## Hani Zaher

Washington University in St. Louis Tel: 314-935-7662

Department of Biology, Fax: 314-935-4432

Campus Box 1137, Email: hzaher@wustl.edu

One Brookings Drive

St. Louis, MO 63130-4899

# RESEARCH INTERESTS

I am interested in the functional role of RNA in metabolism. In particular, my research focuses on understanding the mechanisms that govern translational fidelity and its impact on cellular fitness and codon evolution. Currently my group is attempting to expand our understanding of translation-based quality control mechanisms in eukaryotes and their impact on gene regulation.

# EMPLOYMENT

2018 – on **Associate Professor of Biology**, Washington University in St. Louis

2012-2018 **Assistant Professor of Biology**, Washington University in St. Louis

2007-2012 **Postdoctoral Fellow,** Johns Hopkins School of Medicine, Baltimore, MD

2002-2007 **Graduate Research Assistant,** Simon Fraser University, Burnaby, BC, Canada

2003-2004 **Teaching Assistant, Physical Biochemistry,** Simon Fraser University, Burnaby, BC, Canada

# EDUCATION

2012 **Postdoctoral fellow** (Supervisor: Rachel Green) HHMI, The Johns Hopkins University School of Medicine, Baltimore, MD

2007 **Ph.D.** in Molecular Biology and Biochemistry (Supervisor: Peter Unrau), Thesis Title: “RNA-mediated chemistries: a case of replication and capping”, Simon Fraser University, Burnaby, BC, Canada

1. **B.Sc.** in Molecular Biology and Biochemistry (*co-operative education*), Simon Fraser University, Burnaby, BC, Canada

# HONORS/AWARDS

2014 Searle Scholar Award

2011 The RNA Society/Scaringe Young Scientist Award

2010-2015 K99/R00 NIH Pathway to Independence Award

2008-2010 Postdoctoral Fellowship: Natural Sciences and Engineering Research Council of Canada

2007 Best graduate thesis in the Department of Molecular Biology and Biochemistry: Simon Fraser University

2007 Graduate Fellowship: Simon Fraser University

2006 President’s Fellowship: Simon Fraser University

2006 Graduate Fellowship: Simon Fraser University

2005-2006 Doctoral Award: Canadian Institutes of Health Research

2004 Graduate Fellowship: Simon Fraser University

1998 Open Scholarship: Simon Fraser University

1997-1999 Summit Entrance Scholarship: Simon Fraser University

1995-1997 United World College Scholarship: Lester B. Pearson College of the Pacific

# PUBLICATIONS

36 Yan, L.L. and **Zaher, H.S.** (2021) **“**Ribosome-quality control antagonizes the activation of the integrated-stress response on colliding ribosomes” *Mol. Cell****,* in press**.

35 Thomas, E.N., Kim, K.Q. McHugh, E.P., Marcinkiewicz, T. and **Zaher, H.S.** (2020) **“**Alkylative damage of mRNA leads to ribosome stalling and rescue by *trans*-translation in bacteria” *eLife*, **accepted.**

34 Verma, M.\*, Junhong Choi, J.\*, Cottrell, K.A.\*, Lavagnino, Z., Thomas, E.N., Pavlovic-Djuranovic, S., Pawel Szczesny, P., Piston, D.W., **Zaher, H.S.**, Puglisi, J.D. and Djuranovic, S. (2019) “Short translational ramp determines efficiency of protein synthesis” *Nat Commun*. **10**(1):5774

33 Yan, L.L., Simms, C.L., McLoughlin, F., Vierstra, R.D. and **Zaher, H.S.** (2019) “Oxidation and alkylation stresses activate ribosome-quality control”. *Nat Comm.* **10**(1):5611

32 Thomas E.N., Simms C.L., Keedy H.E. and **Zaher H.S.** (2019) “Insights into the base-pairing preferences of 8-oxoguanosine on the ribosome” *Nucleic Acids Res*, **47**(18):9857-9870.

31 Yan, L.L. and **Zaher H.S.** (2019) “How do cells cope with RNA damage and its consequences?” *J Biol Chem*, **294**(41):15158-15171. (**Invited review**).

