

CURRICULUM VITAE

1. Name: Irina R. Arkhipova
Position: Associate Scientist

2. Office address: Josephine Bay Paul Center for Comparative Molecular Biology and Evolution
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3. Education and Postdoctoral Training:

- 1977-83: BS/MS in Biochemistry, M.V. Lomonosov Moscow State University, Moscow, Russia.
Department of Molecular Biology, Faculty of Biology.
Thesis: Amplification and transcription of mobile dispersed genes in *Drosophila*.
Advisor: Prof. Georgii P. Georgiev.
- 1983-86: Ph.D. in Molecular Biology, Engelhardt Institute of Molecular Biology, Moscow, Russia.
Ph.D. Dissertation: Reverse transcription of mobile dispersed genes in *Drosophila*.
Advisor: Prof. Yuri V. Ilyin.
- 1990-91: Wellcome Trust Postdoctoral Fellow
Institute of Cell and Molecular Biology, University of Edinburgh, Scotland, UK.
Project: Control of transcription of *Drosophila* retrotransposons.
Advisor: Prof. David J. Finnegan.
- 1991-94: Postdoctoral Fellow, Dept. of Biochemistry and Molecular Biology, Harvard University.
Projects: Transcriptional control of *Drosophila* transposons and host genes; gene-dosage compensation.
Advisor: Prof. Matthew S. Meselson.
- 2001: Certificate, MBL Special Topics course "Workshop on Molecular Evolution", Woods Hole, MA.

4. Professional Appointments:

- 1986-1990 Research Scientist, Engelhardt Institute of Molecular Biology, USSR Academy of Sciences, Moscow, Russia
- 1995-2000 Research Associate, Department of Molecular and Cellular Biology, Harvard University, Cambridge, MA
- 2000-2009 Staff Scientist, Dept. of Molecular and Cellular Biology, Harvard University, Cambridge, MA
- 2004-2009 Assistant Research Scientist; 2009: Associate Research Scientist
Josephine Bay Paul Center for Comparative Molecular Biology and Evolution
Marine Biological Laboratory, Woods Hole, MA
- 2009-2012 Assistant Scientist, Josephine Bay Paul Center for Comparative Molecular Biology and Evolution, Marine Biological Laboratory, Woods Hole, MA
- 2010-2013: Assistant Professor (MBL)
Department of Molecular Biology, Cell Biology, and Biochemistry, Brown University, Providence, RI
- 2012-present: Associate Scientist, Josephine Bay Paul Center for Comparative Molecular Biology and Evolution, Marine Biological Laboratory, Woods Hole, MA
- 2013-present: Associate Professor (MBL)
Department of Molecular Biology, Cell Biology, and Biochemistry, Brown University, Providence, RI

5. Publications (in chronological order)

a. Books/monographs

Arkhipova, I.R., Lyubomirskaya, N.V., and Ilyin, Y.V. (1995). *Drosophila* Retrotransposons. R.G. Landes Co., Georgetown, TX; Springer-Verlag, Heidelberg. 134pp.

b. Chapters in books

Arkhipova, I.R. (2001). Retrotransposons. In: Encyclopedia of Genetics, E.C.R. Reeve, ed.; Fitzroy Dearborn Publishers, London.

Arkhipova, I.R. (2005). Mobile genetic elements and sexual reproduction. In: *Retrotransposable elements and genome evolution*, pp. 372-382, J.-N. Volff, ed.: Karger AG, Basel.

Evgen'ev, M.B., Arkhipova, I.R. (2005). *Penelope*-like elements - a new class of retroelements: Distribution, function, and possible evolutionary significance. In: *Retrotransposable elements and genome evolution*, pp. 510-521, J.-N. Volff, ed.: Karger AG, Basel.

Gladyshev, E.A., Arkhipova, I.R. (2010). Bdelloid rotifers. In: *McGraw Hill 2010 Yearbook of Science and Technology*, pp.37-39, McGraw Hill Inc., New York, NY.

Arkhipova, I.R. (2012). Telomerase, retrotransposons, and evolution. In: *Telomerases: Chemistry, Biology and Clinical Applications*, pp. 265-299. N.F. Lue, C. Autexier, eds. John Wiley & Sons, Inc.: Hoboken, NJ.

c. Refereed journal articles

Arkhipova, I.R., Gorelova, T.V., Ilyin, Y.V., Schuppe, N.G. (1984). Reverse transcription of *Drosophila* mobile dispersed genetic element RNAs: detection of intermediate forms. ***Nucl. Acids Res.*** 12: 7533-48.

Ilyin, Y.V., Schuppe, N.G., Lyubomirskaya, N.V., Gorelova, T.V., Arkhipova, I.R. (1984). Circular copies of mobile dispersed genetic elements in cultured *Drosophila melanogaster* cells. ***Nucl. Acids Res.*** 12:7517-7531.

