor
activation.

Tkach, J.M., Smith, L.-L.S., Glover, J.R., Dept. of Biochemistry,
University of Toronto, Canada: Effect of subcellular distribution on
Hsp104 function.

Tomoyasu, T., Sasaki, T., Takaya, A., Yamamoto, T., Dept. of
Microbiology and Molecular Genetics, Graduate School of
Pharmaceutical Sciences, Chiba University, Japan: A novel small
HSP "AgsA" which is involved in suppressing protein aggregation in
S. typhimurium.

Trindade, L.M., Horvath, B.M., Bergervoet, M., Visser, R.G.F.,
Graduate School of Experimental Plant Sciences, Laboratory of
Plant Breeding, Dept. of Plant Sciences, Wageningen University,
The Netherlands: Isolation of a gene encoding a copper chaperone
for the Cu/Zn superoxide dismutase and characterization of its
promoter in S. tuberosum.

Tummala, H.,1 Jung, C.,1 Tiwari, A.,2 Higgins, C.,2 Trang, E.,1
Hayward, L.,2 Xu, Z.,1 Deps. of Biochemistry and Molecular
Pharmacology,2 Neurology, University of Massachusetts Medical
School, Worcester: Inhibition of chaperone activity is a gained
property of SOD1 mutants that cause amyotrophic lateral sclerosis.
Valgardsdottir, R., Chiodi, I., Giordano, M., Cobianchi, F., Riva, S., Richter-Landsberg, C., Welch, W.J., Pham, C.T., Sun, E., Giasson, B., Lee, V.M.-Y., Trojanowski, J.Q., Center for Neurodegenerative Disease Research, Dept. of Pathology and Laboratory Medicine, University of Pennsylvania School of Medicine, Philadelphia; Dept. of Biology, Molecular Neurobiology, University of Oldenburg, Germany; Dept. of Medicine and Physiology, University of California, San Francisco: Association of Hsp90 with α-synuclein lesions in synucleinopathies.

Valgardsdottir, R., Chiodi, I., Giordano, M., Cobianchi, F., Riva, S., Biamonti, G., Istituto di Genetica Molecolare, Consiglio Nazionale delle Ricerche, Pavia, Italy: Nuclear stress bodies as large transcription factories.

Van Molle, W., Sekikawa, K., Jäättelä, M., Kollias, G., Libert, C., Dept. for Molecular Biomedical Research, Ghent University, Belgium; Dept. of Molecular Biology and Immunology, National Institute of Agrobiological Sciences, Tsukuba, Japan; Institute of Cancer Biology, Danish Cancer Society, Copenhagen; Institute of Immunology, Biological Sciences Research Center Alexander Fleming, Vari, Greece: HSP70 has strong in vivo anti-inflammatory capacities—Lessons from Hsp70.1 knockout and Hsp70 transgenic mice.

Vang, S., Corydon, T.J., Berglum, A., Scott, M.D., Frydman, J., Gregersen, N., Bross, P.G., Research Unit for Molecular Medicine, Aarhus University Hospital and Faculty of Health Sciences, Institute of Human Genetics, University of Aarhus, Denmark; Dept. of Biological Sciences, Stanford University, California: Actin mutations causing hypertrophic and dilated cardiomyopathy exhibit decreased protein stability and prolonged interaction with the TRiC/CCT chaperonin.

Vilaboa, N., Fenna, M., Munson, J., Roberts, S.M., Voellmy, R., Research Unit, Hospital Universitario La Paz, Madrid, Spain; Dept. of Biochemistry and Molecular Biology, University of Miami School of Medicine, Florida; Dept. of Environmental and Human Toxicology, University of Florida, Gainesville: Novel heat and ligand-controlled switches for targeting and timing expression of transferred genes.


Walerych, D., Kutla, G., Gutkowska, M., Helwak, A., Zylicz, M., International Institute of Molecular and Cell Biology, UNESCO-PAS, Institute of Biochemistry and Biophysics, Institute of Experimental Biology, Polish Academy of Sciences, School of Molecular Medicine, Warsaw, Poland: Hsp90 chaperones a wild-type p53 tumor suppressor protein.

Wandinger, S., Wegele, H., Buchner, J., Institut für Organische Chemie & Biochemie, Technische Universität München, Germany: Regulation of the Hsp90 system by co-chaperones.


Wiegant, F.A.C., Vorontsova, O.N., Manukhina, E.B., Malyshov, I.Y., Dept. of Molecular Cell Biology, Utrecht University, The Netherlands; Dept. of Adaptive Biology and Medicine, Institute of General Pathology and Pathophysiology, Moscow, Russia: Tolerance and gradual development of adaptation as two different forms of temperature response.