30 Simms, C. L., Yan, L.L., Qiu, J. N., and **Zaher H.S.** (2019) “Ribosome Collisions Result in +1 Frameshifting in the Absence of No-Go Decay*” Cell Rep* **28**(7):1679-1689*.*

*29.* Oliviera, V., Mahajan, N., Bates, M.L., Tripathi, C., Kim, K.Q., **Zaher, H.S.**, Maggi, L. B. (Jr) and Tomasson, M.H. (2019) “The snoRNA target of t (4; 14) in multiple myeloma regulates ribosome biogenesis” FASEB BioAdvances **1**(7):404-414.

28 Yan, L.L. and **Zaher, H.S.** (2019) “Ubiquitin is a beacon for all during quality control on the ribosome” *EMBO J*, **38(**5). pii: e101633.

27 Simms, C.L., Kim, K.Q., Yan, L.L., Qiu, J. and **Zaher H.S.** (2018) “Interactions between the mRNA and Rps3/uS3 at the entry tunnel of the ribosomal small subunit are important for no-go decay” *PLoS Genet.*, **14**(11):e1007818.

26 Keedy, H.E. Thomas, E.N., and **Zaher, H.S.** (2018) “Decoding on the ribosome depends on the structure of the mRNA phosphodiester backbone”, *Proc. Natl. Acad. Sci. USA,* **115**(29):E6731-E6740.

25 Simms, C. L., Yan, L.L. and **Zaher H.S.** (2017) “Ribosome collision is critical for quality control during no-go decay” *Mol. Cell*, **68**(2):361-373.

24 Simms, C.L., Thomas, E.N. and **Zaher, H.S.** (2017) “Ribosome-based Quality Control Mechanisms” *Wiley Interdiscip. Rev. RNA,* doi: **10**.1002/wrna.1366 (invited review).

23 Arefanian S., Schäll D., Chang S., Ghasemi R., Higashikubo R., Zheleznyak A., Guo Y., Yu J., Asgharian H., Li W., Gelman A.E., Kreisel D., French A.R., **Zaher H.**, Plougastel-Douglas B., Maggi L., Yokoyama W., Beer-Hammer S., Krupnick A.S. (2016) “Deficiency of the adaptor protein SLy1 results in a natural killer cell ribosomopathy affecting tumor clearance”. *Oncoimmunology*, **5**(12):e1238543.

22 Pierson, W.E., Hoffer, E., Keedy, H.E., Simms, C.L., Dunham, C.M. and **Zaher H.S.** (2016) “Uniformity of peptide release is maintained by methylation of release factors” *Cell Rep.*, **17**(1):11-8.

21 Simms, C.L. and **Zaher, H.S.** (2016) “Quality control of chemically damaged RNA” *Cell. Mol. Life Sci.*, **73**(19):3639-53. (invited review).

20 Carle, C.M., **Zaher, H.S.** and Chalker, D.L. (2016) “A parallel G quadruplex-binding protein regulates the boundaries of DNA elimination events of Tetrahymena thermophile” *PLoS Genet.*, **12**(3):e1005842.

19 Djuranovic, S.D. and **Zaher, H.S.** (2016) “Targeted mRNA degradation” in Encyclopedia of Cell Biology, Hart, Goud, Raposo, Ezekowitz and Lauffenburger, eds (Elsevier, Oxford, UK). (Book Chapter)

18 Hudson, B.H. and **Zaher, H.S.** (2015) “O6-Methyguanosine leads to position-dependent effects on ribosome speed and fidelity” *RNA*, **21**(9):1648-1659.

17 Hudson, B.H. and **Zaher, H.S.** (2014) “Ribosomes left in the dust: diverse strategies for peptide-mediated translation stalling” *Mol. Cell*, **56**(3):345-346. (Preview).

16 Simms, C.L., Hudson, B.H., Mosior, J.W., Rangwala A. S. and **Zaher, H.S.** (2014) “An active role for the ribosome in determining the fate of oxidized mRNA” *Cell Rep.*, **9**(4):1256-1264.

15 **Zaher, H. S.** and Green, R. (2014). “In vitro synthesis of proteins in bacterial extracts” *Methods Enzymol.,* **539**:3-15. (Book Chapter).

14 Petropoulos, A. D., McDonald, M. E., Green, R. and **Zaher, H. S.** (2014) “Distinct roles for release factor 1 and release factor 2 in translational quality control” *J. Biol. Chem.*, **289**(25):17589-96.

13 **Zaher, H. S.** and Green, R. (2011). “A primary role for release factor 3 in quality control during translation elongation in Escherichia coli” *Cell*, **147**(2):396-408.

