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PROFESSIONAL PREPARATION AND EXPERIENCE

Higher Education

Postdoctoral Research Associate, April 2001-July 2003
Center for Advanced Research in Biotechnology/NIST (Rockville, MD)
“Nuclear Magnetic Resonance Spectroscopy Studies of the HIV-1
Dimer Initiation Site Kissing Complex and its Interactions with the
Nucleocapsid 7 Protein”
Postdoctoral advisor: Prof. John P. Marino

Ph.D. Molecular Biology & Biochemistry, April 2001
Wesleyan University (Middletown, CT)
“Structural Energetics in Human Hemoglobin: A Nuclear Magnetic
Resonance Spectroscopy Investigation”
Advisor: Prof. Irina M. Russu

M.S./B.S. Biophysics/Physics, July 1992
University of Bucharest (Bucharest, Romania)
Advisor: Prof. Aurel Popescu

Appointments

Professor and Chair, Department of Chemistry & Biochemistry July 2021-present
Duquesne University

Professor, Department of Chemistry & Biochemistry July 2015-June 2021
Duquesne University

Associate Professor, Department of Chemistry & Biochemistry July 2010-June 2015
Duquesne University

Visiting Associate Professor, Department of Chemistry 2011-2012
Carnegie Mellon University

Assistant Professor, Department of Chemistry & Biochemistry July 2004-July 2010
Duquesne University,

Assistant Professor, Department of Chemistry July 2003-June 2004
Acadia University, Wolfville, NS, Canada,

Teaching Assistant for Molecular Biology and Molecular Genetics Sept. 1995-Dec.1996
Wesleyan University, Middletown, CT,

Researcher, Department of Immunology Aug. 1992-June 1995
National Institute of Research and Development for Microbiology
and Immunology, Bucharest, Romania

Honors and Awards

Presidential Award for Excellence in Scholarship, Duquesne University	2018
Bayer School of Natural and Environmental Sciences Excellence in Scholarship Award, Duquesne University	2018
Bayer School of Natural and Environmental Sciences Excellence in Scholarship Award, Duquesne University	2016
Ruth L. Kirschstein National Research Service Award, National Institutes of Health/ National Institute of Allergy and Infectious Diseases	2012
Teacher of the Year Award by Duquesne University's Chapter of Omicron Delta Kappa National Leadership Honor Society	2008
Bayer School of Natural and Environmental Sciences Excellence in Teaching Award, Duquesne University	2008
Competitive Travel Award to the XXth International Conference of Magnetic Resonance in Biological Systems, Toronto, Canada	2002
Peterson Fellowship for Graduate Studies in Biochemistry, Wesleyan University	2001
Fellowship to the "Biophysics of Proton and Ion Transport"-International Summer School, Brasov, Romania	1993

Memberships in Professional Organizations

Biophysical Society
American Chemical Society
RNA Society

SCHOLARSHIP

A. Publications

Refereed journal articles based on research carried out at Duquesne University

Undergraduate student names are bolded. My name is listed last on these papers since in the field of biochemistry it is customarily for the principal investigator to be listed as the last author on the manuscript.

1. Cunningham C.L., Frye C.J., Makowski J.A., Kensinger A.H., **Shine M., Milback E.J., Lackey, P.E., Evanseck J.D., Mihailescu M. R.**, Effect of the SARS-CoV-2 Delta-associated G15U mutation on the s2m element dimerization and its interactions with miR-1307-3p. *RNA*, **2023**, Nov; 29(11):1754-1771. DOI: [10.1261/ma.079627.123](https://doi.org/10.1261/ma.079627.123)
2. Makowski J.A., Kensinger A.H., Cunningham C.L., Frye C.J., **Shine M.**, Lackey, P.E., Mihailescu M. R., Evanseck J.D., Delta SARS-CoV-2 s2m structure, dynamics and entropy: consequences of the G15U mutation. *ACS Phys Chem Au.*, **2023** May 17;3(5):434-443. DOI: [10.1021/acspchemau.3c00008](https://doi.org/10.1021/acspchemau.3c00008) ; eCollection 2023 Sep 27 (featured on the inside cover).

3. **Shine M., Harris S.E.**, Pellegrene K.A., Kensinger A.H., Mihailescu M. R., Evanseck J.D., Lackey, P.E., Uridylation of the histone mRNA stem-loop weakens binding interactions with SLBP while maintaining interactions with 3'hExo. *RNA Biol.* **2023** Jan;20(1):469-481. DOI: [10.1080/15476286.2023.2171760](https://doi.org/10.1080/15476286.2023.2171760)
4. Tamez, A., Nilsson, L., Mihailescu M.R., Evanseck J.D., Parameterization of the miniPEG-Modified γ PNA Backbone: Toward Induced γ PNA Duplex Dissociation. *J. Chem. Theory Comput.*, **2023**, Jun 13; 19(11): 3346-3358. DOI: [10.1021/acs.jctc.2c01163](https://doi.org/10.1021/acs.jctc.2c01163)
5. Kronk, R., Mihailescu M.R., Kalarchian, M., Engaging Doctoral-Level Nurses in Genomic and Genetic Education Through an Online Professional Development Course. *Nurse Educ.* **2023**, Mar-Apr; 48(2):110-111. DOI: [10.1097/NNE.0000000000001323](https://doi.org/10.1097/NNE.0000000000001323)
6. Kensinger A.H., Makowski J.A., Pellegrene K.A., Imperatore J.A., Cunningham C.L., Frye C.J., Lackey P.E., Mihailescu M.R., Evanseck J.D., Structural, Dynamical, and Entropic Differences between SARS-CoV and SARS-CoV-2 s2m Elements Using Molecular Dynamics Simulations. *ACS. Phys. Chem. Au.* **2022** Oct 4; 3(1):30-43. DOI:[10.1021/acspchemau.2c00032](https://doi.org/10.1021/acspchemau.2c00032) (featured on the cover)
7. Frye C.J., Shine M., Makowski J.A., Kensinger A.H., Cunningham C.L., **Milback E.J.**, Evanseck J.D., Lackey P.E., Mihailescu M.R., Bioinformatics analysis of the s2m mutations within the SARS-CoV-2 Omicron lineages. *J Med Virol.* **2022** Sep 21; 95(1):e28141. doi:10.1002/jmv.28141. (featured on the inside cover)
8. Imperatore J.A., Cunningham C.L., Pellegrene K.A., Brinson R.G., Marino J.P., Evanseck J.D., Mihailescu M.R., Highly conserved s2m element of SARS-CoV-2 dimerizes via a kissing complex and interacts with host miRNA-1307-3p, *Nucleic Acids Research.* **2022** Jan 25; 50(2): 1017–1032. doi: [10.1093/nar/gkab1226](https://doi.org/10.1093/nar/gkab1226)
9. Imperatore J.A., **Then M.L., McDougal K.B.**, Mihailescu M.R., Characterization of a G-Quadruplex Structure in Pre-miRNA-1229 and in Its Alzheimer's Disease-Associated Variant rs2291418: Implications for miRNA-1229 Maturation." *Int J Mol Sci.* **2020** Jan 24;21(3):767. doi:10.3390/ijms21030767.
10. Imperatore J.A., McAninch D.S., Valdez-Sinon A.N., Bassell G.J., Mihailescu M.R., FUS Recognizes G Quadruplex Structures Within Neuronal mRNAs. *Front. Mol. Biosci.* **2020** Feb 7; 20. doi:[10.3389/fmolb.2020.00006](https://doi.org/10.3389/fmolb.2020.00006).
11. DeMarco B., Stefanovic S., **Williams A.**, Moss, K.R., Anderson B.R., Bassell G.J. & Mihailescu M.R., FMRP-G quadruplex mRNA- miR-125a interactions: Implications for miR-125a-mediated translation regulation of PSD-95 mRNA. *PLoS One.* **2019** May 21; 14(5): e0217275. doi: 10.1371/journal.pone.0217275. eCollection 2019.
12. McAninch, D.S., **Heinaman A.M., Lang, C.N.**, Moss, K.R., Bassell, G.J., Mihailescu, M.R. & Evans, T.L., Fragile X mental retardation protein recognizes a G quadruplex structure within the survival motor neuron domain containing 1 mRNA 5'-UTR. *Mol. Biosyst.* **2017**, 13(8):1448-1457
13. Bartley, C.M., O'Keefe, R.A., Blice-Baum, A., Mihailescu, M.R., Miyares, L., Karaca, E. & Bordey, A., Mammalian FMRP S499 is phosphorylated by CK2 and promotes secondary

phosphorylation of FMRP, *eNeuro* 2016 3(6). pii: ENEURO.0092-16.2016. eCollection **2016** Nov-Dec.

