Stanford

Soichi Wakatsuki

Professor of Photon Science and of Structural Biology

Photon Science Directorate

CONTACT INFORMATION

- **Administrative Contact**

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Bio

BIO

Soichi Wakatsuki is a Professor of Photon Science at the SLAC National Accelerator Laboratory where he recently initiated the Biociences Division, and Professor of Structural Biology, Stanford School of Medicine. He received his B.S and M.S. degrees in Chemical Engineering from University of Tokyo, and his Ph.D. degree in Chemistry from Stanford University in 1991. After postdoctoral studies on time-resolved x-ray crystallography of enzyme reactions in Oxford (1990 to 1994), he moved to Grenoble, France in 1994 to work at the European Synchrotron Radiation Facility (ESRF) where he led Joint Structural Biology Group to develop high-brilliance x-ray crystallography beamlines and instruments, as well as several structural biology projects on protein transport. In 2000, Soichi moved back to Japan to start a new Structural Biology Research Center at KEK (High Energy Accelerator Research Organization), Tsukuba, Japan, and later served as Director of Photon Factory (national synchrotron radiation facility) from 2006 to 2012. There he further developed x-ray beamlines and a large scale protein crystallization system, led initiatives to start three national projects on structural proteomics. Fascinated by new research opportunities in integrative bioimaging at Stanford and the world's first hard x-ray free electron laser (XFEL) at SLAC, Soichi returned to Stanford in 2013. Soichi's research interests include structural biology of post-translational modification and vesicle transport, structural biology of polyubiquitin recognition, synchrotron radiation and XFEL instrumentation, protein crystallography and small angle X-ray scattering, integrative multi-scale bioimaging.

ACADEMIC APPOINTMENTS

- Professor, Photon Science Directorate
- Professor, Structural Biology
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)

ADMINISTRATIVE APPOINTMENTS

- Group Leader, Macromolecular Crystallography Group, ESRF (European Synchrotron Radiation Facility), (1999-2000)
- Director, Structural Biology Research Center, KEK (High Energy Accelerator Research Organization), (2003-2012)
- Division Head, Life Science Division, Synchrotron Radiation Research Organization, University of Tokyo, (2006-2008)
- Director, Photon Science, KEK (High Energy Accelerator Research Organization), (2006-2012)

- Associate Director, Institute of Materials Structure Science, KEK (High Energy Accelerator Research Organization), (2009-2012)
- Director of Biosciences Division, SLAC National Accelerator Laboratory, (2015- present)

HONORS AND AWARDS

- Prize for Science and Technology, by Minister of Education, Culture, Sports, Science and Technology, The Ministry of Education, Culture, Sports, Science and Technology, Japan (April 2011)
- The Research Award of Crystallographic Society of Japan, The Crystallographic Society of Japan (November 2006)
- Murata Overseas Studies Fellow, Murata Overseas Scholarship Foundation (1984-1987)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member of Science Advisory Committee, European Synchrotron Radiation Facility, France (2026 - present)
- Member of Neutron Advisory Board, Oak Ridge National Laboratory (2019 - present)
- Co-Editor of Acta Crystallographica D, Structural Biology, International Union of Crystallography (2017 - present)
- Chair of Science Advisory Committee, SOLEIL Synchrotron, France (2017 - 2023)
- Member of NSLS-II Science Advisory Committee, Brookhaven National Laboratory (2016 - present)
- Member of Scientific Leadership Council, Stanford Bio-X (2015 - present)
- Member of Scientific Advisory Board, BioXFEL (2015 - 2023)
- Member of Committee of Visitors, Biological Systems Science Division, Biological and Environmental Research, Department of Energy (2014 - 2014)
- Section Editor of Acta Crystallographica D, Structural Biology, International Union of Crystallography (2013 - 2017)
- Member of Science Advisory Committee of Environmental Molecular Sciences Laboratory, Pacific Northwest National Laboratory (2013 - 2015)
- Editorial Board Member of Current Opinions on Structural Biology, Elsevier (2012 - present)
- Chair of world-wide PDB Advisory Committee, World-Wide Protein Data Bank (2012 - 2014)
- Member of Science Advisory Committee, National Synchrotron Radiation Research Center, Taiwan (NSRRC) (2011 - 2014)
- Member of Science Advisory Committee, Stanford Synchrotron Radiation Laboratory, SLAC (2011 - 2012)
- Member of Scientific Advisory Committee, Advanced Photon Source (APS), Argonne National Laboratory (2008 - 2014)
- Member of Science Advisory Committee, Australian Synchrotron (2008 - 2012)
- Chair of IUCr (International Union of Crystallography) Commission on Synchrotron Radiation, IUCr (2008 - 2011)
- Advisory Committee Member, Astellas Foundation for Research on Metabolic Disorders (2007 - present)
- Member of Science Advisory Board, JCSG, Joint Center for Structural Genomics (JCSG) (2006 - 2010)
- Member of Science Advisory Committee, Stanford Synchrotron Radiation Laboratory, SLAC (2006 - 2008)
- Co-Editor of Journal of Synchrotron Radiation, IUCr (2005 - 2013)
- Member of IUCr (International Union of Crystallography) Commission on Synchrotron Radiation, IUCr (2005 - 2008)

