# CURRICULUM VITAE

| NAME | POSITION TITLE |
|---|---|
| Korostelev, Andrei, A | Associate Professor |

## EDUCATION & TRAINING

| START MONTH/ YEAR | END MONTH/ YEAR | DEGREE *(if applicable)* | INSTITUTION AND LOCATION | TRAINING MENTOR | SCIENTIFIC DISCIPLINE |
|---|---|---|---|---|---|
| 09/2004 | 08/2010 | Postdoc | University of California, Santa Cruz, CA, USA | Dr. Harry F. Noller | Biochemistry, Structural Biology |
| 01/2004 | 09/2004 | Postdoc | Florida State University, Tallahassee, FL, USA | Dr. Michael S. Chapman | Biochemistry, Structural Biology |
| 08/1998 | 12/2003 | PhD | Florida State University, Tallahassee, FL, USA | Dr. Michael S. Chapman | Chemistry, Biochemistry, Crystallography |
| 06/1992 | 06/1997 | MS/BS | Moscow State University, Moscow, Russia | Dr. Vitas Svedas | Chemistry, Enzymology |

## PROFESSIONAL POSITIONS

| START MONTH/ YEAR | END MONTH/ YEAR | POSITION TITLE | DEPARTMENT | INSTITUTION AND LOCATION |
|---|---|---|---|---|
| 09/15 | present | Associate Professor | RNA Therapeutics Institute | University of Massachusetts Medical School, Worcester, MA, USA |
| 08/10 | 08/15 | Assistant Professor | RNA Therapeutics Institute | University of Massachusetts Medical School, Worcester, MA, USA |

## PROFESSIONAL ACTIVITIES

### *Honors and Awards*

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|---|---|
| RNA Society Early Career Award (RNA Society) | 2018 |
| Earl and Thressa Stadtman Scholar Award (American Society for Biochemistry and Molecular Biology, ASBMB) | 2018 |
| Worcester Science Foundation Award | 2017 |
| The RNA Society / Scaringe Young Scientist Award, runner-up | 2010 |
| M.S. *Summa cum laude* (Moscow State University) | 1998 |
| I.V. Berezin Young Scientist award, Moscow State University | 1996 |
| Soros academic fellowship, Moscow State University | 1994 |

### *Patents*

08/26/2014. 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.

### *Editorial Work*

Editorial Board Member, *RNA* 2018 - present

Editorial Board Member, *Biochimie* 2012 - 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. Svidritskiy E., Demo G, Korostelev AA. “Mechanism of premature translation termination on a sense codon”. *J. Biol. Chem.* 293(32):12472-12479 (2018).
2. Svidritskiy E., Korostelev AA. “Conformational control of translation termination on the 70S ribosome.” *Structure*. 26(6): 821–828 (2018).
3. Loveland AB., Korostelev AA. “Structural dynamics of protein S1 on the 70S ribosome visualized by ensemble cryo-EM.” *Methods*. 137:55-66 (2018).
4. Svidritskiy E., Korostelev AA. “Mechanism of inhibition of translation termination by blasticidin S”. *J. Mol. Biol.* 430(5):591-593 (2018).
5. 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*. 6:e28560 (2017)
6. Loveland AB, Demo G, Grigorieff N, Korostelev AA. “Ensemble cryo-EM elucidates the mechanism of translation fidelity”. *Nature*. 546: 113–117 (2017).
7. 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*. 7(1):969 (2017).
8. 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).
9. 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*. 5:e17029 (2016).
10. Svidritskiy E, Madireddy R, Korostelev AA. “Structural basis for translation termination on a pseudouridylated stop codon”. *J Mol Biol.* 428: 2228-36. (2016).
11. 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).
12. Tek A, Korostelev AA, Flores SC. MMB-GUI: a fast morphing method demonstrates a possible ribosomal tRNA translocation trajectory. *Nucleic Acids Res*. 44(1):95-105 (2016).
13. 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).
14. 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).
15. Korostelev AA. “A deeper look into translation initiation”. (Preview). *Cell.* 159(3):475-6 (2014).

