Andrei A. Korostelev, Ph.D.
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Education

Ph.D., Chemistry and Biochemistry, Florida State University, Tallahassee, FL Thesis Title: "Improving the methods of macromolecular structure determination" Advisor: Professor Michael S. Chapman	1998–2003
B.Sc. and M.Sc., *summa cum laude,* Chemistry, Moscow State University, Moscow, Russia Thesis Title: "The study of the binding sites of the penicillin acylase active center" Advisor: Professor Vitas Švedas	1992–1997

Postdoctoral Training

Postdoctoral Research Supervisor: Dr. Harry F. Noller MCD Biology, University of California, Santa Cruz, CA	2004–2010
Supervisor: Dr. Michael S. Chapman Department of Chemistry, Biochemistry Division, Florida State University, Tallahassee, FL	2003–2004

Academic Appointments

Professor, RNA Therapeutics Institute, University of Massachusetts Chan Medical School, Worcester, MA	2021–present
Associate Professor, RNA Therapeutics Institute, University of Massachusetts Medical School, Worcester, MA	2015–2021
Assistant Professor, RNA Therapeutics Institute and Department of Biochemistry and Molecular Pharmacology, University of Massachusetts Medical School, Worcester, MA	2010–2015
Graduate Research Supervisor: Dr. Michael S. Chapman Chemistry and Biochemistry, Florida State University, Tallahassee, FL	1998–2003
Research Assistant Supervisor: Dr. Michael S. Chapman Chemistry and Biochemistry, Florida State University, Tallahassee, FL	1999–2003
Teaching Assistant Chemistry and Biochemistry, Florida State University, Tallahassee, FL	1998–1999
Research Assistant Supervisor: Professor Vitas Švedas Department of Chemistry, Enzymology division, Moscow State University, Moscow, Russia	1995–1998

Honors and Awards

2018 The RNA Society Early Career Award	2018
2018 Earl and Thressa Stadtman Scholar Award, American Society Biophys. Mol. Biol.	2018
HHMI Investigator Program, finalist	2018
Worcester Science Foundation Award	2017
Burroughs Wellcome Fund, Investigators in the pathogenesis of infectious disease, finalist	2015
Worcester Science Foundation Award	2011
The RNA Society/Scaringe Young Scientist Award, runner-up	2010
I.V. Berezin Young Scientist Award, Moscow State University	1996–1997
George Soros Academic Fellowship, Moscow State University	1994–1995

Professional Memberships and Activities

Chair of the RNA Society Nominating Committee	2019–2021
Member of the RNA Society Meeting committee	2018–2021
Co-Founder, Co-Chair of Advisory Board of the Massachusetts High-Resolution Cryo-EM facility (equipped with Titan Krios and Talos Arctica) at the UMass Medical School. Purpose of the facility is to provide access for the Commonwealth of Massachusetts' institutions and biotech companies for high-resolution structural biology.	2014–present
National Institute of Health (NIH), "special emphasis" grant review panels (MSFC, MSFB)	2019
Reviewer of General User proposals at the Advanced Photon Source (Argonne National Laboratory).	2010–present
National Science Foundation, grant proposal reviewer (MCB)	2017
Protein Society, member	2016–present
National Institutes of Health (NIGMS), SRG Review Panel Member (MSFC)	2015–2019, 2024
Czech Science Foundation, grant proposal reviewer	2015
Massachusetts Life Sciences Center, grant proposal reviewer	2015
American Society for Biochemistry and Molecular Biology, member	2014–present
American Society of Cell Biology, member	2014–present
Support for P41 Center proposal to build new-generation beamlines (NSLS-II) at Brookhaven National Lab (BNL). The proposal is led by Robert Sweet, the Principal Investigator of the Macromolecular Crystallography Research Resource at the BNL.	2013–present
RNA Society, member	2010–present
German Foundation (DFG), grant proposal reviewer	2010–present
French Agence Nationale de la Recherche (ANR), grant proposal reviewer	2010–present
Wellcome Funding (UK), Swiss National Science Foundation, Knut and Alice Wallenberg Foundation (Sweden), grant proposal reviewer	2022-2024

Editorial Responsibilities

Editorial Board Member, *Biochimie*	2012–present
Editorial Board Member, *RNA*	2018–present

Ad hoc reviewer for: *ACS Chemical Biology, Biochimica et Biophysica Acta, Biophysical Journal, Cell, Cell reports, Crystals, eLife, EMBO Journal, Journal of Molecular Biology, Molecular Cell, Nature, Nature Structural and Molecular Biology, Nature Communications, Nucleic Acids Research, Proceedings of the National Academy of Sciences, RNA, Science, Science Advances etc.*