Wirth, D., Bureau, F., Melotte, D., Gustin, P., Christians, E., Unit of Pharmacology, Pharmacotherapy and Toxicology, Unit of Physiology, Dept. of Functional Sciences, Faculty of Veterinary Medicine, University of Liège, Belgium; Center of Developmental Biology, University Paul Sabatier, Toulouse, France: Role of heat shock factor 1 in lung protection.

Wochnik, G., Young, J.C., Holsboer, F., Hartl, F.U., Rein, T., Max-Planck Institute of Psychiatry, Max-Planck Institute of Biochemistry, Munich, Germany: Inhibition of GR-mediated transcription by p23 requires interaction with Hsp90.
Xing, H., Mayhew, C.N., Park-Sarge, O.-K., Sarge, K.D., Depts. of Molecular and Cellular Biochemistry, Physiology, and Cell Biology, University of Cincinnati, Ohio; HSF1 functions as both transcriptional activator and polyadenylation stimulatory factor, enhancing Hsp expression at two different steps of the gene expression pathway.

Xu, W., Yuan, X., Neckers, L., Neurobiology and Anatomy, University of Cincinnati, Ohio: Hsp90 binding is correlated with kinase activity and geldanamycin-sensitivity of ErbB2 tyrosine kinase.

Yamamoto, K., Yoshida, H., Kokame, K., Kaufman, R., Mori, K., Graduate School of Biostudies, Department of Biophysics, Graduate School of Science, Kyoto University, Japan; PRESTO, Japan Science and Technology Corporation, Saitama, National Cardiovascular Center Research Institute, Osaka, Japan: Involvement of ATF6 and XBP1 in activating endoplasmic reticulum stress-responsive cis-acting element ERSE-II.

Yano, M., Terada, K., Mori, M., Kumamoto University, Japan: Chaperone-like functions of a new cytosolic factor AIP and mitochondrial Tom20 mediate mitochondrial protein import.


Yoshida, H., Mori, K., PRESTO, Japan Science and Technology Corporation, Graduate School of Science, Kyoto University, Japan: Transcriptional induction of XBP1 pre-mRNA by the ATF6 pathway is crucial for activation of the IRE1-XBP1 pathway in mammalian ER stress response.

Yoshida, T., Urushida, Y., Iizuka, R., Maruyama, T., Yoshida, M., Dept. of Biotechnology and Life Sciences, Tokyo University of Agriculture and Technology; Marine Biotechnology Institute Co., Ltd., Iwate, Dept. of Marine Ecosystems Research, Japan Marine Science and Technology Center, Yokosuka: Closure of the built-in lid in archaeal group II chaperonin is triggered by ATP binding.

Yun, B.-G., Huang, W., Leach, N., Harston, S.D., Matts, R.L., Dept. of Biochemistry and Molecular Biology, Oklahoma State University, Stillwater: Novobiocin induces a distinct conformation of Hsp90 and alters Hsp90-chaperone-client interactions.

Zako, T., Nomura, T., Iizuka, R., Ueno, T., Funatsu, T., Yoshida, M., Dept. of Biotechnology and Life Science, Tokyo University of Agriculture and Technology; Dept. of Physics, School of Science and Technology, Waseda University, Japan: Kinetic analysis of interactions between archaean prefoldin and substrate proteins.

Zaitsman, A., Raskind, A., Feder, A., Sakamoto, W., Adam, Z., Robert H. Smith Institute of Plant Sciences and Genetics in Agriculture, Hebrew University of Jerusalem, Israel; Research Institute for Bioresources, Okayama University, Japan: The family of chloroplast FtsH protease in Arabidopsis—Expression and function.

Zhang, K., Wong, H.N., Song, B., Miller, C.N., Scheuner, D., Kaufman, R.J., Dept. of Biological Chemistry, Howard Hughes Medical Institute, University of Michigan Medical Center, Ann Arbor: The unfolded protein response—An intracellular signaling essential for B lymphopoiesis.

Zhao, R., Davey, M., Hsu, Y.-C., Kaplan, P., Tong, A., Parsons, A., Krogan, N., Cagney, G., Mai, O., Greenblatt, J., Boone, C., Emili, A., Houry, W.A., Dept. of Biochemistry, Program in Proteomics and Bioinformatics, Banff and Best Dept. of Medical Research, University of Toronto, Canada: An integrative cellular network of physical, genetic and chemical-genetic interactions of yeast Hsp90 chaperone.

