



Yale University

Molecular Biophysics & Biochemistry



e-Newsletter - Summer/Fall 2020

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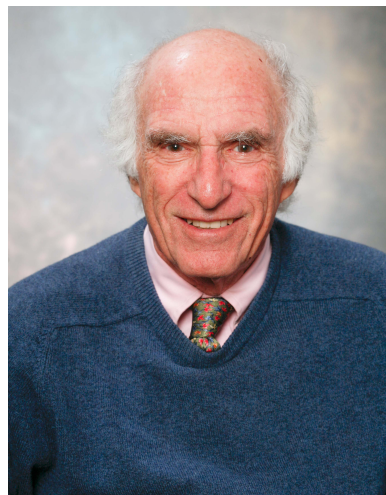
MB&B

Summer/Fall 2020

This is the first issue of the MB&B newsletter which has been in hibernation for quite a few years. A lot has happened in the department during this time, however, our coverage in this issue will start from January 2020. We welcome input from faculty, students, staff and alumni, anyone connected with MB&B now or in the past. All suggestions will receive our prompt attention and a response from us is assured. We would also welcome news and updates from our affiliates and alumni which we will include in forthcoming

issues of the newsletter.

William Konigsberg, Editor
Professor of Molecular Biophysics & Biochemistry



A Note from the Chair

**50+ Years of
MB&B**

**New Challenges
with Experience**

I am grateful to take on the Chair position in this historic 51st year of the MB&B Department. In these challenging circumstances, it is incredibly comforting to know we are well positioned to engage long neglected challenges as well as the new situations in which we find ourselves. We have the rare luxury of vast experience with an incredibly strong team, having many years of experience in education, researching, problem solving, and above all collaborating and working together.

This past year, thanks to Mark Hochstrasser's leadership as Department Chair before me, we added more strength with amazing faculty, postdocs, students and staff newly welcomed to MB&B. The Department maintains and has even expanded its strong leadership roles throughout the University. There is no better way to celebrate this Golden Jubilee than to use this momentum to rise above previously insurmountable activation barriers and advance training and achievement in Molecular Biophysics and Biochemistry...together!



Looking ahead, MB&B is pushing forward in this 51st year with new initiatives and didactics to encourage and enable students and faculty to achieve in basic research, entrepreneurship and education. MB&B is also taking a lead to face directly and address structural racism in our teaching and laboratories. Finally, we are eager to support our people's ability to achieve excellence despite the ever-shifting landscape of working under COVID.

With respect and gratitude,

A handwritten signature in cursive script, appearing to read 'Enrique'.

Enrique M. De La Cruz
Professor and Chair of Molecular Biophysics & Biochemistry
Head of Branford College



In Memorium



Thomas A. Steitz

Sterling Professor of MB&B and of Chemistry
Years of service at Yale University: 1970 - 2018

Thomas A. Steitz, who won the Nobel Prize in chemistry for mapping the structure of ribosomes, molecular machines that translate genetic information into the thousands of proteins essential to living matter, died October 9, 2018 at his home in Branford, CT. He was 78.



Peter Lengyel

Professor Emeritus of MB&B
Years of service at Yale University: 1965 - 2014

Peter Lengyel, PhD, Professor Emeritus of MB&B, died at his home in Woodbridge, CT on April 21, 2020. He was famous at Yale for his tremendous recall, vast knowledge of science and all things cultural, and his meticulous, precise, and fluent lectures delivered without notes, using only chalk and a blackboard to convey the most complex subjects.

Video: [Peter and Suzanna Lengyel Share Their Fascinating Story of Immigration & Life in America](#)

Welcome New Faculty



Franziska Bleichert

Franziska Bleichert joined the MB&B Department in January 2020 as an Assistant Professor. Her lab's research focuses on understanding the function of macromolecular machines involved in chromosome replication and in maintaining genome stability. Using a combination of structural biology, biochemical and biophysical approaches, Franziska's lab aims to elucidate how these machines operate at a mechanistic level and, in the long-term, apply these insights towards developing new drugs targeting genome instability.