Publications

1. Sholi E, Loveland AB[#], **Korostelev AA[#]**. “Assay for ribosome stimulation of angiogenin nuclease activity”. *Methods in Enzymology*. 2024, 12. https://doi.org/10.1016/bs.mie.2024.11.007
2. Solorio-Kirpichyan K, Fan X, Golovenko D, **Korostelev AA**, Yan N, Korennykh A[#]. “Cryo-EM Structure of HRSL Domain Reveals Activating Crossed Helices at the Core of GCN2”. *PNAS Nexus.* 2024.12; doi: https://doi.org/10.1093/pnasnexus/pgae528
3. Susorov D, Echeverria D, Khvorova A[#], **Korostelev AA[#]**. “mRNA-specific readthrough of nonsense codons by antisense oligonucleotides (R-ASOs)”. *Nucleic Acids Res*. 2024. 52(15): 8687-8701. https://doi.org/10.1093/nar/gkae624
4. Loveland AB[#], Koh CS, Ganesan R, Jacobson A, **Korostelev AA[#]**. “Structural mechanism of angiogenin activation by the ribosome”. *Nature*. 2024. DOI: 10.1038/s41586-024-07508-8
5. Teran D, Zhang Y, **Korostelev AA[#]**. “Endogenous trans-translation structure visualizes the decoding of the first tmRNA alanine codon”. *Front Microbiol*. 2024. 15:1369760. PMID: 38500588.
6. Jouravleva K, Golovenko D, Demo G, Dutcher RC, Hall TM[#], Zamore PD[#], **Korostelev AA[#]**. “Structural Basis of MicroRNA Biogenesis by Dicer-1 and Its Partner Protein Loqs-PB”. *Mol. Cell.* 2022. 82, 4049–4063. doi: 10.1016/j.molcel.2022.09.002
7. Loveland AB, Svidritskiy E, Susorov D, Lee S, Park A, Demo G, Gao FB[#], **Korostelev AA[#]**. "Ribosome inhibition by C9ORF72-ALS/FTD-associated poly-PR and poly-GR proteins revealed by cryo-EM." *Nat. Commun.* 2022. 13, Article number: 2776. doi: 10.1038/s41467-022-30418-0
8. **Korostelev AA[#].** “The Structural Dynamics of Translation.” Annu Rev Biochem. 2022 Feb 14. doi: 10.1146/annurev-biochem-071921-122857. Epub ahead of print. PMID: 35287473.
9. Carbone CE, Loveland AB, Gamper HB, Hou YM, Demo G, **Korostelev AA[#]**. “Time-resolved cryo-EM visualizes ribosomal translocation with EF-G and GTP”. *Nat. Commun.* 2021 Dec 13;12(1):7236. doi: 10.1038/s41467-021-27415-0. PubMed PMID: 34903725; PubMed Central: PMC8668904.
10. **Korostelev AA[#]**. “Diversity and Similarity of Termination and Ribosome Rescue in Bacterial, Mitochondrial, and Cytoplasmic Translation”. *Biochemistry (Mosc).* 2021 Sep;86(9):1107-1121. doi: 10.1134/S0006297921090066. PubMed PMID: 34565314. PubMed Central: PMC89843824.
11. Demo G, Gamper HB, Loveland AB, Masuda I, Carbone CE, Svidritskiy E, Hou YM, **Korostelev AA[#]**. “Structural basis for +1 ribosomal frameshifting during EF-G-catalyzed translocation”. *Nat. Commun*. 2021 Jul 30;12(1):4644. doi: 10.1038/s41467-021-24911-1. PubMed PMID: 34330903; PubMed Central PMCID: PMC8324841.
12. Carbone CE, Demo G, Madireddy R, Svidritskiy E, **Korostelev AA[#]**. “ArfB can displace mRNA to rescue stalled ribosomes”. *Nat. Commun*. 11(1):5552. doi: 10.1038/s41467-020-19370-z. PubMed PMID: 33144582; PubMed Central PMCID: PMC7641280. (2020).
13. Susorov D, Egri S, **Korostelev AA[#]**. “Termi-Luc: a versatile assay to monitor full-protein release from ribosomes”. *RNA*. 12:2044-2050. doi: 10.1261/rna.076588.120. Epub 2020 Aug 14. PubMed PMID: 32817446; PubMed Central PMCID: PMC7668252. (2020).
14. Loveland AB, Demo G, **Korostelev AA[#]**. “Cryo-EM of elongating ribosome with EF-Tu•GTP elucidates tRNA proofreading”. *Nature*. doi.org/10.1038/s41586-020-2447-x. PubMed PMID: 32612237; PubMed Central PMCID: PMC7483604. (2020).
15. Bao C, Loerch S, Ling C, **Korostelev AA**, Grigorieff N, Ermolenko DN. “mRNA Stem-loops Can Pause the Ribosome by Hindering A-site tRNA Binding”. *eLife*. 9: e55799. doi:10.7554/elife.55799. PubMed PMID: 32427100; PubMed Central PMCID: PMC7282821. (2020).
16. Hsu HL, Brown A, Loveland AB, Lotun A, Xu M, Luo L, Xu G, Li J, Ren L, Su Q, Gessler D, Wei Y, Tai P, **Korostelev AA[#]**, Gao G[#]. “Structural Characterization of a Novel Human Adeno-Associated Virus Capsid with Neurotropic Properties”. *Nat. Commun.* 11(1):3279. doi: 10.1038/s41467-020-17047-1. PubMed PMID: 32606306; PubMed Central PMCID: PMC7327033. (2020).

17. Huang S[#], Aleksashin N, Loveland AB, Klepacki D, Reier K, Kefi A, Szal T, Remme J, Jaeger L, Vázquez-Laslop N, **Korostelev AA[#]**, Mankin AS[#]. "Ribosome engineering reveals the importance of 5S rRNA autonomy for ribosome assembly". *Nat. Commun.* 11: 2900. doi: 10.1038/s41467-020-16694-8. PubMed PMID: 32518240; PubMed Central PMCID: PMC7283268. (2020).

18. Svidritskiy E, Demo G, Loveland AB, Xu C, **Korostelev AA[#]**. "Extensive ribosome and RF2 rearrangements during translation termination". *eLife*. 8. pii: e46850. doi: 10.7554/eLife.46850. PubMed PMID: 31513010; PubMed Central PMCID: PMC6742477. (2019).

19. Ulirsch JC, et al, **Korostelev AA**, Do R, Sankaran VG, Gazda HT. "The Genetic Landscape of Diamond-Blackfan Anemia". *Am J Hum Genet*. 103(6):930-947. doi: 0.1016/j.ajhg.2018.10.027. Epub 2018 Nov 29. PubMed PMID: 30503522; PubMed Central PMCID: PMC6288280. (2018)..

20. Svidritskiy E, Demo G, **Korostelev AA[#]**. "Mechanism of premature translation termination on a sense codon". *J Biol Chem*. 293(32):12472-12479. doi:10.1074/jbc.AW118.003232. Epub 2018 Jun 25. PubMed PMID: 29941456; PubMed Central PMCID: PMC6093235. (2018).

21. Svidritskiy E, **Korostelev AA[#]**. "Conformational Control of Translation Termination on the 70S Ribosome". *Structure.* 26(6):821-828.e3. doi: 10.1016/j.str.2018.04.001. Epub 2018 May 3. PubMed PMID: 29731232; PubMed Central PMCID: PMC5990466. (2018).

22. Loveland AB, **Korostelev AA[#]**. "Structural dynamics of protein S1 on the 70S ribosome visualized by ensemble cryo-EM". *Methods*. 15;137:55-66. doi: 10.1016/j.ymeth.2017.12.004. Epub 2017 Dec 14. PubMed PMID: 29247757; PubMed Central PMCID: PMC5866760. (2018).

23. Svidritskiy E, **Korostelev AA[#]**. "Mechanism of Inhibition of Translation Termination by Blasticidin S. *J Mol Biol*. 2018 Mar 2;430(5):591-593. doi: 10.1016/j.jmb.2018.01.007. PMID: 29366636. PMCID: PMC5831496.

24. Demo G, Rasouly A, Vasilyev N, Svetlov V, Loveland AB, Diaz-Avalos R, Grigorieff N, Nudler E, **Korostelev AA[#]**. "Structure of RNA polymerase bound to ribosomal 30S subunit". *Elife.* 2017 Oct 13;6:e28560. doi: 10.7554/eLife.28560. PMID: 29027901; PMCID. PMC5655137.

25. Loveland AB, Demo G, Grigorieff N, **Korostelev AA[#]**. "Ensemble cryo-EM elucidates the mechanism of translation fidelity". *Nature.* 2017 Jun 1;546(7656):113-117. doi: 10.1038/nature22397. Epub 2017 May 24. PMID: 28538735. PMCID: PMC5657493.

26. Koh CS, Madireddy R, Beane TJ, Zamore PD, **Korostelev AA[#]**. "Small methyltransferase RlmH assembles a composite active site to methylate a ribosomal pseudouridine". *Sci Rep.* 2017 Apr 20;7(1):969. doi: 10.1038/s41598-017-01186-5. PMID: 28428565. PMCID: PMC5430550

27. Demo G, Svidritskiy E, Madireddy R, Diaz-Avalos R, Grant T, Grigorieff N[#], Sousa D[#], **Korostelev AA[#]**. "Mechanism of ribosome rescue by ArfA and RF2". *eLife*. 6:e23687 (2017). PMID: 28300532. PMCID: PMC5378476.

28. Loveland AB, Bah E, Madireddy R, Zhang Y, Brilot AF, Grigorieff N, **Korostelev AA[#]**. "Ribosome•RelA structures reveal the mechanism of stringent response activation". *Elife.* 2016 Jul 19;5:e17029. doi: 10.7554/eLife.17029. PMID: 27434674. PMCID: PMC4974054.