Zhou, J., Xu, Z., Life Science Institute and Dept. of Biological Chemistry, University of Michigan Medical School, Ann Arbor: Structural determinants of SecB recognition by SecA in bacterial protein translation.

Zurawski, D.V., Stein, M.A., Dept. of Microbiology and Molecular Genetics, University of Vermont, Burlington: The SPI2-encoded SseA chaperone has discrete domains required for SseB stabilization and export, and binds within the C-terminus of SseB and SseD.

SATURDAY, May 8—6:00 PM
CONCERT
Grace Auditorium

Mikhail Simonyan, violinist
Alexei Podkorytov, piano

PROGRAM
Suite in Old Style
Alfred Schnittke
(b. 1934)
Sonata for Violin and Piano
Francis Poulenc
(1895-1963)
Sonata No. 3 in D Minor
Johannes Brahms
(1862-1918)

Russian violinist Mikhail Simonyan is recognized as a leading talent of his generation. He was invited to perform with the National Symphony for the Kennedy Center’s Anniversary Gala in April 2001 by nationally acclaimed conductor, Leonard Slatkin, and then again at Wolf Trap in the summer of 2002. Mikhail has also performed with the Russian National Orchestra, the Moscow Chamber Orchestra, the Jupiter Symphony, the Novosibirsk Philharmonic, and the Moscow Virtuosi led by Vladimir Spivakov. His 2004 engagements will include a solo recital debut at the Kennedy Center. He is currently living in New York and studying with Victor Danchenko.

Russian native Alexei Podkorytov began studying piano at the age of four and by seven, he had entered the Special School of Music for Children. He gave his first public performance one year later and continued to tour throughout Russia as a recital pianist and as a soloist with numerous orchestras. Mr. Podkorytov has won First Prize at the Siberian Piano Competition in Novosibirsk and received Third Prize in the International Competition in Senigallia, Italy. In 2002, Alexei soloed with the American Russian Young Artists Orchestra on its fifteenth anniversary World Tour, performing the Scriabin Piano Concerto. He is currently studying for his master’s degree at The Juilliard School of Music.

BANQUET
Cocktails 7:00 PM Dinner 7:45 PM

SATURDAY, May 9—9:00 AM
SESSION 10 CHAPERONE BIOCHEMISTRY AND PROTEIN FOLDING
Chairperson: B. Bukau, Universität Heidelberg, Germany

Bukau, B., 1 Schlieker, C., 1 Weibezahn, J., 1 Tessarz, P., 1 Tsai, F., 2 Mogk, A., 1 Universität Heidelberg, Germany; 2 Dept. of Biochemistry and Molecular Biology, Baylor College of Medicine, Houston, Texas: Substrate recognition by the AAA+ chaperone CipB.

Marpese, S., University of California, Berkeley.

Horwich, A.L., 1 Farr, G.W., 1 Ranson, N.A., 2 Sabil, H.R., 2 Fenton, W.A., 1 Motojima, F., 1 Howard Hughes Medical Institute, Dept. of Genetics, Yale University School of Medicine, New Haven, Connecticut; 2 Dept. of Crystallography, Birkbeck College, London, United Kingdom: Folding triggered at GroEL—a “power stroke” of apical domain movement driven by ATP/GroES binding overcomes a load imposed by substrate polypeptide on the apical domains.

Shewmaker, F., 1,2 Kerner, M.J., 3 Hayter-Hartl, M., 3 Klein, G., 2 Georgopoulos, C., 2 Landry, S.J., 1 Dept. of Biochemistry, Tulane University Health Sciences Center, New Orleans, Louisiana; 3 Département de Biochimie Médicale, University of Geneva, Switzerland; 4 Dept. of Cellular Biochemistry, Max-Planck Institut für Biochemie, Martinsried, Germany: A mobile loop order-disorder transition modulates the speed of chaperonin cycling.

Lin, Z., Rye, H.S., Dept. of Molecular Biology, Princeton University, New Jersey: Expansion and compression of a protein folding intermediate by GroEL.
Ludlam, A.V., Moore, B.A., Xu, Z., Dept. of Biochemistry, Life Sciences Institute, University of Michigan, Ann Arbor: Crystal structure of the bacterial ribosome bound chaperone trigger factor at 2.5 Ångstrom resolution.

Lee, S., Sowa, M.E., Watanabe, Y.-h., Yoshida, M., Tsai, F.T.F., Verna and Marrs McLean Dept. of Biochemistry and Molecular Biology, Baylor College of Medicine, Houston, Texas; Chemical Resources Laboratory, Tokyo Institute of Technology, Japan: The structure of ClpB—A molecular chaperone that rescues proteins from an aggregated state.