

Minireview

- 1773 **Maturing Glycoproteomics Technologies Provide Unique Structural Insights into the N-glycoproteome and Its Regulation in Health and Disease**
Morten Thaysen-Andersen, Nicolle H. Packer, and Benjamin L. Schulz

Research

- 1791 **Tissue-specific Proteogenomic Analysis of *Plutella xylostella* Larval Midgut Using a Multialgorithm Pipeline**
[S] *Xun Zhu, Shangbo Xie, Jean Armengaud, Wen Xie, Zhaojiang Guo, Shi Kang, Qingjun Wu, Shaoli Wang, Jixing Xia, Rongjun He, and Youjun Zhang*
- 1808 **Identification of Targets and Interaction Partners of Arginyl-tRNA Protein Transferase in the Moss *Physcomitrella patens***
[S] *Sebastian N. W. Hoernstein, Stefanie J. Mueller, Kathrin Fiedler, Marc Schuelke, Jens T. Vanselow, Christian Schuessle, Daniel Lang, Roland Nitschke, Gabor L. Igloi, Andreas Schlosser, and Ralf Reski*
- 1823 **Regulation of Platelet Derived Growth Factor Signaling by Leukocyte Common Antigen-related (LAR) Protein Tyrosine Phosphatase: A Quantitative Phosphoproteomics Study**
[S] *Adil R. Sarhan, Trushar R. Patel, Andrew J. Creese, Michael G. Tomlinson, Carina Hellberg, John K. Heath, Neil A. Hotchin, and Debbie L. Cunningham*
- 1837 **Systematic Analysis of Intracellular-targeting Antimicrobial Peptides, Bactenecin 7, Hybrid of Pleurocidin and Dermaseptin, Proline-Arginine-rich Peptide, and Lactoferricin B, by Using *Escherichia coli* Proteome Microarrays**
[S] *Yu-Hsuan Ho, Pramod Shah, Yi-Wen Chen, and Chien-Sheng Chen*
- 1848 **Single Chain Antibodies as Tools to Study transforming growth factor- β -Regulated SMAD Proteins in Proximity Ligation-Based Pharmacological Screens**
[S] *Andries Blokzijl, Agata Zieba, Michael Hust, Thomas Schirrmann, Saskia Helmsing, Karin Grannas, Ellen Hertz, Anita Moren, Lei Chen, Ola Söderberg, Aristidis Moustakas, Stefan Dübel, and Ulf Landegren*
- 1857 **Evidence for Differential Glycosylation of Trophoblast Cell Types**
[S] *Qiushi Chen, Poh-Choo Pang, Marie E. Cohen, Mark S. Longtine, Danny J. Schust, Stuart M. Haslam, Sandra M. Blois, Anne Dell, and Gary F. Clark*
- 1867 **Human Leukocyte Antigen (HLA) B27 Allotype-Specific Binding and Candidate Arthritogenic Peptides Revealed through Heuristic Clustering of Data-independent Acquisition Mass Spectrometry (DIA-MS) Data**
[S] *Ralf B. Schittenhelm, Saranjah Sivanewaran, Terry C. C. Lim Kam Sian, Nathan P. Croft, and Anthony W. Purcell*

On the cover: In this 3D model, a H3 Hemagglutinin (HA) trimeric head group is seen interacting with the trimeric neck and carbohydrate recognition domain of recombinant human Surfactant Protein-D (SP-D), shown in red. Red spheres represent calcium atoms in SP-D binding site. A single HA protomer in the trimer is shown in dark grey. Modeling and molecular dynamics simulation studies showed that the trimeric architecture of SP-D positions it ideally for interacting with exposed high mannose N-glycans at sites Asn¹⁶⁵ (blue) and Asn²⁴⁶ (pink), on trimeric hemagglutinin. Man α residues at sites Asn²⁴⁶, Asn¹⁶⁵, and Asn²⁴⁶ on different protomers were approximately 45 Å apart, such that SP-D could bind each residue simultaneously. Mutations leading to loss of glycosylation at sites Asn¹⁶⁵ and Asn²⁴⁶, were shown to be part of an evolutionary mechanism, which allows the virus to escape capture by innate immune lectins like SP-D. For details, see the article by Kshitij Khatri, *et al.*, pages 1895–1912.