14. Williams, K.R., McAninch, D.S., Stefanovic, S., Xing, L., Allen, M., Li, W., Feng, Y., Mihailescu, M.R. & Bassell, G.J., hnRNP-Q1 represses nascent axon growth in cortical neurons by inhibiting Gap-43 mRNA, *Mol. Biol. Cell.* **2016**, 27(3):518-534. doi: 10.1091/mbc.E15-07-0504.
15. Mihailescu, R., Gene expression regulation: lessons from noncoding RNAs, *RNA* **2015**, 21(4): 695-696. (invited article)
16. Stefanovic S., DeMarco, B.A., **Underwood, A.**, Williams, K.R., Bassell, G.J. & Mihailescu, M.R., Fragile X mental retardation protein interactions with a G quadruplex structure in the 3'-untranslated region of NR2B mRNA, *Mol Biosyst.* **2015** 11(12):3222-30. doi: 10.1039/c5mb00423c. (featured on the cover of the *Molecular Biosystems Journal*)
17. Stefanovic, S., Bassell G.J. & Mihailescu, M.R., G quadruplex RNA structures in PSD - 95 mRNA: potential regulators of miR-125a seed binding site accessibility, *RNA.* **2015** 21(1):48-60. doi: 10.1261/rna.046722.114.
18. Zhang, Y., **Gaetano, C.**, Williams, K.R., Bassell G.J. & Mihailescu, M.R., FMRP interacts with G quadruplex structures in the 3'-UTR of its dendritic target Shank1 mRNA, *RNA Biol.* **2014**;11(11):1364-74. doi: 10.1080/15476286.2014.996464.
19. Blice-Baum AC. & Mihailescu M.R., Biophysical characterization of G-quadruplex forming FMR1 mRNA and of its interactions with different fragile X mental retardation protein isoforms. *RNA.* **2014**, 20(1):103-14. Epub 2013 Nov 18.
20. Shetty S., Stefanovic S. & Mihailescu, M.R., Hepatitis C virus RNA: molecular switches mediated by long-range RNA-RNA interactions? *Nucleic Acids Res.* **2013**; 41(4):2526-40.
21. Evans, T.L., Blice-Baum AC & Mihailescu, M.R., Analysis of the Fragile X mental retardation protein isoforms 1, 2 and 3 interactions with the G-quadruplex forming semaphorin 3F mRNA. *Mol Biosyst.* **2012**; 8(2):642-9.
22. Fisette, J.F., Montagna, D.R., Mihailescu M.R., Wolfe M.S., A G-Rich Element Forms a G-Quadruplex and Regulates Bace1 mRNA Alternative Splicing. *J. Neurochem.* 2012; 121(5): 763-73.
23. Evans, T.L. & Mihailescu, M.R., Recombinant bacterial expression and purification of human fragile X mental retardation protein isoform 1, *Protein Expr. Purif.* **2010**, 74(2):242-247.
24. Shetty, S., Kim, S., Shimakami, T., Lemon, S.M. & Mihailescu M.R., Hepatitis C virus genomic RNA dimerization is mediated via a kissing complex intermediate, *RNA* **2010**, 16(5):913-25.
25. **Lipay, J.M.** & Mihailescu, M.R., NMR spectroscopy and kinetic studies of the quadruplex forming RNA r(UGGAGGU), *Mol. BioSyst.* **2009**, 5:1347-1355.
26. **Bole M.**, Menon L. & Mihailescu M.R., Fragile X Mental Retardation Protein Recognition of G Quadruplex Structure *per se* is Sufficient for High Affinity Binding to RNA, *Mol.BioSyst.* **2008**, 4(12): 1212-1219.

27. Menon, L, Mader, S.A. & Mihailescu, M. R. Fragile X Mental Retardation Protein Interactions with the Microtubule Associated Protein 1B. *RNA* **2008**, 14(8):1644-55.
28. Menon L. & Mihailescu M. R. Interactions of the G quartet forming Semaphorin 3F RNA with the RGG box Domain of the fragile X protein family. *Nucleic Acids Research*, **2007**, 35(16): 5379-5392
29. **Zanotti, K.J., Lackey, P.E., Evans, G. L. & Mihailescu M. R.**, Thermodynamics of the fragile X mental retardation protein RGG box interactions with G quartet forming RNA” *Biochemistry* **2006**, 45(27), 8319-8330.

Refereed journal articles based on research carried out prior to employment at Duquesne University

30. Mihailescu M.R. & Marino, J. P., “A proton-coupled dynamic conformational switch in the HIV-1 dimerization initiation site kissing complex”, *Proc. Natl. Acad. Sci. USA*. **2004**, 101(5), 1189-1194.
31. Mihailescu M.R., Fronticelli, C., Russu, I.M., Allosteric free energy changes at the alpha 1 beta 2 interface of human hemoglobin probed by proton exchange of Trp beta 37, *Proteins* **2001**, 44(2):73-78.
32. Mihailescu M.R. & Russu, I., A signature of the T ---> R transition in human hemoglobin, *Proc. Natl. Acad. Sci. USA*. **2001**, 98(7), 3773-3777.
33. Mukerji, I., Sokolov, L. & Mihailescu, M.R., A UV Resonance Raman Investigation of Poly(rl): Evidence for Cation-Dependent Structural Perturbations, *Biopolymers* **1998**, 46, 475-48.

B. Patents

1. U.S. Patent 63/094,036: “MicroRNA-1307-3p Interactions with the S2m Motif in SARS-CoV-2 and in Other Viruses and MicroRNA-760 Interactions with the 3’-Untranslated Region of SARS-CoV-2 as Therapeutic Targets for COVID-19 and Other Viral Infections”; Filed October 20, 2021.
2. U.S. Patent 63/010,175 : “An RNA G-quadruplex Structure in pre-miR-1229 as a Therapeutic Target for Alzheimer’s Disease and Various Cancers”, Filed April 15, 2021.

C. Conference Proceedings

Undergraduate student names are bolded.

1. Cunningham C. L., Benner E. M., Mihailescu, M. R., *Characterization of a G-quadruplex structure at the 3’end of NEAT1_2 and its role in regulating its stability*, *Biophysical Journal* **2023**, 122(3) 361a.
2. Palumbo R., Cunningham C. L., Frye, C. J., Mihailescu, M. R., *Protein-RNA interactions of FMRP and CCND1: Implications of regulation in neurogenesis*, *Biophysical Journal* **2023**, 122(3) 217a.
3. Frye C. J., Cunningham C. L., Kensinger A. H., Makowski, J. A., Evanseck J. D., Mihailescu M. R., *Viral-host RNA-RNA interactions in SARS-CoV-2: Study of miR-34a-5p binding interactions within the genome 3'-untranslated region*, *Biophysical Journal* **2023**, 122(3) 359a.