29. Svidritskiy E, Madireddy R, **Korostelev AA[#]**. "Structural Basis for Translation Termination on a Pseudouridylated Stop Codon". *J Mol Biol*. 2016 May 22;428(10 Pt B):2228-36. doi: 10.1016/j.jmb.2016.04.018. Epub 2016 Apr 20. PMID: 27107638. PMCID: PMC5017060.

30. Abeyrathne PD, Koh CS, Grant T, Grigorieff N[#], **Korostelev AA[#]**. "Ensemble cryo-EM uncovers inchworm-like translocation of a viral IRES through the ribosome". *eLife*. 5:e14874 (2016).

31. Tek A, **Korostelev AA**, Flores SC. "MMB-GUI: a fast morphing method demonstrates a possible ribosomal tRNA translocation trajectory". *Nucleic Acids Research*. 44(1):95-105 (2016).

32. Svidritskiy E, **Korostelev AA[#].** "Ribosome Structure Reveals Preservation of Active Sites in the Presence of a P-Site Wobble Mismatch". *Structure*. 23(11):2155-61 (2015).

33. Colussi TM, Costantino DA, Zhu J, Donohue JP, **Korostelev AA**, Jaafar ZA, Plank TD, Noller HF, Kieft JS. "Initiation of translation in bacteria by a structured eukaryotic IRES RNA". *Nature*. 519(7541):110-3 (2015).

34. Svidritskiy E, Brilot AF, Koh CS, Grigorieff N[#], **Korostelev AA[#]**. “Structures of yeast 80S•tRNA ribosome complexes in the rotated and non-rotated conformations”. *Structure*. 22(8):1210-8 (2014). Aug 5;22(8):1210-8. PMID: 25043550. PMCID: PMC4142436.

35. Koh CS, Brilot AF, Grigorieff N[#], **Korostelev AA[#]**. “Taura syndrome virus IRES initiates translation by binding its tRNA-mRNA-like structural element in the ribosomal decoding center”. *Proc Natl Acad Sci USA*. 111(25):9139–9144 (2014).

36. Brilot AF, **Korostelev AA**[#], Ermolenko DN[#], Grigorieff N[#]. “Structure of the ribosome with elongation factor G trapped in the pretranslocation state”. *Proc Natl Acad Sci USA*. 110(52):20994-9 (2013).

37. Svidritskiy E, Ling C, Ermolenko DN[#], **Korostelev AA[#]**. “Blasticidin S inhibits translation by trapping a deformed tRNA conformation on the ribosome”. *Proc Natl Acad Sci USA*. 110(30): 12283–12288 (2013).

38. Santos N, Zhu J, Donohue JP, **Korostelev AA[#]**, Noller HF[#]. “Crystal Structure of the 70S Ribosome Bound with the Q253P Mutant Form of Release Factor RF2.” *Structure*. 21(7): 1258-63 (2013).

39. Zhou J, **Korostelev AA**, Lancaster L, Noller HF. “Crystal Structures of 70S Ribosomes Bound to Release Factors RF1, RF2 and RF3”. *Curr. Op. Struct. Biol*. 22(6):733-42 (2012).

40. Korennykh AV, **Korostelev AA**, Egea PF, Finer-Moore J, Stroud RM, Zhang C, Shokat KM, Walter P. “Structural and functional basis for RNA cleavage by Ire1”. *BMC Biol*., **9**(1):47 (2011).

41. Korennykh AV, Egea PF, **Korostelev AA**, Finer-Moore J, Stroud RM, Zhang C, Shokat KM, Walter P. “Cofactor-mediated conformational control in the bifunctional kinase/RNase Ire1”. *BMC Biol*., **9**(1):48 (2011).

42. **Korostelev AA[#]**. “Structural aspects of translation termination on the ribosome”. *RNA*, **17**(8): 1409– 1421 (2011).

Peer-Reviewed Work Prior to UMass Chan:

43. Zhu J*, **Korostelev A***, Costantino DA, Donohue JP, Noller HF, Kieft JS. “Crystal structures of complexes containing domains from two viral internal ribosome entry site (IRES) RNAs bound to the 70S ribosome”. *Proc Natl Acad Sci USA,* **108**: 1839-1844 (2011).

44. **Korostelev A**, Zhu J, Asahara H, Noller, HF. “Recognition of the amber UAG stop codon by release factor RF1”. *EMBO J.,* **29**: 2577 – 2585 (2010).

45. Korennykh A, Egea P, **Korostelev AA**, Finer-Moore J, Zhang C, Shokat K, Stroud R, Walter P. “The unfolded protein response signals through high-order assembly of Ire1”. *Nature,* **457**(7230): 687-693 (2009).

46. **Korostelev A**, Ermolenko D, Noller HF. “Structural dynamics of the ribosome”. *Curr. Opin. Chem. Biol*., **12**: 1-10 (2008).

47. **Korostelev A**, Laurberg M, Noller HF. “Multistart simulated annealing refinement of the crystal structure of the 70S ribosome”. *Proc Natl Acad Sci USA*, **106**: 18195-200 (2009).

48. **Korostelev A***, Asahara H*, Lancaster L*, Laurberg M, Hirschi A, Zhu J, Trakhanov S, Scott W, Noller HF. “Crystal structure of a translation termination complex formed with release factor RF2”. *Proc Natl Acad Sci USA*, **105**: 19684-9 (2008).

49. Laurberg M*, Asahara H*, **Korostelev A***, Zhu J, Trakhanov S, Noller, HF. “Structural basis for translation termination on the 70S ribosome”. *Nature,* **454**: 852-857 (2008).

50. **Korostelev A**, Noller HF. “Analysis of structural dynamics in the ribosome by TLS crystallographic refinement”. *J. Mol. Biol.,* **373**: 1058-1070 (2007).

51. **Korostelev A***, Trakhanov S*, Asahara H, Laurberg M, Lancaster L, Noller HF. “Interactions and dynamics of the Shine Dalgarno helix in the 70S ribosome”. *Proc Natl Acad Sci USA*, **104**:16840-16843 (2007).

52. **Korostelev A**, Noller HF. “The ribosome in focus: new structures bring new insights". *Trends Biochem Sci.,* 32(9): 434-41 (2007).