Arkhipova I.R., Mazo A.M., Cherkassova V.A., Gorelova T.V., Schuppe N.G., Ilyin Y.V. (1986). The steps of reverse transcription of *Drosophila* mobile dispersed genetic elements and the U3-R-U5 structure of their LTRs ***Cell*** 44: 555-563.

[Ilyin, Y.V, Shuppe, N.G, Liubomirskaya, N.V, Gorelova, T.V, Arkhipova, I.R. (1984). Circular DNA of mobile dispersed genes in *D. melanogaster* cell culture. *Genetika (Russ.)* 20: 1763-1771.]*

[Ilyin, Y.V., Shuppe, N.G., Bayev, A.A., Gorelova, T.V., Arkhipova, I.R., Dzhumagaliev, E.B., Kakpakov, V.T., Lyubomirskaya, N.V. (1985). Organization and transposition of *Drosophila* mobile dispersed genes. In: *Molecular mechanisms of genetic processes*, p.20-27. Nauka, Moscow.]*

[Ilyin, Y.V., Arkhipova, I.R., Gorelova, T.V., Shuppe, N.G. (1985). Detection of intermediates of RNA reverse transcription for mobile dispersed MDG1 and MDG3 genes in *Drosophila* cells. *Mol. Biol. (Mosk.)* 19:162-172.]*

[Mazo, A.M., Arkhipova, I.R., Cherkassova, V.A., Gorelova, T.V., Shuppe, N.G., Ilyin, Y.V. (1986). Fine structure of long terminal repeats and stages of reverse transcription of mobile dispersed genes in *Drosophila*. *Genetika (Russ.)* 22: 378-389.]*

[Dzhumagaliev, E.B., Mazo, A.M., Baev, A.A., Gorelova, T.V., Arkhipova, I.R., Shuppe, N.G, Il'in, I.V. (1986). Structure of long terminal repeats of transcriptionally active and inactive copies of the mobile dispersed gene MDG3 in *Drosophila melanogaster*. *Genetika (Russ.)* 22: 368-377.]*

[Arkhipova, I.R., Krichevskaya, A.A, Cherkassova, V.A., Il'in, I.V. (1987). Virus-like particles containing MDG sequences in cultured media of *Drosophila* cell lines. *Dokl. Akad. Nauk USSR* 292: 212-215.]*

[Arkhipova, I.R. (1988). Mechanisms of retroposition in eukaryotes (review). *Advances in Biological Chemistry (Moscow)* 29: 44-83.]*

[Arkhipova, I.R., Liubomirskaya, N.V., Il'in, Y.V., Aslanian, M.M., Kim, A.I. (1990). Structural organization and high transcriptional activity of the mobile genetic element MDG4 in unstable *Drosophila melanogaster* mutants. *Dokl. Akad. Nauk SSSR* 310: 1236-1239.]*

[Liubomirskaya, N.V., Arkhipova, I.R., Il'in, I.V., Kim, A.I. (1990). Cloning and molecular analysis of retrotransposon mdg4 from two *Drosophila melanogaster* strains differing in genetic instability. *Genetika (Russ.)* 26: 2101-2110.]*

[Liubomirskaya, N., Arkhipova, I.R., Ilyin, Y. (1990). Transcription of *Drosophila* MDG4 mobile element under hyperthermic conditions. *Genetika (Russ.)* 26: 1720-1728.]*

[Arkhipova, I.R., Il'in, I.V. (1991). Organization of promoter regions in *Drosophila* retrotransposons. *Mol. Biol. (Mosk.)* 25: 69-76.]*

[Abramyan, L.G., Arkhipova, I.R., Ambartsumyan, N.S. (1993). Long terminal repeats of *Drosophila* mobile elements direct transcription in *E. coli* cells. *Mol. Biol. (Mosk.)* 27: 358-362.]*

[Agamalyan, N.S., Arkhipova, I.R., Surkov, S.A., Ilyin, Y.V. (1996). Regulating polyadenylation of *jockey* mobile genetic element transcripts belonging to the LINE class, in *Drosophila* cell culture. *Mol. Biol. (Mosk.)* 30: 818-828.]*

*[Publications in Russian]

Lyubomirskaya, N.V., Arkhipova, I.R., Ilyin, Y.V., Kim, A.I. (1990). Molecular analysis of the gypsy (mdg4) retrotransposon in two *Drosophila melanogaster* strains differing by genetic instability. **Mol. Gen. Genet.** 223: 305-309.

Arkhipova I.R., Ilyin Y.V. (1991). Properties of promoter regions of mdg1 *Drosophila* retrotransposon indicate that it belongs to a specific class of promoters. **EMBO Journal** 10: 1169-1177.

Arkhipova IR, Ilyin YV. (1992). Control of transcription of *Drosophila* retrotransposons. **BioEssays** 14:161-8.

Lyubomirskaya, N.V., Arkhipova, I.R., Ilyin, Y.V. (1993). Transcription of *Drosophila* mobile element gypsy (mdg4) in heat-shocked cells. **FEBS Lett.** 325: 233-236.

