

**Invited speakers and selected abstracts for oral communications
in the preliminary ProStab2012's Scientific Program**

Session 1 | Folding, thermodynamic stability and dynamics (Protein folding/unfolding; Thermodynamic stability and dynamics)

K.1 Helena Santos, T. M. Pais, M. Matzapetakis, P. Lamosa, D. L. Turner (Instituto de Tecnologia Química e Biológica, Universidade Nova de Lisboa, Oeiras, Portugal) ***"Protein Stabilization by Osmolytes of Hyperthermophiles: the Effect of Mannosylglycerate on Protein Dynamics"***.

O1.1 Yaakov Levy (Dept. Of Structural Biology, Weizmann Institute of Science, Israel) ***"The effect of post-translational modifications on protein biophysics: A close look at thermodynamic (de)stabilization"***.

O1.2 Osato Miyawaki (Department of Food Science, Ishikawa Prefectural University, 1-308 Suematsu, Nonoich, Ishikawa, Japan) ***"Thermodynamic analysis of protein stability in terms of water activity"***.

O1.3 N.B. Loughran, M.J. O'Connell, B. O'Connor, Ciaran Ó'Fágain (School of Biotechnology, Dublin City University, Ireland) ***"Stability Properties of an Ancient Plant Peroxidase"***.

O1.4 Jianxing Song (Department of Biological Sciences/Department of Biochemistry, National University of Singapore; Singapore) ***"Dark Mediators" of Proteins: Ubiquitous Anion Binding to Proteins with High Selectivity and Affinity"***.

O1.5 Paul G. Furtmüller, S. Banerjee, J. Stampler, C. Obinger (Division of Biochemistry, Department of Chemistry, VIBT-Vienna Institute of BioTechnology, BOKU-University of Natural Resources and Life Sciences, Vienna, Austria) ***"Mammalian peroxidases – versatile metalloproteins of high structural and thermal stability"***.

O1.6 Mauro Manno and V. Martorana (Institute of Biophysics (IBF), Natl. Res. Council of Italy (CNR), Palermo, Italy) ***"The Role of Alcohols in Altering Protein Stability"***.

Session2 | Methods and mechanisms for protein stabilization (Natural methods of protein stabilization; Mechanisms to stabilise existing proteins; Protein engineering)

K.2 Miguel Alcalde (Department of Biocatalysis, Institute of Catalysis, CSIC, Madrid, Spain) *“Directed evolution and semi-rational approaches for the stabilization of the ligninolytic consortium”*.

02.1 J. Strafford, P. Payongsri, R.R.F. Jahromi, P. Morris, R.J. Martinez-Torres, E.G. Hibbert, S.S. Bath, D. Steadman, M.E.B. Smith, J.M. Ward, H.C. Hailes and Paul.A. Dalby (Department of Biochemical Engineering, University College London, UK) *“Effect of solvent, temperature and enzyme engineering on the stability of E. coli transketolase”*.

02.2 Y. Matusura, K. Ogasahara, N. Kunishima and Katsuhide Yutani (RIKEN Spring-8 Center, RIKEN Harima Institute, Sayo Japan) *“Heat-stabilization strategy due to unusual amount of charged residues in CutA1 protein from hyperthermophile, which has a denaturation temperature of nearly 150 °C”*.

02.3 Zbynek Prokop; T. Koudelakova; V. Stepankova; R. Chaloupkova; E. Chovancova; J. Brezovsky, A. Gora and J. Damborsky (Loschmidt Laboratories, Department of Experimental Biology and Centre for Toxic Compounds in the Environment, Masaryk University, Brno, Czech) *“Novel concept of protein stabilization: Engineering of tunnels”*.

02.4 A.M. Vidal, S. Aguila, M. Ayala and Rafael Vazquez-Duhalt (Instituto de Biotecnología, Universidad Nacional Autónoma de México) *“Rational stabilization of bacterial CYP against hydrogen peroxide inactivation”*.

02.5 Tom Desmet; A. Cerdobbel; K. De Winter; W. Soetaert (Centre for Industrial Biotechnology and Biocatalysis, Ghent University, Belgium) *“Engineering the thermostability of sucrose phosphorylase”*.

02.6 Gabriel Ortega; A. Laín; X. Tadeo; B. López-Méndez, D. Castaño and O. Millet (CIC bioGUNE, Bilbao, Spain) *“On the mechanism of halophilic enzyme activation induced by salts”*.