- 1877 **Adjuvant-induced Human Monocyte Secretome Profiles Reveal Adjuvant- and Age-specific Protein Signatures**
 [S] ✎
Djin-Ye Oh, David J. Dowling, Saima Ahmed, Hyungwon Choi, Spencer Brightman, Ilana Bergelson, Sebastian T. Berger, John F. Sauld, Matthew Pettengill, Alvin T. Kho, Henry J. Pollack, Hanno Steen, and Ofer Levy
- 1895 **Integrated Omics and Computational Glycobiology Reveal Structural Basis for Influenza A Virus Glycan Microheterogeneity and Host Interactions**
 [S] ✎
Kshitij Khatri, Joshua A. Klein, Mitchell R. White, Oliver C. Grant, Nancy Leymarie, Robert J. Woods, Kevan L. Hartshorn, and Joseph Zaia
- 1913 **The Functions of Serine 687 Phosphorylation of Human DNA Polymerase η in UV Damage Tolerance**
 [S]
Xiaoxia Dai, Changjun You, and Yinsheng Wang
- 1921 **Drought and Recovery: Independently Regulated Processes Highlighting the Importance of Protein Turnover Dynamics and Translational Regulation in *Medicago truncatula***
 [S] ✎
David Lyon, Maria Angeles Castillejo, Vlora Mehmeti-Tershani, Christiana Staudinger, Christoph Kleemaier, and Stefanie Wienkoop
- 1938 **Comparison of the Proteome of Adult and Cord Erythroid Cells, and Changes in the Proteome Following Reticulocyte Maturation**
 [S]
Marieangela C. Wilson, Kongtana Trakarnsanga, Kate J. Heesom, Nicola Cogan, Carole Green, Ashley M. Toye, Steve F. Parsons, David J. Anstee, and Jan Frayne
- 1947 **Assembly Dynamics and Stoichiometry of the Apoptosis Signal-regulating Kinase (ASK) Signalosome in Response to Electrophile Stress**
 [S]
Joel D. Federspiel, Simona G. Codreanu, Amy M. Palubinsky, Ama J. Winland, Carlos Morales Betanzos, BethAnn McLaughlin, and Daniel C. Liebler
- 1962 **Delineation of Molecular Pathways Involved in Cardiomyopathies Caused by Troponin T Mutations**
 [S]
Jennifer E. Gilda, Xianyin Lai, Frank A. Witzmann, and Aldrin V. Gomes
- 1982 **Contribution of Human Fibroblasts and Endothelial Cells to the Hallmarks of Inflammation as Determined by Proteome Profiling**
 [S]
Astrid Slany, Andrea Bileck, Dominique Kreutz, Rupert L. Mayer, Besnik Muqaku, and Christopher Gerner
- 1998 **Intact Cell MALDI-TOF MS on Sperm: A Molecular Test For Male Fertility Diagnosis**
 [S]
Laura Soler, Valérie Labas, Aurore Thélie, Isabelle Grasseau, Ana-Paula Teixeira-Gomes, and Elisabeth Blesbois
- 2011 **Proteomic Insight Reveals Elevated Levels of Albumin in Circulating Immune Complexes in Diabetic Plasma**
 [S]
Shweta Bhat, Mashanipalya G. Jagadeeshaprasad, Yugendra R. Patil, Mahemud L. Shaikh, Bhaskaran S. Regin, Viswanathan Mohan, Ashok P. Giri, Muthuswamy Balasubramanyam, Ramanamurthy Boppana, and Mahesh J. Kulkarni
- 2021 **Global Proteomic Analysis Reveals an Exclusive Role of Thylakoid Membranes in Bioenergetics of a Model Cyanobacterium**
 [S]
Michelle Liberton, Rajib Saha, Jon M. Jacobs, Amelia Y. Nguyen, Marina A. Gritsenko, Richard D. Smith, David W. Koppelaar, and Himadri B. Pakrasi
- 2033 **Proteomic Identification of Putative MicroRNA394 Target Genes in *Arabidopsis thaliana* Identifies Major Latex Protein Family Members Critical for Normal Development**
 [S]
Celso G. Litholdo Jr., Benjamin L. Parker, Andrew L. Eamens, Martin R. Larsen, Stuart J. Cordwell, and Peter M. Waterhouse
- 2048 **N-Glycopeptide Profiling in *Arabidopsis* Inflorescence**
 [S]
Shou-Ling Xu, Katalin F. Medzihradzsky, Zhi-Yong Wang, Alma L. Burlingame, and Robert J. Chalkley

