

Editorial

- 2381 **Western Blots versus Selected Reaction Monitoring Assays: Time to Turn the Tables?**
⌘ *Ruedi Aebersold, Alma L. Burlingame, and Ralph A. Bradshaw*

Review

- 2383 **Combining Results of Multiple Search Engines in Proteomics**
[S] *David Shteynberg, Alexey I. Nesvizhskii, Robert L. Moritz, and Eric W. Deutsch*

Research

- 2394 **Quantitative Proteomics Reveals the Induction of Mitophagy in Tumor Necrosis Factor- α -activated (TNF α) Macrophages**
[S] *Christina Bell, Luc English, Jonathan Boulais, Magali Chemali, Olivier Caron-Lizotte, Michel Desjardins, and Pierre Thibault*
- 2408 **A Combined Approach of Quantitative Interaction Proteomics and Live-cell Imaging Reveals a Regulatory Role for Endoplasmic Reticulum (ER) Reticulon Homology Proteins in Peroxisome Biogenesis**
[S] *Christine David, Johannes Koch, Silke Oeljeklaus, Alexandra Laernsack, Sophie Melchior, Sebastian Wiese, Andreas Schummer, Ralf Erdmann, Bettina Warscheid, and Cécile Brocard*
- 2426 **Modification of the Secretion Pattern of Proteases, Inflammatory Mediators, and Extracellular Matrix Proteins by Human Aortic Valve is Key in Severe Aortic Stenosis**
[S] *Gloria Alvarez-Llamas, Tatiana Martín-Rojas, Fernando de la Cuesta, Enrique Calvo, Felix Gil-Dones, Veronica M. Dardé, Luis F. Lopez-Almodovar, Luis R. Padial, Juan-Antonio Lopez, Fernando Vivanco, and Maria G. Barderas*
- 2440 **Proteomic Signatures of Acquired Letrozole Resistance in Breast Cancer: Suppressed Estrogen Signaling and Increased Cell Motility and Invasiveness**
[S] *Syreeta L. Tilghman, Ian Townley, Qiu Zhong, Patrick P. Carriere, Jin Zou, Shawn D. Llopis, Lynez C. Preyan, Christopher C. Williams, Elena Skripnikova, Melyssa R. Bratton, Qiang Zhang, and Guangdi Wang*
- 2456 **System-wide Analysis Reveals Intrinsically Disordered Proteins Are Prone to Ubiquitylation after Misfolding Stress**
[S] *Alex H. M. Ng, Nancy N. Fang, Sophie A. Comyn, Jörg Gsponer, and Thibault Mayor*
- 2468 **Mass Isotopomer Analysis of Metabolically Labeled Nucleotide Sugars and N- and O-Glycans for Tracing Nucleotide Sugar Metabolisms**
[S] *Kazuki Nakajima, Emi Ito, Kazuaki Ohtsubo, Ken Shirato, Rina Takamiya, Shinobu Kitazume, Takashi Angata, and Naoyuki Taniguchi*

On the cover: Quantitative proteomics analyses revealed the specific autophagic degradation of mitochondria in TNF- α activated macrophages. TNF- α induced mitophagy enabled the processing and presentation of mitochondrial antigens at the cell surface by MHC-class-I molecules. These findings highlight an unsuspected role of TNF- α in macrophage activation and expanded our understanding of the mechanisms responsible for the modification of the MHC class I peptide repertoire. For details, see the article by Christina Bell *et al.*, pages 2564–2578.