4. Makowski J. A.; Kensinger A. H., Pellegrine K. A., Cunningham C. L., Frye, C. J., Lackey, P. E., Mihailescu M.R., Evanseck J. D., *Delta variant versus ancestral SARS-CoV-2 s2m dynamics and relative entropy*, *Biophysical Journal* **2023**, 122(3) 358a.
5. Kensinger A. H., Makowski J. A., Pellegrine K. A., Cunningham C. L., Frye C. J., Lackey, P. E., Mihailescu M. R., Evanseck J. D., *Structural and thermodynamic consequences of the G31U and U5C mutations in the SARS-CoV-2 s2m*, *Biophysical Journal* **2023**, 122(3) 359a.
6. Gray, C. **Kelleher, B. Grimaldi, L. Mihailescu M.R.**, A G-quadruplex structure within the 3' untranslated region of hnRNP K affects its translation by controlling the accessibility of miR-1249-3p to its binding site, *Biophysical Journal* **2023**, 122(3) pp 360a-361a
7. Cunningham C. L., Frye C. J., Imperatore J. A., Pellegrine K. A., Kensinger A. H., Makowski J. A., **Shine M.**, Lackey P., Evanseck J. D., Mihailescu M. R., *Characterization of the s2m G15U mutation associated with the SARS-CoV-2 variant*, *Biophysical Journal* **2022**, 121(3) 207a.
8. Frye C. J., Cunningham C. L., Pellegrine K. A., Kensinger A. H., Makowski J. A., Evanseck J. D., Mihailescu M. R., *Viral-host RNA-RNA interactions in SARS-CoV-2: study of MIR-760-3p interactions with the genome 3'-untranslated region*, *Biophysical Journal* **2022**, 121(3) 207a
9. Kensinger A. H., Pellegrine K.A., Makowski J. A., Cunningham C. L., Frye C. J., Mihailescu M. R., Evanseck J. D., *Structural and dynamical impact of the two-nucleotide difference in sequence between SARS-CoV and SARS-CoV-2 s2m using molecular dynamics*, *Biophysical Journal* **2022**, 121(3):207a-207a
10. Cunningham C. L., Imperatore J. A., **Milback E., Shine M.**, Pellegrine K. A., Lackey P., Evanseck J. D., Mihailescu M. R., *Characterization of SARS-CoV-2 Conserved Elements' Structures and their RNA-RNA Interactions*, *Biophysical Journal* **2022**, 120(3) 313a.
11. Imperatore J. A., Cunningham C. L., Frye C. J., Pellegrine K. A., Evanseck J. D., Mihailescu M. R., *Conserved Elements in the 3'-UTR of SARS-CoV-2: Involvement in Genomic Dimerization and Interactions with Cellular Micrnas*, *Biophysical Journal* **2021**, 120(3): 313a.
12. Pellegrine K. A., Imperatore J. A., Cunningham C. L., Kensinger A. H., Mihailescu P., Srncic M. N., Mihailescu M. R., Evanseck J. D., *Condensed Liquid Phase 3D Structure of SARS-CoV-2 s2m Guided by NMR Spectroscopy*, *Biophysical Journal* **2021**, 120(3) 313a
13. Benner E. M., Mihailescu M R., Biophysical characterization of a G-quadruplex structure in long noncoding RNA NEAT1, *Biophysical Journal* **2020**, 118(3) pp 67a
14. Imperatore J.A., **Then M. L., McDougal K. B., Mihailescu M. R.**, Elucidating the role of the G-quadruplex structure in the maturation of a pre-microRNA variant in Alzheimer's Disease, *Biophysical Journal* **2020**, 118(3) pp 68a
15. Imperatore J. A., Roth J. & Mihailescu M.R., Investigating the Effect of Various FMRP Isoforms on microRNA Biogenesis, *Biophysical Journal* **2019**, 116(3) pp 212a-213a
16. Tatosian M., Thadke, S., Ly, D. & Mihailescu M.R., Peptide Nucleic Acid Interactions with C9orf72 (G₄C₂)_n Repeats, *Biophysical Journal* **2019**, 116(3) pp 354a.

17. Pellegrene K. A., Evanseck, J. D. & Mihailescu M.R., G Quadruplex and Stem Interactions in RGG Box Domain Recognition, *Biophysical Journal* **2019**, 116(3) pp 439a
18. Imperatore, J.A., DeMarco B.A. & Mihailescu M.R., Investigation of mRNA translation regulation by FMRP via the microRNA pathway, *Biophysical Journal* **2018**, 114(3) pp 442a
19. McAninch, D. & Mihailescu M.R., Fused in Sarcoma (FUS) Targets Neuronal G quadruplex forming mRNAs, *Biophysical Journal* **2016**, 110(3) pp 2401
20. **Gaetano, C.M.** & Mihailescu M.R., A Biophysical Analysis of the CDK5R2 mRNA G-Quadruplex Secondary Structure and its Role in the Pathogenesis of Fragile X Syndrome, *Biophysical Journal* **2015**, 108(2) pp. 236a
21. McAninch, D. & Mihailescu, M.R., Investigation of the Role Played by RNA G Quadruplex Structure in ALS/FTD, *Biophysical Journal* **2015**, 108(2) pp. 401a
22. DeMarco, B. & Mihailescu, M.R., Regulation of the 3' UTR BDNF mRNA at the DNA Level, *Biophysical Journal* **2015**, 108(2) pp. 395a
23. McAninch, D., Manna, A., Ly, D. & Mihailescu, M.R., Targeting the Hepatitis C Virus with PNAs. *Biophysical Journal* **2014**, 106(2) pp. 281a
24. Stefanovic, S. & Mihailescu, M.R., PSD-95 mRNA Translation Regulation by the Fragile X Mental Retardation Protein. *Biophysical Journal* **2013**, 104(2) pp. 264a
25. McAninch D.S., Schrott, V., Barnard, R., Manna, A., Ly, D. & Mihailescu, M.R., miR-122: An Antiviral Target against Hepatitis C Virus. *Biophysical Journal* **2013**, 104(2) pp. 264a
26. **Katranca, S.M.** Barnard, R. & Mihailescu, M.R., Analyzing the Effect of Phosphorylation on the Translation Regulator Function of the Fragile X Mental Retardation Protein. *Biophysical Journal* **2013**, 104(2) pp. 419a
27. Blice-Baum, A., Mihailescu, M.R., The Different FMRP Isoforms Bind with High Affinity to the G-Quadruplex Formed by the FMRP mRNA. *Biophysical Journal* **2013**, 104:418a
28. Blice-Baum, A., Mihailescu, M.R., Interactions of the Fragile X Mental Retardation Protein with a G-quadruplex formed by the FMRP mRNA. *Biophysical Journal* **2012**, 102:75a.
29. Shetty S. & Mihailescu M.R., Hepatitis C virus (HCV)-3'UTR: A kissing complex dependent molecular switch?, *Biophys. J.* **2010**, 98(3), pp 472a
30. Menon L. & Mihailescu M.R., Interactions of the Fragile X Mental Retardation Protein RGG Box with the G quadruplex forming MAP1B RNA. . *Biophys. J.* **2007**, 20a, 10922-Pos
31. **Bole M.** & Mihailescu, M.R., Biophysical Study of the HSV-1 ICP27 RGG box Interactions with RNA. *Biophys. J.* **2007**, 20a, 1090-Pos
32. **Lipay J.** & Mihailescu M.R., A Biophysical Study of Mixed Guanine and Adenine RNA Quadruplexes. *Biophys. J.* **2007**, 20a, 201-Pos
33. Mihailescu M.R. and Marino J.P, The Nucleocapsid Catalyzed Maturation of the Dimerization Initiation Site of HIV-1 is Modulated by pH-Dependent RNA Conformational Dynamics". *Biophys. J.* **2004**, 86(1), 594A-594A, Part 2.
34. Mihailescu M. R., Airo P. and Russu I. M., Structural energetics of the allosteric transition in human hemoglobin. *Biophys. J.* **2001**, 80:(1) 286A-286A, Part 2.

