

Editorial

1 Your technological advances belong here

Mini Review

2 **Analysis of Mammalian O-Glycopeptides—We Have Made a Good Start, but There is a Long Way to Go**
[S] Zsuzsanna Darula and Katalin F. Medzihradzsky

Research

18 **Quantitative Profiling of N-linked Glycosylation Machinery in Yeast *Saccharomyces cerevisiae***
[S] Kristina Poljak, Nathalie Selevsek, Elsy Ngwa, Jonas Grossmann, Marie Estelle Losfeld, and Markus Aebi

31 **A Comparative Proteome Profile of Female Mouse Gonads Suggests a Tight Link between the Electron Transport Chain and Meiosis Initiation**
[S] Cong Shen, Mingrui Li, Pan Zhang, Yueshuai Guo, Hao Zhang, Bo Zheng, Hui Teng, Tao Zhou, Xuejiang Guo, and Ran Huo

43 **Quantitative Proteomic Profiling Reveals Novel *Plasmodium falciparum* Surface Antigens and Possible Vaccine Candidates**
[S] Sandra K. Nilsson Bark, Rushdy Ahmad, Kathleen Dantzler, Amanda K. Lukens, Mariana De Niz, Matthew J. Szucs, Xiaoying Jin, Joanne Cotton, Dietmar Hoffmann, Eva Bric-Furlong, Ray Oomen, Mark Parrington, Dan Milner, Daniel E. Neafsey, Steven A. Carr, Dyann F. Wirth, and Matthias Marti

61 **Quantitative Phosphoproteomic Analysis Reveals Shared and Specific Targets of *Arabidopsis* Mitogen-Activated Protein Kinases (MAPKs) MPK3, MPK4, and MPK6**
[S] Naganand Rayapuram, Jean Bigeard, Hanna Alhoraibi, Ludovic Bonhomme, Anne-Marie Hesse, Joëlle Vinh, Heribert Hirt, and Delphine Pflieger

81 **The Early Dendritic Cell Signaling Induced by Virulent *Francisella tularensis* Strain Occurs in Phases and Involves the Activation of Extracellular Signal-Regulated Kinases (ERKs) and p38 In the Later Stage**
[S] Ivo Fabrik, Marek Link, Daniela Putzova, Lenka Plizakova, Zuzana Lubovska, Vlada Philimonenko, Ivona Pavkova, Pavel Rehulka, Zuzana Krocova, Pavel Hozak, Marina Santic, and Jiri Stulik

95 **Characterization of the Molecular Mechanisms Underlying Glucose Stimulated Insulin Secretion from Isolated Pancreatic β -cells Using Post-translational Modification Specific Proteomics (PTMomics)**
[S] Taewook Kang, Pia Jensen, Honggang Huang, Gitte Lund Christensen, Nils Billestrup, and Martin R. Larsen

On the cover: Exploring the mechanisms of glucose-stimulated insulin secretion with advanced omics technologies. We aimed at identifying novel signaling pathways involved in the initial release of insulin from pancreatic β -cells after glucose stimulation using iTRAQ-labeling combined with enrichment of phosphorylated peptides and formerly sialylated N-linked glycopeptides and high-accuracy mass spectrometry. Protein phosphorylation, alteration in sialylated N-linked glycosylation was observed on a number of surface proteins. The proteins important for cell-cell interaction, cell movement, cell-ECM interaction and Focal Adhesion were found regulated at the level of sialylation, but not in protein expression. This comprehensive PTMomics analysis will be useful to help further decipher the molecular networks underlying the temporal regulation of insulin secretion. For details see the article by Taewook Kang, *et al*, pages 95–110.

- 111 **A Global Survey of ATPase Activity in *Plasmodium falciparum* Asexual Blood Stages and Gametocytes**
[S] *Corrie Ortega, Andrew Frando, Bobbie-Jo Webb-Robertson, Lindsey N. Anderson, Neil Fleck, Erika L. Flannery, Matthew Fishbaugher, Taylor A. Murphree, Joshua R. Hansen, Richard D. Smith, Stefan H. I. Kappe, Aaron T. Wright, and Christoph Grundner*
- 121 **O-Glycome Beam Search Arrays for Carbohydrate Ligand Discovery**
[S] * *Zhen Li, Chao Gao, Yibing Zhang, Angelina S. Palma, Robert A. Childs, Lisete M. Silva, Yang Liu, Xi Jiang, Yan Liu, Wengang Chai, and Ten Feizi*
- 134 **Novel Sarcopenia-related Alterations in Sarcomeric Protein Post-translational Modifications (PTMs) in Skeletal Muscles Identified by Top-down Proteomics**
[S] *Liming Wei, Zachery R. Gregorich, Ziqing Lin, Wenxuan Cai, Yutong Jin, Susan H. McKiernan, Sean McIlwain, Judd M. Aiken, Richard L. Moss, Gary M. Diffie, and Ying Ge*
- 146 **Integrated Proteomic and Transcriptomic Analysis Reveals Long Noncoding RNA HOX Transcript Antisense Intergenic RNA (HOTAIR) Promotes Hepatocellular Carcinoma Cell Proliferation by Regulating Opioid Growth Factor Receptor (OGFr)**
[S] *Ying Wu, Qian Xiong, Siting Li, Xue Yang, and Feng Ge*
- 160 **Diverse Peptide Hormones Affecting Root Growth Identified in the *Medicago truncatula* Secreted Peptidome**
[S] *Neha Patel, Nadiatul A. Mohd-Radzman, Leo Corcilius, Ben Crossett, Angela Connolly, Stuart J. Cordwell, Ariel Ivanovici, Katia Taylor, James Williams, Steve Binos, Michael Mariani, Richard J. Payne, and Michael A. Djordjevic*
- 175 **Single Cell Immuno-Laser Microdissection Coupled to Label-Free Proteomics to Reveal the Proteotypes of Human Brain Cells After Ischemia**
[S] *Teresa García-Berrocoso, Víctor Llombart, Laura Colàs-Campàs, Alexandre Hainard, Virginie Licker, Anna Penalba, Laura Ramiro, Alba Simats, Alejandro Bustamante, Elena Martínez-Saez, Francesc Canals, Jean-Charles Sanchez, and Joan Montaner*