Arkhipova, I.R. (1995). Promoter elements in *Drosophila melanogaster* revealed by sequence analysis. **Genetics** 139: 1359-1369.

Arkhipova, I.R. (1995). Complex patterns of transcription of a *Drosophila* retrotransposon *in vivo* and *in vitro* by RNA polymerases II and III. **Nucl. Acids Res.** 23: 4480-4487.

Udomkit, A., Forbes, S., McLean, C., Arkhipova, I.R., Finnegan, D.J. (1996). Control of expression of the I factor, a LINE-like transposable element in *Drosophila melanogaster*. **EMBO Journal** 15: 3174-3181.

Arkhipova, I.R., Li, J., Meselson, M. (1997). On the mode of gene-dosage compensation in *Drosophila*. **Genetics** 145: 729-736.

Danilevskaya, O.N., Arkhipova, I.R., Traverse, K.L., Pardue, M.L. (1997) Promoting in tandem: the promoter for telomere transposon HeT-A and implications for the evolution of retroviral LTRs. **Cell** 88: 647-655.

Arkhipova, I., Meselson, M. (2000). Transposable elements in sexual and ancient asexual taxa. **Proc. Natl. Acad. Sci. USA** 97: 14473-14477.

Wu, C.H., Madabusi, L., Nishioka, H., Emanuel, P., Sypes, M., Arkhipova, I., Gilmour, D.S. (2001). Analysis of core promoter sequences located downstream from the TATA element in the hsp70 promoter from *Drosophila melanogaster*. **Mol. Cell. Biol.** 21: 1593-1602.

Arkhipova, I.R., Morrison, H.G. (2001). Three retrotransposon families in the genome of *Giardia lamblia*: two telomeric, one dead. **Proc. Natl. Acad. Sci. USA** 98: 14497-14502 (cover story; commentary p.14195-97).

Arkhipova, I.R., Pyatkov, K.I., Meselson, M., Evgen'ev, M.B. (2003). Retroelements containing introns in diverse invertebrate taxa. **Nature Genetics** 33:123-124.

Pyatkov K.I, Arkhipova I.R., Malkova N.V., Finnegan D.J., Evgen'ev M.B. (2004). Reverse transcriptase and endonuclease activities encoded by *Penelope*-like retroelements. **Proc. Natl. Acad. Sci. USA** 101:14719-24

Arkhipova, I.R., Meselson, M. (2005). Diverse DNA transposons in rotifers of the Class Bdelloidea. **Proc. Natl. Acad. Sci. USA** 102: 11781-11786.

Arkhipova, I.R., Meselson, M. (2005). Deleterious transposable elements and the extinction of asexuals. **BioEssays** 27: 76-85.

Schön, I., Arkhipova, I.R. (2006). Two families of non-LTR retrotransposons, *Syrinx* and *Daphne*, from the Darwinulid ostracod, *Darwinula stevensoni*. **Gene** 371(2): 296-307.

Arkhipova, I.R. (2006). Distribution and phylogeny of *Penelope*-like elements in eukaryotes. **Syst. Biol.** 55(6): 875-885.

Gladyshev, E.A., Meselson, M., Arkhipova, I.R. (2007). A deep-branching clade of retrovirus-like retrotransposons in bdelloid rotifers. **Gene** 390(1-2): 136-145.

Gladyshev, E.A., Arkhipova, I.R. (2007). Telomere-associated endonuclease-deficient *Penelope*-like retroelements in diverse eukaryotes. **Proc. Natl. Acad. Sci. USA** 104(22): 9352-9357. (cover story; commentary *ibid.* p. 9107-9108)

Schostak, N., Pyatkov, K., Zelentsova, E., Arkhipova, I., Shagin, D., Mudrik, E., Blintsov, A., Clark, I., Finnegan, D.J., Evgen'ev M.B. (2008). Molecular dissection of *Penelope* transposable element regulatory machinery. **Nucl. Acids Res.** 36(8): 2522-2529.

Gladyshev, E.A., Meselson, M., Arkhipova, I.R. (2008). Massive horizontal gene transfer in bdelloid rotifers. **Science** 320: 1210-1213.

Gladyshev, E.A., Arkhipova, I.R. (2009) A single-copy IS5-like transposon in the genome of the bdelloid rotifer *Adineta vaga*. **Mol. Biol. Evol.** 26(8): 1921-1929.

Gladyshev, E.A., Arkhipova, I.R. (2009) Rotifer rDNA-specific R9 retrotransposable elements generate an exceptionally long target site duplication upon insertion. **Gene** 448(2): 145-50.

Gladyshev, E.A., Arkhipova, I.R. (2010). A subtelomeric non-LTR retrotransposon Hebe in the bdelloid rotifer *Adineta vaga* is subject to inactivation by deletions but not 5' truncations. **Mob. DNA** 1:12.

Gladyshev, E.A., Arkhipova, I.R. (2010). Genome structure of bdelloid rotifers: shaped by asexuality or desiccation? **J. Hered.** 101:S85-S93.