PROFESSIONAL EDUCATION

- B.S., University of Tokyo , Chemical Engineering (1982)
- M.S., University of Tokyo , Chemical Engineering (1984)
- Ph.D., Stanford University , Chemistry (1991)

LINKS

- My Lab Site: http://med.stanford.edu/wakatsukilab.html

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Ubiquitin signaling: structure, function, and therapeutics

Ubiquitin is a small protein modifier that is ubiquitously produced in the cells and takes part in the regulation of a wide range of cellular activities such as gene transcription and protein turnover. The key to the diversity of the ubiquitin roles in cells is that it is capable of interacting with other cellular proteins either as a single molecule or as different types of chains. Ubiquitin chains are produced through polymerization of ubiquitin molecules via any of their seven internal lysine residues or the N-terminal methionine residue. Covalent interaction of ubiquitin with other proteins is known as ubiquitination which is carried out through an enzymatic cascade composed of the ubiquitin-activating (E1), ubiquitin-conjugating (E2), and ubiquitin ligase (E3) enzymes. The ubiquitin signals are decoded by the ubiquitin-binding domains (UBDs). These domains often specifically recognize and non-covalently bind to the different ubiquitin species, resulting in distinct signaling outcomes.

We apply a combination of the structural (including protein crystallography, small angle x-ray scattering, cryo-electron microscopy (Cryo-EM) etc.), biocomputational and biochemical techniques to study the ubiquitylation and deubiquitination processes, and recognition of the ubiquitin chains by the proteins harboring ubiquitin-binding domains. Current research interests including SARS-COV2 proteases and their interactions with polyubiquitin chains and ubiquitin pathways in host cell responses, with an ultimate goal of providing strategies for effective therapeutics with reduced levels of side effects.

Protein self-assembly processes and applications.

The Surface layers (S-layers) are crystalline protein coats surrounding microbial cells. S-layer proteins (SLPs) regulate their extracellular, self-assembly by crystallizing when exposed to an environmental trigger. We have demonstrated that the Caulobacter crescentus SLP readily crystallizes into sheets both in vivo and in vitro via a calcium-triggered multistep assembly pathway. Observing crystallization using a time course of Cryo-EM imaging has revealed a crystalline intermediate wherein N-terminal nucleation domains exhibit motional dynamics with respect to rigid lattice-forming crystallization domains. Rate enhancement of protein crystallization by a discrete nucleation domain may enable engineering of kinetically controllable self-assembling 2D macromolecular nanomaterials. In particular, this is inspiring designing robust novel platform for nano-scale protein scaffolds for structure-based drug design and nano-bioreactor design for the carbon-cycling enzyme pathway enzymes. Current research focuses on development of nano-scaffolds for high throughput in vitro assays and structure determination of small and flexible proteins and their interaction partners using Cryo-EM, and applying them to cancer and anti-viral therapeutics.

Multiscale imaging and technology developments.

Multimodal, multiscale imaging modalities will be developed and integrated to understand how molecular level events of key enzymes and protein network are connected to cellular and multi-cellular functions through intra-cellular organization and interactions of the key machineries in the cell. Larger scale organization of these proteins will be studied by solution X-ray scattering and Cryo-EM. Their spatio-temporal arrangements in the cell organelles, membranes, and cytosol will be further studied by X-ray fluorescence imaging and correlated with cryoEM and super-resolution optical microscopy. We apply these multiscale integrative imaging approaches to biomedical, and environmental and bioenergy research questions with Stanford, DOE national labs, and other domestic and international collaborators.

