# Christopher S. Malarkey, Ph.D.

Associate Professor, Department of Pharmaceutical Sciences, School of Pharmacy
Regis University
3333 Regis Blvd. H-28
Denver, Colorado 80221

## CONTACT INFORMATION

Business Phone: (303) 625-1244
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## EDUCATION

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|---|---|
| 2008-2014 | Postdoctoral Fellowship in Pharmacology<br>University of Colorado School of Medicine<br>Department of Pharmacology<br>MS# 8303 RC-1 South Tower, L18-6402<br>12801 E. 17th Ave<br>Aurora, CO 80045<br>Mentor: Dr. Mair Churchill<br>Concentration of study: Investigation of the role of mitochondrial transcription factor A (TFAM) in various disease states |
| 2003-2008 | Ph.D. in Biochemistry (with distinction)<br>Loyola University Chicago<br>Department of Chemistry<br>1068 W. Sheridan Rd.<br>Chicago, IL 60660<br>Mentor: Dr. Duarte Freitas<br>Dissertation title: *Biophysical Studies on the Pharmacological Action of Lithium* |
| 1998-2003 | B.S. in Chemistry with Biochemistry Emphasis<br>Loyola University Chicago<br>Department of Chemistry<br>1068 W. Sheridan Rd.<br>Chicago, IL 60660 |

## EMPLOYMENT HISTORY

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| 2018 – Present | Associate Professor<br>Department of Pharmaceutical Sciences<br>Regis University School of Pharmacy<br>3333 Regis Boulevard, Denver, CO, 80221 |

2014 – 2018 Assistant Professor
Department of Pharmaceutical Sciences
Regis University School of Pharmacy
3333 Regis Boulevard, Denver, CO, 80221

Job responsibilities/accomplishments: Teach pharmacy students biochemistry, physiology, medicinal chemistry, and pathophysiology of various disease states, but mostly focusing on the cardiac, renal, and endocrine systems. Maintain an active research lab focused on studying the role of high mobility group box proteins in various disease states. I also serve the school, college, and university on various committees. I have been awarded teacher of the year and pharmacy preceptor of the year since I was hired.

2008-2014 Postdoctoral Fellowship in Pharmacology
University of Colorado School of Medicine
Department of Pharmacology
MS# 8303 RC-1 South Tower, L18-6402
12801 E. 17th Ave
Aurora, CO 80045
Job responsibilities/accomplishments: Research the role of mitochondrial transcription factor A (TFAM) in various disease states using an array of biophysical methods. Write grants for outside funding. I published 5 papers during my postdoctoral fellowship and obtained a fellowship to support my research from the American Heart Association. I was named the Outstanding Postdoctoral Fellow Award winner in my last two years at the University of Colorado.

2003 – 2008 Graduate Research Assistant/Teaching Assistant
Loyola University Chicago
Department of Chemistry
1068 W. Sheridan Rd.
Chicago, IL 60660
Job Responsibilities/accomplishments:
Research: I investigated the mechanism of action of lithium in the treatment of bipolar disorder for my dissertation. I published 4 papers, and I was awarded the Dumbach Medal, which is awarded to the top graduating chemistry Ph.D. student each year.

Teaching: I taught lectures and laboratory sections for general chemistry, organic chemistry, physical chemistry, and biochemistry. I was awarded the top teaching assistant award in my first year of graduate school.

## HONORS AND AWARDS

2017 Preceptor of the Year Award for Faculty
Regis University, awarded from the School of Pharmacy Office of Experiential Education

2016 American Association of Colleges of Pharmacy Teacher of the Year Award

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| 2013 | Outstanding Postdoctoral Fellow Award. University of Colorado School of Medicine, Department of Pharmacology |
| 2012 | Outstanding Postdoctoral Fellow Award. University of Colorado School of Medicine, Department of Pharmacology |
| 2008 | Dumbach Medal. Awarded To the Top Graduating Ph.D. Student in the Department of Chemistry, Loyola University Chicago |
| 2008 | Award for Best Oral Presentation at Loyola University Chicago's Interdisciplinary Graduate Research Symposium |
| 2007-2008 | Arthur J. Schmitt Dissertation Fellowship. Loyola University Chicago |
| 2004 | Department of Chemistry Best Teaching Assistant Award. Loyola University Chicago |
| 2003-2006 | GAANN (Graduate Assistance in Areas of National Need) Fellowship, Loyola University Chicago |
| 1998-2002 | Loyola Scholarship, Loyola University Chicago |

## SCHOLARLY ACTIVITIES: PUBLICATIONS

### Refereed Journal Articles

1. Hewitt, P.H., Pianim, E.D., DiCesare, N.A., Gray, C., Leong, T.T., Sakai, K., Bernal, J.V., Shetty, S.S., and **Malarkey, C.S.** Investigation of the thermodynamic drivers of the interaction between the high mobility group box domain of Sox2 and bacterial lipopolysaccharide. *Biochim Biophys Acta Biomembranes*, 2019. *In press*

2. Turturro, S.B., Najor, M.S., Yung, T., Portt, L., **Malarkey, C.S.,** Abukhdeir, A.M., and Cobleigh, M.A. Somatic loss of *PIK3R1* may sensitize breast cancer to inhibitors of the MAPK pathway. *Breast Can Res and Treatment,* 2019. 177(2): p. 325-333.