Garbuz D.G., Astakhova L.N., Zatssepina O.G., Arkhipova I.R., Nudler E., Evgen'ev M.B. (2011). Functional organization of the *Hsp70* cluster in camel (*Camelus dromedarius*) and other mammals. **PLoS One** 6:e27205.

Gladyshev, E.A., and Arkhipova, I.R. (2011). A widespread class of reverse transcriptase-related cellular genes. **Proc. Natl. Acad. Sci. USA** 51: 20311-20316.

Arkhipova, I.R., Rodriguez F.R. (2013). Genetic and epigenetic changes involving (retro)transposons in animal hybrids and polyploids. In: *Trends in Polyploidy Research in Animals and Plants*, M. Stöck and D.L. Lamatsch, eds. Karger AG, Basel. **Cytogenet Genome Res.** 140:295-311.

Arkhipova I.R., Yushenova I.A., Rodriguez F. (2013) Endonuclease-containing Penelope retrotransposons in the bdelloid rotifer *Adineta vaga* exhibit unusual structural features and play a role in expansion of host gene families. **Mob. DNA** 4:19.

Flot J.-F., Hespels B., Li X., Noel B., Arkhipova I., Danchin E., Hejnol A., Henrissat B., Koszul R., Aury J.M., Barbe V., Barthelemy R., Bast J., Bazykin G., Chabrol O., Couloux A., Da Rocha M., Da Silva C., Gladyshev E., Gouret P., Hallatchek O., Hecox-Lea B., Labadie K., Lejeune B., Piskurek O., Poulain J., Rodriguez F., Ryan J., Vakhrusheva O., Wajnberg E., Wirth B., Yushenova I., Kellis M., Kondrashov A., Mark Welch D., Pontarotti P., Weissenbach J., Wincker P., Jaillon O., Van Doninck K. (2013). Genomic evidence for ameiotic evolution in the bdelloid rotifer *Adineta vaga*. **Nature** 500: 453-457.

d. Non-refereed articles

Arkhipova, I.R. (1990). Retrotransposons. In: Genetic Encyclopedia. Soviet Encyclopedia: Moscow.

Arkhipova, I.R. (1990). Mobile Genetic Elements. In: Genetic Encyclopedia. Soviet Encyclopedia: Moscow.

Arkhipova, I.R. (2000). Transposable elements in the animal kingdom. **Mol. Biol. (Mosk.)** 35: 1-12.

e. Book reviews/meeting reviews

Arkhipova, I.R., Batzer, M.A., Brosius, J. Feschotte, C., Moran, J.V., Schmitz, J., and Jurka, J. (2012). Meeting Report: Genomic Impact of Eukaryotic Transposable Elements. **Mob. DNA** 3:19.

f. Published abstracts

Arkhipova, I.R., Ilyin, Y.V., Shuppe, N.G., and Gorelova, T.V. Role of reverse transcription in transposition of mobile dispersed genes. Abstracts, VI Symposium USSR-Germany "Structure and Function of the Genome", Leningrad, Russia, May 1985; **Mol. Biol. (Mosk.)** 1986; 20:295-296.

[Arkhipova, I.R., Ilyin, Y.V., Cherkasova, V.A., Gorelova, T.V., Shuppe, N.G. Intermediates of reverse transcription of *Drosophila* mobile dispersed gene RNAs. Abstracts, V All-Union Biochemical Congress, Kiev, Ukraine, 1986; v 1, p. 113-114.]*

[Arkhipova, I.R. Retrotransposons: Transcription and reverse transcription. Meeting on Problems in Modern Molecular Biology and Oncology, Alushta, Russia, October 1987.]*

[Ilyin, Y.V., Arkhipova, I.R., and Priimagi, A.F. *Drosophila* retroposons: structural organization and mechanisms of transposition. Abstracts, 5th All-Union Congress of the Society for Genetics and Selection, Tallinn, Estonia, 1987; v. 6, p. 47.]*

[Arkhipova, I.R., Lyubomirskaya, N.V., Ilyin, Y.V. Characterization of the promoter region of the mdg1 *Drosophila* retrotransposon. III All-Union Seminar on Animal Genetics and Selection, Biisk, Russia, September 1989; **Izvestia SO AN USSR** 2:6.]*

[Lyubomirskaya, N.V., Arkhipova, I.R., and Ilyin, Y.V. Transcription of the mdg4 *Drosophila* mobile genetic element in hyperthermic conditions. Abstracts, VI Workshop on Genetics and Biology of *Drosophila*, Odessa, Russia, Sept. 1989, p.60-61; **Izvestia SO AN USSR** (1989) 2:10.]*

[Shostak, N.G., Prokhorova, A.V., Barsky, V.E., Arkhipova, I.R., Lyubomirskaya, N.V., Evgen'ev, M.B., and Ilyin, Y.V. Lines of *Drosophila melanogaster* transformed with the mdg4 mobile element. *Ibid.*, p. 97-98.]*

[Arkhipova, I.R. Mechanisms of initiation and termination of retrotransposon transcription. All-Union Seminar in Molecular Biology, Ust-Narva, Estonia, February 1990.]*

*[Abstracts in Russian]

Arkhipova, I.R., Cherkasova, V.A., and Ilyin, Y.V. Promoter and leader regions of *Drosophila* retrotransposons. Abstracts, USSR-USA Symposium, Tbilisi, Georgia, 1989; p.11.