12 Miller, M. R., Liu, Z., Cazier, D. J., Gebhard, G. M., Herron, S. R., **Zaher, H. S.**, Green, R. and Buskirk, A. R. (2011). “The role of SmpB and the ribosomal decoding center in licensing tmRNA entry into stalled ribosomes” *RNA*, **17**(9):1727-36.

11 **Zaher, H. S.**, Shaw, J. J., Strobel, S. A. and Green, R. (2011). “The 2'-OH group of the peptidyl-tRNA stabilizes an active conformation of the ribosomal PTC” *EMBO J.*, **30**(12):2445-53.

10 Ortiz-Meoz, R. F., He, S. L., **Zaher, H. S.** and Green, R. (2011). “Sense and nonsense recognition by the ribosome” in Ribosomes Structure, Function, and Dynamics, Rodnina, M. V.; Wintermeyer, W.; Green, R., eds. (Springer-Verlag, New York). (Book Chapter).

9 **Zaher, H. S.** and Green, R. (2010). “Kinetic basis for global loss of fidelity arising from mismatches in the P-site codon:anticodon helix” *RNA*, **16**(10):1980-9.

8 **Zaher, H.S.** and Green, R. (2010). “Hyperaccurate and error-prone ribosomes exploit distinct mechanisms during tRNA selection” *Mol. Cell*, **39**(1):110-20.

7 **Zaher, H. S.** and Green, R. (2009). “Quality control on the ribosome following peptide bond formation” *Nature*, **457**(7226): 161-166.

6 **Zaher, H. S.** and Green, R. (2009). “Fidelity at the molecular level: lessons from protein synthesis” *Cell*, **136**(4): 746-762. (Invited Review).

5 **Zaher, H. S.** and Unrau, P. J. (2007). “Selection of an improved RNA polymerase ribozyme with superior extension and fidelity” *RNA*, **13**(7):1017-26.

4 **Zaher, H. S.** and Unrau, P. J. (2006). “A general RNA-capping ribozyme retains stereochemistry during cap exchange” *J. Am. Chem. Soc.*, **128**(42):13894-900.

3 **Zaher, H. S.**, Watkins, R. A. and Unrau, P. J. (2006). “Two distinct capping ribozymes have highly convergent catalytic properties” *RNA*, **12**(11):1949-58.

2 **Zaher, H. S.** and Unrau, P. J. (2005). “Nucleic acid library construction using synthetic DNA constructs” *Methods Mol. Biol.*, **288**: 359-378. (Book Chapter)

1 **Zaher, H. S.** and Unrau, P. J. (2004). “T7 RNA polymerase mediates fast promoter-independent extension of unstable nucleic complexes” *Biochemistry*, **43**(24): 7873-7880.

# TEACHING

FA13-20 BIO451 General Biochemistry, Washington University in St. Louis

 FA12-18 BIO548 Nucleic Acids and Protein Synthesis (Discussion leader)

FA13-20 BIO548 Nucleic Acids and Protein Synthesis (One of 4 lecturers)

FA15-16 BIO5357 Chemistry and Physics of Biomolecules (One of 7 lecturers)

14-current BIO500 Undergraduate Research

SP13,SP17 BIO5011 Ethics and Research Science

 2017 Completed the two-year Washington University’s Teaching Center Mentoring in STEM Teaching Program (MiST).

# FUNDING

**Current**

2015-2021 NIH R01 (R01GM112641) H. Zaher PI. (total direct cost: $987,500)

*The role of the ribosome in determining the fate of damaged mRNA*

**Pending**

NIH R01 (1R01GM141474-01) H. Zaher PI. (5th percentile, Pending Council Review 02/21)

*Reading frame maintenance by the ribosome during stalling*

NIH R01 (2R01GM112641-06A1) H. Zaher PI. (Pending IRG Review 02/2021)

*Ribosome stalling and activation of stress responses*

**Completed**

2016-2018 Siteman Investment Program Multi-PI pre-R01 award (50% Mosammaparast, 50% Zaher) (total direct cost to Zaher: $200,000)

 *RNA as a target of alkylation chemotherapy in cancer*

2014-2017 Searle Scholar Award (total direct cost: $300,000)

 *Role of the Ribosome in Damaged-RNA Response*

2010-2015 NIH K99/R00 (K99GM094210 R00GM094210) (total cost: $880,000)

 Pathway to Independence Award, H. Zaher (PI)

