

# Marina Ayrapetov

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## EDUCATION

Ph.D. Cell and Molecular Biology, Department of Cell and Molecular Biology, University of Rhode Island, 2006

B.S. Microbiology, Department of Cell and Molecular Biology, University of Rhode Island, 2001

## PROFESSIONAL APPOINTMENTS/EMPLOYMENT

2021-present Lecturer in Microbiology, Department of Cell and Molecular Biology, University of Rhode Island  
2020-present Online Adjunct Faculty, College of Science, Engineering and Technology, Grand Canyon University  
2020-2021 Part-time Lecturer in Microbiology, Department of Cell and Molecular Biology, University of Rhode Island  
2008-2014 Postdoctoral Research Fellow, Division of Genomic Stability and DNA repair, Department of Radiation Oncology, Dana-Farber Cancer Institute, Harvard School of Public Health  
2006-2008 Postdoctoral Research Fellow, Department of Surgery, Rhode Island Hospital, Brown University Medical School  
2005-2006 Graduate Research Fellow, Department of Cell and Molecular Biology, University of Rhode Island  
1998-2000 Undergraduate Researcher/Intern, Department of Biology, University of Rhode Island

## TEACHING EXPERIENCE

\* graduate

### Lecture Courses

Microbiology (7-week online lecture) (2021-present)  
Integrative Microbiology (100+ seat lecture course with laboratory section) (Fall, Spring, Summer, 2020-present)  
Intro to Medical Microbiology (Fall, Summer, 2020-present)

### Laboratory Courses

Integrative Microbiology\* (TA laboratory sections, Fall, Spring 2001-2004)  
Intro to Medical Microbiology\* (TA laboratory sections, Fall, Spring 2001-2004)  
Pathogenic Bacteriology\* (TA laboratory sections, Fall 2003)  
Introductory Biochemistry\* (TA laboratory sections, Spring 2004)  
Inorganic Chemistry\* (TA laboratory sections, Fall 2001)

**Marina Ayrapetov, Ph.D.**

## DEPARTMENTAL SERVICE

Fall 2021  
Summer 2020-present  
Departmental Search Committee for CMB Lab Manager position  
Integrative Microbiology Laboratory Curriculum Committee,  
Department of Cell and Molecular Biology, University of Rhode  
Island

## SERVICE TO PROFESSION

2003-2004 Plant Biotechnology Program, University of Rhode Island

## PUBLICATIONS

### Peer-reviewed articles

- Huang, C., Zhang, Z., Chen, L., Lee, H.W., **Ayrapetov, M.K.**, Zhao, T. C., Hao, Y., Gao, J., Yang, C., Mehta, G. U., Zhuang, A., Zhang, X., Hu, G., Chin, Y.E., Acetylation within the N- and C-terminal domains of Src regulate distinct roles of STAT3-mediated tumorigenesis. *Cancer Research*. 2018 Jun 1; **78 (11)**: 2825-2838.
- Gursoy-Yuzugullu, O., **Ayrapetov, M.K.**, Price, B.D. Histone chaperone Anp32e removes H2A.Z from DNA double-strand breaks and promotes nucleosome reorganization and DNA repair. *Proceedings of National Academy of Science USA*. 2015 Jul 12; **112 (28)**: E3750.
- Ayrapetov, M.K.**, Gursoy-Yuzugullu, O., Xu, C., Xu, Y., Price, B.D. DNA double-strand breaks promote methylation of histone H3 on lysine 9 and transient formation of repressive chromatin. *Proceedings of National Academy of Science USA*. 2014 Jun 24; **111 (25)**: 9169-74.
- Xu, Y., **Ayrapetov, M.K.**, Xu, C., Gursoy-Yuzugullu, O., Hu, Y., Price, B.D. Histone H2A.Z control a critical chromatin remodeling step required for DNA double-strand break repair. *Molecular Cell*. 2012 Dec 14; **48 (5)**: 723-33.
- Ayrapetov, M.K.**, Xu, C., Sun, Y., Zhu, K., Parmar, K., D'Andrea, A.D., Price, B.D. Activation of Hif1 $\alpha$  by the prolylhydroxylase inhibitor dimethoxymethylglycine decreases radiosensitivity. *PLoS One*. 2011 Oct 7; **6 (10)**: e26064.
- Ma, L., Gao, J.S., Guan, Y., Shi, X., Zhang, H., **Ayrapetov, M.K.**, Zhang, Z., Xu, L., Hyun, Y.M., Kim, M., Zhuang, S., Chin, Y.E. Acetylation modulates prolactin receptor dimerization. *Proceedings of National Academy of Science USA*. 2010 Nov 9; **107 (45)**: 19314-9.
- Xu, Y., Sun, Y., Jiang, X., **Ayrapetov, M.K.**, Moskwa, P., Yang, S., Weinstock, D.M., Price, B.D. The p400 ATPase regulates nucleosome stability and chromatin ubiquitination during DNA repair. *Journal of Cell Biology*. 2010 Oct 4; **191 (1)**: 31-43.
- Sun, Y., Jiang, X., Xu, Y., **Ayrapetov, M.K.**, Moreau, L.A., Whetstine, J.R., Price, B.D. Histone H3 methylation links DNA damage detection to activation of the tumour suppressor Tip60. *Nature Cell Biology*. 2009 Nov; **11 (11)**: 1376-82.
- Ahmadibeni, Y., Hanley, M., White, M., **Ayrapetov, M.**, Lin, X., Sun, G., Parang, K. Metal-binding properties of a dicysteine-containing motif in protein tyrosine kinases. *Chembiochem*. 2007 Aug 2; **8 (13)**: 1592-1605.
- Wang, Y.H., **Ayrapetov, M.K.**, Lin, X., Sun, G. Fusion with a protein tyrosine phosphatase enables high levels expression and purification of active human Src in bacteria. *Biochemical and biophysical research communications*. 2006 Jul 28; **346 (2)**: 606-611.