Arkhipova, I.R., and Ilyin, Y.V. Promoter regions of *Drosophila* retrotransposons. Abstracts, VIII Symposium USSR-Germany "Genome Organization and Regulation of Gene Activity"; Irkutsk, Russia, June 1989; p.41.

Arkhipova, I.R., and Ilyin, Y.V. Properties of downstream promoters found in *Drosophila* retroelements. Keystone Symposia on Molecular Evolution of Introns and Other RNA Elements, Taos, NM, February 1991. *J. Cell. Biochem.*(1991) 15D: 59.

Arkhipova, I.R. A sequence-specific protein factor that binds downstream from the RNA start site is required for transcription of a *Drosophila* retrotransposon. Abstracts, Cold Spring Harbor Meeting "Regulation of Eukaryotic mRNA Transcription", August 1991, Cold Spring Harbor, NY. p.21.

Arkhipova, I.R. Transcription of *Drosophila* retrotransposons *in vivo* and *in vitro*. Abstracts, 33th Annual *Drosophila* Research Conference, March 1992, Philadelphia, PA; p.77.

Arkhipova, I.R. Analysis of the *Drosophila* Promoter Database. Abstracts, 35th Annual *Drosophila* Research Conference, April 1994, Chicago, IL; p.32.

Udomkit, A., Forbes, S., McLean, C., Arkhipova, I.R., and Finnegan, D.J. Sequences controlling expression of the I factor, a LINE₁-like element in *Drosophila melanogaster*. Keystone Symposia on Molecular & Cellular Biology, Taos, NM, February 1994. *J. Cell. Biochem.* 18B: 41.

Arkhipova, I.R. 3'-terminal promoter of a *Drosophila* LINE element: implications for retroelement evolution. Keystone Symposium "Transposition and site-specific recombination", March 1997, Santa Fe, NM; p.9.

Agamalyan, N.S., Lyubomirskaya, N.V., Arkhipova, I.R., Surkov, S.A., and Ilyin, Y.V. Analysis of RNA 3'-processing of *D. melanogaster* retrotransposon *jockey*. Abstracts, 15th European *Drosophila* Research Conference, September 1997, Varna, Bulgaria; p.93.

Arkhipova, I.R. Mobile genetic elements in sexual and ancient asexual taxa. Georgia Genetics Symposium "Transposable Elements and Evolution", Athens, GA, October 1999; p 7.

Arkhipova, I.R., and Meselson, M. Transposable elements in sexual and ancient asexual taxa. Abstracts, Keystone Symposium "Transposition and Site-Specific Recombination", Santa Fe, NM, January 2000; p.57.

Arkhipova, I.R., Pyatkov, K.I., Meselson, M., and Evgen'ev, M.B. Intron-containing retroelements in diverse invertebrate taxa. Abstracts of the Keystone Symposium "Transposition and other genome rearrangements", February 2003, Santa Fe, NM; p.76.

Arkhipova, I.R., and Meselson, M. Diverse DNA transposons in rotifers of the Class Bdelloidea. Abstracts, ASM Conference on Mobile DNA, Banff, Alberta, Canada, February 2006; p.75-76.

Schön, I., and Arkhipova, I.R. Two families of non-LTR retrotransposons, *Syrinx* and *Daphne*, from the Darwinulid ostracod, *Darwinula stevensoni*. Abstracts, ASM Conference on Mobile DNA, February 2006, Banff, Alberta, Canada; p.75.

Gladyshev, E.A., Meselson, M., Arkhipova, I.R. Transposons and foreign genes at telomeres in bdelloid rotifers. Abstracts, International Congress on Transposable Elements, St. Malo, France, April 2008; p.53.

Arkhipova, I.R. Reverse transcriptases of retroviruses and retroelements: an evolutionary perspective. Frontiers of Retrovirology: Complex retroviruses, retroelements, and their hosts. Montpellier, France, September 2009. *Retrovirology* 6: O2.

Arkhipova, I.R. The ever-expanding world of reverse transcriptases. 2nd ASM Meeting on Mobile DNA, April 2010, Montreal, Canada; p.15.

Arkhipova, I.R. Target-primed retrotransposons and telomeres. Arthur M. Sackler Colloquium "Reverse transcriptases that shaped genomes", September 2010, Irvine, CA; p.5.

Arkhipova, I.R., and Yushenova, I.A. Two types of Penelope-like elements (PLEs) in rotifers of the class Bdelloidea. Abstracts, International Congress on Transposable Elements, April 2012, St. Malo, France; p.61.