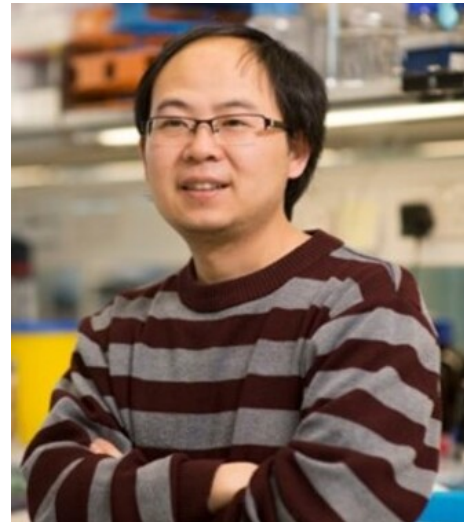


Candie Paulsen

Candice (Candie) Paulsen joined the MB&B department in January 2018 as an Assistant Professor. Currently, Candie's group is combining membrane protein biochemistry, chemical biology, and structural biology to understand how the Wasabi receptor, TRPA1, an important ion channel involved in initiating pain signals in humans, is regulated under normal and pathological states. This work is carried out with an eye towards uncovering novel avenues for analgesic and anti-inflammatory agent development.

Lilian Kabeche

Lilian (Lily) Kabeche joined the MB&B department in 2019 as an Assistant Professor. Lily has been fascinated with the fact that many solid tumors exhibit aneuploidy chromosome instability. However, targeting this phenotype has been fairly ineffective. Her research lab focuses on investigating the molecular mechanisms that ensure chromosome stability. Specifically, her lab focuses on the interplay between the DNA damage repair pathway and the mitotic machinery. Lily and her lab combine cell biology, microscopy, and biochemistry to try to answer these questions.



Kai "Jack" Zhang

Kai (Jack) Zhang joined MB&B in January 2019 as an Assistant Professor. His lab works on the mechanisms of cellular cargo transport and ciliary motility. He is interested in dyneins and dynein-related complexes for their fascinating roles in the intracellular and intraflagellar transports, cell division, organelle positioning, cell motility, neurodevelopment, neurodegeneration, viral infection, and their elaborate mechanisms of regulation. Kai is also passionate about cryo-EM/ET methods to bridge the large gaps in our understanding of complicated high-level cellular activities from their structures.

Welcome BQBS Students Class of 2026

Director of Graduate Admissions (DGA): Our thanks to **Matt Simon** for taking on this role and to **Christian Schlieker** for his service in this role for the prior term.

Shravani Balaji from Worcester Polytechnic Institute
Courtney Brown from Butler University
Yichun 'Eason' Cao from Fudan University
Devin Clegg from University of North Carolina at Charlotte
Christian Fagre from University of Pennsylvania
David Flesher from Arizona State University
Christian Freniere from University of Richmond
Sara Gelles-Watnick from Brandeis University
Tanja Hann from University College London
Klarissa Hollander from Brandeis University
Olivia Hunker from Worcester Polytechnic Institute
Maya Kornaj from Stony Brook University - SUNY
Qiao 'Liz' Li from Wellesley College
Jinchan Liu from Jilin University
Rachel McAllister from University of California - Los Angeles
Atreyo Pal from University of Chicago
Zion Perry from Massachusetts Institute of Technology
Anjana Rajkumarkammath from Indian Institute of Science Education and Research
Raquel Reilly from Fairfield University
Jake Ribich from University of Illinois at Urbana-Champaign
Andrew Rodriguez from Miami University
Gabriela Rosado-Gonzalez from the University of Puerto Rico: Rio Piedras
Garrett Sager from University of Alabama - Birmingham
Matthew Schiling from McGill University
Matthew Steinsaltz from SUNY Geneseo
Matthew Wang from University of Notre Dame
Ran Yang from Beijing Normal University
Yuchen Yang from the Harbin Institute of Technology
Xuezhu 'Michelle' Yu from Illinois University at Urbana-Champaign

Welcome 2020 Postdocs

Tara Alpert - Neugebauer Lab
Ashley Arthur - Howard Lab
Edward Courchaine - Neugebauer Lab
Babatunde Ekundayo - Bleichert Lab
Barbara Fujita - Berro Lab
Pei-Tzu Huang - Howard Lab
Andrew Huehn - De La Cruz Lab
Xiaotong Li - Gerstein Lab
Nancy Lu - Gerstein Lab
Jens Neu - Malvankar Lab
Nandan Pandit - De La Cruz Lab
Juliana Shaw - Koleske Lab
Guangxin Sun - Hochstrasser Lab
Mark Torres - Gerstein Lab
Yazgan Tuna - Howard Lab
Jun Wang - Gerstein Lab

Welcome MB&B Staff



Sarah Auddino
Faculty Support
Web & Social Media Assistant

Sarah joined MB&B from the Department of Neurology and is located in Sterling Hall of Medicine (SHM).



