

Review

- 550 **Peptide Identification by Tandem Mass Spectrometry with Alternate Fragmentation Modes**
[S] *Adrian Guthals and Nuno Bandeira*

Research

- 558 **Life and Death of Proteins: A Case Study of Glucose-starved *Staphylococcus aureus***
[S] *Stephan Michalik, Jörg Bernhardt, Andreas Otto, Martin Moche, Dörte Becher, Hanna Meyer, Michael Lalk, Claudia Schurmann, Rabea Schlüter, Holger Kock, Ulf Gerth, and Michael Hecker*
- 571 **N-glycosylation of Colorectal Cancer Tissues**
[S] % *A liquid chromatography and mass spectrometry-based investigation*
Crina I. A. Balog, Kathrin Stavenhagen, Wesley L. J. Fung, Carolien A. Koeleman, Liam A. McDonnell, Aswin Verhoeven, Wilma E. Mesker, Rob A. E. M. Tollenaar, André M. Deelder, and Manfred Wuhrer
- 586 **Proteomics-based Dissection of Human Endoderm Progenitors by Differential Cell Capture on Antibody Array**
[S] *Revital Sharivkin, Michael D. Walker, and Yoav Soen*
- 596 **Direct Detection of Bacterial Protein Secretion Using Whole Colony Proteomics**
[S] % *Matthew M. Champion, Emily A. Williams, George M. Kennedy, and Patricia A. DiGiuseppe Champion*
- 605 **Morphine Produces Immunosuppressive Effects in Nonhuman Primates at the Proteomic and Cellular Levels**
[S] *Joseph N. Brown, Gabriel M. Ortiz, Thomas E. Angel, Jon M. Jacobs, Marina Gritsenko, Eric Y. Chan, David E. Purdy, Robert D. Murnane, Kay Larsen, Robert E. Palermo, Anil K. Shukla, Theresa R. Clauss, Michael G. Katze, Joseph M. McCune, and Richard D. Smith*
- 619 **Precision, Proteome Coverage, and Dynamic Range of Arabidopsis Proteome Profiling Using ¹⁵N Metabolic Labeling and Label-free Approaches**
[S] *Borjana Arsova, Henrik Zauber, and Waltraud X. Schulze*
- 629 **Chemical Visualization of Phosphoproteomes on Membrane**
[S] *Anton Iliuk, X. Shawn Liu, Liang Xue, Xiaoqi Liu, and W. Andy Tao*
- 640 **Chemical Punch Packed in Venoms Makes Centipedes Excellent Predators**
[S] *Shilong Yang, Zhonghua Liu, Yao Xiao, Yuan Li, Mingqiang Rong, Songping Liang, Zhiye Zhang, Haining Yu, Glenn F. King, and Ren Lai*
- 651 **Phosphosignature Predicts Dasatinib Response in Non-small Cell Lung Cancer**
[S] *Martin Klammer, Marc Kaminski, Alexandra Zedler, Felix Oppermann, Stephanie Blencke, Sandra Marx, Stefan Müller, Andreas Tebbe, Klaus Godl, and Christoph Schaab*

On the cover: This map ER chaperone interactions was assembled using an ER-localized yeast two-hybrid system, ER-specific affinity purifications, and FLAG-tagged co-IPs followed by mass spectrometry. The interaction between ERp72 and cyclophilin B (green edge) was further defined by NMR and mutagenesis (inset). Background: A live HeLa cell expressing GFP-tagged cyclophilin B. For details, see article by Gregor Jansen, *et al.*, pages 710–723.