*The molecular mechanism of post-peptidyl transfer quality control on the ribosome*

# ORAL PRESENTATIONS

1. Chairperson for the session on Mechanisms and Regulation of Translation at the RNA Society annual meeting, which was scheduled to take in place in Singapore but became virtual (June 2021). (**Invited talk**).
2. “Ribosome collisions activate multiple stress responses” Protein Folding on the Ribosome conference, which was scheduled to take at the Johns Hopkins University, but became virtual (December 2020). (**Invited talk**).
3. Chairperson for the session on Quality Control at the Cold Spring Harbor Laboratory Translational Control Meeting. Virtual (September 2020). (**Invited talk**)
4. “RNA oxidation induces ribosome-quality control” Department of Chemistry, University of Colorado, Denver, CO (May 2020\*) (**Invited talk**). \*Moved to December 2020 for a virtual seminar.
5. “Stress response and ribosome collisions” Caltech, Pasadena, CA (March 2020) (**Invited talk**)
6. “The ribosome and quality control of damaged mRNAs” Department of Chemistry, Institute for Biochemistry and Molecular Biology, University of Hamburg, Hamburg, Germany (November 2019) (**Invited talk**).
7. “How cells respond to damaged mRNA” RNA society of North Carolina, Durham, NC (October 2019) (**Invited talk**)
8. “Decoding of modified mRNA and its impact on quality control processes” Nucleic Acids Gordon Research Conference, River Resort, Maine (June 2019) (**Invited talk**)
9. “Ribosome collision and frameshifting” Ribosomes meeting, Mérida, Mexico (Jan 2019) (**Invited talk**)
10. “The ribosome and quality control of chemically-damaged mRNA” Society for redox biology and medicine (SfRBM), Chicago, IL (November 2018) (**Invited talk**)
11. “RNA damage triggers ribosome quality control” FASEB SRC Post Transcriptional Control of Gene Expression: Mechanisms of RNA Decay, Scottsdale, AZ (June 2018) (**Invited talk**)
12. “The ribosome and mRNA quality control” Department of Biochemistry, University of Utah, (Jan 2018) (**Invited talk**)
13. “The ribosome and mRNA quality control” Moderna, Cambridge, MA (Dec 2017) (**Invited talk**)
14. “Quality control processes are important for frame maintenance on the ribosome ” RNA Therapeutics Institute & Department of Biochemistry and Molecular Pharmacology, University of Massachusetts Medical School (Dec 2017) (**Invited talk**)
15. “Role of ribosome collision on quality control during no-go decay” Colloquium Series of Bioinformatics and Computational Biology, Saint Louis University, (Oct 2017) (**Invited talk**)
16. “Role of ribosome collision on quality control during no-go decay” Department of Developmental Biology, Washington University in St. Louis, (Oct 2017) (**Invited talk**)
17. “The ribosome and quality control of mRNA” Department of Biochemistry & Molecular Biology, Southern Illinois University, (Sep 2017) (**Invited talk**)
18. “Chemical damage induces quality control on the ribosome” Department of Biochemistry, Emory University, (March 2017) (**Invited talk**)
19. “Mechanistic insights into quality control on the ribosome” Division of Hematology, Washington University in St. Louis (Nov 2016) (**Invited talk**)
20. “Mechanistic insights into quality control on the ribosome” Department of Genetics, Washington University in St. Louis (Oct 2016) (**Invited talk**)
21. “A collision-based model for no-go decay on the ribosome” FASEB post-transcriptional control of gene expression: mRNA decay, Lisbon, Portugal (July 2016) (**Invited talk**)
22. “Mechanistic insights into quality control on the ribosome” Protein Folding Consortium, St. Louis (June 2016) (**Keynote**)
23. “mRNA quality control on the ribosome” ASBMB annual meeting, San Diego, CA (Apr 2016) (**Invited talk**)
24. “Ribosome-based quality control of mRNA” University of Rochester (Feb 2016) (**Invited talk**)
25. “Ribosome-based quality control of mRNA" Saint Louis University Biochemistry Annual retreat (Oct 2015) (**Keynote**)
26. “Quality control of damaged mRNA” Uppsala University, Uppsala, Sweden (May 2015) (**Invited talk**)
27. “Quality control of damaged mRNA” Adam Mickiewicz University, Poznan, Poland (Apr 2015) (**Invited talk**)
28. “RNA quality control on and off the ribosome” King Abdullah University of Science and Technology, Thuwal, Saudi Arabia (Mar 2015) (**Invited talk**)
29. “Ribosomal response to mRNA damage” University of Missouri-St. Louis, St. Louis, MO (Oct 2014) (**Invited talk**)
30. “An active role for the ribosome in deciding the fate of damaged mRNA” Molecular Genetics and Genomics retreat, Washington University in St. Louis (Sep 2014) (**Invited talk**)
31. “An active role for the ribosome in deciding the fate of damaged mRNA” ACS 2014, San Francisco, CA (Aug 2014) (**Invited talk**)
32. “Atypical decoding events on the ribosome” American Society for Microbiology (ASM) general meeting, Boston, MA (May 2014) (**Invited talk**)
33. “An active role for the ribosome in deciding the fate of damaged mRNA” Experimental Biology 2014 (ASBMB meeting), San Diego, CA (April 2014)