Teaching

COURSES

2025-26

- Methods in Molecular Biophysics: BIOPHYS 242, SBIO 242 (Win)

2023-24

- Methods in Molecular Biophysics: BIOPHYS 242, SBIO 242 (Win)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Anais Chretien

Orals Evaluator

Alana Gudinas

Doctoral Dissertation Advisor (AC)

Benjamin Shapero, Jacob Summers

Doctoral Dissertation Co-Advisor (AC)

Michelle Quan

Publications

PUBLICATIONS

- **Magnetic resonance control of spin-correlated radical pair dynamics in vivo.** *Nature*
  Burd, S. C., Bagheri, N., Condon, A. F., Ingaramo, M., Mondal, S., Dowlatshahi, D. P., Summers, J. A., Mukherjee, S., York, A. G., Wakatsuki, S., Boxer, S. G., Kasevich, M.
  2026
- **A Novel Unorthodox Dimeric Primary Enoyl-CoA Reductase Structure.** *bioRxiv : the preprint server for biology*
  Kulakman, C., Mathews, I. I., Yoshikuni, Y., Wakatsuki, S., DeMirci, H.
  2025
- **Combining MicroED and native mass spectrometry for structural discovery of enzyme-small molecule complexes.** *Proceedings of the National Academy of Sciences of the United States of America*
  Vlahakis, N. W., Flowers, C. W., Liu, M., Agdanowski, M. P., Johnson, S., Summers, J. A., Jacobs, L. M., Keyser, C., Russell, P., Rose, S. L., Orlans, J., Adhami, N., Chen, et al
  2025; 122 (31): e2503780122
- **A hidden cysteine in Fis1 targeted to prevent excessive mitochondrial fission and dysfunction under oxidative stress.** *Nature communications*
  Pokhrel, S., Heo, G., Mathews, I., Yokoi, S., Matsui, T., Mitsutake, A., Wakatsuki, S., Mochly-Rosen, D.
  2025; 16 (1): 4187
- **Magnetic resonance control of reaction yields through genetically-encoded protein:flavin spin-correlated radicals in a live animal.** *bioRxiv : the preprint server for biology*
  Burd, S. C., Bagheri, N., Ingaramo, M., Condon, A. F., Mondal, S., Dowlatshahi, D. P., Summers, J. A., Mukherjee, S., York, A. G., Wakatsuki, S., Boxer, S. G., Kasevich, M.
  2025
- **Crystal structure of the 4-hydroxybutyryl-CoA synthetase (ADP-forming) from nitrosopumilus maritimus.** *Communications biology*
  Johnson, J., Tolar, B. B., Tosun, B., Yoshikuni, Y., Francis, C. A., Wakatsuki, S., DeMirci, H.
  2024; 7 (1): 1364
- **Time-resolved cryogenic electron tomography for the study of transient cellular processes.** *Molecular biology of the cell*
  Yoniles, J., Summers, J. A., Zielinski, K. A., Antolini, C., Panjalingam, M., Lisova, S., Moss, F. R., Perna, M. A., Kupitz, C., Hunter, M. S., Pollack, L., Wakatsuki, S., Dahlberg, et al
  2024: mbcE24010042
- **Structural and biophysical analysis of a Haemophilus influenzae tripartite ATP-independent periplasmic (TRAP) transporter.** *eLife*
  Currie, M. J., Davies, J. S., Scalise, M., Gulati, A., Wright, J. D., Newton-Vesty, M. C., Abeysekera, G. S., Subramanian, R., Wahlgren, W. Y., Friemann, R., Allison, J. R., Mace, P. D., Griffin, et al
  2024; 12

- **Cleavage of Hsp70.1 causes lysosomal cell death under stress conditions.** *Frontiers in molecular biosciences*
  Yamashima, T., Mochly-Rosen, D., Wakatsuki, S., Mizukoshi, E., Seike, T., Larus, I. M., Chen, C., Takemura, M., Saito, H., Ohashi, A.
  2024; 11: 1378656