- 2055 **Nucleolar Enrichment of Brain Proteins with Critical Roles in Human Neurodevelopment**
 [S] *Lukasz P. Slomnicki, Agata Malinowska, Michal Kistowski, Antoni Palusinski, Jing-Juan Zheng, Mari Sepp, Tonis Timmusk, Michal Dadlez, and Michal Hetman*
- 2076 **Nuclear Phosphoproteomic Screen Uncovers ACLY as Mediator of IL-2-induced Proliferation of CD4⁺ T lymphocytes**
 [S] *Nerea Osinalde, Jone Mitxelena, Virginia Sánchez-Quiles, Vyacheslav Akimov, Kerman Aloria, Jesus M. Arizmendi, Ana M. Zubiaga, Blagoy Blagoev, and Irina Kratchmarova*
- 2093 **Dynamics of Protein Expression Reveals Primary Targets and Secondary Messengers of Estrogen Receptor Alpha Signaling in MCF-7 Breast Cancer Cells**
 [S] *Andrei P. Drabovich, Maria P. Pavlou, Christina Schiza, and Eleftherios P. Diamandis*
- 2108 **ROS Homeostasis Regulates Somatic Embryogenesis *via* the Regulation of Auxin Signaling in Cotton**
 [S] ✎ *Ting Zhou, Xiyang Yang, Kai Guo, Jinwu Deng, Jiao Xu, Wenhui Gao, Keith Lindsey, and Xianlong Zhang*
- 2125 **Comprehensively Characterizing the Thioredoxin Interactome *In Vivo* Highlights the Central Role Played by This Ubiquitous Oxidoreductase in Redox Control**
 [S] *Isabelle S. Arts, Didier Vertommen, Francesca Baldin, Géraldine Laloux, and Jean-François Collet*
- 2141 **Structural and Nonstructural Viral Proteins Are Targets of T-Helper Immune Response against Human Respiratory Syncytial Virus**
 [S] *Elena Lorente, Alejandro Barriga, Eilon Barnea, Carmen Mir, John A. Gebe, Arie Admon, and Daniel López*
- 2152 **Standardized Profiling of The Membrane-Enriched Proteome of Mouse Dorsal Root Ganglia (DRG) Provides Novel Insights Into Chronic Pain**
 [S] *Tom Rouwette, Julia Sondermann, Luca Avenali, David Gomez-Varela, and Manuela Schmidt*
- 2169 **Molecular Signatures of Membrane Protein Complexes Underlying Muscular Dystrophy**
 [S] ✎ *Rolf Turk, Jordy J. Hsiao, Melinda M. Smits, Brandon H. Ng, Tyler C. Pospisil, Kayla S. Jones, Kevin P. Campbell, and Michael E. Wright*

Technological Innovation and Resources

- 2186 **Quantitative Tagless Copurification: A Method to Validate and Identify Protein-Protein Interactions**
 [S] ✎ *Maxim Shatsky, Ming Dong, Haichuan Liu, Lee Lisheng Yang, Megan Choi, Mary E. Singer, Jil T. Geller, Susan J. Fisher, Steven C. Hall, Terry C. Hazen, Steven E. Brenner, Gareth Butland, Jian Jin, H. Ewa Witkowska, John-Marc Chandonia, and Mark D. Biggin*
- 2203 **Formalin-Fixed, Paraffin-Embedded Tissues (FFPE) as a Robust Source for the Profiling of Native and Protease-Generated Protein Amino Termini**
 [S] *Zon Weng Lai, Juliane Weisser, Lars Nilse, Fabrizio Costa, Eva Keller, Martina Tholen, Jayachandran N. Kizhakkedathu, Martin Biniossek, Peter Bronsert, and Oliver Schilling*

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