53. **Korostelev A**, Trakhanov S, Laurberg M, Noller HF. “Crystal structure of a 70S ribosome-tRNA complex reveals functional interactions and rearrangements”. *Cell,* **126**: 1065-1077 (2006).
54. Murray S, Nilsson CL, Hare JT, Emmett MR, **Korostelev A,** Ongley H, Marshall AG, Chapman MS. “Characterization of the Capsid Protein Glycosylation of Adeno-associated Virus (AAV-2) by High Resolution Mass Spectrometry”. *J. Virology*, 80(12): 6171-6 (2006).
55. Fabiola F, **Korostelev A,** Chapman MS. “Bias in cross-validated free R factors: mitigation of the effects of non-crystallographic symmetry”. *Acta Cryst., D*62: 227-238 (2006).
56. **Korostelev A**, Fenley MO, Chapman MS. “Impact of a Poisson-Boltzmann Electrostatic Restraint on Protein Structures Refined at Medium Resolution”. *Acta Cryst., D*60: 1786-1794 (2004).
57. Gao HX, Sengupta J, Valle M, **Korostelev A**, Eswar N, Stagg SM, Van Roey P, Agrawal RK, Harvey SC, Sali A, Chapman MS, Frank J. “Study of the structural dynamics of the E-coli 70S ribosome using real-space refinement”. *Cell*, **113**(6): 789-801 (2003).
58. Lima S, Hildenbrand J, **Korostelev A**, Hattman S, Li H. “Crystal structure of an RNA helix recognized by a Zinc-finger protein: an 18 base pair duplex at 1.6 Å resolution”. *RNA*, 8(7): 924-932 (2002).
59. Fabiola F, Bertram R, **Korostelev A,** Chapman MS. “An improved hydrogen bond potential: Impact on medium-resolution structures”. *Protein Science,* 11(6): 1415-1423 (2002).
60. **Korostelev A,** Bertram R, Chapman MS. “Simulated annealing real-space refinement as a tool in model building”. *Acta Cryst., D*58: 761-767 (2002).

Books & Chapters

1. **Korostelev AA#**. ”Cryogenic Electron Microscopy (Cryo-EM)”. *In: Nucleic Acids in Chemistry and Biology: Edition 4*. RCS Publishing. (2022).
2. Noller HF, Ermolenko DN, **Korostelev A**, Laurberg M, Zhu J, Asahara H, Lancaster L, Horan L, Hirschi A, Donohue JP, Trakhanov S, Spiegel C, Hickerson R, Cornish P, Ha T. “Studies on the mechanisms of translocation and termination”. *In: Ribosomes, Structure, Function, and Dynamics*. (eds. M.V. Rodnina, W. Wintermeyer and R. Green) Springer, Wien, New York. pp 349-360 (2011).

Non-Peer Reviewed Publications

1. **Korostelev AA#**. ”A deeper look into translation initiation”. *Cell.* Oct 2014, **3**: 475–6. doi.org/10.1016/j.cell.2014.10.005. (2014).

** These authors contributed equally # Corresponding or co-corresponding author*

Invited Oral Presentations

Selected International meetings and seminars

- Cystic Fibrosis Foundation Laboratory. Seminar “Stop codon readthrough by R-ASO”. Nov. 13. Lexington, MA, USA. 2024
- University of Rochester. Seminar “Ribosome stalling and angiogenin activation in ALS and other neurodegenerative diseases”. Nov 6. NY, USA. 2024
- Ohio State University, Center for RNA Biology. Seminar “Ribosome stalling and angiogenin activation in ALS and other neurodegenerative diseases”. Sep 17. OH, USA. 2024
- Recoding and the diversity of genetic decoding Meeting, EMBO. “Recoding premature stop codons with R-ASO”. May 13-18. Bantry, Ireland 2024
- RNA Collaborative Seminar Series, RNA Society. “Molecular mechanism of angiogenin activation”. March 13. Online. 2024
- Keynote, GRC Nucleic Acids, “Ribosome as a Trigger of Intra- and Extra-Cellular Stress Responses". June 18–23. Newry, ME, USA. 2023

2023

- CEITEC symposium on advances in cryo-EM. "Resolving translation intermediates by cryo-EM". May 25-26. Brno, Czech Republic. 2023
- Groningen University. Seminar. "Visualizing protein synthesis and ribosome stalling in C9ORF72 ALS/FTD neurodegeneration". May 23. Groningen, Netherlands. 2022
- Ribosomes-2022. “Structural insights into ribosomal triggering of stress responses”. July 10–14. Bordeaux, France. 2022
- RNA Therapeutics Symposium: From Concept to Clinic. “Structural mechanism of pre-miRNA processing by Dicer-1 and Loquacious". June 22–24. Worcester, MA, USA 2021
- IUPAB Congress – 45th Annual SBBF Meeting and 50th Annual SBB Meeting (Virtual). “Time-resolved cryo-EM visualizes the structural dynamics of translation”. October 4–8. Brazil.
- RICCEM – Third Russian International Conference (Virtual). “Time-resolved cryo-EM visualizes the structural dynamics of translation “. May 30. Moscow, Russia. 2021
- Moscow State University, Cryo-EM Club. Virtual Seminar. May 13. Moscow, Russia. 2020
- 20th RiboClub Meeting. September 22–26. Sherbrooke University, Quebec Canada. 2019
- Future Biotech Winter Retreat 2019. January 25–31. St. Petersburg, Russia. 2019
- Ribosome 2019 Annual Meeting. January 6. Merida, Mexico. 2019
- Structural Biology Biochemistry Conference. September 19. Zurich, Switzerland. 2017
- Protein Synthesis and Translation Control EMBO Conference. September 9. Heidelberg, Germany. 2017
- Moscow State University. August 31. Seminar. Moscow, Russia. 2017
- Biopharma meeting at BioKlinikum, OOO, Moscow. August 29. Moscow, Russia. 2017
- Engelhardt Institute of Molecular Biology, Russian Academy of Sciences. August 28. Seminar. Moscow, Russia. 2017
- EMBO Ribosome Conference 2016: Ribosome Structure and Function. July 6–10. Strasbourg, France. 2016
- Uppsala University, Department of Cell and Molecular Biology. March 17. Uppsala, Sweden. 2016
- Regulating with RNA in Bacteria and Archaea Conference. December 5–8. Cancun, Mexico. 2015
- Nucleic Acids Conference. December 5–9. Cancun, Mexico. 2014
- Moscow State University, Department of Bioengineering and Bioinformatics. August 14. Moscow, Russia. 2014
- RNA Society Meeting. June 5. Quebec City, Canada. 2014
- Protein & RNA Structure Prediction Conference. December. Mexico. 2013
- RiboClub-2012 Meeting Session Chair. September 25. Sherbrooke, Canada. 2012
- Institute of Chemical Biology and Fundamental Medicine, Siberian Branch of Russian Academy of Sciences. August 8. Novosibirsk, Russia. 2011

Selected International and National Meetings and Seminars

- Oligonucleotide Therapeutics Society Meeting 2024. Talk “Stop-codon readthrough by R-ASO”. Oct. 6-9. Montreal, Canada 2024
- Washington University in St. Louis, School of Medicine. “Visualizing protein synthesis and ribosome stalling in C9ORF72 ALS/FTD neurodegeneration”, April 24. MO. 2023
- CUNY ASRC. Seminar. October 12. New York City, NY. 2022
- Indiana University School of Medicine, Department of Biochemistry and Molecular Biology Virtual Seminar Series. “Cryo-EM visualizes how the ribosome builds proteins”. September 20. Indianapolis, IN. 2021
- Boston University School of Medicine, Department of Physiology and Biophysics Virtual Seminar Series. January 21. Boston, MA. 2021
- MBN 2019 Meeting. November 29. Northeastern University, Boston, MA. 2019