16. 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).
17. 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 U S A*. 111(25):9139–9144 (2014).
18. 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 U S A*. 110(52):20994-9 (2013).
19. 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).
20. 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).
21. 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).
22. 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).
23. 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).
24. Korostelev AA. “Structural aspects of translation termination on the ribosome”. *RNA*, 17(8): 1409–1421 (2011).
25. Zhu J.*, Korostelev AA*, 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).
26. Korostelev AA, Zhu J, Asahara H, Noller, HF "Recognition of the amber UAG stop codon by release factor RF1". *EMBO J*. 29: 2577 – 2585 (2010).
27. Korennykh A, Egea P, Korostelev AA, Finer-Moore J, Zhang C, Shokat K, Stroud R, Walter P. “High-order assembly of the core signaling machine in the unfolded protein response”. *Nature*. 457(7230): 668-9 (2009).
28. Korostelev AA, Ermolenko D, Noller HF. "Structural dynamics of the ribosome". *Curr. Opin. Chem. Biol*., 12: 1-10 (2008).
29. Korostelev AA, 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).
30. Korostelev AA*, 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).
31. Laurberg M*, Asahara H*, Korostelev AA*, Zhu J, Trakhanov S, Noller, HF. "Structural basis for translation termination on the 70S ribosome". *Nature,* 454: 852-857 (2008).
32. Korostelev AA, Noller HF. "Analysis of structural dynamics in the ribosome by TLS crystallographic refinement". *J. Mol. Biol.,* 373: 1058-1070 (2007).
33. Korostelev AA*, 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).
34. Korostelev AA, Noller HF. "The ribosome in focus: new structures bring new insights". *Trends Biochem Sci.,* 32(9): 434-41 (2007).

35. Korostelev AA, Trakhanov S, Laurberg M, Noller HF. "Crystal structure of a 70S ribosome-tRNA complex reveals functional interactions and rearrangements". *Cell,* 126: 1065-1077 (2006).
36. Murray S, Nilsson CL, Hare JT, Emmett MR, Korostelev AA, 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).
37. Fabiola F, Korostelev AA, Chapman MS. "Bias in cross-validated free R factors: mitigation of the effects of non-crystallographic symmetry". *Acta Cryst., D*62: 227-238 (2006).
38. Korostelev AA, 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).
39. Gao HX, Sengupta J, Valle M, Korostelev AA, 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).
40. Lima S, Hildenbrand J, Korostelev AA, 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).
41. Fabiola F, Bertram R, Korostelev AA, Chapman MS. "An improved hydrogen bond potential: Impact on medium-resolution structures". *Protein Science,* 11(6): 1415-1423 (2002).
42. Korostelev AA, 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. 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).

## SELECTED ORAL PRESENTATIONS

- Duke University School of Medicine, Seminar, February 15, 2019, Durham, NC, *USA*
- Future Biotech Winter Retreat, January 28, 2019, St. Petersburg, *Russia*
- Ribosomes-2019 international meeting, January 9, 2019, Merida, *Mexico*
- Johns Hopkins University School of Medicine, Seminar, October 11, 2018, Baltimore, MD, *USA*
- Yale University, Seminar, September 24, 2018, New Haven, CT, *USA*
- RNA Society Annual Meeting, Speaker/Award Winner, May 29, 2018, University of California, Berkeley, Berkeley, CA, *USA*
- Princeton University, Seminar, April 25, 2018, Princeton, NJ, *USA*
- ASBMB Annual Meeting, Speaker/Award Winner, April 21, 2018, San Diego, CA, *USA*
- RNA Summit 2017, November 14, 2017, Boston, MA, *USA*
- 14$^{th}$ Annual North East Structure Symposium, October 28, 2017, University of Connecticut, Storrs, CT, *USA*
- Structural Biology conference, September 18-20, 2017, Zurich, *Switzerland*
- EMBO Translational Control conference, September 5-10, 2017, Heidelberg, *Germany*
- Moscow State University, Seminar, August 31, 2017, Moscow, *Russia*
- ModeRNA Therapeutics, Seminar, June 22, 2017, Cambridge MA*, USA*
- Gordon Research Conference, Nucleic Acids. June 6, 2017. Biddeford, ME, *USA*
- Wesleyan University, Seminar, March 30, 2017, Middletown, CT, *USA*
- Columbia University, Seminar, March 13, 2017*,* NY, *USA*