- 2481 **Profiling Protein Kinases and Other ATP Binding Proteins in Arabidopsis Using Acyl-ATP Probes**
 [S] *Joji Grace Villamor, Farnusch Kaschani, Tom Colby, Julian Oeljeklaus, David Zhao, Markus Kaiser, Matthew P. Patricelli, and Renier A. L. van der Hoorn*
- 2497 **Battle through Signaling between Wheat and the Fungal Pathogen *Septoria tritici* Revealed by Proteomics and Phosphoproteomics**
 [S] *Fen Yang, Marcella N. Melo-Braga, Martin R. Larsen, Hans J. L. Jørgensen, and Giuseppe Palmisano*
- 2509 **Consistency of the Proteome in Primary Human Keratinocytes With Respect to Gender, Age, and Skin Localization**
 [S] *Adrian Sprenger, Sebastian Weber, Mostafa Zarai, Rudolf Engelke, Juliana M. Nascimento, Christine Gretzmeier, Martin Hilpert, Melanie Boerries, Cristina Has, Hauke Busch, Leena Bruckner-Tuderman, and Jörn Dengjel*
- 2522 **Dynamic Protein Pathway Activation Mapping of Adipose-Derived Stem Cell Differentiation Implicates Novel Regulators of Adipocyte Differentiation**
Bridget Wilson, Lance A. Liotta, and Emanuel Petricoin III
- 2536 **Targeted Identification of SUMOylation Sites in Human Proteins Using Affinity Enrichment and Paralog-specific Reporter Ions**
 [S] *Frederic Lamoliatte, Eric Bonneil, Chantal Durette, Olivier Caron-Lizotte, Dirk Wildemann, Johannes Zerweck, Holger Wenshuk, and Pierre Thibault*
- 2551 **Multimolecular Analysis of Stable Immunological Synapses Reveals Sustained Recruitment and Sequential Assembly of Signaling Clusters**
 [S] *Lars Philipsen, Thomas Engels, Kerstin Schilling, Slavyana Gurbel, Klaus-Dieter Fischer, Kerry Tedford, Burkhard Schraven, Matthias Gunzer, and Peter Reichardt*
- 2568 **Targeted Identification of Glycosylated Proteins in the Gastric Pathogen *Helicobacter pylori* (Hp)**
 [S] ✎ *Kanokwan Champasa, Scott A. Longwell, Aimee M. Eldridge, Elizabeth A. Stemmler, and Danielle H. Dube*

Technological Innovation and Resources

- 2587 **The Human PDZome: A Gateway to PSD95-Disc Large-Zonula Occludens (PDZ)-mediated Functions**
 [S] ✎ *Edwige Belotti, Jolanta Polanowska, Avais M. Daulat, Stéphane Audebert, Virginie Thomé, Jean-Claude Lissitzky, Frédérique Lembo, Karim Blibek, Shizue Omi, Nicolas Lenfant, Akanksha Gangar, Mireille Montcouquiol, Marie-Josée Santoni, Michael Sebbagh, Michel Aurrand-Lions, Stéphane Angers, Laurent Kodjabachian, Jérôme Reboul, and Jean-Paul Borg*
- 2604 **High-throughput Database Search and Large-scale Negative Polarity Liquid Chromatography-Tandem Mass Spectrometry with Ultraviolet Photodissociation for Complex Proteomic Samples**
 [S] *James A. Madsen, Hua Xu, Michelle R. Robinson, Andrew P. Horton, Jared B. Shaw, David K. Giles, Tamer S. Kaoud, Kevin N. Dalby, M. Stephen Trent, and Jennifer S. Brodbelt*
- 2615 **Multiple Protein Analysis of Formalin-fixed and Paraffin-embedded Tissue Samples with Reverse phase Protein Arrays**
 [S] ✎ *Maziar Assadi, Jens Lamerz, Tiantom Jarutat, Alexandra Farfsing, Hubert Paul, Berthold Gierke, Ewa Breitingner, Markus F. Templin, Laurent Essioux, Susanne Arbogast, Miro Venturi, Michael Pawlak, Hanno Langen, and Thomas Schindler*

- 2623 S **Design, Implementation and Multisite Evaluation of a System Suitability Protocol for the Quantitative Assessment of Instrument Performance in Liquid Chromatography-Multiple Reaction Monitoring-MS (LC-MRM-MS)**
Susan E. Abbatiello, D. R. Mani, Birgit Schilling, Brendan MacLean, Lisa J. Zimmerman, Xingdong Feng, Michael P. Cusack, Nell Sedransk, Steven C. Hall, Terri Addona, Simon Allen, Nathan G. Dodder, Mousumi Ghosh, Jason M. Held, Victoria Hedrick, H. Dorota Inerowicz, Angela Jackson, Hasmik Keshishian, Jong Won Kim, John S. Lyssand, C. Paige Riley, Paul Rudnick, Pawel Sadowski, Kent Shaddox, Derek Smith, Daniela Tomazela, Asa Wahlander, Sofia Waldemarson, Corbin A. Whitwell, Jinsam You, Shucha Zhang, Christopher R. Kinsinger, Mehdi Mesri, Henry Rodriguez, Christoph H. Borchers, Charles Buck, Susan J. Fisher, Bradford W. Gibson, Daniel Liebler, Michael MacCoss, Thomas A. Neubert, Amanda Paulovich, Fred Regnier, Steven J. Skates, Paul Tempst, Mu Wang, and Steven A. Carr
- 2640 S **Comparing and Combining Capillary Electrophoresis Electrospray Ionization Mass Spectrometry and Nano-Liquid Chromatography Electrospray Ionization Mass Spectrometry for the Characterization of Post-translationally Modified Histones**
Bettina Sarg, Klaus Faserl, Leopold Kremser, Bernhard Halfinger, Roberto Sebastiano, and Herbert H. Lindner
- 2657 S **Autoantibody Profiling in Multiple Sclerosis Using Arrays of Human Protein Fragments**
Burcu Ayoglu, Anna Häggmark, Mohsen Khademi, Tomas Olsson, Mathias Uhlén, Jochen M. Schwenk, and Peter Nilsson