- University of Alabama Birmingham. Seminar. October 23. Birmingham, AL. 2019
- Icagen, Inc. Business Development. Seminar. May 6–8. Tucson, AZ. 2019
- Duke University, Dept. of Biochemistry. Seminar. “Structural insight into stop-codon decoding and termination”. February 15. Durham, NC. 2019
- CFF-CFTR Translational Readthrough Workshop. January 22. Bethesda, MD. 2019
- Melinta Therapeutic, Inc. Seminar. October 22–23. New Haven, CT. 2018
- Johns Hopkins University. Seminar. Department of Molecular Biology and, Genetics. “How the ribosome accurately builds proteins: visualizing translation by cryo-EM”. October 10–12. Baltimore, MD. 2018
- Yale University. Seminar. Department of Molecular Biophysics and Biochemistry. “How the ribosome accurately builds proteins: visualizing translation by cryo-EM”. September 24. New Haven, CT. 2018
- CSHL Translational Control Meeting. Chair. September 4–8. Cold Spring Harbor, NY. 2018
- RNA Society Annual Meeting. RNA Society Award talk. May 29–June 1. University of Berkeley, Berkeley, CA. 2018
- Princeton University. Seminar. “Visualizing Translation with Ensemble cryo-EM”. April 25–26. Princeton, NJ. 2018
- ASBMB Annual Meeting. Earl & Thressa Stadtman Scholar Award Recipient Acceptance talk. April 21–24. San Diego, CA. 2018
- HHMI Investigator Interview. April 2–4. Janelia Research Campus, Ashburn, VA. 2018
- PTC Therapeutics. Seminar. January 31-February 2. S. Plainfield, NJ. 2018
- RNA Summit 2017. November 14. Boston, MA. 2017
- 14th Annual Northeast Structure Symposium (NESS). October 28. University of Connecticut, Storrs, CT. 2017
- Gordon Research Conference - Nucleic Acids. June 6. Biddeford, ME. 2017
- Moderna Therapeutics. Seminar. June 22. Cambridge MA. 2017
- Wesleyan University, Department of Biology. March 30. Middletown, CT. 2017
- Columbia University, Departments of Chemistry and Biological Sciences. March 13. New York, NY. 2017
- Clark University, Department of Chemistry. January 23. Worcester, MA. 2017
- University of Illinois at Chicago, Department of Medicinal Chemistry Pharmacognosy. October 20. Chicago, IL. 2016
- University of Connecticut Health Center. Department of Molecular Biology and Biophysics, October 13. Storrs, CT. 2016
- Cold Spring Harbor Laboratory Translational Control Meeting, September, NY. 2016
- Thomas Jefferson University, Department of Biochemistry and Molecular biology. June 6. Philadelphia, PA. 2016
- Brown University Conference. Seminar. May 1. Providence, RI. 2016
- University of Rochester Medical Center, Department of Biochemistry and Biophysics. April 27. Rochester, NY. 2016
- University of Florida, College of Medicine. Seminar. July 23. Gainesville, FL. 2015
- Cold Spring Harbor Laboratory Translational Control Meeting. September 2–6. NY. 2014
- Gordon Research Conference. July 14. Newport, RI. 2014
- American Society for Biochemistry and Molecular Biology, ASBMB Annual Meeting. April 26–30. San Diego, CA. 2014
- Bacteriology and Infectious Diseases Conference. November 17–19. Chicago, IL. 2014

- FASEB Meeting, June 23. Snowmass, CO. 2014
- Boston University Medical School, Department of Physiology & Biophysics, Seminar. March 25. Boston, MA. 2014
- Finger Lakes RNA Conference. October 25. Canandaigua, NY. 2013
- Clinical Microbiology Meeting. November 12. San Antonio, TX. 2012

Selected Local/Regional Meetings

- UMMS. PMM In-House Seminar Series, October 21. Worcester, MA. 2019
- UMMS 24th Annual Research Retreat. October 17-18. UMass Amherst, MA. 2019
- UMMS. Department of Cell and Dev. Biology. February 17. Worcester, MA 2016
- Genzyme. Seminar. December 14. Framingham, MA. 2015
- UMMS Research Retreat. October 9. Amherst, MA. 2015
- UMMS Research Retreat. October 9. UMass Amherst, MA. 2015
- RiboTribe symposium. June 28. Santa Cruz, CA. 2014
- UMMS Research Retreat. Woods Hole, MA. 2010
- UMMS RNA Club, chalk talks. Worcester, MA. 2014, 2015, 2017

Selected Korostelev Lab Member Presentations (2018-2023)

Christine Carbone, GSBS Student

- CSHL Translational Control Meeting (Virtual). Oral presentation. September 7–10. 2021
- RNA Data Club Meeting (Virtual). Oral Presentation. February. UMMS, Worcester, MA. 2021
- CSHL Translational Control Meeting (Virtual). Oral presentation. September 1–4. 2020
- RNA Society Annual Meeting (Virtual). Poster presentation. May 26–28. 2020
- UMMS Biochemistry Chalk Talk (Virtual). Oral presentation. February. 2020
- RNA Therapeutics Trainee Talks. Oral Presentation. December. UMMS, Worcester, MA. 2019
- Molecular Biophysics in the Northeast (MBN) Meeting. Oral presentation. November 9. Northeastern University, Boston, MA. 2019
- Cryo-EM Symposium. Poster presentation. October. Worcester, MA. 2019
- UMMS 24th Annual Research Retreat. Poster presentation. October 17. Amherst, MA. 2019
- RNA Therapeutics Conference. Poster presentation. June 26–28. University of Massachusetts Medical School, Worcester, MA. 2019
- Ribosome 2019 Meeting. Poster presentation. January 5–11. Merida, Mexico. 2019

Dmitrij Golovenko, Ph.D. Postdoctoral Associate

- RNA Society Meeting. May 31-June 5. Oral presentation. Boulder, CO 2022
- Molecular Biophysics in the Northeast meeting. Poster presentation. November 9. Northeastern University, Boston, MA. 2019

Anna Loveland, Ph.D. Postdoctoral Associate and Instructor

- EMBL Conference: Protein synthesis and translational control. Poster presentation. Sep 6–10. Heidelberg, Germany 2023
- RNA Therapeutics Symposium (Virtual). Selected for Oral Presentation. June 23–25. UMMS, Worcester, MA. 2021
- RNA Society Annual Meeting (Virtual). Scaringe Award Oral Presentation. May 25–June 6. “Translation inhibition by ALS/FTD-related dipeptide repeat proteins”. 2021
- Nature Research – RNA Bench to Bedsides II (Virtual). Poster presentation. November 11. 2020
- CSHL Translational Control Meeting (Virtual). Selected for Oral Presentation. September 1–4. 2020
- RNA Society Annual Meeting. Poster presentation. June 11–15. Krakow, Poland. 2019

- New England Cryo-EM Conference. Oral presentation. May 31. Yale University, New Haven, CT. 2019
- RNA Society Annual Meeting. Oral presentation. May 29–June 1. University of Berkeley, Berkeley, CA. 2018
- Biochemistry and Molecular Biophysics Departmental Seminar Series. Oral presentation. March. Washington University in St. Louis, St. Louis, MO. 2018