35. Mihailescu M. R. and Russu I. M., A nuclear magnetic resonance study of solvent exchange of hydrogen-bonded protons at subunit interfaces in human hemoglobin. *Biophys J.* **1999**, 76:(1) A421-A421, Part 2.

D. Research Grants

Total Federal Agency and Foundation Grant Money Awarded (since 2003): \$ 4,833,505
\$2,750,237 for research as PI; \$1,334,443 for education as PI; \$748,825 for instrumentation

1. R15 GM127307-05 Mihailescu (PI) Equipment Supplement 9/20/23-8/30/24
National Institutes of Health, National Institute of General Medicine
Grant Title: "Biochemical characterization of a novel Fragile X Mental Retardation Protein nuclease function"
Role: PI
No co-PIs
Amount: \$ 100,000
2. R15 GM127307-05 Mihailescu (PI) 9/20/21-8/30/24
National Institutes of Health, National Institute of General Medicine
Grant Title: "Biochemical characterization of a novel Fragile X Mental Retardation Protein nuclease function"
Role: PI
No co-PIs
Amount: \$ 414,000
3. 1R25 NS100118-01A1 Mihailescu (PI) and Kronk (PI) 5/15/21-2/28/26
National Institutes of Health, National Human Genome Research Institute
Grant Title: "Genomic competencies for nurses from theory to application: an online long course"
Role: PI (with Dr. Rebecca Kronk)
Amount: \$ 794,448
4. CHE 2029124 Mihailescu (PI) 5/15/20-4/30/21
National Science Foundation
Grant Title: "RAPID: Conserved Regions of the SARS-CoV-2 virus (COVID-19) RNA-RNA Interactions that Mediate Genome Dimerization and/or Progression Through the Viral Life Cycle"
Role: PI
Co-PI: Evanseck
Amount: \$ 200,000
5. R15 GM127307 Mihailescu (PI) 9/01/17-8/31/20
National Institutes of Health, National Institute of General Medicine
Grant Title: "Investigation of Fragile X mental retardation protein interactions with the miRNA pathway"
Role: PI
No co-PIs
Amount: \$ 414,000
6. 1R21 NS097989-01A1 Evanseck (PI), Ly (PI) 7/01/17-6/30/20
National Institutes of Health, National Institute of Neurological Disorders and Stroke
Grant Title: "Using PNAs to Elucidate the Role of G-quadruplex and Hairpin Structures in ALS/FTD through a Combined Biophysical and Computational Approach"

Role: co-PI
Amount: \$ 395,717

7. 1R25 NS100118-01A1 PIs: Cascio, Kolber Mihailescu and Tidgewell 1/01/18-12/31/23
National Institutes of Health, National Institute of Neurological Disorders and Stroke
Grant Title: "Pain and Neurodegenerative Undergraduate Research Experiences: Interacting with community partners to build specialized and enhanced neurologic disease programs for undergraduates"
Role: PI (with Drs. Cascio, Kolber and Tidgewell)
Amount: \$ 539,995
8. CHE 1726824 Evanseck (PI) 9/01/17-8/31/20
National Science Foundation
Grant Title:"MRI: SusChEM: Acquisition of a hybrid distributed computer system to enhance integration of chemical theory, computation, and experimental research at Duquesne University"
Role: co-PI (with Drs. Gawalt and Pintauer)
Amount: \$ 265,060
9. Pennsylvania State Health Formula Research Grants 1/01/15-12/31/16
Grant title: "RNA-protein Interactions: G quadruplex RNA Structure Involvement in Neurodegeneration"
Role: PI (Mihailescu and Madura)
Collaborators: Danith Ly (Carnegie Mellon University)
Amount: \$ 32,779
10. 9R15HD078017-03A1 Mihailescu (PI) 4/09/13-3/31/17
National Institutes of Health, National Institute of Child Health and Human Development
Grant Title: "Fragile X Mental Retardation Protein translation regulator function: interactions with the microRNA pathway and beyond"
Role: PI
No co-PIs
Amount: \$ 394,240
11. 1F33AI098354-01 Mihailescu (PI) 2012
National Institutes of Health, National Institute of Allergy and Infectious Diseases
Grant Title: "Backbone Modified Peptide-nucleic Acids as Antiviral Agents Against Hepatitis C Virus"
Role: PI
No co-PIs
Amount: \$ 62,030
12. Hunkele Dreaded Disease Award Mihailescu (PI) 6/01/11-5/31/13
Grant Title: "Biophysical Investigation of Peptide-Nucleic Acids as Anti-Viral Agents Against Hepatitis C"
Role: PI
No co-PIs
Amount: \$ 6,000
13. 3R15GM074660-02A1 Mihailescu (PI) 9/30/09-8/31/11
National Institutes of Health, National Institutes of General Medical Sciences
Recovery Act Administrative Supplement for award 2R15GM074660-02A1
Role: PI

No co-PIs
Amount: \$ 129,451

14. 2R15GM074660-02A1 Mihailescu (PI) 5/01/09-4/30/12
National Institutes of Health, National Institutes of General Medical Sciences
Grant Title: "Functional studies of the Fragile X Mental Retardation Protein: switching from repressor to activator of translation of G quadruplex forming specific mRNA targets?"
Role: PI
No Co-PIs
Amount: \$ 218,306
15. Pennsylvania State Health Formula Research Grants 1/01/09-12/31/11
Grant title: "Investigation of the Hepatitis C Virus 3'-Untranslated Region, as a potential target for new antiviral nucleic-acid based strategies"
Role: PI
Collaborators: Bruce Armitage and Danith Ly (Carnegie Mellon University)
Amount: \$ 47,065
16. CHE-0614785 Fleming (PI) 8/15/06-8/15/09
National Science Foundation, Major Research Instrumentation (MRI)
MRI: "Acquisition of an Upgrade for a 500 MHz NMR Spectrometer"
Role: co-PI
Amount: \$383,765
17. GM074660-01 Mihailescu (PI) 7/01/05-4/30/09
National Institutes of Health, National Institutes of General Medical Sciences
Grant title: "G quartet RNA-FMRP interactions in Fragile X syndrome"
Role: PI
No Co-PIs
Amount \$210,149
18. Fragile X Research Foundation (FRAXA) Mihailescu (PI) 6/01/07-12/31/08
Grant title: "Investigation of the FMRP-MAP1B RNA interactions in Fragile X Syndrome"
Role: PI
No Co-PIs
Amount: \$45,000
19. Samuel and Emma Winters Foundation Mihailescu (PI) 7/01/07-12/31/08
Grant title: "A Biophysical Study of the Hepatitis C Virus RNA Dimerization"
Role: PI
No Co-PIs
Amount: \$ 9,000
20. Hunkele Dreaded Disease Award Mihailescu (PI) 7/16/07-7/15/08
Grant title: "Biophysical Study of the Highly Conserved 3' – Untranslated Region of the Hepatitis C Virus RNA."
Role: PI
No Co-PIs
Amount: \$ 2,500
21. Fragile X Research Foundation (FRAXA) Mihailescu (PI) 6/15/05-12/01/06
Grant title: "Investigation of the FMRP-MAP1B RNA interactions in Fragile X Syndrome"

Role: PI
No Co-PIs
Amount: \$50,000

22. DUQ 04-630642 Mihailescu (PI) 5/01/05-9/01/06
Duquesne University
Grant title: "Fluorescence Spectroscopy of the Interactions between the Fragile X Mental Retardation Protein and Potential RNA Target(s)"
Role: PI
No Co-PIs
Amount: \$10,000

Research Grants Awarded prior to working at Duquesne University: \$ 110,000

23. Natural Sciences and Engineering Research Council of Canada 5/01/04-5/01/07
Grant title: "Structural and Functional Studies of RNA-protein complexes by fluorescence and NMR spectroscopy"
Role: PI
No Co-PIs
Amount: \$110,000
Terminated on 01/01/2005 due to change of appointment to Duquesne University.