34. “Atypical decoding events on the ribosome” Biophysical evenings, Washington University in St. Louis, (January 2014)
35. “Mechanism and implications of proofreading on the ribosome” Biochemistry/Biophysics retreat, Washington University in St. Louis, (October 2013) (**Keynote**)
36. “Mechanism and implications of proofreading on the ribosome” Simon Fraser University, BC, Canada (February 2013) (**Invited talk**)
37. “Mechanisms of ribosomal fidelity and their impact on cellular fitness” UCSF, San Francisco, CA (April 2012) (**Invited talk**)
38. “Mechanisms of ribosomal fidelity and their impact on cellular fitness” Scripps Rockefeller University, New York, NY (April 2012) (**Invited talk**)
39. “Dealing with mistakes: A new form of proofreading on the ribosome” Scripps Research Institute, Jupiter, FL (March 2012) (**Invited talk**)
40. “Dealing with mistakes: A new form of proofreading on the ribosome” Rockefeller University, New York, NY (March 2012) (**Invited talk**)
41. “Dealing with mistakes: A new form of proofreading on the ribosome” UT Southwestern, Dallas, TX (March 2012) (**Invited talk**)
42. “Dealing with mistakes: A new form of proofreading on the ribosome” Caltech, Pasadena, CA (February 2012) (**Invited talk**)
43. “Dealing with mistakes: A new form of proofreading on the ribosome” UCLA, LA, CA (February 2012) (**Invited talk**)
44. “Dealing with mistakes: A new form of proofreading on the ribosome” UMASS Medical School, Worcester, MA (February 2012) (**Invited talk**)
45. “Dealing with mistakes: A new form of proofreading on the ribosome” UCSF, San Francisco, CA (February 2012) (**Invited talk**)
46. “Dealing with mistakes: A new form of proofreading on the ribosome” University of Colorado, Boulder, CO (February 2012) (**Invited talk**)
47. “Dealing with mistakes: A new form of proofreading on the ribosome” Memorial Sloan Kettering Cancer Center, New York, NY (February 2012) (**Invited talk**)
48. “Dealing with mistakes: A new form of proofreading on the ribosome” Duke University, Durham, NC (January 2012) (**Invited talk**)
49. “Dealing with mistakes: A new form of proofreading on the ribosome” Washington University in St. Louis, St. Louis, MO (January 2012) (**Invited talk**)
50. “Dealing with mistakes: A new form of proofreading on the ribosome” University of Michigan, MCDB, Ann Arbor, MI (January 2012) (**Invited talk**)
51. “Dealing with mistakes: A new form of proofreading on the ribosome” University of Michigan, Biological Chemistry, Ann Arbor, MI (January 2012) (**Invited talk**)
52. “Dealing with mistakes: A new form of proofreading on the ribosome” Yale University, New Haven, CT (January 2012) (**Invited talk**)
53. “Dealing with mistakes: A new form of proofreading on the ribosome” University of Utah, Salt Lake City, UT (January 2012) (**Invited talk**)
54. “Dealing with mistakes: A new form of proofreading on the ribosome” University of Texas, Austin, TX (December 2011) (**Invited talk**)
55. “Dealing with mistakes: A new form of proofreading on the ribosome” National Institutes of Health, Bethesda, MD (December 2011) (**Invited talk**)
56. “Dealing with mistakes: the ribosome’s response to misincorporations” *Gordon Research Conference, DNA Damage, Mutation & Cancer,* Ventura, California (March 2010) (**Invited talk**)
57. “RNA-mediated chemistries: a case of replication and capping” *Darwin’s Legacy Conference,* Hamilton, Ontario, Canada (May 2009) (**Keynote address**)
58. “Dealing with mistakes: the ribosome’s response to misincorporations” *New York Academy of Science,* New York City, New York (April 2009) (**Invited talk**)
59. “Dealing with mistakes: the ribosome’s response to misincorporations” *The Philadelphia RNA club,* Philadelphia, Pennsylvania (March 2009) (**Invited talk**)
60. “RF2 accelerates peptide release on sense codons after a miscoding event” *RNA Society 13th Annual Meeting,* Berlin, Germany (July 2008) (**Abstract-selected talk**)
61. “Processive and Accurate Polymerization by an Improved RNA Polymerase Ribozyme” *RNA Society 12th Annual Meeting,* Madison, Wisconsin (June 2007) (**Abstract-selected Talk**)
62. “Improved RNA-catalyzed RNA polymerization: towards an RNA replicase ribozyme” *Volcano Conference in Bioorganic Chemistry,* Pack Forrest, Washington (Feb. 2007)
63. “A general RNA-capping ribozyme retains stereochemistry during cap formation.” *RNA Society 11th Annual Meeting,* Seattle, Washington (June 2006) (**Abstract-selected Talk**)
64. “*In* *vitro* selection and characterization of a general capping ribozyme”*RNA Society 10th Annual Meeting,* Banff, Alberta (May 2005) (**Abstract-selected Talk**)
65. “Fast T7 RNA polymerase mediated extension of transient nucleic acid complexes” *Volcano Conference in Bioorganic Chemistry,* Pack Forrest, Washington (Feb. 2004)
66. “RNA world and ribozyme chemistry” *MBB Annual Colloquium,* Simon Fraser University, Burnaby, BC, Canada (Jan. 2003)