- **Time-resolved crystallography captures light-driven DNA repair.** *Science (New York, N.Y.)*
  Christou, N. E., Apostolopoulou, V., Melo, D. V., Ruppert, M., Fadini, A., Henkel, A., Sprenger, J., Oberthuer, D., Günther, S., Pateras, A., Rahmani Mashhour, A., Yefanov, O. M., Galchenkova, et al
  2023; 382 (6674): 1015-1020

- **Potent and selective covalent inhibition of the papain-like protease from SARS-CoV-2.** *Nature communications*
  Sanders, B. C., Pokhrel, S., Labbe, A. D., Mathews, I. I., Cooper, C. J., Davidson, R. B., Phillips, G., Weiss, K. L., Zhang, Q., O'Neill, H., Kaur, M., Schmidt, J. G., Reichard, et al
  2023; 14 (1): 1733

- **Structure and mechanism of a tripartite ATP-independent periplasmic TRAP transporter.** *Nature communications*
  Davies, J. S., Currie, M. J., North, R. A., Scalise, M., Wright, J. D., Copping, J. M., Remus, D. M., Gulati, A., Morado, D. R., Jamieson, S. A., Newton-Vesty, M. C., Abeysekera, G. S., Ramaswamy, et al
  2023; 14 (1): 1120

- **Structures of honeybee-infecting Lake Sinai virus reveal domain functions and capsid assembly with dynamic motions.** *Nature communications*
  Chen, N., Wang, C., Yoshimura, M., Yeh, Y., Guan, H., Chuankhayan, P., Lin, C., Lin, P., Huang, Y., Wakatsuki, S., Ho, M., Chen, C.
  2023; 14 (1): 545

- **Novel Small Molecule and Peptide Inhibitors of CREB in Leukemia Cells**
  Dalloul, J., Youn, M., Mark, K., Powers, A., Dror, R., Wakatsuki, S., Sakamoto, K. M.
  AMER SOC HEMATOLOGY.2022: 4949-4950

- **Structural and functional characterization of NEMO cleavage by SARS-CoV-2 3CLpro.** *Nature communications*
  Hameedi, M. A., T Prates, E., Garvin, M. R., Mathews, I. I., Amos, B. K., Demerdash, O., Bechthold, M., Iyer, M., Rahighi, S., Kneller, D. W., Kovalevsky, A., Irle, S., Vuong, et al
  2022; 13 (1): 5285

- **Intersubunit Coupling Enables Fast CO2-Fixation by Reductive Carboxylases** *ACS CENTRAL SCIENCE*
  DeMirci, H., Rao, Y., Stoffel, G. M., Voegeli, B., Schell, K., Gomez, A., Batyuk, A., Gati, C., Sierra, R. G., Hunter, M. S., Dao, E., Ciftci, H. I., Hayes, et al
  2022

- **Cryo-EM, Protein Engineering, and Simulation Enable the Development of Peptide Therapeutics against Acute Myeloid Leukemia.** *ACS central science*
  Zhang, K., Horikoshi, N., Li, S., Powers, A. S., Hameedi, M. A., Pintilie, G. D., Chae, H., Khan, Y. A., Suomivuori, C., Dror, R. O., Sakamoto, K. M., Chiu, W., Wakatsuki, et al
  2022; 8 (2): 214-222

- **Stabilization of glucose-6-phosphate dehydrogenase oligomers enhances catalytic activity and stability of clinical variants.** *The Journal of biological chemistry*
  Garcia, A. A., Mathews, I. I., Horikoshi, N., Matsui, T., Kaur, M., Wakatsuki, S., Mochly-Rosen, D.
  2022: 101610

- **Structural insights into bifunctional thaumarchaeal crotonyl-CoA hydratase and 3-hydroxypropionyl-CoA dehydratase from Nitrosopumilus maritimus.** *Scientific reports*
  Destan, E., Yuksel, B., Tolar, B. B., Ayan, E., Deutsch, S., Yoshikuni, Y., Wakatsuki, S., Francis, C. A., DeMirci, H.
  2021; 11 (1): 22849

- **Structural and functional characterization of NEMO cleavage by SARS-CoV-2 3CLpro.** *bioRxiv : the preprint server for biology*
  Hameedi, M. A., Prates, E. T., Garvin, M. R., Mathews, I., Amos, B. K., Demerdash, O., Bechthold, M., Iyer, M., Rahighi, S., Kneller, D. W., Kovalevsky, A., Irle, S., Vuong, et al
  2021