- Ayrapetov, M.K.**, Wang, Y., Lin, X., Nam, N.H., Parang, K., Sun, G. Conformational basis for SH2-tail binding in Src inactivation. *Journal of Biological Chemistry*. 2006 Aug 18; **281 (33)**: 23776-84.
- Lee, S., **Ayrapetov, M.K.**, Kemble, D.J., Parang, K., Sun, G. Docking-based substrate recognition by the catalytic domain of a protein tyrosine kinase, CSK. *Journal of Biological Chemistry*. 2006 Mar 24; **281 (12)**: 8183-92006.
- Ye, G., **Ayrapetov, M.K.**, Nam, N.H, Sun, G., Parang, K. Solid-phase binding assay of peptides using EGFP-Src SH2 domain fusion protein and biotinylated Src SH2 domain. *Bioorganic and Medicinal Chemistry Letters*. 2005 Nov 15; **15 (22)**: 4994-7.
- Lin, X., **Ayrapetov, M.K.**, Sun, G. Characterization of the interactions between the active site of a protein tyrosine kinase and a divalent metal activator. *BMC Biochemistry*. 2005 Nov 23; **6**: 25.
- Ayrapetov, M.K.**, Nam, N.H., Ye, G., Kumar, A., Parang, K., Sun, G. Functional diversity of Csk, Chk, and Src SH2 domains due to a single residue variation. *Journal of Biological Chemistry*. 2005 Jul 8; **280 (27)**: 25780-25787.
- Lin, X., **Ayrapetov, M. K.**, Lee, S., Parang, K., Sun, G. Probing the Communication between the Regulatory and Catalytic Domains of a Protein Tyrosine Kinase, Csk. *Biochemistry*. 2005 Feb 8; **44 (5)**: 1561-1567.
- Ayrapetov, M. K.**, Lee, S., and G. Sun. Expression, Purification, and Biochemical Characterization of Chk, a Soluble Protein Tyrosine Kinase. *Protein Expression and Purification*. 2003 Jun; **29 (2)**: 148-155.

### **Abstracts**

- Zhang, P., King, M., **Ayrapetov, M.**, Mende U. RGS2 is a negative regulator of Gq/11-mediated signaling and cell proliferation in adult rat ventricular fibroblasts. *The FASEB Journal* 2008; **22**:588.2.
- Longo, C., Neil A., **Ayrapetov M.**, Budzisek M, Jadosz A., Derrig G., Chandlee J., and Kausch A. A Project-Based Approach: Teaching Agricultural Biotechnology to High School Teachers and Students using Modern Techniques of Genetic Engineering. Invasive Species: The Search for Solutions, *American Institute of Biological Sciences Annual Meeting* 2004.
- Kausch A., Longo C., **Ayrapetov M.**, Hauge J., Neill A., Powell J., Budzisek M., Chandlee J., and Lou H. Unique Approach to Modern Techniques in Plant Biology: A Project Based Course. Invasive Species: The Search for Solutions, *American Institute of Biological Sciences Annual Meeting* 2004.
- Ayrapetov, M. K.**, Nam, N. G., Parang, K. and G. Sun. Feud in the Family: Biochemical Studies of Two Protein Tyrosine Kinases in the Csk Family. *Annual Northeastern Regional Medicinal Chemistry and Pharmacognosy Summer Symposium* 2003 (NERMCAP XXVIII).

### **GRANTS AND FELLOWSHIPS**

- 2008-2010 Ruth L. Kirschstein National Research Service Award (T-32)  
 2005-2006 The Graduate School of University of Rhode Island Fellowship

### **AWARDS AND HONORS**

- Phi Eta Sigma Honor Society  
 Golden Key Honor Society

## **SPEAKING ENGAGEMENTS**

- 2011 Postdoctoral Research Fellowship, Radiation Oncology Division Meeting, Dana-Farber Cancer Institute, Harvard School of Public Health.
- 2008 Postdoctoral Research Fellowship, Department of Surgical Research Division Meeting, Rhode Island Hospital, Brown University Medical School.
- 2003 Annual Northeastern Regional Medicinal Chemistry and Pharmacognosy Summer Symposium (NERMCAP XXVIII), University of Rhode Island
- 2002-2006 Graduate Student Seminar, Department of Cell and Molecular Biology, University of Rhode Island

## **RESEARCH EXPERIENCE**

Mammalian cell culture  
Mammalian cell transfection of expression vectors and shRNA/siRNA  
Cell survival assays  
Fluorescent microscopy  
Laser Microirradiation and Immunofluorescence  
Chromatin immunoprecipitation assays (ChIP)  
DNA extractions  
Electrophoresis  
Deoxynucleotide sequencing techniques  
Western Blotting and Immunoprecipitation analysis  
Cloning and subcloning using bacterial and viral systems  
Radioactive P<sup>32</sup> use in both Western blotting and in vitro enzyme kinetics assays  
Fluorescence Polarization Assay and enzyme binding determinations  
Polymerase chain reaction (PCR)  
Real-time quantitative PCR (RT-qPCR)  
Protein expression and purification  
mRNA analysis  
Nucleosome stability assays  
Luciferase reporter assays

## **REFERENCES:**

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**Marina Ayrpetov, Ph.D.**