- 669 **Identification of New Autoantigens for Primary Biliary Cirrhosis Using Human Proteome Microarrays**
 [S] *Chao-Jun Hu, Guang Song, Wei Huang, Guo-Zhen Liu, Chui-Wen Deng, Hai-Pan Zeng, Li Wang, Feng-Chun Zhang, Xuan Zhang, Jun Seop Jeong, Seth Blackshaw, Li-Zhi Jiang, Heng Zhu, Lin Wu, and Yong-Zhe Li*
- 681 **Proteomic Profiling of the Planarian *Schmidtea mediterranea* and Its Mucous Reveals Similarities with Human Secretions and Those Predicted for Parasitic Flatworms**
 [S] *Donald G. Bocchinfuso, Paul Taylor, Eric Ross, Alex Ignatchenko, Vladimir Ignatchenko, Thomas Kislinger, Bret J. Pearson, and Michael F. Moran*
- 692 **Quantitative Proteomic Analysis of Type III Secretome of Enteropathogenic *Escherichia coli* Reveals an Expanded Effector Repertoire for Attaching/Effacing Bacterial Pathogens**
 [S] *Wanyin Deng, Hong B. Yu, Carmen L. de Hoog, Nikolay Stoyanov, Yuling Li, Leonard J. Foster, and B. Brett Finlay*
- 710 **An Interaction Map of Endoplasmic Reticulum Chaperones and Foldases**
 [S] *Gregor Jansen, Pekka Määttänen, Alexey Y. Denisov, Leslie Scarffe, Babette Schade, Haouaria Balghi, Kurt Dejgaard, Leanna Y. Chen, William J. Muller, Kalle Gehring, and David Y. Thomas*
- 724 **Rapid Phosphoproteomic and Transcriptomic Changes in the Rhizobia-legume Symbiosis**
 [S] *Christopher M. Rose, Muthusubramanian Venkateshwaran, Jeremy D. Volkening, Paul A. Grimsrud, Junko Maeda, Derek J. Bailey, Kwanghyun Park, Maegen Howes-Podoll, Désirée den Os, Li Huey Yeun, Michael S. Westphall, Michael R. Sussman, Jean-Michel Ané, and Joshua J. Coon*
- 745 **Use of Kinase Inhibitors to Correct Δ F508-CFTR Function**
 [S] *Agata M. Trzcińska-Daneluti, Leo Nguyen, Chong Jiang, Christopher Fladd, David Uehling, Michael Prakesch, Rima Al-awar, and Daniela Rotin*
- 758 **Isolation and Proteomic Characterization of the Mouse Sperm Acrosomal Matrix**
 [S] *Benoit Guyonnet, Masoud Zabet-Moghaddam, Susan SanFrancisco, and Gail A. Cornwall*
- 775 **Endo- β -N-acetylglucosaminidases from Infant Gut-associated Bifidobacteria Release Complex N-glycans from Human Milk Glycoproteins**
 [S] *Daniel Garrido, Charles Nwosu, Santiago Ruiz-Moyano, Danielle Aldredge, J. Bruce German, Carlito B. Lebrilla, and David A. Mills*

Technological Innovation and Resources

- 786 **Broad-spectrum Four-dimensional Orthogonal Electrophoresis: A Novel Comprehensively Feasible System for Protein Complexomics Investigation**
 [S] *Xiaodong Wang, Fenjie Li, Gaoguang Song, Shuai Guo, Hui Liu, Guoqiang Chen, and Zhili Li*
- 800 **A Novel Strategy for Global Analysis of the Dynamic Thiol Redox Proteome**
 [S] *Pablo Martínez-Acedo, Estefanía Núñez, Francisco J. Sánchez Gómez, Margoth Moreno, Elena Ramos, Alicia Izquierdo-Álvarez, Elisabet Miró-Casas, Raquel Mesa, Patricia Rodríguez, Antonio Martínez-Ruiz, David García Dorado, Santiago Lamas, and Jesús Vázquez*
- 814 **Peptide Production and Decay Rates Affect the Quantitative Accuracy of Protein Cleavage Isotope Dilution Mass Spectrometry (PC-IDMS)**
 [S] *Christopher M. Shuford, Ronald R. Sederoff, Vincent L. Chiang, and David C. Muddiman*
- 824 **A Mass Spectrometry Proteomics Data Management Platform**
Vagisha Sharma, Jimmy K. Eng, Michael J. MacCoss, and Michael Riffle
- 832 **Unbiased Selective Isolation of Protein N-terminal Peptides from Complex Proteome Samples Using Phospho Tagging (PTAG) and TiO₂-based Depletion**
 [S] *Geert P. M. Mommen, Bas van de Waterbeemd, Hugo D. Meiring, Gideon Kersten, Albert J. R. Heck, and Ad P. J. M. de Jong*