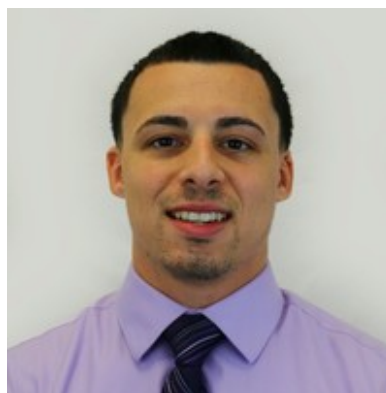
Nicole Evans
Graduate Registrar

Nicole joined MB&B from the School of Nursing and is located in the BASS Center.



Kayan 'Kay' Fairweather
Financial Assistant

Kay joined MB&B from MassMutual Insurance and works in the Business Office in Sterling Hall of Medicine (SHM).



Matthew Mascola
Financial Assistant

Matt joined MB&B as a recent graduate of the University of Connecticut and works in Yale Science Building (YSB).

Congratulations **MB&B Graduating PhD Students 2020**



Tara Alpert

Neugebauer Lab

PhD Thesis Title: Coordination Between Pre-mRNA Splicing and Cleavage in Budding Yeast.



Ryan Brecht

Schatz Lab

PhD Thesis Title: Nucleolar Localization of RAG1 Regulates V(D) J Recombination Activity in Pre B Cells.



Lauren Budenholzer

Hochstrasser Lab

PhD Thesis Title: The Saccharomyces Cerevisiae Protein Sts1 Binds Mature Proteasomes and Facilitates Proteasome Nuclear Localization.



Edward Courchain

Neugebauer Lab

PhD Thesis Title: Assembly Mechanisms of Nuclear Bodies.



Robert Fernandez

Koelle Lab

PhD Thesis Title: An Atlas of Neurotransmitter GPCRs in the C. elegans egg-laying circuit.

Hongli Chen

Hochstrasser Lab

PhD Thesis Title: A Wolbachia Nuclease and Its Binding Partner Provide a Novel Mechanism for Cytoplasmic Incompatibility.



Garrett Debs

Sindelar Lab

PhD Thesis Title: Using cryo-electron microscopy to study microtubule heterogeneity.



Pei-Tzu 'Ivy' Huang

Howard/Xiong Labs

PhD Thesis Title: Interactions and Regulation of Microtubule System with Viral and Cellular Proteins.



Andrew Huehn

Sindelar Lab

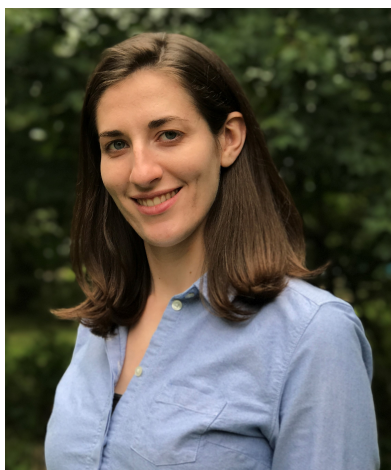
PhD Thesis Title: Structural Studies of Actin-Binding Proteins Involved in Actin Dynamics, Force-Sensing, and Organization.



Nichole Johnston

Strobel Lab

PhD Thesis Title: Fluoride Toxicity and the Cellular Response in Normal, Sensitized, and Resistant Yeast.



Kirsten Knecht

Xiong Lab

PhD Thesis Title: Investigating Immune Pathways Involved with Cancer Drug Metabolism and Viral Evasion.



Christopher Lim

Xiong Lab

PhD Thesis Title: Structural Elucidation of a Multifunctional Protein from *Orientia tsutsugamushi*.



Nandan Pandit

De La Cruz Lab

PhD Thesis Title: Mechanical Properties of the Arp2/3 Complex.



Neal Ravindra

Berro Lab

PhD Thesis Title: Molecular Assembly in the Endocytic Pathway.



Jeremy Schofield

Simon Lab

PhD Thesis Title: TimeLapse-seq: Investigating Transcriptional Dynamics using Nucleoside Recoding Chemistry.



Anthony Schramm

De La Cruz Lab

PhD Thesis Title: Plastic Deformations and Fragmentation of Strained Actin Filaments.