- Clark University, Worcester, Lecture, January 23, 2017, MA, *USA*
- University of Illinois at Chicago, Seminar, October 20, 2016, IL, *USA*
- University of Connecticut Health Center, Seminar, October 13, 2016, CT*, USA*
- Cold Spring Harbor Laboratory Translational Control Meeting, September, 2016, NY, *USA*
- Ribosomes-2016, International Triennial Conference, July 7, 2016, Strasbourg, *France*
- Thomas Jefferson University, Seminar, June 6, 2016, Philadelphia, PA*, USA*
- Conference "Sailing the protein seas in the ocean state", May 1, 2016, Brown Univ, RI, *USA*
- Rochester University, Seminar, April 27, 2016, NY*, USA*
- Uppsala University, Seminar, March 17, 2016, Uppsala, *Sweden*
- University of Massachusetts Worcester, Seminar, Dept Cell and Dev. Biol., Feb 17, 2016, *MA, USA*
- Genzyme, Seminar, Dec 14, 2015, Framingham, MA, *USA*
- "Regulating with RNA in Bacteria and Archaea" Conference, Dec 5-8, 2015, Cancun, *Mexico*
- University of Massachusetts Medical School, Retreat, Oct 9, 2015, Amherst, MA, *USA*
- University of Florida College of Medicine, Seminar, Center for NeuroGenetics, July 22, 2015, Gainesville, FL, *USA*
- Nucleic Acids Conference, December 5-9, 2014, Cancun, *Mexico*
- Bacteriology and Infectious Diseases Conference, November 17-19, 2014, Chicago, IL, *USA*
- Cold Spring Harbor Laboratory Translational Control Meeting, September 2-6, 2014, NY, *USA*
- Moscow State University, Seminar, Department of Bioengineering and Bioinformatics, August 14, 2014. Moscow, *Russia*
- Gordon Research Conference, July 14, 2014. Newport, RI, *USA*
- RibeTribe symposium, June 28, 2014. Santa Cruz, CA, *USA*
- FASEB Meeting, June 23, 2014. Snowmass, CO, *USA*
- RNA Society Meeting, June 5, 2014. Quebec City, *Canada*
- Uppsala University, Keynote seminar, RiboCORE meeting, May 22, 2014. Uppsala, *Sweden*
- American Society for Biochemistry and Molecular Biology, ASBMB Annual Meeting, April 26-30, 2014. San Diego, CA, *USA*
- Boston University Medical School, Seminar, Department of Physiology & Biophysics, Mar 25, 2014. Boston, *MA, USA*
- Protein & RNA Structure Prediction Conference, Dec.6 2013, *Mexico*
- Finger Lakes RNA Conference, Oct 25, 2013. Canandaigua, NY, *USA*
- Clinical Microbiology Meeting, Nov 12, 2012. San Antonio, TX, *USA*
- RiboClub-2012 Meeting, Session Chair, Sherbrooke, Sep 25, 2012. *Canada*
- Institute of Chemical Biology and Fundamental Medicine, Seminar, Siberian Branch of the Russian Academy of Sciences, August 8, *2011*. Novosibirsk*, Russia*
- Institut de Génétique et de Biologie Moléculaire et Cellulaire. April 30, 2010. *Strasbourg, France*
- Institut Européen de Chimie et Biologie, Sep 2, 2009. Bordeaux, *France*
- RNA Society Meeting, May, 2009. Madison, WI, *USA*
- American Crystallographic Association Meeting, July 22-27, 2000. St. Paul, MN, *USA*