02.7 Q.A.T. Le, J.C. Joo, Y.J. Yoo and Yong Hwan Kim (Department of Chemical Engineering, Kwangwoon University, Seoul 139-701, Republic of Korea) *“Development of thermostable Candida antarctica lipase B through novel in-silico design of disulfide bridge”*.

02.8 Ossi Turunen (Department of Biotechnology and Chemical Technology, Aalto University, Espoo, Finland) *“Thermostabilization of GH-11 xylanases”*.

02.9 Vladimir I. Tishkov, A.A. Poloznikov, A.P. Orlov, D.M. Hushpulia, T.A. Chubar and I.G. Gazaryan (Department of Chemical Enzymology, Chemistry Faculty, M.V. Lomonosov Moscow State University; Russian Federation) *“Mutant horseradish and tobacco peroxidases with improved thermal and operational stability”*.

Session3 | Protein-environment interactions (Protein-water interactions; Protein-organic solvents interactions; Protein-carbohydrates interactions; Protein-protein interactions; Protein in ionic liquids; Industrial Applications; Food Industry and Bioreactive Coatings)

K.3 Marco Malten, F.W. Rasmussen, A. Svendsen, L. De Maria, M. Berggård Silow, L. Munch Mikkelsen, H. Philbert Nielsen, M. Bjørnvad, T. Vedel Borchert (Novozymes A/S, Krogshøjvej, Denmark) ***“Protein Stability seen from an industrial enzyme producer”***.

O3.1 Robert J. Falconer; C. Chan; K. Hughes; T.P. Munro (University of Sheffield, Department of Chemical and Biological Engineering, Sheffield, UK) ***“Stabilization of a monoclonal IgG using amino acid excipients”***.

O3.2 Gustavo H.C. Varca; C.C. Ferraz; N.M. Esteves-Pedro; P.S. Lopes; M.B. Mathor; A.B.Lugão (Nuclear and Energy Research Institute, São Paulo, Brazil) ***“Stabilization of papain by cyclic oligosaccharides: Influence of B-CD and B-derivatives over the biological properties of papain”***.

O3.3 Hörður Filippusson (University of Iceland, Science Institute, Department of Biochemistry, Reykjavík, Iceland) ***“The Effect of Chito-oligosaccharides on Protein Stability”***.

O3.4 T. Kulschewski and Juergen Pleiss (Institute of Technical Biochemistry, University of Stuttgart, Stuttgart, Germany) ***“Simulation of C. antarctica lipase B in organic solvents: the critical role of water”***.

O3.5 Hyun June Park, Young Joo Yeon and Young Je Yoo (School of Chemical and Biological Engineering, Seoul National University, Seoul, Republic of Korea) ***“Searching the penetration site and enhancing the stability of Candida antarctica Lipase B in the hydrophilic organic solvent by using molecular dynamic simulation”***.

O3.6 Irina E. Sukovataya, O.S. Sutormin, V.A. Kratasyuk (Siberian Federal University, Krasnoyarsk, Russia) ***“Stabilization of coupled enzymatic system of luminous bacteria NADH:FMN-oxidoreductase-luciferase in water-organic solvent systems”***.

Session 4 | Protein immobilization (Immobilisation of proteins; Biocatalysis; Biosensors)

K.4 J.A.Littlechild, H.Novak, C. Sayer and M. Isupov (Exeter Biocatalysis Centre, Biosciences, College of Life and Environmental Sciences, University of Exeter, Stocker Road, Exeter, UK) *“Thermostable Enzymes and Applications in Commercial Biocatalysis”*.

04.1 Fernando Lopez-Gallego, Javier Rocha-Martin & Jose M. Guisan (Institute of Catalysis and Petrochemistry (ICP-CSIC). Dpt Biocatalysis. Madrid. Spain) *“Stabilization and reactivation of immobilized thermostable enzymes”*.

04.2 Alexander Scholz, M. Ansorge-Schumacher, M. Eckstein (Technical University of Berlin, Institute of Chemistry, Department of Enzyme Technology (TC4), Berlin, Germany) *“Robust Enzyme Preparations for Stereoselective Reduction”*.

04.3 Maria Fernández-Fernández, M. A. Sanromán, J. M. Guisán, D. Moldes (Grupo de Bioprocesos, Departamento de Ingeniería Química, Universidade de Vigo, Campus Lagoas Marcosende, 36310 Vigo, Spain) *“Stability improvement of Myceliophthora thermophila laccase by the development of different immobilization methods”*.