Juliana Shaw

Koleske Lab

PhD Thesis Title: Actin regulation and functional interactions in dendritic spines.



Tyler Smith

Simon Lab

PhD Thesis Title: Reengineering the Uridine-54 tRNA Methyltransferase, TrmA, to Covalently Capture New RNA Substrates.

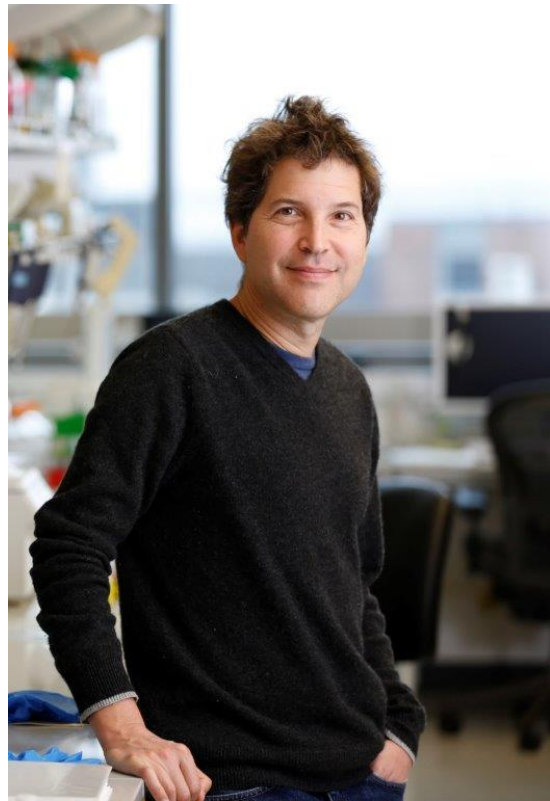
The Frederic M. Richards Lecture

David Baker - University of Washington
Institute of Protein Design

The Coming of Age of *de novo* Protein Design

Host Don Engelman wrote: On February 10, David Baker presented the F. M. Richards lecture: “The Coming Age of *de novo* Protein Design” to a packed audience. Fred was deeply interested in ways to think about folded proteins, ranging from his famous work on protein surfaces to his studies of interior packing. Fred’s work was informed by the emerging determinations of protein structures as the era of Structural Biology took hold, and therefore depended on the results of molecular evolution. David Baker’s work has progressively examined ways to infer structures of proteins from their amino acid sequences, resulting in his widely used program, ROSETTA. The successes of his computational approaches have now led to a most ambitious and exciting new step, the design of folded, functional

proteins that are not the consequences of evolutionary selection.



Staff Kudos

Achieving 30-years of service at Yale, with much gratitude for their dedication...



Ava Artatz

Faculty Support

Ava began her career at Yale in the Department of Surgery, followed by positions in Internal Medicine and the School of Management. Since joining MB&B in 1996, Ava worked with five faculty members and currently supports four senior faculty in the BASS building.



Liz Vellali

Faculty Support & Undergraduate Registrar

Liz began her Yale career at the Law School and joined MB&B in October 1999. She has worked with a dozen faculty members throughout the years, all at Sterling Hall of Medicine. In 2016, Liz was appointed to the role of the MB&B Undergraduate Registrar.

Student Kudos

[NSF Award](#) - Seth Lyon

[2020 Paul Sigler Award](#) - Kimberly Wei & Anna-Sophia Boguraev

[2020 Mary Ellen Jones Prize Award](#) - Tara Alpert & Jeremy Schofield

[2019-20 TA Award](#) - Nick Huston, Marisa Michalchik, Seth Lyon, Sarah Prophet & Vishok Srikanth

Faculty Kudos

[Scott Strobel appointed University Provost](#) on January 1, 2020

[Bermuda Principles to honor Joan Steitz](#) in February 2020

[Professor Tony Koleske](#) appointed **Deputy Dean of Scientific Affairs** on April 1, 2020

[Susan Baserga](#), Chair of the American Society for Biochemistry and Molecular Biology's **Women in Biochemistry and Molecular Biology Committee**, was recently appointed as the *William H. Fleming, M.D. '57 Professor of Molecular Biophysics and Biochemistry* on May 11, 2020

[Professor Tony Koleske](#) appointed **Ensign Professor of Molecular Biophysics & Biochemistry and of Neuroscience** on June 8, 2020