Rodriguez, F., Arkhipova, I. An increase in relative abundance of pi-like RNAs in response to ionizing radiation in the bdelloid rotifer *Adineta vaga*. Genomic Impact of eukaryotic transposable elements, Asilomar, 2012; p 45

Gladyshev EA, Rodriguez F, Yushenova IA, Arkhipova I.R. Use of phylogenetic approaches to study horizontal gene transfer and evolutionary history of gene families. *Molecular Phylogenetics: Abstracts of the 3d Moscow International Conference "Molecular Phylogenetics"*. Moscow State University: Torus Press, 2012; p.13-14.

Arkhipova I.R. Why is there so little "junk DNA" in the genome of a bdelloid rotifer? Oral Abstracts, 21th Annual Meeting of the Society for Molecular Biology and Evolution, Chicago, IL, July 2013.

Arkhipova I.R., Yushenova I.A., Rodriguez F. Diversified coding potential of retroelements from bdelloid rotifers reveals multiple links to the viral world. Abstracts, Keystone Symposium "Mobile Genetic Elements and Genome Evolution", Santa Fe, NM, March 2014.

g. Invited lectures

01/2000 – Invited seminar, Marine Biological Laboratory, Woods Hole, MA

08/2000 - International Symposium on the Evolution of Sex in memory of W.D. Hamilton, Kyushu University, Fukuoka, Japan

05/2003 - Invited seminar, Wadsworth Center, New York State Department of Health, Albany, NY

06/2005 - FASEB Summer Research Conference "Mammalian Mobile Elements", Tucson, AZ

06/2005 - Society for the Study of Evolution, Society of Systematic Biologists, and the American Society of Naturalists Conference "Evolution 2005": SSB Symposium "Genome analysis and molecular systematics of retroelements", Fairbanks, AK

09/2005 - European Science Foundation Parthenogenesis Network and Linnean Society Meeting "The Paradox of Asexuality: An Evaluation", London, UK

04/2006 – 1st International Conference "Genomic impact of eukaryotic transposable elements", Asilomar, CA.

02/2009 – 2nd International Conference "Genomic impact of eukaryotic transposable elements", Asilomar, CA

06/2009 – International Conference "Evolution of Sex and Recombination: In Theory and in Practice", Iowa City, IA

10/2009 – Invited seminar, Department of Biology, Tufts University, Medford, MA

04/2010 – Invited seminar, Department of Molecular Biology, Cell Biology, and Biochemistry, Brown University, Providence, RI

06/2010 – First International Congress on Viruses of Microbes, Institut Pasteur, Paris, France

07/2010 – 18th Annual Meeting, Society for Molecular Biology and Evolution, Lyon, France

09/2010 – Arthur M. Sackler Colloquium of the National Academy of Sciences "Telomerases and Retrotransposons: Reverse Transcriptases that Shaped Genomes", Irvine, CA

02/2012 – 3d International Conference "Genomic impact of eukaryotic transposable elements", Asilomar, CA

07/2012 – "Origin and Evolution of Eukaryotic Sex", Fondation des Treilles, Tourtour, France

08/2012 – "Molphy-3" III Int'l Conference on Molecular Phylogenetics, Moscow State University, Russia

10/2013 – "Mobile Genetic Elements", Cold Spring Harbor, NY

04/2014 – Invited seminar, Department of Ecology and Evolution, University of Chicago, Chicago, IL

09/2014 – Invited seminar, Department of Biology, Penn State University, University Park, PA

09/2014 – "Molphy-4" IV Int'l Conference on Molecular Phylogenetics, Moscow State University, Russia

h. Other presentations

Arkhipova, I.R., and Ilyin, Y.V. Specific features of RNA termination for the *Drosophila melanogaster* LINE element jockey. Workshop on LINE-1 related transposable elements, Washington, DC, October 1989.

Arkhipova, I.R., and Ilyin, Y.V. Properties of promoter regions of several *Drosophila* retrotransposons indicate that they belong to a specific class of promoters. EMBO Workshop "Molecular mechanisms of transposition and its control", Roscoff, France, June 1990.

Ilyin, Y.V., Lyubomirskaya, N.V., Arkhipova, I.R., and Kim, A.I. Molecular analysis of the gypsy (mdg4) retrotransposon in two *Drosophila melanogaster* strains differing by genetic instability. EMBO Workshop "Molecular mechanisms of transposition and its control", Roscoff, France, June 1990.

Arkhipova, I.R. Complex patterns of transcription of a *Drosophila* retrotransposon mdg1 *in vivo* and *in vitro* by RNA polymerases II and III. Mid-Atlantic Transposable Element Meeting, Frederick, MD, December 1994.

Arkhipova, I.R. Promoter elements in *Drosophila* revealed by sequence analysis. Mid-Atlantic *Drosophila* Conference, Baltimore, MD, December 1994.