E. Presentations

Invited Oral Presentations at Conferences

1. "G-Quadruplex Structures in NEAT1: Potential Functions in Regulating its Stability and its Interactions with the Fused in Sarcoma Protein", *Biophysical Society Annual Meeting*, San Francisco, CA, Feb. **2022**
2. *COVID-19 NMR Online Conference*: Exploring the Druggability of SARS-CoV-2, **June 2022**
3. "Fragile X mental retardation protein: a potential switch controlling the miR-125a-mediated translation regulation of the G quadruplex forming PSD-95 mRNA", *The 3rd International Symposium on Frontiers in Molecular Science*, RNA Regulatory Networks, Lisbon, Portugal, June **2019**.
4. "The power of 4G", *G quadruplex Summit*, Carnegie Mellon University, Pittsburgh, PA, July **2018**.
5. "G quadruplex RNA structure: intersection with the microRNA pathway", *American Chemical Society-CERM*, Pittsburgh, PA, October **2014**.
6. "Interactions of the Fragile X related protein family with G quadruplex forming RNA", *FRAXA Research Foundation Investigators Meeting*, Durham, NH, September **2008**.
7. "G Quadruplex Mediated Recognition of the Microtubule Associated Protein 1B RNA by the Fragile X Protein Family", *The National Fragile X Foundation 11th International Fragile X Conference*, St. Louis, MO, July **2008**.

Invited Oral presentations at Universities and Institutes

8. *Ohio State University*, Department of Chemistry & Biochemistry, March **2023**
"Genomic RNA Dimerization and Viral-Host Interactions in SARS-CoV-2"

9. *University of Pittsburgh*, Department of Chemistry & Biochemistry, October **2022**
“Genomic RNA Dimerization and Viral-Host Interactions in SARS-CoV-2”
10. *Spectroscopy Society of Pittsburgh & Society of Analytical Chemists of Pittsburgh*,
“Genomic RNA Dimerization and Viral-Host Interactions in SARS-CoV-2”, September **2021**
11. *Westminster College*, PA, Long lecturer November **2019**; *Technical talk*: “Fragile X mental retardation protein phosphorylation: a potential switch controlling the miR-125a-mediated translation regulation of the G quadruplex forming PSD-95 mRNA”
General talk: “The power of 4G: functions in health and disease”
12. *MD Anderson Center*, Houston, TX, September **2019** “The power of 4G: functions in health and disease”
13. *Emory University*, Department of Biochemistry, May **2015**, “The power of 4G”
14. *Wesleyan University*, Alumni Speaker for the Fourteenth Annual Molecular Biophysics Retreat September **2013**, “Long-range RNA-RNA Interactions: Potential HCV Antiviral Targets?”, Middletown, CT.
15. *Indiana University of Pennsylvania*, Department of Chemistry, March **2012**, “Long-Range RNA-RNA Interactions in Hepatitis C Virus as Novel Targets for Peptide Nucleic Acid Based Therapy”.
16. *Carnegie Mellon University*, Department of Chemistry, April **2011**, “Are swapping RNA kissing partners mediating molecular switches in the Hepatitis C virus?”
17. *University of North Carolina at Chapel Hill*, Group Seminar, October **2011** “On the Fragile X syndrome and Hepatitis C virus: common themes in different systems.”
18. *University of Pittsburgh School of Medicine*, Department of Structural Biology, April **2009**
“Investigation of the Hepatitis C Virus 3'-Untranslated Region: a Molecular Switch Mediated by Kissing Interactions?”, Pittsburgh, PA.
19. *Youngstown State University*, Department of Chemistry, November **2007**, “G quadruplex RNA-FMRP Interactions in the Fragile X Syndrome”, Youngstown, OH
20. *St. Francis University*, Department of Chemistry, March **2007**, “Interactions of the Fragile X Mental Retardation protein with G quartet forming RNA”, Loretto, PA.
21. “Mentoring for the future” workshop sponsored by the *National Institutes of General Medical Sciences (NIH)*, May **2006**, “Structural and Thermodynamic Study of the Fragile X Mental Retardation Protein Interactions with MAP1B RNA”, Greenbelt, MD.
22. NRC Institute for Marine Biosciences, November **2003**, “Structural rearrangement of the HIV-1 DIS complex is modulated by protonation of a specific loop adenine”, Halifax, NS, Canada.

Competitive Poster Presentations at National and International Meetings

* Indicates the presenting author. Undergraduate student names are bolded.

23. **Grimaldi, L.**, Gray, C., **Kelleher, B.**, Cunningham C. L. & Mihailescu M. R., The interactions between hnRNP K mRNA and miR-1249-3p are mediated by a noncanonical G quadruplex structure, *Spring ACS National Meeting*, Indianapolis, IN, March **2023**

24. **Milback E. J.**, Frye C. J., Mihailescu M. R., Myotonic Dystrophy and MBNL1: Investigating the implications of G-quadruplex and i-motif secondary structures, *Spring 2022 ACS National Meeting*, San Diego, CA, March **2022**
25. Mihailescu M.R., **Kelleher B.**, Imperatore JA, Feng Y. "Biophysical characterization of the FMRP interactions with a G quadruplex formed within the BDNF long 3'-UTR", 19th International Workshop on Fragile X and other Neurodevelopmental Disorders. Sorrento, Italy, September **2019**.
26. **Moses A.** & Mihailescu, M. R., The investigation of a G quadruplex within MBNL1 mRNA, *257th ACS National Meeting*, Orlando, FL, March **2019**
27. **Then, M.** & Mihailescu, M. R., Investigation of a G quadruplex structure formation within pre-miR-1249, *257th ACS National Meeting*, Orlando, FL, March **2019**
28. **McDougal, K.M.*** & Mihailescu, M. R., Investigating the binding mechanism between FMRP and Drosha mRNA G-quadruplex, *255th ACS National Meeting*, New Orleans, LA, March **2018**
29. **Roth, J.*** & Mihailescu, M. R., Regulation of miRNA maturation pathway by pre-miRNA G quadruplex structure, *255th ACS National Meeting*, New Orleans, LA, March **2018**
30. **Cannanbilla, P.*** & Mihailescu, M. R., Biophysical characterization of a G quadruplex structure of the FMR1 gene at exon 12, *255th ACS National Meeting*, New Orleans, LA, March **2018**
31. Mihailescu, M.R.*, McAninch, D., Role of RNA G quadruplex structure in ALS/FTD, ISN-ESN Meeting, Paris, France, August **2017**
32. **Zakutansky, P.*** & Mihailescu, M. R., Interactions of the Fragile X Mental Retardation Protein with BACE1 mRNA and miRNA-124-3p, *253rd ACS National Meeting*, San Francisco, CA, April **2017**
33. **Zakutansky, P.*** & Mihailescu, M. R., Interactions of the Fragile X Mental Retardation Protein with BACE1 mRNA and miRNA-124-3p", *31st Annual National Conference on Undergraduate Research*, Memphis, TN, April **2017**
34. **Zakutansky, P.*** & Mihailescu, M. R., Interactions of the Fragile X Mental Retardation Protein with BACE1 mRNA and miRNA-124-3p", *Undergraduate Research at the Capitol Pennsylvania*, Harrisburg, PA, April **2017**
35. **McDougal, K.*** & Mihailescu, M. R., "Biophysical Characterization of DROSHA mRNA Binding to FMRP RGG Box Domain", *31st Annual National Conference on Undergraduate Research*, Memphis, TN, April **2017**
36. **Roth, J.*** & Mihailescu, M. R., "Biophysical Characterization of a G Quadruplex Structure in pre-miR-125b", *31st Annual National Conference on Undergraduate Research* Memphis, TN, April **2017**
37. Mihailescu, M.R.*, Stefanovic, S. & **Williams A.**, FMRP interactions with G quadruplex structures in PSD-95 mRNA: roles in miR-125a mediated translation regulation, Gordon Research Conference: Fragile X and Autism-Related Disorders, Mount Snow, VT, June **2016**.
38. **Williams, A.*** & Mihailescu, M. R., Characterization of the p250GAP messenger RNA and interactions with the fragile X mental retardation protein, *251th ACS National Meeting San*