- **Potent and Selective Covalent Inhibitors of the Papain-like Protease from SARS-CoV-2.** *Research square*

Sanders, B., Pohkrel, S., Labbe, A., Mathews, I., Cooper, C., Davidson, R., Phillips, G., Weiss, K., Zhang, Q., O'Neill, H., Kaur, M., Ferrins, L., Schmidt, et al
2021

- **Investigating the Interaction between SARS-CoV-2 NSP15 and a Human E3 Ubiquitin Ligase Using In Silico Methods**
  Viswesh, A., Wakatsuki, S.
  WILEY.2021: 99

- **Long-range structural defects by pathogenic mutations in most severe glucose-6-phosphate dehydrogenase deficiency.** *Proceedings of the National Academy of Sciences of the United States of America*
  Horikoshi, N. n., Hwang, S. n., Gati, C. n., Matsui, T. n., Castillo-Orellana, C. n., Raub, A. G., Garcia, A. A., Jabbarpour, F. n., Batyuk, A. n., Broweleit, J. n., Xiang, X. n., Chiang, A. n., Broweleit, et al
  2021; 118 (4)

- **Hybrid real- and reciprocal-space full-field imaging with coherent illumination** *JOURNAL OF OPTICS*
  Li, P., Wakatsuki, S., Pianetta, P. A., Liu, Y.
  2020; 22 (11)

- **The Nucleoid-Associated Protein GapR Uses Conserved Structural Elements To Oligomerize and Bind DNA.** *mBio*
  Lourenco, R. F., Saurabh, S., Herrmann, J., Wakatsuki, S., Shapiro, L.
  2020; 11 (3)

- **Structural defect leads to human severe (Class I) loss of function in glucose-6-phosphate dehydrogenase**
  Horikoshi, N., Hwang, S., Gati, C., Matsui, T., Castillo-Orellana, C., Garcia, A., Raub, A., Jabbarpour, F., Mochly-Rosen, D., Wakatsuki, S., Vohringer-Martinez, E.
  WILEY.2020

- **Exosomes From Induced Pluripotent Stem Cell-Derived Cardiomyocytes Promote Autophagy for Myocardial Repair.** *Journal of the American Heart Association*
  Santoso, M. R., Ikeda, G., Tada, Y., Jung, J., Vaskova, E., Sierra, R. G., Gati, C., Goldstone, A. B., von Bornstaedt, D., Shukla, P., Wu, J. C., Wakatsuki, S., Woo, et al
  2020; 9 (6): e014345

- **Continuous, Topologically Guided Protein Crystallization Drives Self-Assembly of a Bacterial Surface Layer**
  Comerci, C. J., Herrmann, J., Yoon, J., Jabbarpour, F., Zhou, X., Nomellini, J. F., Smit, J., Shapiro, L., Wakatsuki, S., Moerner, W. E.
  CELL PRESS.2020: 201A–202A

- **Structural Insights into the Unique Activation Mechanisms of a Non-classical Calpain and Its Disease-Causing Variants.** *Cell reports*
  Velez, G., Sun, Y. J., Khan, S., Yang, J., Herrmann, J., Chemudupati, T., MacLaren, R. E., Gakhar, L., Wakatsuki, S., Bassuk, A. G., Mahajan, V. B.
  2020; 30 (3): 881

- **High resolution CryoEM structure of the ring-shaped virulence factor EspB from Mycobacterium tuberculosis.** *Journal of structural biology: X*
  Piton, J., Pojer, F., Wakatsuki, S., Gati, C., Cole, S. T.
  2020; 4: 100029

- **Sequence-guided protein structure determination using graph convolutional and recurrent networks**
  Li, P., de Oliveira, S. H. P., Wakatsuki, S., van den Bedem, H., IEEE
  IEEE.2020: 122-127

- **A bacterial surface layer protein exploits multistep crystallization for rapid self-assembly.** *Proceedings of the National Academy of Sciences of the United States of America*
  Herrmann, J., Li, P., Jabbarpour, F., Chan, A. C., Rajkovic, I., Matsui, T., Shapiro, L., Smit, J., Weiss, T. M., Murphy, M. E., Wakatsuki, S.
  2019