Additions & Corrections

- 2673 **Enhancing the Identification of Phosphopeptides from Putative Basophilic Kinase Substrates Using Ti (IV) Based IMAC Enrichment**
Houjiang Zhou, Teck Y. Low, Marco L. Hennrich, Henk van der Toorn, Thomas Schwend, Hanfa Zou, Shabaz Mohammed, and Albert J. R. Heck

AUTHOR INDEX

- Abbatiello, Susan E., 2623
Addona, Terri, 2623
Aebersold, Ruedi, 2381
Allen, Simon, 2623
Alvarez-Llamas, Gloria, 2426
Angata, Takashi, 2468
Angers, Stéphane, 2587
Arbogast, Susanne, 2615
Assadi, Maziar, 2615
Audebert, Stéphane, 2587
Aurrand-Lions, Michel, 2587
Ayoglu, Burcu, 2657
- Barderas, Maria G., 2426
Bell, Christina, 2394
Belotti, Edwige, 2587
Blibek, Karim, 2587
Boerries, Melanie, 2509
Bonneil, Eric, 2536
Borchers, Christoph H., 2623
Borg, Jean-Paul, 2587
Boulais, Jonathan, 2394
Bradshaw, Ralph A., 2381
Bratton, Melyssa R., 2440
Breitinger, Ewa, 2615
Brocard, Cécile, 2408
Brodbelt, Jennifer S., 2604
Bruckner-Tuderman, Leena, 2509
Buck, Charles, 2623
Burlingame, Alma L., 2381
Busch, Hauke, 2509
- Calvo, Enrique, 2426
Caron-Lizotte, Olivier, 2394, 2536
Carr, Steven A., 2623
Carriere, Patrick P., 2440
Champasa, Kanokwan, 2568
Chemali, Magali, 2394
Colby, Tom, 2481
Comyn, Sophie A., 2456
Cuesta, Fernando de la, 2426
Cusack, Michael P., 2623
- Dalby, Kevin N., 2604
Dardé, Veronica M., 2426
Daulat, Avais M., 2587
David, Christine, 2408
Dengjel, Jörn, 2509
Desjardins, Michel, 2394
Deutsch, Eric W., 2383
Dodder, Nathan G., 2623
Dube, Danielle H., 2568
Durette, Chantal, 2536
- Eldridge, Aimee M., 2568
Engelke, Rudolf, 2509
Engels, Thomas, 2551
English, Luc, 2394
Erdmann, Ralf, 2408
Essioux, Laurent, 2615
- Fang, Nancy N., 2456
Farfsing, Alexandra, 2615
Faserl, Klaus, 2640
Feng, Xingdong, 2623
Fischer, Klaus-Dieter, 2551
Fisher, Susan J., 2623
- Gangar, Akanksha, 2587
Ghosh, Mousumi, 2623
Gibson, Bradford W., 2623
Gierke, Berthold, 2615
Gil-Dones, Felix, 2426
Giles, David K., 2604
Gretzmeier, Christine, 2509
Gsponer, Jörg, 2456
Gunzer, Matthias, 2551
Gurbiel, Slavyana, 2551
- Häggmark, Anna, 2657
Halfinger, Bernhard, 2640
Hall, Steven C., 2623
Has, Cristina, 2509
Heck, Albert J. R., 2673
Hedrick, Victoria, 2623
Held, Jason M., 2623
Hennrich, Marco L., 2673
Hilpert, Martin, 2509
Horton, Andrew P., 2604
- Inerowicz, H. Dorota, 2623
Ito, Emi, 2468
- Jackson, Angela, 2623
Jarutat, Tiantom, 2615
Jørgensen, Hans J. L., 2497
- Kaiser, Markus, 2481
Kaoud, Tamer S., 2604
Kaschani, Farnusch, 2481
Keshishian, Hasmik, 2623
Khademi, Mohsen, 2657
Kim, Jong Won, 2623
Kinsinger, Christopher R., 2623
Kitazume, Shinobu, 2468
Koch, Johannes, 2408