[Professor Yong Xiong](#) nominated for the 2020 Faculty Teaching Award

[Professor Enrique M. De La Cruz](#) appointed **Chair of MB&B** on July 1, 2020

[Professor and Chair Enrique M. De La Cruz and Robert W. Fernandez, PhD 2020 graduate](#), listed in the **Top 100 Inspiring Hispanic/Latinx Scientists in America** in *Cell Mentor* on September 16, 2020

New Publications

Authors: S Melnikov, HS Kwok, K Manakongtreecheep, A van den Elzen, CC Thoreen, D Söll

Title: [Archaeal Ribosomal Proteins Possess Nuclear Localization Signal-Type Motifs: Implications for the Origin of the Cell Nucleus](#)

January 1, 2020 - **Mol Biol Evol**: 37(1):124-133

Authors: J Howard, WO Hancock

Title: [Three Beads Are Better Than One](#)

January 7, 2020 - **Biophys J**: 118(1):1-3

[Karla Neugebauer highlighted in The Scientist](#)

Alternative Splicing Provides a Broad Menu of Proteins for Cells.
January 13, 2020.

Authors: T Bodrug, EM Wilson-Kubalek, S Nithianantham, AF Thompson, A Alfieri, I Gaska, J Major, G Debs, S Inagaki, P Gutierrez, L Gheber, RJ McKenney, CV Sindelar, R Milligan, J Stumpff, SS Rosenfeld, ST Forth, J Al-Bassam
Title: [The kinesin-5 tail domain directly modulates the mechanochemical cycle of the motor domain for anti-parallel microtubule sliding](#)
January 20, 2020 - **Elife:** 9:e51131

Authors: T Geiger, M Lara-Tejero, Y Xiong, JE Galán
Title: [Mechanisms of substrate recognition by a typhoid toxin secretion-associated muramidase](#)
January 20, 2020 - **Elife:** 9:e53473

Authors: AR Huehn, JP Bibeau, AC Schramm, W Cao, EM De La Cruz, CV Sindelar
Title: [Structures of cofilin-induced structural changes reveal local and asymmetric perturbations of actin filaments](#)
January 21, 2020 - **Proc Natl Acad Sci USA:** 117(3):1478-1484

Authors: BT Slater, X Han, L Chen, Y Xiong
Title: [Structural insight into T cell coinhibition by PD-1H \(VISTA\)](#)
January 21, 2020 - **Proc Natl Acad Sci USA:** 117(3):1648-1657

Authors: AA Svoronos, R Bahal, MC Pereira, FN Barrera, JC Deacon, M Bosenberg, D DiMaio, PM Glazer, DM Engelman
Title: [Tumor-Targeted, Cytoplasmic Delivery of Large, Polar Molecules Using a pH-Low Insertion Peptide](#)
February 3, 2020 - **Mol Pharm:** 17(2):461-471

Authors: P Pawlica, J Sheu-Gruttadauria, IJ MacRae, JA Steitz
Title: [How complementary targets expose the microRNA 3' end for tailing and trimming during target-directed microRNA degradation](#)
February 4, 2020 - **Cold Spring Harbor Symp. Quant. Biol:** 039321

Authors: JE Shaw, AJ Koleske
Title: [Functional interactions of ion channels with the actin cytoskeleton: does coupling to dynamic actin regulate NMDA receptors?](#)
February 7, 2020 - **J Physiol:** 10.1113/JP278702

Authors: JM Tharp, O Ad, K Amikura, FR Ward, EM Garcia, JHD Cate, A Schepartz, D Söll
Title: [Initiation of Protein Synthesis with Non-Canonical Amino Acids In Vivo](#)
February 17, 2020 - **Angew Chem Int Ed Engl:** 59(8):3122-3126

Authors: CE Olivero, E Martínez-Terroba, J Zimmer, C Liao, E Tesfaye, N Hooshdaran, JA Schofield, JBendor, D Fang, MD Simon, JR Zamudio, N Dimitrova
Title: [p53 Activates the Long Noncoding RNA Pvt1b to Inhibit Myc and Suppress Tumorigenesis](#)
February 20, 2020 - **Mol Cell:** 77(4):761-774.e8

Authors: A Lorenzo, EM De La Cruz, & EF Koslover
Title: [Thermal fracture kinetics of heterogeneous semiflexible polymers](#)
February 26, 2020 - **Soft Matter:** 16(8):2017-2024