- **Four amino acids define the CO2 binding pocket of enoyl-CoA carboxylases/reductases.** *Proceedings of the National Academy of Sciences of the United States of America*
  Stoffel, G. M., Saez, D. A., DeMirci, H., Vogeli, B., Rao, Y., Zarzycki, J., Yoshikuni, Y., Wakatsuki, S., Vohringer-Martinez, E., Erb, T. J.
  2019

- **Serial Femtosecond X-Ray Diffraction of HIV-1 Gag MA-IP6 Microcrystals at Ambient Temperature.** *International journal of molecular sciences*

I Ciftci, H., G Sierra, R., Yoon, C. H., Su, Z., Tateishi, H., Koga, R., Kotaro, K., Yumoto, F., Senda, T., Liang, M., Wakatsuki, S., Otsuka, M., Fujita, et al
2019; 20 (7)

- **The Macromolecular Femtosecond Crystallography Instrument at the Linac Coherent Light Source** *JOURNAL OF SYNCHROTRON RADIATION*
  Sierra, R. G., Batyuk, A., Sun, Z., Aquila, A., Hunter, M. S., Lane, T. J., Liang, M., Yoon, C., Alonso-Mori, R., Armenta, R., Castagna, J., Hollenbeck, M., Osier, et al
  2019; 26: 346–57
- **Protein Self-Assembly Drives Surface Layer Biogenesis and Maintenance in C. crescentus**
  Herrmann, J., Comerci, C., Yoon, J., Jabbarpour, F., Shapiro, L., Wakatsuki, S., Moerner, W. E.
  CELL PRESS.2019: 159A
- **Multi-Step 2D Protein Crystallization via Structural Changes within an Ordered Lattice**
  Herrmann, J., Comerci, C. J., Jabbarpour, F., Shapiro, L., Moerner, W. E., Wakatsuki, S.
  CELL PRESS.2019: 194A
- **SAR optimization studies on modified salicylamides as a potential treatment for acute myeloid leukemia through inhibition of the CREB pathway.** *Bioorganic & medicinal chemistry letters*
  Chae, H. D., Cox, N. n., Capolicchio, S. n., Lee, J. W., Horikoshi, N. n., Kam, S. n., Ng, A. A., Edwards, J. n., Butler, T. L., Chan, J. n., Lee, Y. n., Potter, G. n., Capece, et al
  2019
- **Mixed-linkage ubiquitin chains as complex regulators of cellular signaling pathways**
  Rahighi, S., van den Bedem, H., Wakatsuki, S.
  INT UNION CRYSTALLOGRAPHY.2019: A387
- **Processing simultaneously collected MAD data from two closely spaced (90 eV) wavelengths measured at an X-ray free-electron laser**
  Mendez, D., Weis, W., Brunger, A., Wakatsuki, S., Sauter, N.
  INT UNION CRYSTALLOGRAPHY.2019: A244
- **Topologically-guided continuous protein crystallization controls bacterial surface layer self-assembly.** *Nature communications*
  Comerci, C. J., Herrmann, J. n., Yoon, J. n., Jabbarpour, F. n., Zhou, X. n., Nomellini, J. F., Smit, J. n., Shapiro, L. n., Wakatsuki, S. n., Moerner, W. E.
  2019; 10 (1): 2731
- **Small-Molecule Activators of Glucose-6-phosephate Dehydrogenase (G6PD) Bridging the Dimer Interface.** *ChemMedChem*
  Raub, A. n., Hwang, S. n., Horikoshi, N. n., Cunningham, A. n., Rahighi, S. n., Wakatsuki, S. n., Mochly-Rosen, D. n.
  2019
- **Molecular Recognition of M1-Linked Ubiquitin Chains by Native and Phosphorylated UBAN Domains.** *Journal of molecular biology*
  Herhaus, L. n., van den Bedem, H. n., Tang, S. n., Maslennikov, I. n., Wakatsuki, S. n., Dikic, I. n., Rahighi, S. n.
  2019
- **Transport Properties of Nanoporous, Chemically Forced Biological Lattices.** *The journal of physical chemistry. B*
  Li, P. N., Herrmann, J. n., Wakatsuki, S. n., van den Bedem, H. n.
  2019
- **Structure of the 30S ribosomal decoding complex at ambient temperature** *RNA*
  Dao, E., Poitevin, F., Sierra, R. G., Gati, C., Rao, Y., Ciftci, H., Aksit, F., McGurk, A., Obrinski, T., Mgbam, P., Hayes, B., De Lichtenberg, C., Pardo-Avila, et al
  2018; 24 (12): 1667–76
- **Exosomes From Induced Pluripotent Stem Cell-Derived Cardiomyocytes Salvage the Injured Myocardium by Modulation of Autophagy**
  Santoso, M. R., Tada, Y., Ikeda, G., Jung, J., Vaskova, E., Sierra, R. G., Gati, C., Goldstone, A. B., Bornstaedt, D., Shukla, P., Wu, J. C., Wakatsuki, S., Woo, et al
  LIPPINCOTT WILLIAMS & WILKINS.2018
- **Correcting glucose-6-phosphate dehydrogenase deficiency with a small-molecule activator.** *Nature communications*
  Hwang, S., Mruk, K., Rahighi, S., Raub, A. G., Chen, C., Dorn, L. E., Horikoshi, N., Wakatsuki, S., Chen, J. K., Mochly-Rosen, D.
  2018; 9 (1): 4045