04.4 Ulrika Tornvall and John Woodley (Process and Engineering Technology - PROCESS Dept of Chemical and Biochemical Engineering Technical University of Denmark, Building 229, 2800 Kgs. Lyngby - Denmark) *“Enzyme stability - process engineering requirements”*.

04.5 L.N. Coríci, A.E. Frissen, F. Peter, **Carmen G. Boeriu** (Wageningen UR Food & Biobased Research, Wageningen, The Netherlands) *“Efficient and stable enzyme immobilized in silica matrices for production of biologically active peptides”*.

04.6 Selim Kermasha, W. Kuldamrong and F. Husson (Department of Food Science and Agricultural Chemistry, McGill University, Ste-Anne de Bellevue, Québec, Canada) *“Stabilization of Hydroperoxide Lyase of the Enzymatic Extract from Penicillium camemberti in Neat Organic Solvent Media”*.

04.7 Torge Vorhaben, D. Böttcher, D. Jasinski, U. Menyes, V. Brüser, K. Schröder, U.T. Bornscheuer (Neoplas GmbH, Greifswald, Germany) *“Plasma-Modified Polypropylene as Carrier for the Immobilization of Candida antarctica Lipase B and Pyrobaculum calidifontis Esterase”*.

04.8 Hiroshi Uyama, M. Kashimoto, T. Tsujimoto (Department of Applied Chemistry, Graduate School of Engineering, Osaka University, Yamadaoka 2-1, Suita 565-0871, Japan) *“Enzymatic synthesis of protein-immobilizing hydrogel and its application”*.

04.9 Miguel D. Toscano (Novozymes A /S, Krogshøjvej 36, 2880 Bagsværd, Denmark) *“Engineering of cellobiose dehydrogenase for application in glucose biosensors”*.

04.10 J. de-Carvalho, L. F. M. Rosa, R. Rodrigues, B. Tomé, Brigitte and **Guilherme N.M. Ferreira** (IBB-Institute for Biotechnology and Bioengineering, Centre for Molecular and Structural Biomedicine, University of Algarve, Faro, Portugal) *“Physical Characterization of Protein-Ligand Interaction by Impedance Acoustic Waves”*.

Session 5 | Protein aggregation and formulation (Formulation development; Protein aggregation; Therapeutic proteins)

K.5 Eduardo P. Melo, N.L. Estrela, V. Ochoa-Mendes, C. Lopes, E. Tavares, J. Macedo (IBB-Institute for Biotechnology and Bioengineering, Centre for Molecular and Structural Biomedicine, University of Algarve, Faro, Portugal) ***“Protein fibrillation, osmolytes and prion diseases”***.

05.1 Marc Vanhove (Thrombogenics N.V., Gaston Geenslaan 1, 3001 Leuven, Belgium) ***“Ocriplasmin inactivation in vitreous: evidence for autolytic degradation”***.

05.2 Ulrich Roessl, Dalibor Jajcevic, Stefan Leitgeb, Bernd Nidetzky (Research Center Pharmaceutical Engineering GmbH, Graz, Austria) ***“Investigating Freeze and Thaw Behavior of Protein Solutions using a Lab-Scale Freezing Container”***.

05.3 Monica Mueller, M. Loh, D. Tee, M. Bardor, A. B. Choo, P. Gagnon, A. Jungbauer (Bioprocessing Technology Institute, ASTAR, Singapore, Singapore) ***“Increasing thermodynamic and kinetic stability for long term storage of antibodies by excipients”***.

05.4 Gordana Wozniak-Knopp, Johannes Stadlmann and Florian Rümer (Department of Biotechnology, University of Natural Resources and Life Sciences, Vienna, Christian Doppler Laboratory for Antibody Engineering, Vienna, Austria) ***“Stabilisation of the Fc fragment of human IgG1 by engineered intradomain disulfide bonds”***.

05.5 M.W. Traxlmayr, M. Faissner, C. Hasenhindl, M. Hackl, G. Stadlmayr, F. Rümer and C. Obinger (Christian Doppler Laboratory for Antibody Engineering, Vienna Institute of BioTechnology, BOKU – University of Natural Resources and Life Sciences, Vienna, Austria) ***“Stability engineering of IgG1-Fc and construction of a ‘protein stability landscape’ by high throughput sequencing”***

05.6 Patricia F.N. Faísca, H. Kroboth, S. G. Estácio, E.I. Shakhnovich (Centro de Física da Matéria Condensada, Faculdade de Ciências da Universidade de Lisboa, Portugal) ***“Identification and structural characterization of a conserved aggregation-prone intermediate in the folding pathways of spc-SH3 amyloidogenic variants”***.