Authors: C Zhao, Z Lyu, F Long, T Akinyemi, K Manakongtreecheep, D Söll, WB Whitman, DJ Vinyard, Y Liu
Title: [The Nbp35/ApbC homolog acts as a nonessential \[4Fe-4S\] transfer protein in methanogenic archaea](#)

March, 2020 - **FEBS Lett**: 594(5):924-932

Authors: NR Johnston, SA Strobel

Title: [Principles of fluoride toxicity and the cellular response: a review.](#)

March 9, 2020 - **Arch Toxicol**: 94(4):1051-1069

Authors: M Machyna, L Kiefer, MD Simon

Title: [Enhanced nucleotide chemistry and toehold nanotechnology reveals lncRNA spreading on chromatin](#)

March 10, 2020 - **Nat Struct Mol Biol**: 27(3):297-304

Authors: KH Gibson, F Trajtenberg, M Brady, F San Martin, A Mechaly, E Wunder, M Picardeau, AI Ko, A Buschiazzi, CV Sindelar

Title: [An asymmetric sheath controls flagellar supercoiling and motility in the Leptospira spirochete](#)

March 11, 2020 - **Elife**: 9:e53672

Authors: CA Stoneham, PW Ramirez, R Singh, M Suarez, A Debray, C Lim, X Jia, Y Xiong, J Guatelli

Title: [A Conserved Acidic-Cluster Motif in SERINC5 Confers Partial Resistance to Antagonism by HIV-1 Nef](#)

March 17, 2020 - **J Virol**: 94(7):e01554-19

Authors: AJ Rampello, SM Prophet, C Schlieker

Title: [The Role of Torsin AAA+ Proteins in Preserving Nuclear Envelope Integrity and Safeguarding Against Disease. Biomolecules.](#)

March 19, 2020 - **Biomolecules**: 10(3):468

Authors: J Rodenfels, P Sartori, S Golfier, K Nagendra, KM Neugebauer, J Howard

Title: [Contribution of increasing plasma membrane to the energetic cost of early zebrafish embryogenesis](#)

March 19, 2020 - **Mol Biol Cell**: 31(7):520-526

Authors: L Budenholzer, C Breckel, CM Hickey, M Hochstrasser

Title: [The Sts1 nuclear import adapter uses a non-canonical bipartite nuclear localization signal and is directly degraded by the proteasome](#)

March 19, 2020 - **J Cell Sci**: 133(6):jcs236158

Authors: AS Germyn, W Cao, WA Elam, EM De La Cruz, MM Lin

Title: [Directional allosteric regulation of protein filament length.](#)

March, 2020 - **Phys. Rev. E** 101, (3-1):032409

Authors: J Corum, C Zimmer

Title: [Bad News Wrapped in Protein: Inside the Coronavirus Genome.](#)

April 3, 2020 - The New York Times

Authors: AJ Knappenberger, CW Reiss, CM Focht, SA Strobel

Title: [A Modular RNA Domain That Confers Differential Ligand Specificity.](#)

April 7, 2020 - **Biochemistry**: 59(13):1361-1366

Authors: YK Reshetnyak, A Moshnikova, OA Andreev, DM Engelman

Title: [Targeting Acidic Diseased Tissues by pH-Triggered Membrane-Associated Peptide Folding.](#)

April 28, 2020 - **Front Bioeng Biotechnol**: 8:335

Authors: MA McCool, CJ Bryant, SJ Baserga

Title: [MicroRNAs and long non-coding RNAs as novel regulators of ribosome biogenesis.](#)

April 29, 2020 - **Biochem Soc Trans**: 48(2):595-612

Authors: J Zhang, T Teramoto, C Qiu, RN Wine, LE Gonzalez, SJ Baserga, TM Hall
Title: [Nop9 recognizes structured and single-stranded RNA elements of pre-ribosomal RNA.](#)
May 5, 2020 - **RNA** **2020**: 26(8):1049-1059

Authors: DA Hiller, BF Dunican, S Nallur, NS Li, JA Piccirilli, SA Strobel
Title: [The Positively Charged Active Site of the Bacterial Toxin RelE Causes a Large Shift in the General Base pKa.](#)
May 5, 2020 - **Biochemistry**: 59(17):1665-1671

Authors: JM Berk, C Lim, JA Ronau, A Chaudhuri, H Chen, JF Beckmann, JP Loria, Y Xiong, M Hochstrasser
Title: [A deubiquitylase with an unusually high-affinity ubiquitin-binding domain from the scrub typhus pathogen Orientia tsutsugamushi.](#)
May 11, 2020 - **Nat Commun**: 11(1):2343