Diego, CA, March **2016**

39. **Bandi, K.***, Mihailescu, M. R., Biophysical analysis of a G quadruplex structure in MECP2 messenger RNA, *251th ACS National Meeting San Diego, CA, March 2016*
40. **Gaetano, C.M.*** & Mihailescu M.R., Biochemical analysis of G-quadruplex secondary structures in CDK5R2 mRNA and of their role in fragile X syndrome, *249th ACS National Meeting, San Diego, CA, March 2015*
41. Stefanovic, S.* & Mihailescu, M.R., "G quadruplex RNA structures in PSD-95 mRNA: potential regulators of miR-125a seed binding site accessibility", *14th International Fragile X Conference, Orange County, CA, July 2014*
42. **Underwood, A.***, Stefanovic, S. & Mihailescu, M.R., "NR2B mRNA adopts a G-quadruplex structure recognized by the fragile X mental retardation RGG box domain", *247th ACS National Meeting, Dallas, TX, March 2014*
43. Williams, A.*, Stefanovic, S. & Mihailescu, M.R., "p250GAP messenger RNA G-quadruplex formation and analysis of its interactions with fragile mental retardation protein RGG box domain", *247th ACS National Meeting, Dallas, TX, March 2014*
44. Stefanovic, S.* & Mihailescu, M.R., "Fragile X Mental Retardation Protein and miR-125a Association in PSD-95 mRNA Translation Regulation", *FRAXA Research Foundation Investigators Meeting, Southbridge, MA, September 2013*
45. Yang, Z.*, Stefanovic, S., McAninch, D., & Mihailescu, M.R., "Are the (GGGGCC)_n Expanded Repeats in the C9ORF72 Gene FMRP Targets?", *FRAXA Research Foundation Investigators Meeting, Southbridge, MA, September 2013*
46. Yang, Z.*, **Katrancha, S.**, & Mihailescu, M.R., "Interactions of the Fragile X Mental Retardation Protein with the G-quadruplex Forming BASP1 mRNA", *AAPS Annual Meeting and Exposition, San Antonio TX, November 2013*
47. **Katrancha, S.***, Okay, Z., Hassan, B. & Mihailescu, M.R., "Effect of a mutation on the fragile X mental retardation protein's interactions with semaphorin 3F mRNA", *243rd ACS National Meeting, San Diego, CA, March 2012*
48. **Pottinger, C.*** & Mihailescu, M.R., "Characterization of a G-quadruplex structure within CHRNA4 mRNA", *243rd ACS National Meeting, San Diego, CA, March 2012*
49. **Chwal, C.*** & Mihailescu, M.R., "Biophysical analysis of the interactions between the 5'- and 3'-untranslated regions of the dengue virus genome", *243rd ACS National Meeting, San Diego, CA, March 2012*
50. **Katrancha, S.***, Okay, Z., Hassan, B. & Mihailescu, M.R., Effect of a mutation on the fragile X mental retardation protein's interactions with the G quadruplex mRNA structure, *244th ACS National Meeting, Philadelphia, PA, August 2012*
51. **Rabuck, J.***, Evans, T., & Mihailescu, M. R., "Analysis of the translation regulation activity of the fragile X mental retardation protein isoforms 1 – 3." *240th ACS National Meeting, Anaheim, CA, March 2011.*
52. Mihailescu, M. R.*, Shetty, S., Ly, D. & Armitage, B., "Short peptide nucleic acids (PNA) inhibit long range kissing interactions essential for Hepatitis C virus replication", *Pacificchem 2010, Hawaii, December 2010*

53. Blice-Baum, Anna*, Feng, Yue & Mihailescu, Mihaela Rita, "Analysis of the micro-RNA let-7b interactions with the microtubule associated protein 1B (MAP1B) mRNA. *Fraxa Conference*, Durham, NH, May **2010**
54. Evans Timothy* & Mihailescu Mihaela Rita, "Recombinant Expression and Purification of the Fragile X Mental Retardation Protein Isoforms 1-3 and Analysis of Specific Binding to *in vivo* Neuronal Target G-Quadruplex mRNA", *238th ACS National Meeting*, Washington D.C., August **2009**
55. Blice-Baum Anna* & Mihailescu Mihaela Rita, "Analysis of the microRNA let-7 interactions with the microtubule associated protein 1B mRNA", *238th ACS National Meeting*, Washington D.C., August **2009**
56. Shetty Sumangala* & Mihailescu Mihaela Rita, "HCV 3' UTR: A molecular switch? *238th ACS National Meeting*, Washington D.C., August **2009**
57. **Rabuck Jessica***, Evans Timothy & Mihailescu Mihaela Rita, "Is the G quadruplex structure mediating the interactions between the fragile X mental retardation protein and the elongation factor 1A mRNA?", *238th ACS National Meeting*, Washington D.C., August **2009**
58. Mihailescu M. R.* & Shetty, S., "Investigation of the Hepatitis C Virus 3'-Untranslated Region: a Molecular Switch Mediated by Kissing Interactions?", *15th International Symposium on Hepatitis C Virus and Related Viruses*, San Antonio, TX, October **2008**
59. Shetty Sumangala.* & Mihailescu Mihaela Rita, "Genomic HCV – a dimer via a kissing complex intermediate", *The Liver Meeting--AASLD's 59th Annual Meeting*, San Francisco, CA, October **2008**
60. Evans, Timothy.* & Mihailescu Mihaela Rita, "Interactions of the Fragile X Mental Retardation Protein Isoforms with G-quadruplex RNA", *FRAXA Research Foundation Investigators Meeting*, Durham, NH, September **2008**
61. Shetty Sumangala* & Mihailescu Mihaela Rita, "Hepatitis C virus RNA dimerization mediated via kissing complex intermediate", *236th ACS National Meeting*, Philadelphia, PA, August **2008**
62. Evans, Timothy* & Mihailescu Mihaela Rita, "Fragile X Mental Retardation Protein Isoforms Specific Binding to G-quadruplex RNAs", *236th ACS National Meeting*, Philadelphia, PA, August **2008**
63. **Ruszkowski Kailey A.***, Shetty Sumangala & Mihailescu Mihaela Rita, "Hepatitis C Virus RNA dimerization is mediated by kissing interactions", *235th American Chemical Society National Meeting*, New Orleans, LA, April **2008**
64. **Bole Medhavi***, Menon Lakshmi & Mihailescu Mihaela Rita, "Fragile X mental retardation protein interactions with human semaphorin mRNA", *235th American Chemical Society National Meeting*, New Orleans, LA, April **2008**
65. **Wong Chong Julie***, Evans Timothy & Mihailescu Mihaela Rita, "Fragile X Mental Retardation Protein Arginine Methylation Effects upon Specific Binding to G quadruplex Forming mRNA", *235th American Chemical Society National Meeting*, New Orleans, LA, April **2008**
66. Menon Lakshmi* & Mihailescu Mihaela Rita, "G quartet dependent interactions between

the Microtubule associated protein 1B RNA and the Fragile X protein family. Miami Winter Symposium (a Nature conference), Miami, FL, February **2008**