Arkhipova, I.R., Danilevskaya, O.N., and Pardue, M.L. Unusual location of a promoter at the 3' but not the 5' end of a telomere-specific *Drosophila* retrotransposon. Workshop on Site-specific Recombination and Transposition, Woods Hole, MA, September 1996.

Arkhipova, I.R., Danilevskaya, O.N., Pardue, M.L. Unusual location of a promoter at the 3' but not the 5' end of the telomere-specific *Drosophila* retrotransposon: implications for the origin of the retroviral pathway of reverse transcription. Mid-Atlantic *Drosophila* conference, Baltimore, MD, November 1996.

Arkhipova, I.R., Pokrovski, S.V. Calculation of gapped dinucleotide correlation in nucleic acids and its application to reveal unique features of X-linked promoters in *Drosophila*. 1st Int'l Conference Bioinformatics of Genome Regulation and Structure, Novosibirsk, August 1998.

Arkhipova, I.R. A search for reverse transcriptase in diverse eukaryotes: Are retrotransposons ubiquitous? Mid-Atlantic transposon meeting, Johns Hopkins University Medical School, Baltimore MD, January 1998.

Arkhipova, I.R., and Meselson, M. Mobile genetic elements in sexual and ancient asexual taxa. EMBO Workshop "Molecular Mechanisms, Control and Evolution of Transposition", Roscoff, France, June 1999.

Arkhipova, I.R., and Morrison, H.G. Three retrotransposon families in the genome of *Giardia lamblia*: Two telomeric, one dead. 2nd ESF Workshop "Retrotransposons: their impact on organisms, genomes, and biodiversity", Helsinki, Finland, June 2002.

Arkhipova, I.R. Properties, distribution and evolution of an ancient class of retroelements in the animal kingdom. 3rd ESF Workshop "Retrotransposons: their impact on organisms, genomes, and biodiversity", Ljubljana, Slovenia, May 2003.

Arkhipova, I.R., Gladyshev, E.A., and Meselson, M. Transposable elements in the Phylum Rotifera. EMBO/CNRS Workshop "Molecular mechanisms of transposition, its regulation and evolution." Roscoff, France, June 2004.

Arkhipova, I.R. *Penelope*-like retroelements with and without GIY-YIG endonuclease. Workshop on Site-specific recombination and transposition, Woods Hole, MA, September 2004.

Arkhipova, I.R., and Gladyshev, E.A. Telomeres of bdelloid rotifers: Accumulation of retroelements and genes of foreign origin. 2nd FASEB Summer Research Conference "Mobile Elements in Mammalian Genomes", Tucson, AZ, June 2007.

Gladyshev, E.A., and Arkhipova, I.R. A single-copy IS5-like transposon in the genome of a bdelloid rotifer. Workshop on Site-Specific Recombination and Transposition, Woods Hole, MA, September 2008.

Arkhipova, I.R., Gladyshev, E.A., and Rodriguez, F. Properties of reverse transcriptase-related genes from rotifers, fungi and bacteria. 3rd FASEB Summer Research Conference "Mobile DNA in Mammalian Genomes", Snowmass, CO, August 2011.

6. Research Grants

a. Current grants

NIH: Horizontal gene transfer as a source of evolutionary innovation in eukaryotes

Role: PI; Location: Marine Biological Laboratory.

Duration: 2014-08-01 to 2018-06-30

NSF: Reverse Transcriptase-Related Genes and their Biological Significance

Role: PI; Location: Marine Biological Laboratory

Duration: 2011-09-01 to 2015-08-31

b. Completed grants

NSF: Mobile Genetic Elements in Sexual and Ancient Asexual Taxa

Role: PI; Location: Marine Biological Laboratory

Duration: 2008-09-15 to 2013-08-31

Brown-MBL Partnership Seed Funding: Fungal RNA Viruses and Genome Defense
Role: PI; Location: Marine Biological Laboratory
Duration: 2010-07-15 to 2012-07-14

NSF: Mobile Genetic Elements in Sexual and Ancient Asexual Taxa
Role: co-PI; Location: Marine Biological Laboratory
Duration: 2005-11-01 to 2008-09-30

NSF: RPG: Origin of Retrotransposon RNA Polymerase III Transcripts in *Drosophila*
Role: PI; Location: Harvard University
Duration: 1996-07-15 to 1997-12-31

c. Pending grants

NSF: Mobile Genetic Elements of Highly Complex Structure
Role: PI; Location: Marine Biological Laboratory
Duration: 2015-09-01 to 2019-08-31

7. Service

a. Service to the MBL

Member, MBL Corporation (2008-2013), MBL Society (2013-present)
Founding Member, Mobile Genetic Element Cluster at the MBL
Chair, Bay Paul Center Seminar Series, Fall/Spring 2011-12

b. Service to the Profession

National Panels:

NSF: Eukaryotic Genetics Advisory Panel, Arlington, VA (10/2008)
NSF: Mechanisms of Heredity Advisory Panel, Arlington, VA (10/2009)
NIH: GVE (Genetic Variation and Evolution) Study Section, Washington, DC (06/2013)
NIH: CMBG (Cellular and Molecular Biology of Glia) Study Section, Alexandria, VA (10/2014)