Authors: Y Luo, JA Schofield, MD Simon, SA Slavoff
Title: [Global Profiling of Cellular Substrates of Human Dcp2](#)
May 14, 2020 - **Biochemistry**: 0c00069

Authors: JM Tharp, N Krahn, U Varshney, D Söll
Title: [Hijacking Translation Initiation for Synthetic Biology](#)
May 15, 2020 - **Chembiochem**: 21(10):1387-1396

Authors: CD Torgerson, DA Hiller, SA Strobel
Title: [The asymmetry and cooperativity of tandem glycine riboswitch aptamers.](#)
May 26, 2020 - **RNA**: (5):564-580

Authors: HY Ryu, SH Ahn, M Hochstrasser
Title: [SUMO and cellular adaptive mechanisms](#)
June, 2020 - **Exp Mol Med**: 52(6):931-939

Authors: AR Kaplan, H Pham, Y Liu, S Oyaghire, R Bahal, DM Engelman, PM Glazer
Title: [Ku80-Targeted pH-Sensitive Peptide-PNA Conjugates Are Tumor Selective and Sensitize Cancer Cells to Ionizing Radiation](#)
June, 2020 - **Mol Cancer Res**: 18(6):873-882

Authors: AJ Rampello, E Laudermitch, N Vishnoi, SM Prophet, L Shao, C Zhao, CP Lusk, C Schlieker
Title: [Torsin ATPase deficiency leads to defects in nuclear pore biogenesis and sequestration of MLF2](#)
June 1, 2020 - **J Cell Biol**: 219(6):e201910185

Authors: G Slaybaugh, D Weerakkody, DM Engelman, OA Andreev, YK Reshetnyak
Title: [Kinetics of pHLIP peptide insertion into and exit from a membrane](#)
June 2, 2020 - **Proc Natl Acad Sci USA**: 117(22):12095-12100

Authors: S Bahmanyar, C Schlieker
Title: [Lipid and protein dynamics that shape nuclear envelope identity.](#)
June 15, 2020 - **Mol Biol Cell**: 31(13):1315-1323

Authors: NG Pandit, W Cao, J Bibeau, EM Johnson-Chavarria, EW Taylor, TD Pollard, EM De La Cruz
Title: [Force and phosphate release from Arp2/3 complex promote dissociation of actin filament branches.](#)
June 16, 2020 - **Proc Natl Acad Sci USA**: 117(24):13519-13528

Authors: R Orbach, J Howard

Title: [Purification of Ciliary Tubulin from *Chlamydomonas reinhardtii*](#)

June 22, 2020 - **Curr Protoc Protein Sci:** 100(1):e107

Authors: N Adaku, HB Park, DJ Spakowicz, MK Tiwari, SA Strobel, JM Crawford, FA Rogers

Title: [A DNA Repair Inhibitor Isolated from an Ecuadorian Fungal Endophyte Exhibits Synthetic Lethality in PTEN-Deficient Glioblastoma.](#)

June 26, 2020 - **J Nat Prod:** 83(6):1899-1908

Authors: F Wang, W Hou, L Chitsike, Y Xu, C Bettler, A Perera, T Bank, SJ Cotler, A Dhanarajan, MF Denning, X Ding, P Breslin, W Qiang, J Li, AJ Koleske, W Qiu

Title: [ABL1, Overexpressed in Hepatocellular Carcinomas, Regulates Expression of NOTCH1 and Promotes Development of Liver Tumors in Mice](#)

July, 2020 - **Gastroenterology:** 159(1):289-305.e16

Authors: G Debs, HK Cha, X Liu, D Liu, CV Sindelar

Title: [Dynamic and asymmetric fluctuations in the microtubule wall captured by high-resolution cryo- electron microscopy](#)

July 7, 2020 - **Proc Natl Acad Sci USA:** 7;202001546

Authors: N Kaur, W Han, Z Li, MP Madrigal, S Shim, S Pochareddy, FO Gulden, M Li, X Xu, X Xing, Y Takeo, Z Li, K Lu, YI Kawasaki, B Ballester-Lurbe, JA Moreno-Bravo, A Chédotal, J Terrado, I Pérez-Roger, AJ Koleske, N Sestan

Title: [Neural Stem Cells Direct Axon Guidance via Their Radial Fiber Scaffold](#)