# MENTORING ACTIVITIES

**Postdoctoral fellows:**

 Benjamin Hudson (2013-2017) (Currently at MilliporeSigma as a senior scientist)

 Carrie Simms (2013-2017) (Currently at Fimbrionne as a research scientist)

 Bhagyashri Burgute (2018-2020) (Currently at WashU Med campus as a staff scientist)

**Students:**

Erica Thomas (2015-2019) (PMB)

 Liewei Yan (2015-) (PMB)

 Kyusik Kim (2018-) (MCB)

**Rotation students:**

Elizabeth Mueller (Fall 2015) (MMP)

 Catie Knorvek (Fall 2016) (BBSB)

 Ryan Bitter (Summer 2019) (MCB)

 Jenna Eschbach (Winter 2020) (PMB)

 Sarah Koester (Fall 2020) (MCB)

**Undergraduate Students:**

 Ali Rangwala (2012-2015) (Currently in my lab)

 Jessica Qiu (2013-2015) (medical school NYU)

 Will Pierson (2013-2015) (UCSF)

 Richard Van Besien (2014-2015) (medical school UMD)

 Kyusik Kim (2014-2015) (MCB graduate student at WashU)

 Michael Bereisha (2014-2015) (medical school Vilnius University)

 Alison Greenlaw (2016-2018) (Graduate student at University of Washington)

 Anjana Rajan (2016-2018) (Medical student at Cornell University)

 Victoria Olojo (2016-2017)

 Barath Baskaran (2016-2020)

 Shin Kim (2018-2019)

 Crystal Jing (2018-)

 Alex Hung (2018-)
 Joshua Ralston (2018, Purdue University)

 Jessica Yu (2020-)

**Technicians**

Bo Zhang (2012-2013) (Graduate student UMKC)

 John Mosior (2013-2014) (Graduate student Texas A&M)

 Hannah Keedy (2014-2016) (MPH candidate SLU)

 Kyusik Kim (2015-2017) (MCB graduate student at WashU)

 Zinaida Osipova (2017-2018) (Graduate student at Miami University)

 Kathryn Rooney (2017-2018) (Medical student University of Tennessee)

 Felix Solomon Jr. (2017-2018)

 Emily McHugh (2018-2020)

**High-school students**

Tommy Marcinkiewicz

 Luke Beggs

 Charumati Deeljore

 Gracie Seim

 Fareeha Naseer

**Thesis committees**

Corey Westfall (BBSB)

David Korasick (PMB)

Christine Carle (MMP)

Wan Shi (PMB)

Zhen Peng (EEPB)