AUTHOR INDEX

- Aebi, Markus, 18
Ahmad, Rushdy, 43
Aiken, Judd M., 134
Alhoraibi, Hanna, 61
Anderson, Lindsey N., 111
- Bigéard, Jean, 61
Billestrup, Nils, 95
Binos, Steve, 160
Bonhomme, Ludovic, 61
Bric-Furlong, Eva, 43
Bustamante, Alejandro, 175
- Cai, Wenxuan, 134
Canals, Francesc, 175
Carr, Steven A., 43
Chai, Wengang, 121
Childs, Robert A., 121
Colàs-Campàs, Laura, 175
Connolly, Angela, 160
Corcilius, Leo, 160
Cordwell, Stuart J., 160
Cotton, Joanne, 43
Crossett, Ben, 160
- Dantzler, Kathleen, 43
Darula, Zsuzsanna, 2
De Niz, Mariana, 43
Diffie, Gary M., 134
Djordjevic, Michael A., 160
- Estelle Losfeld, Marie, 18
- Fabrik, Ivo, 81
Feizi, Ten, 121
Fishbaugher, Matthew, 111
Flannery, Erika L., 111
Fleck, Neil, 111
Frando, Andrew, 111
- Gao, Chao, 121
García-Berrocoso, Teresa, 175
Ge, Feng, 146
Ge, Ying, 134
Gregorich, Zachery R., 134
Grossmann, Jonas, 18
Grundner, Christoph, 111
Guo, Xuejiang, 31
Guo, Yueshuai, 31
- Hainard, Alexandre, 175
Hansen, Joshua R., 111
Hesse, Anne-Marie, 61
Hirt, Heribert, 61
Hoffmann, Dietmar, 43
- Hozak, Pavel, 81
Huang, Honggang, 95
Huo, Ran, 31
- Ivanovici, Ariel, 160
- Jensen, Pia, 95
Jiang, Xi, 121
Jin, Xiaoying, 43
Jin, Yutong, 134
- Kang, Taewook, 95
Kappe, Stefan H. I., 111
Krocova, Zuzana, 81
- Larsen, Martin R., 95
Licker, Virginie, 175
Link, Marek, 81
Lin, Ziqing, 134
Liu, Yan, 121
Liu, Yang, 121
Li, Mingrui, 31
Li, Siting, 146
Li, Zhen, 121
Llombart, Victor, 175
Lubovska, Zuzana, 81
Lukens, Amanda K., 43
Lund Christensen, Gitte, 95
- Mariani, Michael, 160
Marti, Matthias, 43
Martínez-Saez, Elena, 175
McIlwain, Sean, 134
McKiernan, Susan H., 134
Medzihradsky, Katalin F., 2
Milner, Dan, 43
Mohd-Radzman, Nadiatul A., 160
Montaner, Joan, 175
Moss, Richard L., 134
Murphree, Taylor A., 111
- Neafsey, Daniel E., 43
Ngwa, Elsy, 18
Nilsson Bark, Sandra K., 43
- Oomen, Ray, 43
Ortega, Corrie, 111
- Palma, Angelina S., 121
Parrington, Mark, 43
Patel, Neha, 160
Pavkova, Ivona, 81
Payne, Richard J., 160
Penalba, Anna, 175
Pflieger, Delphine, 61

Philimonenko, Vlada, 81
Plzakova, Lenka, 81
Poljak, Kristina, 18
Putzova, Daniela, 81

Ramiro, Laura, 175
Rayapuram, Naganand, 61
Rehulka, Pavel, 81

Sanchez, Jean-Charles, 175
Santic, Marina, 81
Selevsek, Nathalie, 18
Shen, Cong, 31
Silva, Lisete M., 121
Simats, Alba, 175
Smith, Richard D., 111
Stulik, Jiri, 81
Szucs, Matthew J., 43

Taylor, Katia, 160
Teng, Hui, 31

Vinh, Joëlle, 61

Webb-Robertson, Bobbie-Jo, 111
Wei, Liming, 134
Williams, James, 160
Wirth, Dyann F., 43
Wright, Aaron T., 111
Wu, Ying, 146

Xiong, Qian, 146

Yang, Xue, 146

Zhang, Hao, 31
Zhang, Pan, 31
Zhang, Yibing, 121
Zheng, Bo, 31
Zhou, Tao, 31