July 22, 2020 - **Neuron:** S0896-6273(20)30489-X

Authors: SE Yalcin, BA Legg, M Yeşilbaş, NS Malvankar, JF Boily

Title: [Direct observation of anisotropic growth of water films on minerals driven by defects and surface tension](#)

July 24, 2020 - **Sci Adv:** 6(30):eaaz9708

Authors: H Chen, M Zhang, M Hochstrasser

Title: [The Biochemistry of Cytoplasmic Incompatibility Caused by Endosymbiotic Bacteria](#)

July 25, 2020 - **Genes (Basel):** 11(8):E852

Authors: SV Melnikov, DL Stevens, X Fu, HS Kwok, JT Zhang, Y Shen, J Sabina, K Lee, H Lee, D Söll

Title: [Exploiting evolutionary trade-offs for posttreatment management of drug-resistant populations](#)

July 28, 2020 - **Proc Natl Acad Sci USA:** 117(30):17924-17931

Authors: J Li, M Hochstrasser

Title: [Microautophagy regulates proteasome homeostasis](#)

August, 2020 - **Curr Genet:** 66(4):683-687

Authors: SE Yalcin, JP O'Brien, Y Gu, K Reiss, SM Yi, R Jain, V Srikanth, PJ Dahl, W Huynh, D Vu, A Acharya, S Chaudhuri, T Varga, VS Batista, NS Malvankar

Title: [Electric field stimulates production of highly conductive microbial OmcZ nanowires](#)

August 17, 2020 - **Nat Chem Biol:** s41589-020-0623-9

Authors: JM Schmidt, F Bleichert

Title: [Structural mechanism for replication origin binding and remodeling by a metazoan origin recognition complex and its co-loader Cdc6](#)

August 26, 2020 - **Nat Commun:** 11, 4263 (2020)

Authors: L Chu, J Tyson, JE Shaw, F Rivera-Molina, AJ Koleske, A Schepartz, DK

Toomre

Title: [Two-color nanoscopy of organelles for extended times with HIDE probes](#)

August 26, 2020 - **Nat Commun:** 11(1):4271

New Research Grants

Post-Doctoral

PI - [Cameron](#)

Project Title: Improved cryo-EM particle identification by inferred specimen conformation

Source of Support: Childs (Jane Coffin) Memorial Fund

PI - [Carrocci](#)

Project Title: Molecular Mechanisms Coupling Transcription and Splicing

Source of Support: National Institutes of Health/DHHS

PI - [Ishchenko](#)

Project Title: Regulation of GluN2B-NMDARs by actin

Source of Support: American Heart Association

Faculty

PI - [De La Cruz](#)

Project Title: Actin filament mechanics and branched network turnover

Source of Support: National Institute of General Medical Sciences/NIH/DHHS

PI - [De La Cruz](#)

Project Title: MURI: Mechanisms of force sensing in adherent cells as inspiration for new materials

Source of Support: Army Research Office

PI - [Engelman](#)

Project Title: Mechanism and Uses of Transmembrane Helix Insertion by Soluble Peptides

Source of Support: National Institute of General Medical Sciences/NIH/DHHS

PI - [Gilbert](#)

Project Title: Cancer-associated alterations of the dihydrouridine landscape in kidney cancer

Source of Support: National Cancer Institute/NIH/DHHS

PI - [Hochstrasser](#)

Project Title: Mechanisms of Cell Regulation and Manipulation by the Ubiquitin System

Source of Support: NIGMS/NIH/DHHS

PI - [Koleske](#)

Project Title: Direct binding and control of microtubule elongation by Abl2

Source of Support: National Institute of Neurological Disorders and Stroke/NIH/DHHS

PI - [Koleske](#)

Project Title: Signaling pathway- and brain region-specific impacts of ASD-

associated mutations in TRIO
Source of Support: Simons Foundation

PI - [Miranker](#)

Project Title: Breaking Toxin Propagation in Multiple System Atrophy

Source of Support: Blavatnik Fund for Innovation at Yale

PI - [Simon](#)

Project Title: Mechanisms of Leukemogenesis in AMKL

Source of Support: National Cancer Institute/NIH/DHHS

PI - [Strobel](#)

Project Title: Discovery and characterization of new riboswitches

Source of Support: National Institutes of Health/DHHS

PI - [Strobel](#)

Project Title: The Role of a Membrane Channel in Conferring Fluoride Resistance in Plants

Source of Support: National Science Foundation

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