- **Correcting glucose-6-phosphate dehydrogenase deficiency with a small-molecule activator** *NATURE COMMUNICATIONS*
  Hwang, S., Mruk, K., Rahighi, S., Raub, A. G., Chen, C., Dorn, L. E., Horikoshi, N., Wakatsuki, S., Chen, J. K., Mochly-Rosen, D.
  2018; 9

- **Nutrient transport suggests an evolutionary basis for charged archaeal surface layer proteins** *ISME JOURNAL*
  Li, P., Herrmann, J., Tolar, B. B., Poitevin, F., Ramdasi, R., Bargar, J. R., Stahl, D. A., Jensen, G. J., Francis, C. A., Wakatsuki, S., van den Bedem, H.
  2018; 12 (10): 2389–2402

- **Structure of the 30S ribosomal decoding complex at ambient temperature.** *RNA (New York, N.Y.)*
  Dao, E. H., Poitevin, F., Sierra, R. G., Gati, C., Rao, Y., Ciftci, H. I., Aksit, F., McGurk, A., Obrinski, T., Mgbam, P., Hayes, B., DE Lichtenberg, C., Pardo-Avila, et al
  2018

- **Structural insights into the mechanism of ubiquitination by the linear ubiquitin chain assembly complex (LUBAC)**
  Rahighi, S., Wakatsuki, S.
  INT UNION CRYSTALLOGRAPHY.2018: A469

- **Two-Color Sted Microscopy to Visualize S-Layer Biogenesis in Caulobacter Crescentus**
  Comerci, C. J., Herrmann, J., Shapiro, L., Wakatsuki, S., Moerner, W. E.
  CELL PRESS.2018: 613A

- **Cryo Electron Tomography and Reaction-Diffusion Simulations Reveal a Molecular and Evolutionary Basis for Charged Archaeal Surface Layer Proteins**
  Li, P., Herrmann, J. R., Poitevin, F. P. B., Ramdasi, R., Tolar, B. B., Barger, J., Stahl, D., Jensen, G., Wakatsuki, S., van den Bedem, H.
  CELL PRESS.2018: 495A

- **Environmental Calcium Controls Alternate Physical States of the Caulobacter Surface Layer**
  Herrmann, J., Smit, J., Shapiro, L., Wakatsuki, S.
  CELL PRESS.2018: 404A

- **Nutrient transport suggests an evolutionary basis for charged archaeal surface layer proteins.** *The ISME journal*
  Li, P. N., Herrmann, J. n., Tolar, B. B., Poitevin, F. n., Ramdasi, R. n., Bargar, J. R., Stahl, D. A., Jensen, G. J., Francis, C. A., Wakatsuki, S. n., van den Bedem, H. n.
  2018

- **Environmental Calcium Controls Alternate Physical States of the Caulobacter Surface Layer** *BIOPHYSICAL JOURNAL*
  Herrmann, J., Jabbarpour, F., Bargar, P. G., Nomellini, J. F., Li, P., Lane, T. J., Weiss, T. M., Smit, J., Shapiro, L., Wakatsuki, S.
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