Kodjabachian, Laurent, 2587
Kremser, Leopold, 2640

Laernsack, Alexandra, 2408
Lamerz, Jens, 2615
Lamoliatte, Frederic, 2536
Langen, Hanno, 2615
Larsen, Martin R., 2497
Lembo, Frédérique, 2587
Lenfant, Nicolas, 2587
Liebler, Daniel, 2623
Lindner, Herbert H., 2640
Liotta, Lance A., 2522
Lissitzky, Jean-Claude, 2587
Llopis, Shawn D., 2440
Longwell, Scott A., 2568
Lopez, Juan-Antonio, 2426
Lopez-Almodovar, Luis F., 2426
Low, Teck Y., 2673
Lyssand, John S., 2623

MacCoss, Michael, 2623
MacLean, Brendan, 2623
Madsen, James A., 2604
Mani, D. R., 2623
Martín-Rojas, Tatiana, 2426
Mayor, Thibault, 2456
Melchior, Sophie, 2408
Melo-Braga, Marcella N., 2497
Mesri, Mehdi, 2623
Mohammed, Shabaz, 2673
Montcouquiol, Mireille, 2587
Moritz, Robert L., 2383

Nakajima, Kazuki, 2468
Nascimento, Juliana M., 2509
Nesvizhskii, Alexey I., 2383
Neubert, Thomas A., 2623
Ng, Alex H. M., 2456
Nilsson, Peter, 2657

Oeljeklaus, Julian, 2481
Oeljeklaus, Silke, 2408
Ohtsubo, Kazuaki, 2468
Olsson, Tomas, 2657
Omi, Shizue, 2587

Padial, Luis R., 2426
Palmisano, Giuseppe, 2497
Patricelli, Matthew P., 2481
Paul, Hubert, 2615
Paulovich, Amanda, 2623
Pawlak, Michael, 2615
Petricoin III, Emanuel, 2522
Philipsen, Lars, 2551

Polanowska, Jolanta, 2587
Preyan, Lynez C., 2440

Reboul, Jérôme, 2587
Regnier, Fred, 2623
Reichardt, Peter, 2551
Riley, C. Paige, 2623
Robinson, Michelle R., 2604
Rodriguez, Henry, 2623
Rudnick, Paul, 2623

Sadowski, Pawel, 2623
Santoni, Marie-Josée, 2587
Sarg, Bettina, 2640
Schilling, Birgit, 2623
Schilling, Kerstin, 2551
Schindler, Thomas, 2615
Schraven, Burkhardt, 2551
Schummer, Andreas, 2408
Schwend, Thomas, 2673
Schwenk, Jochen M., 2657
Sebastiano, Roberto, 2640
Sebbagh, Michael, 2587
Sedransk, Nell, 2623
Shaddox, Kent, 2623
Shaw, Jared B., 2604
Shirato, Ken, 2468
Shteynberg, David, 2383
Skates, Steven J., 2623
Skripnikova, Elena, 2440
Smith, Derek, 2623
Sprenger, Adrian, 2509
Stemmler, Elizabeth A., 2568

Takamiya, Rina, 2468
Taniguchi, Naoyuki, 2468
Tedford, Kerry, 2551
Templin, Markus F., 2615
Tempst, Paul, 2623
Thibault, Pierre, 2394, 2536
Thomé, Virginie, 2587
Tilghman, Syreeta L., 2440
Tomazela, Daniela, 2623
Toorn, Henk van der, 2673
Townley, Ian, 2440
Trent, M. Stephen, 2604

Uhlén, Mathias, 2657

van der Hoorn, Renier A. L., 2481
Venturi, Miro, 2615
Villamor, Joji Grace, 2481
Vivanco, Fernando, 2426

Wahlander, Asa, 2623
Waldemarson, Sofia, 2623

Wang, Guangdi, 2440
Wang, Mu, 2623
Warscheid, Bettina, 2408
Weber, Sebastian, 2509
Wenshuk, Holger, 2536
Whitwell, Corbin A., 2623
Wiese, Sebastian, 2408
Wildemann, Dirk, 2536
Williams, Christopher C., 2440
Wilson, Bridget, 2522

Xu, Hua, 2604

Yang, Fen, 2497
You, Jinsam, 2623

Zarai, Mostafa, 2509
Zerweck, Johannes, 2536
Zhang, Qiang, 2440
Zhang, Shucha, 2623
Zhao, David, 2481
Zhong, Qiu, 2440
Zhou, Houjiang, 2673
Zimmerman, Lisa J., 2623
Zou, Hanfa, 2673
Zou, Jin, 2440