3. **Malarkey, C.S.**, Gustafson, C.E., Saifee, J.F., Torres, R.M., Churchill, M.E., and Janoff, E.N. Mechanism of mitochondrial transcription factor A attenuation of CpG-induced antibody production. *PLoS One*, 2016. 11(6): p. e0157157.

4. **Malarkey, C.S.**, Lionetti, C., Deceglie, S., Roberti, M., Churchill, M.E., Cantatore, P., and Loguercio Polosa, P. The sea urchin mitochondrial transcription factor A binds and bends DNA efficiently despite its unusually short C-terminal tail. *Mitochondrion*, 2016. 29: p. 1-6.

5. Sanchez-Giraldo, R., Acosta-Reyes, F.J., **Malarkey, C.S.**, Saperas, N., Churchill, M.E., and Campos, J.L. Two high-mobility group box domains act together to underwind and kink DNA. *Acta Crystallogr D Biol Crystallogr*, 2015. 71(Pt 7): p. 1423-32.

6. Das, C., Roy, S., Namjoshi, S., **Malarkey, C.S.**, Jones, D.N., Kutateladze, T.G., Churchill, M.E., and Tyler, J.K. Binding of the histone chaperone ASF1 to the CBP

bromodomain promotes histone acetylation. *Proc Natl Acad Sci U S A*, 2014. 111(12): p. E1072-81.

7. Wysoczynski, C.L., Roemer, S.C., Dostal, V., Barkley, R.M., Churchill, M.E., and **Malarkey, C.S.** Reversed-phase ion-pair liquid chromatography method for purification of duplex DNA with single base pair resolution. *Nucleic Acids Res*, 2013. 41(20): p. e194.

8. **Malarkey, C.S.** and Churchill, M.E. The high mobility group box: the ultimate utility player of a cell. *Trends Biochem Sci*, 2012. 37(12): p. 553-62.

9. **Malarkey, C.S.**, Bestwick, M., Kuhlwilm, J.E., Shadel, G.S., and Churchill, M.E. Transcriptional activation by mitochondrial transcription factor A involves preferential distortion of promoter DNA. *Nucleic Acids Res*, 2012. 40(2): p. 614-24.

10. Graham, D.J., **Malarkey, C.**, and Sevchuk, W. Experimental investigation of information processing under irreversible Brownian conditions: work/time analysis of paper chromatograms. *J Phys Chem B*, 2008. 112(34): p. 10594-602.

11. **Malarkey, C.S.**, Wang, G., Ballicora, M.A., and Mota de Freitas, D.E. Evidence for two distinct $Mg^{2+}$ binding sites in $G_{sa}$ and $G_{ia1}$ proteins. *Biochem Biophys Res Commun* , 2008. 372: p. 866-869.

12. Layden, B.T., Abukhdeir, A.M., **Malarkey, C.**, Oriti, L.A., Salah, W., Stigler, C., Geraldes, C.F.G.C., and Mota de Freitas, D. Identification of $Li^+$ binding sites and the effect of $Li^+$ treatment on phospholipid composition in human neuroblastoma cells: A $^{7}Li$ and $^{31}P$ NMR study. *Biochim Biophys Acta*, 2005. 1714: p. 339-349.

13. Graham, D.J., **Malarkey, C.**, and Schulmerich, M.V. Information content in organic molecules: quantification and statistical structure via Brownian processing. *J Chem Inf Comput Sci*, 2004. 44(5): p. 1601-11.

## PRESENTATIONS

### Refereed Poster Presentations

1. Ricchetti, C., Berlau, D., Clapp, P., **Malarkey, C.S**. Overcoming peer evaluation pitfalls by utilizing faculty and student feedback. Team Based Learning Collaborative National Meeting. San Diego, CA, March 2018.

2. Sanchez-Giraldo, R., **Malarkey, C.S**., Churchill, M.E.A., Saperas, N., Subirana, J.A., Campos, J.L., Studies of the interaction of yeast and human HMGB with AT-rich DNA. The FEBS Journal Biological Series. Barcelona, Spain, July 2013.