Meetings:

Organizer (with W. Reznikoff), Northeast Mobile Genetic Element Meeting, Woods Hole, MA, 04/2007, 09/2009, 09/2011
Organizer (with C. Feschotte), SMBE Symposium "Horizontal Transfer in Eukaryotic Genome Evolution", Lyon, France, 2010
Organizer (with R. Martienssen), "Mobile Genetic Elements", Cold Spring Harbor, NY, 10/2013
Organizer (with P. Rice), "Mobile Genetic Elements: *in silico*, *in vivo*, *in vitro*", Woods Hole, 09/2015

Editorial Boards:

Mobile DNA (2009-present)
Rebase Reports (2006-present);
Scientific World Journal (2011-present)

Grant application reviewer:

2006: NSF (BIO/DBI: Biological Infrastructure)
2007, 2009, 2010-2013: NSF (BIO/MCB: Molecular and Cellular Biosciences)
2007: NSF (BIO/DEB: Environmental Biology)
2011: ANR – Agence Nationale de la Recherche (Biochimie, biologie moléculaire et structurale)
2011-2013: DFG – Deutsche Forschungsgemeinschaft, Germany
2011: NWO – Netherlands Organization for Scientific Research, The Netherlands
2012: NSF (BIO/IOS: Symbiosis, Defense, and Self-Recognition)
2013: ANR – Agence Nationale de la Recherche (Biodiversité, évolution, écologie et agronomie)

Ad hoc manuscript reviewer:

BioEssays, *BMC Biology*, *BMC Evolutionary Biology*, *BMC Ecology*, *BMC Genomics*, *BMC Molecular Biology*, *Developmental Dynamics*, *Genetics*, *Genetica*, *Gene*, *Genome Biology*, *Genome Research*, *Genome Biology & Evolution*, *Genome Dynamics & Stability*, *Genomics*,

Heredity, Insect Molecular Biology, In Silico Biology, Journal of Experimental Zoology, Journal of Molecular Biology, Marine Drugs, Microbiology & Molecular Biology Reviews, Mobile DNA, Mobile Genetic Elements, Molecular & General Genetics, Molecular Genetics & Genomics, Molecular Biology & Evolution, Molecular Ecology, Nature Reviews Genetics, Nature Protocols, Nucleic Acids Research, PLoS Genetics, PLoS One, Proc Natl Acad Sci USA, Science, Systematic Biology, Toxicological Sciences, Trends in Genetics, Virus Research, Virology, Zebrafish.

Membership in Professional Societies:

Genetics Society of America
Society for Molecular Biology and Evolution

c. Community service

Judge, Falmouth High School Science Fair

8. Honors, Awards, Fellowships:

- 1983 Diploma with Distinction (summa cum laude), Moscow State University
- 1987 1st Prize in the Competition of Young Scientists, Moscow, Russia
- 1990 The Wellcome Trust Postdoctoral Fellowship, UK
- 2010 Honorable mention, Olympus BioScapes International Digital Imaging Competition
- 2011 Image of Distinction, Nikon Small World Photomicrography Competition
- 2011 First prize, MBL Photomicrography contest
- 2011 Top ten finalists in photography, NSF Visualization Challenge

9. Teaching and Mentoring

2012-present: Trainer in the Molecular and Cellular Biology Graduate Program, Brown University, Providence, RI

Classroom teaching:

- 1995,2004 – Harvard University, Teaching Fellow, BS14/BS50 (Introductory Genetics)
- 2001,2002 – Harvard University, Teaching Fellow, MCB42 (Chromosomes)
- 2003,2006 – Harvard University, Co-Instructor, MCB142 (Major Advances in Classical & Molecular Genetics)

Post-Doctoral Scientists:

Dr. Eugene Gladyshev (MBL, 2009-2010) – currently HHMI/Helen Hay Whitney Fellow, Harvard University
Dr. Ataúlfo Martínez (visiting scholar, MBL, 2010-2011) – currently Associate Professor at UANL, Monterrey
Dr. Fernando Rodríguez (MBL, 2010-present)
Dr. Irina Yushenova (MBL, 2011-present)

Graduate Students:

Anupriya Dutta, Brown-MBL graduate program – thesis committee member (graduated in December 2012)
Kosmo Yan, JUSTL Fellow, Hong Kong Univ. of Science and Technology – summer research mentor (2011)
Sally Warring, New York University – thesis committee member (2013-2014)
Daniel DiCorpo, Brown University, MCB program – advisor, summer rotation (June-August 2013)

Undergraduate Students:

Schi-Chin Wei (REU, 2001)	B.S., June 2003, University of Michigan
Morgan Mandigo (REU, 2003)	B.S., June 2004, Harvard University
Peter Wang (REU, 2005)	B.S., June 2008, Harvard University
Aubrey Kenefick (REU, 2014)	Junior, Williams College