Hai Yue (Chemistry)

Jillian Smith (Chemistry)

Allison Hoynes-O'Connor (BME)

Ryan Lee (BME)

Yining Huang (Chemistry)

Joshua Brickner (MCB)

Robb Welty (BBSB)

Jennifer Soll (MGG)

Jerome Prusa (MMP)

Jessey Erath (MMP)

Manishi Padney (Computational and System Biology program)

Wayne Warner (BBSB)

Leeran Dublin (Developmental, Regenerative and Stem Cell Biology Students)

Yuqing Zhu (Developmental, Regenerative and Stem Cell Biology Students)

Brendan Mathias (BBSB)

Virginia Johnson (PMB)

Melanie Pullen (Developmental, Regenerative and Stem Cell Biology Students)

Andrew Lin (PMB)

Lingjue Wang (Chemistry)

Justin Melendez (MGG)

Brittany Townley (MCB)

Tricia Walker (PMB)

Joseph Krambs (MGG)

Ke Zhang (EECE)

Jhullian Alston (BBSB)

# Service to the community

**Editorial Services**

 Editorial Board for *iScience*

 Section Editor for the Encyclopedia of Biological Chemistry, 3rd edition

**Grants review panels**

Ad hoc reviewer NIH Member conflict: Topics in Bacterial Pathogenesis (Dec 2020)

Ad hoc reviewer NIH member conflict BCM G-02 (Mar 2020)

Reviewer NIH R35 (Maximizing Investigators’ Research Award) (Mar 2019)

Ad hoc reviewer NIH DP5 (NIH Director’s Early Independence Awards) (Dec 2018)

Reviewer for Siteman Investment Program (Nov 2018)

Ad hoc reviewer NIH NIGMS Molecular Genetics A (MGA) study section (June 2018)

Reviewer for the French National Research Agency (May 2018)

Ad hoc reviewer NIH NIGMS Molecular Genetics B (MGB) study section (Sep 2015, Feb 2017, Sep 2017, June 2019)

Reviewer for the Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grants applications (2017)

Reviewer for NASA Astrobiology Omics/Evolution review panel (Aug 2012)

**Service to WashU**

Member of the search committee for a Biochemistry candidate in the department of Biology at Washington University in St. Louis (2020/2021)

Member of Siteman’s Cancer Research Career Enhancement (CRCE) Core Internal Advisory Board

Co-director of the Plant and Microbial Biosciences (PMB) graduate program of the Division of Biological and Biomedical Sciences (DBBS) (2020-)

Member of the Spector Prize evaluation committee (2020-)

Member of the Schneiderman Award Committee (2020-)

Member of the search committee for a Biochemistry candidate in the department of Biology at Washington University in St. Louis (2018/2019)

Member of the chair’s advisory committee in the department of Biology at Washington University in St. Louis (2018-)

Member of a university-wide academic integrity review committee at Washington University in St. Louis (2017)

Member of the steering committee for the Biochemistry Program in the Division of Biological & Biomedical Sciences (DBBS) at Washington University in St. Louis. (2014-2019)

Member of the steering committee for the Molecular and Cell Biology in the Division of Biological & Biomedical Sciences (DBBS) at Washington University in St. Louis. (2016-current)

Member of the Biology curriculum planning committee (2960/2970) at Washington University in St. Louis (2016-2017).

Annual Plant and microbial biosciences (PMB) retreat organizer (2016-2019)

Faculty associate for residential life at Washington University (2017-2019)

Member of the search committee for a Biochemistry candidate in the department of Chemistry at Washington University in St. Louis (2016)

Member of Washington University Moog Scholarship committee (2016)

Member of Washington University lab safety training revision committee (2016-current)

Member of the search committee for a computational biology/genomics candidate in the department of Biology at Washington University in St. Louis (2015)

Member of the Marian Smith Spector Prize committee in the Biology Department at Washington University in St. Louis (2014).

**Journal Reviewer**

Reviewer for Science, Cell, Cell Rep., Mol. Cell, EMBO, Critical Reviews in Biochemistry, Nucleic Acids Res., RNA, J. Biol. Chem., Nature Commun., PNAS, FEBS, Nature Biotech., Nature Methods, NSMB, Biochimie, Biopolymers, eLife, Plos One, Plos Genet., Plos Biol., JMB, Genome Biology, ACS Chemical Biology, Science Advances, and J. of Mol. Evol.