3. **Malarkey, C.S.**, Churchill, M.E.A. Investigation of the interaction between mitochondrial transcription factor A and amyloid beta and implications for Alzheimer's disease. Mitochondrial Medicine Conference, Mitochondrion. Scottsdale, AZ, July 2011.

**Non-Refereed (Invited) Platform Presentations**

1. **Malarkey, C.S.**, Investigating the role of high mobility group (HMG) box proteins in disease. Regis University School of Pharmacy Interview Day, October 2017

2. **Malarkey, C.S.**, Investigation of the role of sox2 in mediating lipopolysaccharide induced immune response. Regis University Department of Chemistry Seminar Series, April 2017.

3. **Malarkey, C.S.**, Investigating the role of high mobility group (HMG) box proteins in disease. Regis University School of Pharmacy Interview Day, October 2016.

4. **Malarkey, C.S.**, Mitochondrial transcription factor A, a potential treatment for unwanted immune response. Regis University Pharmaceutical Sciences Seminar, October 2015.

5. **Malarkey, C.S.**. Mitochondrial transcription factor A, a potential DNA "mop" for the treatment of autoimmune disease. Regis University Biology Seminar Series, February 2015.

## GRANT ACTIVITY

**Pending Grants**

Investigation of Sox2 attenuation of LPS induced immune response in gastric cancer.
National Institutes of Health R15
$300,000

**Completed Grants**

Investigation of the role of mitochondrial transcription factor a in heart disease.
Principle Investigator: Christopher S. Malarkey
American Heart Association 13POST16330009
Effective Period: 07/01/2013-06/30/2014
$50,048

Regis University Faculty Research Grant Malarkey (PI) 11/18/2018-11/17/2019
Investigation of the DNA Binding Profile of Sox2 in Stem Cells
The goal of this study was to examine how posttranslational modifications to Sox2 that lead to stem cell formation affect the DNA binding and bending profile of the Sox2 protein and improve stem cell formation.
$5,000

## CURRENT RESEARCH ACTIVITIES

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| 2016- Present | Investigation of the role of Sox2 in gastric cancer, role: primary investigator. |
| 2014 – Present | Investigation of the role of mitochondrial transcription factor A in various disease states, role: primary investigator. |

## EDITORIAL/REFEREE POSITIONS

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| 2012 | Biochimica et Biophysica Acta Gene Regulatory Mechanisms |
| 2012-2019 | Nucleic Acids Research |

## PROFESSIONAL, SCIENTIFIC, HONORARY ASSOCIATIONS OR SOCIETIES

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| 2014-Present | American Association of Colleges of Pharmacy (AACP) |
| 2014-Present | American Chemical Society (ACS) |
| 2012-Present | American Heart Association (AHA) |
| 2012-Present | American Association for the Advancement of Sciences (AAAS) |

## SERVICE TO REGIS UNIVERSITY

**Regis University Committee Memberships**

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| 2015-Present | University Research and Scholarship Committee (URSC) (member) |
| 2016 | Center for Scholarship and Research Engagement (CSRE) director search committee member |

**Rueckert-Hartman College for Health Professions Committee Memberships**

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| 2015- Present | College Assessment Committee (member) |
| 2016 | School of Physical Therapy search committee (member) |

**School of Pharmacy Committee Memberships**

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| 2019 – Present | Admissions committee (member) |
| 2016 – 2019 | Assessment committee (chair) |
| 2016 – 2017 | Peer Evaluation Task Force (member) |
| 2014 – 2019 | Assessment committee (member) |
| 2014 – Present | Student appeals committee (member) |

**School of Pharmacy Service Activities**

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| 2014 – Present | Student Awards Ceremony and White Coat Ceremony (Participant) |
| 2014 – Present | Student Interview Days (Interviewer, Evaluator) |
| 2016 | Regis University Delegate to the House of Representatives at the American Association of Colleges of Pharmacy (AACP) national meeting |
| 2016 – Present | School of Pharmacy Silent Auction (Donor) |
| 2016 – Present | National Community Pharmacists Association (NCPA) Comedy Night Participant |

**Department of Pharmaceutical Sciences Service Activities**

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| 2014 – Present | Pharmaceutical Sciences Faculty Lab (Facilitated capital equipment purchases) |

## SERVICE TO THE COMMUNITY

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| 2014-Present | Volunteer at The Gathering Place, a women's shelter |
| 2014-Present | Volunteer as a high school chemistry tutor |
| 2014-Present | Volunteer as Skinner Middle School science fair judge |

## TEACHING RESPONSIBILITIES

**Department of Pharmaceutical Sciences, Regis University School of Pharmacy**

Primarily teach disease states related to endocrine, renal, and cardiac diseases