Denis Susorov, Ph.D. Postdoctoral Associate
- RNA Therapeutics symposium. Oral presentation. June 21-23. UMass Chan Med. School, Worcester, MA 2023
- RNA Society Meeting. May 31-June 5. Poster presentation. Boulder, CO 2022
- RNA Therapeutics Symposium (Virtual). Selected for Poster presentation. June 23–25. University of Massachusetts Medical School, Worcester, MA 2021
- CSHL Translational Control Meeting (Virtual). Selected for Poster presentation. September 1–4. 2020
- Molecular Biophysics in the Northeast meeting. Poster presentation. November 9. Northeastern University, Boston, MA. 2019

Raheel Sarwar, high-school intern
- Nature conference “Cracking the Code: The Dawn of Nucleic Acid Medicines”. Poster presentation, Oct 18-19. 2023. Worcester, MA 2023

Gabriel Demo, Ph.D. Postdoctoral Associate
- RNA Society Annual Meeting. Oral presentation. June 11–15. Krakow, Poland. 2019
- RNA Society Annual Meeting. Poster presentation. May 29–June 1. University of Berkeley, Berkeley, CA. 2018
- New England Cryo-EM Conference. Oral presentation. May 11. Yale University, New Haven, CT. 2018

Egor Svidritskiy (Yuri Iozzo), Ph.D. Postdoctoral Associate and Instructor
- RICCEM International Conference. Oral presentation. June 2–5. Moscow, Russia. 2019
- CSHL Translational Control Meeting. Oral presentation. September 4–8. Cold Spring Harbor Laboratory, Cold Spring Harbor, NY. 2018
- RNA Society Annual Meeting. Poster presentation. May 29–June 1. University of Berkeley, Berkeley, CA. 2018

Ying Zhang, Ph.D. Postdoctoral Associate
- RNA Society Annual Meeting. Poster presentation. May 29–June 1. University of Berkeley, Berkeley, CA. 2018

Selected Korostelev Lab Member Awards

Christine Carbone, GSBS Student
- UMCMS Chancellor's Award, the highest award given to one graduating PhD student 2023
- UMMS 25th Research Retreat. Dan Mullen Award for Best Poster. October 26-27. 2020
- NIH - F31 Predoctoral Fellowship. 5F31HL152650-02. 05/1/2021 - 04/30/2022. “Elucidating premature translation termination in Cystic Fibrosis”. 2020

Anna Loveland, Ph.D. Postdoctoral Associate and Instructor
- The 2021 RNA Society/Scaringe Young Scientist Award (Postdoctoral Fellow Award) 2020
- STAT Wunderkinds, North American Postdoc Award for innovative research 2020
- RNA Society Travel Award 2019
- RNA Society Travel Award 2018

Cha San Koh, Ph.D. Postdoctoral Associate
- UMMS 21st Research Retreat Best Poster Award, Joint UMass Amherst/Medical School Worcester, MA. 2016

Committee Assignments and Administrative Service Department

School, and University

Committee Member, UMass Medical School Faculty Search Committee, Biochemistry and Molecular Pharmacology	2020–present
Committee Member, UMass Medical School Tenure Committee	2019–present
Committee Member, UMass Medical School Faculty Council	2019–present
Co-leader, establishing Cryo-EM Facility, bringing ~$10,000,000 MLSC Capital Project Award and HHMI award	2014–2016
Co-organizer of the UMMS Cryo-EM Symposium, with world leaders in cryo-EM presenting and attending. Oct. 4.	2016
Co-Chair, UMMS Cryo-EM Advisory Committee	2018–present
Member, cryo-EM hiring/search committee; hiring of world-renowned Director of cryo-EM facility Chen Xu, and Director's Assistant Kangkang Song	2016–2018
Co-chair, IT Specialist Search Committee, RNA Therapeutic Institute	2014–present
Co-organizer, UMass Worcester/Amherst Biochemistry Retreat	2013
Co-organizer, UMass Worcester/Amherst Biochemistry Retreat	2012
Member, Strategic Planning in Imaging Committee, BMP	2011
Member, focus group for BEST (Broadening Experience in Scientific Training) Award	2014
Co-chair/Member, Faculty Search Committees, BMP and RNA Therapeutic Institute	2014–present
Admissions: interviews with PhD and MD/PhD program candidates	2013–present
Invited and hosted internationally renowned researchers as speakers at Department seminars: Christopher Akey (Boston Univ.), Alexi Amunts (Stockholm Univ.), Alexei Aravin (Caltech), Michael Chapman (Univ. of Missouri), Jennifer Doudna (UC Berkeley), Angela Eggleston (Nature), Yaeta Endo (Ehime Univ., Japan), Dmitri Ermolenko (Univ. of Rochester), Joachim Frank (Columbia Univ.), Vladimir Gladyshev (Harvard Med. School), Rachel Green (Johns Hopkins Univ.), Nikolaus Grigorieff (HHMI Janelia Research Center), Jon Lorsch (NIGMS director), Alexander Mankin (Univ. Chicago), Peter Moore (Yale Univ.), Harry F. Noller (UC Santa Cruz), Victoria Robbins (Univ. of Connecticut)	2011–present

External Professional Service

Organizing Committee Member. MBN 2019 at Northeastern University. Boston, MA.	2019
Massachusetts Life Sciences Center, proposal reviewer	2015
Czech Science Foundation, proposal reviewer	2015
National Science Foundation (MCB), *ad hoc* external reviewer	2017
National Institutes of Health (NIGMS), *ad hoc* review panel member	2015–2019
Reviewer of General User proposals at the Advanced Photon Source (Argonne National Laboratory).	2010–present
Provide support for P41 Center proposal to build new-generation beamlines (NSLS-II) at Brookhaven National Lab (BNL). The proposal is led by Robert Sweet, the Principal Investigator of the Macromolecular Crystallography Research Resource at the BNL.	2013

Community Service

Co-leader, establishing the Massachusetts Cryo-EM facility to provide access of MA institutions and biotech companies to high-resolution structural biology.	2014–present

Educational Activities

Educational Administration and Leadership:

Teaching Activities

Co-organizer and Lecturer, RNA Regulatory Biology Course BBS718, UMCMS GSBS Foundations Course. 3 hrs/yearly	2022–present
Leader/developer, class/exam for GSBS UMMS, Cellular Biochemistry Course "Translation", 3 hrs/yearly	2017–present
Leader/developer, Foundations/Core course sections, 3-9 hrs/yearly	2013–present
Leader, RAPS/lecture discussion sessions, 6-10 hrs/year	2012–present
Lecturer, Structural Biology Course BBS614 (team taught), ~3 hrs/biyearly	2016–present
Lecturer, RNA Biology (team taught), 3 hrs/biyearly	2011–present
Lecturer, Core Course Block I, RNA biology (team taught), 2 hrs/year	2011–2015
Member/Chair of Ph.D. and MD/PhD student committees (Abstract, QE, TRAC or dissertation): Emily Agnello, Krishna Anand, Amena Arif, Cihan Aydin, Shannon Bailey, Alper Celik, Hsin-Jung Chou, Noah Cohen, Monika Chitre, Shawn Egri, Alejandro Felix Mejia, Michael Feyder, Vasilii Gorbunov (WPI), Adam Hedger, Annie Hien, Shurong Hou, Maximiliaan Huisman, Anne Jecrois, Zachary Kennedy, Carrie Kovalak, Kelly Limoncelli, Chien-Ling Lin, Tiffanie Lopes, Kotchaphorn Mangkalaphiban, Rhonda McClure/McFleder, Mihir Metkar, Ei Ei Min, Suk Namkung, Mohamad Nasrallah, Humberto Ochoa, Makoto Ohira, Elif Sarinay, Grace Schiefelbein, Nicholas Stone, Namkung Suk, Kim Anh Vu, Jacqueto Zephyr	2011–present
External PhD reviewer: Anastasiia Atamas (Groningen Univ.), Clarisse van der Feltz (Brandeis Univ.), Olga Kolosova (Strasbourg Univ.), Ritam Neupane (Columbia Univ.), Ivan Sorokin (Groningen Univ.)	

