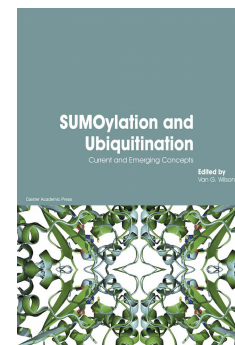


SUMOylation and Ubiquitination

Current and Emerging Concepts



Edited by: **Van G. Wilson**
Texas A&M College of Medicine, USA

Published: September 2019. **Pages:** viii + 504
ISBN: Book: 978-1-912530-12-0. Ebook: 978-1-912530-13-7 £199, \$399
Published by: Caister Academic Press www.caister.com

Most proteins undergo post-translational modifications altering physical and chemical properties, folding, conformation distribution, stability, activity and function. Ubiquitin and SUMOs are related small proteins that are members of the large ubiquitin superfamily of post-translational modifiers.

Written by highly respected leaders in their fields under the expert guidance of the editor, this volume covers the principles of ubiquitination and SUMOylation, presents detailed reviews of current and emerging concepts and highlights new advances in all areas of SUMOylation and ubiquitination. Topics of note include: the ubiquitin superfamily, the ubiquitin toolbox, onco viral exploitation of the SUMO system, small molecule modulators of desumoylation, mass spectrometry, global proteomic profiling of SUMO and ubiquitin, biotin-based approaches, genetic screening, SUMOylation networks in humans, targets for ubiquitin ligases, regulation of p53, protein homeostasis, miRNAs, DNA replication, DNA damage response, telomere biology, intracellular trafficking, regulation of angiogenesis, brain ischemia, autophagy, assembly and activity, antiviral defense, HIV infection, amyloid and amyloid-like proteins, plant immunity.

This comprehensive and up-to-date book is the definitive reference volume on all aspects of SUMOylation and ubiquitination and is an essential acquisition for anyone involved in this area of biology.

- Chapter 1.** The Rise of the Ubiquitin Super Family (*Van G. Wilson*)
- Chapter 2.** Cracking the Ubiquitin Code: the Ubiquitin Toolbox (*Monique P.C. Mulder, Katharina F. Witting and Huib Ovaas*)
- Chapter 3.** Recent Highlights: Onco Viral Exploitation of the SUMO System (*Domenico Mattoscio, Alessandro Medda and Susanna Chioccia*)
- Chapter 4.** Progress in the Discovery of Small Molecule Modulators of DeSUMOylation (*Shiyao Chen, Duoling Dong, Weixiang Xin and Huchen Zhou*)
- Chapter 5.** Identification of SUMOylated and Ubiquitylated Substrates by Mass Spectrometry (*Francis P. McManus and Pierre Thibault*)
- Chapter 6.** Global Proteomic Profiling of SUMO and Ubiquitin (*Alla Ahmad, Ryan Lumpkin and Elizabeth A. Komives*)
- Chapter 7.** Biotin-based Approaches for the Study of Ubiquitin and Ubiquitin-like Protein Modifications (*James D. Sutherland, Orhi Barroso Gomila and Rosa Barrio*)
- Chapter 8.** A Genetic Screening Method for Mammalian SUMOylated Proteins Using Split Fluorescence Protein Reconstitution (*Maki Komiya, Mizuki Endo and Takeaki Ozawa*)
- Chapter 9.** Dissecting Complex SUMOylation Networks in Humans (*Ijeoma Uzoma and Heng Zhu*)
- Chapter 10.** TULIP: Targets of Ubiquitin Ligases Identified by Proteomics (*Román González-Prieto and Alfred C.O. Vertegaal*)
- Chapter 11.** Regulation of P53 Family Members by the Ubiquitin and SUMO Modification Systems (*Viola Calabrò and Maria Vivo*)
- Chapter 12.** Interplay of the Ubiquitin Proteasome System and Mitochondria in Protein Homeostasis (*Mafalda Escobar-Henriques, Selver Altin and Fabian den Brave*)
- Chapter 13.** Interplay of Ubiquitination and SUMOylation with miRNAs (*Yashika Agrawal and Manas Kumar Santra*)
- Chapter 14.** The Role of Ubiquitylation and SUMOylation in DNA Replication (*Tarek Abbas*)
- Chapter 15.** Roles of Ubiquitination and SUMOylation in DNA Damage Response (*Siyuan Su, Yanqiong Zhang and Pengda Liu*)
- Chapter 16.** The Role of Ubiquitination and SUMOylation in Telomere Biology (*Michal Zalzman, W. Alex Meltzer, Benjamin A. Portney, Robert A. Brown and Aditi Gupta*)
- Chapter 17.** Role of Ubiquitin and SUMO in Intracellular Trafficking (*Maria Sundvall*)
- Chapter 18.** Roles of Ubiquitination and SUMOylation in the Regulation of Angiogenesis (*Andrea Rabellino, Cristina Andreani and Pier Paolo Scaglioni*)
- Chapter 19.** The Role of SUMOylation and Ubiquitination in Brain Ischaemia: Critical Concepts and Clinical Implications (*Joshua D. Bernstock, Daniel G. Ye, Dagoberto Estevez, Gustavo A. Chagoya, Ya-Chao Wang, Florian Gessler, John M. Hallenbeck and Wei Yang*)
- Chapter 20.** The Role of Ubiquitylation and SUMOylation in Autophagy (*Sushil Devkota*)
- Chapter 21.** Ubiquitin and SUMO Modifications in *Caenorhabditis elegans* Stress Response (*Krzysztof Drabikowski*)
- Chapter 22.** Beyond Degradation: Ubiquitination of the Inflammasome Regulates Assembly and Activity (*Joseph S. Bednash and Rama K. Mallampalli*)
- Chapter 23.** Ubiquitin and SUMO in Antiviral Defence (*Van G. Wilson*)
- Chapter 24.** Ubiquitination and SUMOylation in HIV Infection: Friends and Foes (*Marta Colomer-Lluch, Sergio Castro-Gonzalez and Ruth Serra-Moreno*)
- Chapter 25.** Ubiquitination and SUMOylation of Amyloid and Amyloid-like Proteins in Health and Disease (*Lenzie Ford, Luana Fioriti and Eric R. Kandel*)
- Chapter 26.** Keeping Up With the Pathogens: The Role of SUMOylation in Plant Immunity (*Rebecca Morrell and Ari Sadanandom*)