67. Menon Lakshmi* & Mihailescu Mihaela Rita, "G quartet dependent interactions between MAP1B RNA and the RGG box of the fragile X mental retardation protein", 234th *American Chemical Society National Meeting*, Boston, MA, August **2007**
68. Shetty Sumangala S.*, **Ruszkowski Kailey A.** & Mihailescu Mihaela Rita, "Analysis of the Hepatitis C Virus RNA dimerization process", 234th *American Chemical Society National Meeting*, Boston, MA, August **2007**
69. **Lackey Patrick E.***, **Ruszkowski Kailey A.** & Mihailescu Mihaela Rita, "Biophysical study of RNA dimerization in the Hepatitis C Virus", 233rd *American Chemical Society National Meeting*, Chicago, IL, March **2007**
70. Menon Lakshmi* & Mihailescu Mihaela Rita, "Structural and Thermodynamic Study of the Interactions between the Fragile X Mental Retardation Protein and G-quartet Forming Semaphorin S3F RNA", 11th *Annual Meeting of the RNA Society*, Seattle, WA, June **2006**
71. **Zanotti J. Kimberly*** & Mihailescu Mihaela Rita, "Fluorescence Spectroscopy Studies of the Interactions of the Fragile X Mental Retardation Protein with a G quartet forming RNA sequence", 231st *American Chemical Society National Meeting*, Atlanta, GA, March **2006**
72. **Lackey E. Patrick*** & Mihailescu Mihaela Rita, "UV Spectroscopy Study of the Fragile X Mental Retardation Protein Interactions with a G-Quartet Forming RNA Target", 231st *American Chemical Society National Meeting*, Atlanta, GA, March **2006**
73. **Evans G. L., Lackey P.E., Zanotti K.J.** & Mihailescu M. R.*, "On the Thermodynamics of the Fragile X Mental Retardation Protein Interactions with Sc1 RNA", *The Neurobiology of Fragile X Conference*, Harriman, NY, July **2005**
74. Mader Samantha* & Mihailescu Mihaela Rita, "Interactions of the Fragile X Mental Retardation Protein with G quartet forming MAP1B RNA", *The Neurobiology of Fragile X Conference*, Harriman, NY, July **2005**
75. Menon Lakshmi* & Mihailescu Mihaela Rita, "Interactions of the Fragile X Mental Retardation Protein with G-quartet forming Semaphorin S3F RNA: A Biophysical Study", *The Neurobiology of Fragile X Conference*, Harriman, NY, July **2005**

TEACHING

A. History and Experience

Courses taught at Duquesne University

<u>Undergraduate Class Title</u>	<u>Class number</u>	<u>Dates</u>
General Biochemistry I	CHEM 401	Fall 2020
General Biochemistry II	CHEM 402	Spring 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2013, 2014, 2015, 2016
Advanced Biochemistry II	CHEM 436	Spring 2017, 2018, 2020
Biomolecular Structure and Function	CHEM 408	Fall 2006, 2008, 2010, 2019 Spring 2012, 2023
Honors Undergraduate Research	CHEM 490H	Fall 2010, 2011 Spring 2011, 2012, 2013

Honors Undergraduate Thesis	CHEM 499H	Spring 2011, 2012, 2013
Undergraduate Research	CHEM 490W	Spring 2012, 2013
<u>Graduate Class title</u>	<u>Class number</u>	<u>Dates</u>
Protein-Nucleic Acids Interactions	CHEM 598 (now 543)	Fall 2005, 2007, 2009, 2013, 2016, 2017, 2023 Spring 2022
Applied Basics NMR Techniques	CHEM 534	Summer 2008
General Biochemistry II	CHEM 502	Spring 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2013, 2014, 2015, 2016
Advanced Biochemistry II	CHEM 536	Spring 2017, 2018
Biomolecular Structure and Function	CHEM 508	Fall 2006, 2008, 2010; 2019 Spring 2012, 2023
CHEM 402/502, CHEM 436/536 and CHEM 408/508 are cross-listed.		

Courses taught at Acadia University

<u>Undergraduate Class Title</u>	<u>Class number</u>	<u>Dates</u>
Biochemistry II and Laboratory	CHEM 2723	Fall 2003
Biochemistry I and Laboratory	CHEM 2713	Spring 2004
Advanced Biochemistry and Laboratory	CHEM 4723	Spring 2004

B. Student History and Current Status

Graduate Students in the Mihailescu laboratory while at Duquesne University (17)

All current graduate students are making progress towards the completion of their Ph.D. in Chemistry. They use biophysical methods such as fluorescence spectroscopy, NMR spectroscopy, CD spectroscopy, UV spectroscopy to analyze relevant protein-RNA and interactions in the fragile X syndrome, in amyotrophic lateral sclerosis/ fronto-temporal dementia and in the Hepatitis C Virus infection.

Current graduate students (4)

Manju Kasaju	Second year graduate student
Rosalia Palumbo	Second year graduate student
Caleb Frye	Fourth year graduate student
Caylee Cunningham	Fifth year graduate student

Former graduate students

<u>Name</u>	<u>Degree</u>	<u>Current Status</u>
Carlan Gray	MS 2023	Graduate student, University of Pittsburgh
Joshua Imperatore*	Ph.D. 2020	Research Associate, University of Pittsburgh
Emily Benner	Ph.D. 2020	Medical Writer at Regulatory and Quality Solutions LLC, PA
Madeline Tatosian	M.S. 2019	Associate Sales Representative, Integra Life Science
Brett DeMarco	Ph.D. 2018	Senior Regulatory Scientist at RQM+, PA
Damian McAninch	Ph.D. 2017	Senior Regulatory Scientist at RQM+, PA

Snezana Stefanovic	Ph.D. 2014	Visiting Assistant Professor, Duquesne University
Yang Zhang [#]	M.S. 2014	Agreement Cloud Strategy & Execution DocuSign
Anna Blice-Baum [*]	Ph.D. 2013	Field Application Scientist; Thermo Fisher Scientific
Sumangala Shetty	Ph.D. 2011	Faculty (Instructor) at the University of Medicine and Dentistry of New Jersey
Timothy Evans [§]	Ph.D. 2010	Laboratory Coordinator, Duquesne University, PAResearch Scientist at Regeneron Pharmaceuticals, Albany, NY (on leave)
Lakshmi Menon	Ph.D. 2008	
Valerie Schrott	M.S. 2012	Research Laboratory Technician at the Vascular Medicine Institute of the University of Pittsburgh Medical Center
Samantha Mader	M.S. 2007	Laboratory specialist, Hillman Cancer Center, Pittsburgh

* Recipient of the Distinguished Dissertation Award in the area of Physical and Biological Sciences, Duquesne University

Student from the School of Pharmacy; M.S. under my supervision.

§ Recipient of the 2010 Graduate Student Award for Excellence in Teaching

Undergraduate students in the Mihailescu laboratory while at Duquesne University (28)

Undergraduate students mentored in the lab gain experience in molecular biology and biochemistry (protein and RNA expression and purification), as well as in molecular biophysics (different spectroscopy techniques such as NMR, CD, UV and fluorescence spectroscopy).