Development of Curricula and Educational Materials

Member, Education and Training Strategic Planning Committee	2014
BMP Committee and team member to develop Core Course Block I, MDP740, "Host-Pathogen" block of Foundations Course	2013–2016

Advising and Mentoring

Faculty Mentoring

RNA Society Mentoring Program	2021–present
Dr. Li Li, Assistant Professor UMCMS, RNA Therapeutics Institute Role: Jr. Faculty Mentor	2021–present
Dr, Angela Messmer-Blust, Associate Professor, UMCMS, RNA Therapeutics Institute Role: Jr. Faculty Mentor	2017–present
Dr. Wen Xue, Associate Professor, UMCMS, RNA Therapeutics Institute Role: Jr. Faculty Mentor	2014–present

Students

Huang, ChunYing, Graduate Student, Supervisor and Advisor	2022–present
Sholi, Emily, GSBS Rotation Student, Supervisor	Spring 2023
Flemming,Selene, GSBS Rotation Student, Supervisor Current position: GSBS Student	Fall 2021
McNeil, Megan, GSBS Rotation Student, Supervisor Current Position: GSBS Student	Winter 2021
Duggan-Zvornicanin, Sarah, GSBS Rotation Student, Supervisor Current Position : GSBS Student, Schiffer Lab	Spring 2021
Ochoa,Humberto, GSBS Student, Supervisor and Advisor Current Position: GSBS Student Korostelev and Mello labs	2020–present
Fontana, Rachel, GSBS Rotation Student, Supervisor Current Position: GSBS Student, Lee Lab	2020
Friess, Leah, GSBS Rotation Student, Supervisor Current Position: GSBS Student, Peterson Lab	2019

Egri, Shawn, GSBS Rotation Student, Supervisor — 2019
Current Position: GSBS Student, Kuang Lab

Landecki, Jacob, GSBS Rotation Student, Supervisor — 2019
Current Position: GSBS Student, Kelch Lab

Carbone, Christine, GSBS Student, UMMS, Supervisor and Advisor — 2018–2022
Current Position: Scientist, Relay Therapeutics, Cambridge, MA

Feyder, Michael, GSBS Rotation Student, Supervisor — 2017–2018
Current Position: GSBS Student, Munson Lab

Kositsky, Rachel, Summer Intern from Duke University, Supervisor — 2016
Current position: Senior Scientist, AstraZeneka

Gaborova, Romana, Summer Intern from Masaryk Univ. Czech Republic, Supervisor — 2015–2017
Current position: Protein Data Bank (RCSB), Czech Republic, Research Assistant

Jecrois, Anne, GSBS Rotation Student, Supervisor — 2015–2016
Current position: GSBS Student, Schiffer Lab

Ganeshan, Sanjay, Summer Intern, Massachusetts Academy of Math and Science, High School, Supervisor — 2015
Current position: Massachusetts Institute of Technology, Graduate Student

Silva, Olivia, Summer Intern from Massachusetts Academy of Math and Science High School, Supervisor. Current Position: Unknown. — 2013

Boyd, Michael, Undergraduate Intern from WPI and Research Assistant, Supervisor — 2012–2014
Current position: Beth Israel Deaconess Medical Center, Harvard Medical School

Stepanyuk, Yevheniya, Summer Intern from, Shrewsbury High School, Supervisor — 2012
Current position: Massachusetts College of Pharmacy and Health Service, Student

Holunenko, Vitaly, Summer Intern from Syracuse University, Supervisor — 2012
Current position: Boston, MA, Research Assistant

Beane, Timothy, Summer Intern from WPI, Supervisor — 2012
Current Position: University of Rochester, NY, Lab Tech

Postdoctoral Trainees

Diggs, Stephen, Postdoctoral Associate, Supervisor — 2022–present

Seraj, Zahra, Postdoctoral Associate, Supervisor — 2021–present

Teran, David, Postdoctoral Associate, Supervisor — 2021–present

Golovenko, Dmitrij, Postdoctoral Associate, Supervisor — 2019–present

Susorov, Denis, Postdoctoral Associate, Supervisor — 2019–present

Loveland, Anna, Postdoctoral Associate, and Instructor (2020), Supervisor — 2015–present
Current Position: UMass Medical School, Korostelev Laboratory

Zhang, Ying, Postdoctoral Associate, Supervisor — 2014–2020
Current Position: Indiana University School of Medicine, Department of Biochemistry and Molecular Biology, Indianapolis, IN

Demo, Gabriel, Postdoctoral Associate, Supervisor — 2014–2019
Current Position: Masaryk University - CEITEC, Brno, Czech Republic, Group Leader

Koh, Cha San, Postdoctoral Associate, Supervisor — 2012–2016
Current Position: Dr. Peter Sarin Laboratory, University of Helsinki, Finland, Postdoctoral Researcher

Iozzo, Yuri (Egor Svidritskiy), Postdoctoral Associate and Instructor, Supervisor — 2010–2019
Current Position: Sanofi Genzyme, Framingham, MA, Senior Scientist

Laboratory Staff

Park, Alexander, Laboratory Technician I, II, Supervisor 2015–2017
Current Position: UMass Medical School MD/PhD Student, Mitchell lab

Bah, Eugene, Laboratory Technician I, Supervisor 2013–2014
Current Position: Mayo Clinic, MD/PhD Program, Student

Madireddy, Rohini, Research Associate I, Supervisor 2010–2015
Current Position: Medicago, Inc., Researcher

Educational Administration and Leadership:

Member, Education and Training Strategic Planning Committee, BMP 2014

Grants

Current

NIH **5R35GM127094** Korostelev, Andrei 05/01/2018–04/30/2028
Translational Control: Discovery and Mechanisms
The major goals of this project are to reveal structural mechanisms of the translational control of gene expression, focusing on detailed mechanisms of the elongation and termination steps of translation.
$3,226,555 ($1,926,300 direct/$1,300,253 indirect)
PI: 50% effort

NIH/NIMH **R21 MH134127** Richter, Joel/Korostelev, Andrei 07/2023–06/2025
Elucidating Fragile X Syndrome by Investigating FMRP Molecular Function
The major goals are to first identify regions in mRNA that are bound by FMRP-stalled ribosomes, and then to use such RNA regions to form FMRP-stalled ribosome complexes for cryo-EM structure determination.
Total award for Korostelev lab: $230,313 ($137,500 direct/$92,813 indirect)
MPI: 5% effort