Order from:

Caister Academic Press <https://www.caister.com/order>

☞ **Microbial Exopolysaccharides: Current Research and Developments**

Edited by: Özlem Ates Duru (Published: 2019)

☞ **Polymerase Chain Reaction: Theory and Technology**

Author: Mark A. Behlke, Kornelia Berghof-Jäger, Tom Brown, et al. (Published: 2019)

☞ **Pathogenic Streptococci: From Genomics to Systems Biology and Control**

Edited by: Yuqing Li and Xuedong Zhou (Published: 2019)

☞ **Bats and Viruses: Current Research and Future Trends**

Edited by: Eugenia Corrales-Aguilar and Martin Schwemmler (Published: 2020)

☞ **SUMOylation and Ubiquitination: Current and Emerging Concepts**

Edited by: Van G. Wilson (Published: 2019)

☞ **Avian Virology: Current Research and Future Trends**

Edited by: Siba K. Samal (Published: 2019)

☞ **Insect Molecular Virology: Advances and Emerging Trends**

Edited by: Bryony C. Bonning (Published: 2019)

☞ **The Prion Protein**

Edited by: Jörg Tatzelt (Published: 2010)

☞ **Plant Genomics**

Edited by: Hany A. El-Shemy (Published: 2009)

☞ **Methylotrophs and Methylotroph Communities**

Edited by: Ludmila Chistoserdova (Published: 2019)

☞ **Microbial Ecology: Current Advances from Genomics, Metagenomics and Other Omics**

Edited by: Diana Marco (Published: 2019)

☞ **Plant-Microbe Interactions in the Rhizosphere**

Edited by: Adam Schikora (Published: 2018)

"recommended for anyone involved in plant science or environmental microbiology" (Biotechnol. Agron. Soc. Environ.); "an authoritative overview" (Eur. J. Soil Sci.)

☞ **Prions: Current Progress in Advanced Research (Second Edition)**

Edited by: Akikazu Sakudo and Takashi Onodera (Published: 2019)

☞ **Microbiota: Current Research and Emerging Trends**

Edited by: Takashi Matsumoto and Yoshio Yamaoka, (Published: 2019)

☞ **Porcine Viruses: From Pathogenesis to Strategies for Control**

Edited by: Hovakim Zakaryan (Published: 2019)

"This is a well-written book" (Doodys)

☞ **Lactobacillus Genomics and Metabolic Engineering**

Edited by: Sandra M. Ruzal (Published: 2019)

"the most relevant aspects of the more than 200 recognized species of the Lactobacillus genus" (ProtoView); "a useful, concise reference book" (Beneficial Microbes)

☞ **Cyanobacteria: Signaling and Regulation Systems**

Author: Dmitry A. Los (Published: 2018)

"a very good summary ... recommended" (Biospektrum)

☞ **Viruses of Microorganisms**

Edited by: Paul Hyman and Stephen T. Abedon (Published: 2018)