Current undergraduate students (4)

Ella Milback	Senior
Lydia Grimaldi	Junior
Sophia Hearsey	Sophomore
Leann Parsi	Freshman

Former undergraduate students

<u>Name</u>	<u>Degree</u>	<u>Current Status</u>
Ella Milback [§]	B.S. in Biochemistry 2023	
Carlan Gray [§]	B.S. in Biochemistry 2023	Graduate student, University of Pittsburgh
Bryan Kelleher [§]	B.S. in Biochemistry 2021	Associate Scientist, Jansen Pharmaceuticals, Johnson&Johnson
McKenna Then [†]	B.S. in Biochemistry 2020	Health Unit Coordinator, UPMC Shadyside Hospital, Pittsburgh PA
Aurelia Moses	B.S. in Biochemistry 2019	Graduate Student, University of Maryland
Pranav Cannanbilla	B.S. in Biochemistry 2019	Medical Student, LECOM, PA
Keefe McDougal [†]	B.S. in Biochemistry 2019	Bioprocess Engineer I, Novartis Gene Therapies

John Roth [§]	B.S. in Biochemistry 2019	Medical Student Marshall University
Paul Zakutansky [§]	B.S. in Biochemistry 2018	Graduate student at Emory University
Erin McGraw	B.S. in Biochemistry 2018	Genetic Counselor, MGCS, CGS, Waisman Center, Univ. of Wisconsin-Madison
Kathryn Bandi [§]	B.S. in Biochemistry 2017	Medical Student at West Virginia University
Allison Williams [§]	B.S. in Biochemistry 2016	Postdoc at Brigham and Women's and Harvard Medical School, PhD Pennsylvania State Univ. '22
Christian Gaetano [§]	B.S. in Biochemistry 2016	Software Engineer III, Cajal Neuroscience, Seattle, WA
Sara Katrancha ^{% §}	B.S. in Biochemistry 2013	McKinsey and Company
Emily Spitzer	B.S. in Biochemistry 2013	Ph.D. Yale University, '18, Product Development Assistant at Cook Myosite, Inc., Pittsburgh PA
Carley Chwal	M.S. in Forensic Science 2013	Forensics Product Manager ChemImage Corporation, Pittsburgh
Jessica Rabuck [§]	B.S. in Biochemistry 2011	Scientist I, Takeda, PhD Univ. of Michigan '17
Kailey Ruszkowski	B.S. in Biology 2009	MD, Trinity Health Systems, Steubenville, OH
Medhavi Bole [§]	B.S. in Biochemistry 2008	MD, University Hospital - University of Cincinnati College of Medicine
Julie Wong Chong [†]	B.S. in Biochemistry 2008	OD, Private practice, Pittsburgh, PA
Gabriela Cabanilla	B.S. in Biochemistry 2008	Infectious Diseases Pharmacist Clinician Assistant Professor, UNM College of Pharmacy
Joshua Lipay	B.A. in Biochemistry 2007	Criminalist I (DNA Section) Tucson Police Department
Patrick Lackey	M.S. in Forensic Science 2008	Crime Lab, Tucson, AZ.
Patrick Lackey	B.S. in Biochemistry 2007	Associate Professor, Westminster College, PA
Kimberly Zanotti ^{##}	B.S. in Biochemistry 2006	PhD University of North Carolina Chapel-Hill '15
Genevieve Evans ^{** , §}	B.S. in Chemistry 2005	Research scientist at QPS Holdings, PhD Carnegie Mellon Univ. '11
		PDBe Annotator, EMBL, UK PhD University of Canterbury, New Zealand '10

- % Recipient of the 2012 Goldwater Scholarship and of the 2014 National Science Foundation Graduate Research Fellowship
- ## Recipient of the 2007 National Science Foundation Graduate Research Fellowship
- § Honors Thesis under my supervision
- † Undergraduate Research Thesis under my supervision
- ** Acadia University students

SERVICE

A. Professional

- NIH Study Section Panel Reviwer (December 2023)
- NSF Bio Division, Grant Peer Reviewer (2009-present)
- NSF Division of Chemistry, Grant Peer Reviewer (2014-present)
- ACS Student Chapter Reports Reviewer (2011, 2013)
- Organizer of a three-day symposium entitled “Protein nucleic acids interactions – experimental and modeling approaches” at the 234th *American Chemical Society Meeting*, Boston, MA, August 2007.
- Peer reviewer:
 - Nucleic Acids Research* (2015-present)
 - Magnetic Resonance in Chemistry* (2007-present)
 - Human Molecular Genetics* (2009-present)
 - Organic and Biomolecular Chemistry* (RSC Publishing), (2009-present)
 - FEBS Journal* (2010-present)
 - Biochemistry* (2010-present)
 - Journal of Biotechnology* (2010-present)
 - Journal of Inorganic Biochemistry* (2011-present)
 - Current Protein & Peptide Science* (2011-present)
 - Metallomics* (RSC Publishing) (2011-present)
 - PLOS ONE* (2014-present)
 - DNA and Cell Biology* (2014-present)

B. University Service

- BSNES Dean Search Committee member, Fall 2012/Spring 2013
- Hunkele Dreaded Disease Grant Review Committee Member, 2009, 2012, 2013, 2016, 2017
- The Summer Health Professions Institute: Biochemistry research presentations and biochemistry laboratory tours, summer 2007, 2008, 2009.
- Faculty Development Fund Grant Review Committee Member, March 2006

C. School of Science and Engineering Service

- SoSE Associate Dean Search Committee member, Fall 2023

- BSNES Promotion and Tenure Committee member, 2017
- Judge for the BSNES Special Awards at the Intel® International Science and Engineering Fair®, May 13-18, 2012. Over the course of two entire days we have evaluated over 600 posters and followed up with interviewing over 25 students to select the two winners of the BSNES awards.
- Preview Day Presentation, “Biochemistry”, Bayer School of Natural and Environmental Sciences, 2008, 2009, 2010, 2013, 2016
- Biochemistry Research Presentation at the “Frontiers in Science”, professional development workshop for secondary science teachers, co-hosted by Duquesne University and the Allegheny Intermediate Unit's County-Wide In-Service Day, Oct. 2007
- Member of the “Women in Science” organization (2004-2011)

D. Department of Chemistry and Biochemistry Service

- Faculty advisor of the Phi Lambda Upsilon Honorary Chemical Society. Together with graduate students in the Department of Chemistry and Biochemistry I organized the first PLU research symposium in May 2014, an event where our students showcased their work and had the opportunity to hear invited speakers from the local industry and alumni from academia, industry and government.
- Director of Graduate Studies (2015-2021)
- Graduate Curriculum Committee Chair (September 2016-2021)
- Faculty search committee member for the Organic Faculty position (2016)
- Faculty search committee member for the Visiting Assistant Faculty positions (2016-17)
- Graduate Curriculum Committee Member (September 2010-2016)
- NMR Spectroscopy Workshop for the Undergraduate Students (July 2013, April 2014, July 2014, July 2015, July 2016, July 2017)
- Co-chair of the ACS Student Affiliates (September 2010-2013)
- Director of the Undergraduate Thesis Programs and Crable Mentor (September 2010-2013)
- Member of the Undergraduate Thesis Programs (September 2013- present)
- Instrumentation Committee Member (September 2010-present)
- Graduate Student Recruiting Committee Chair (2016-present)
- Graduate Student Recruiting Committee Member (2004-2010; 2013-2016)
- NMR Committee Chair (2004-2010)
- Faculty search committee co-chair for the Department of Chemistry & Biochemistry Chair position (2007-2008)

- Faculty search committee member for the Biochemistry Faculty position (2008-2009)
- Graduate curriculum development committee member (2007-2008; 2013-2016)
- Provided numerous department guided-tours for prospective biochemistry major undergraduate students and their families (2004-present).