NIH/NIA **R21 AG084170** Gao, Fen-Biao/Korostelev, Andrei 07/2023–06/2025
Cryo-EM Analysis of Ribosomal Defects in C9ORF72-Associated Frontotemporal Dementia and ALS
The goal of this award is to characterize the mechanisms of translation dysregulation in frontotemporal dementia and amyotrophic lateral sclerosis using high-resolution electron microscopy.
Total award for Korostelev lab: $276,375 ($165,500 direct/$111,375 indirect)
MPI: 5% effort

BRIDGE Fund, UMass Chan Medical School 08/2023–05/2025
mRNA-specific readthrough of nonsense codons to treat hundreds of genetic disorders.
$271,051 direct

Completed

NIH **1R56AI151372-01A1** Korostelev, Andrei 04/01/2020–03/31/2023
Molecular principles of stringent response activation in bacteria
The major goal of this project is to find how ribosomes interact with the stringent factor RelA to synthesize (p)ppGpp and initiate the stringent response
$534,248 ($318,954 direct/ $215,294 indirect)
PI: 25% effort

NIH/NIAID **1R01AI148784** Luban, Jeremy 01/02/2020–12/31/2024
Insight into the Ebola virus glycoprotein fusion mechanism gleaned from the 2013-2016 epidemic GP-A82V variant
The goal of this project is to help us to better understand how Ebola virus replicates and to develop new therapies that block this deadly virus.
$791,300 (total/year) Korostelev $130,215/year
Co-I: 5% effort

CFF **Award # KOROST20G0** Korostelev, Andrei 04/01/2020–03/31/2023
High-resolution molecular understanding of premature termination in CF
The goal of this project is to understand the roles played by translation termination proteins (eRF1, eRF3, and poly(A)-binding protein, a.k.a. PABP) during premature translation termination of the CFTR mRNA in cell-free systems, and in bronchial epithelial cells.
$346,662
Co-I: 2.5% effort

Simons Foundation **Award ID: 647623** Richter, Joel
Analysis of FMRP-ribosome interactions
The goal of this project is to understand the mechanism of translation regulation by FMRP in neurons, using ribosome profiling, cryo-EM and other approaches. 11/01/2019–10/31/2021
$62,500
Co-I: 1% effort

CCTS RICCIO FUND 2020 (Korostelev, Richter, Gao) 04/01/2020–03/31/2021
UMMS Internal Funding
Structural Understanding of Ribosome Dysregulation in Neurological Diseases
The goal of this project is to determine the structural basis of translation repression by DPR proteins in C9ORF72-ALS/FTD.
$50,000
Co-I: 1% effort

CCTS RICCIO FUND 2019 (Korostelev, Richter, Gao) 04/01/2019–03/31/2020
UMMS Internal Funding
Structural Understanding of Ribosome Dysregulation in Neurological Diseases
The goal of this project is to determine the structural basis of translation repression by DPR proteins in C9ORF72-ALS/FTD as well as to determine the structural basis of regulation of the 80S ribosome by FMRP.
$50,000
Co-I: 1% effort

Sponsored Research Agreement **PTC Therapeutics** 01/01/2019–12/31/2019
The structural mechanisms of ataluren and other stop-codon read-through compounds
The goal of this project is to elucidate the molecular mechanisms underlying the readthrough activity of PTC Therapeutics compounds including, but not limited to, ataluren, clitocine, and other undisclosed novel chemical matter.
$138,400
PI: 1% effort

NIH **1R01GM107465** Korostelev, Andrei 01/01/2015–05/31/2018
Molecular principles of translation termination
We propose to understand detailed molecular mechanisms of translation termination in both bacteria and eukaryotes, mediated by release factors RF1 and RF2 on bacterial 70S ribosomes and release factors eRF1 and eRF3 on eukaryotic 80S ribosomes.
$1,289,752 (total) $770,000 (direct) / $519,752 (indirect)
PI: 40% effort

NIH **5R01GM106105** Korostelev, Andrei 08/01/2013–12/31/2018
Structural bases for cellular stress responses mediated by stalled translation
This project will dissect detailed molecular mechanisms of bacterial stress response mediated by proteins RelA and YaeJ.
$1,589,192 (total) $ 950,000 (direct) / $639,192 (indirect)
PI: 20% effort

Worcester Science Foundation Korostelev, Andrei 2017–2018
Elucidating the translation-transcription coupling
The project aims at structural understanding of the direct coupling between translation and transcription in bacteria. Study of this essential bacterial mechanism may spur the development of novel antibacterials.
$40,000 (total)
$40,000 (direct) / $0 (indirect) PI: 1% effort

NIH **2P30DK047757-20** Wilson, James, UPenn 04/01/2015–03/31/2017
New therapeutic strategies for targeting cystic fibrosis
The goals of this project are to identify therapeutics against cystic fibrosis by using a knowledge-based library screening, high-throughput small-molecule search and testing of the leading compounds in an animal model of cystic fibrosis.
$167,500 (total) $100,000 (direct) / $67,500 (indirect)
PI: 5% effort

Worcester Science Foundation Korostelev, Andrei 07/01/2011–06/30/2012
Structural basis for translation regulation of c-Myc
This proposal aims at understanding the structural basis of translation regulation of cellular and viral mRNAs, mediated by internal ribosome entry site RNA sequences
$35,000 (total)
$35,000 (direct) / $0 (indirect)
PI: 1% effort

Center for AIDS Research, UMMS Korostelev, Andrei 01/11/2011–10/31/2012
Structural basis for translational regulation of HIV-1 replication
This proposal aims at uncovering detailed structural mechanisms of viral mRNA translation, mediated by internal ribosome entry site RNA sequences $25,000 (total)
$9,375 (direct) / $15,625 (indirect)
PI: 1% effort

NIH **UL1TR000161-04 (UMCCTS Pilot Project Award)** Korostelev, Andrei 04/01/2013–03/31/2014
Novel Therapeutic Routes against Premature-Termination Diseases
The aim is to develop approaches to therapeutics against genetic diseases caused by premature translation termination.
$100,000 (total)
$100,000 (direct) / $0 (indirect)
PI: 10% effort

Technology Development

Patents:

Patent number: 8815885. *Methods and compositions for modulating Ire1 activity*. Alexei V. Korennykh, Pascal F. Egea, **Andrei Korostelev**, Janet Finer-Moore, Chao Zhang, Kevan M. Shokat, Robert M. Stroud & Peter Walter. 2014

Patent number: 9382230. *Methods and compositions for modulating Ire1, SRC and ABL activity*. Peter Walter, Alexei Korennykh, Kevan M. Shokat, Chao Zhang, Janet Finer-Moore, Robert Stroud, Pascal Egea, **Andrei Korostelev**, Arvin Dar, Sebastian Bernales. 2016

Susorov, Egri, Korostelev."Specific Oligonucleotide-Programmed Readthrough of Nonsense Codons". Conversion of provisional patent application UMASS-W: 19793. 07/2022 2021

Susorov, Seraj, Moreno, Khvorova, Korostelev. 2023. "Nucleic Acid Antisense Oligomer Readthrough of Nonsense Codons". Conversion of provisional patent application UMMS22-65: 07/2023. 2022

Loveland, Korostelev. 2023. "Methods for Identifying Compounds that Inhibit Angiogenin in Complex with the Ribosome". Provisional patent application UMMS23-03 2023