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## **Education**

- 2012**      **Ph.D., Molecular Biology & Biochemistry**  
Department of Biochemistry & Molecular Genetics  
University of Colorado Denver, Anschutz Medical Campus  
*Dissertation: Mechanisms by Which the Hepatitis C Virus Internal Ribosome Entry Site Regulates the Switch from Translation Initiation to Elongation*
- 2005**      **B.S., Molecular Biology (Minors in Chemistry & Mathematics)**  
University of Denver  
*Honors Thesis: Binding of Eel alpha Neo-Endorphin to the Rat Kappa Opioid Receptor: Implications for Coevolution of Receptors and Ligands*

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## **Professional Experience**

- 2014 -**      **Assistant Professor**  
Department of Chemistry  
Metropolitan State University of Denver  
*Courses Taught: General Chemistry I, Criminalistics I (DNA Forensics) and Lab, Biochemistry I and Lab, Chemistry of Therapeutics, Senior Experience in Chemistry*
- 2012-2014**      **Postdoctoral Research Fellow**  
Howard Hughes Medical Institute  
Janelia Farm Research Campus, Ashburn VA & University of Colorado Denver, Anschutz Medical Campus  
*Project: A Structural Study on the Manipulation of Eukaryotic Ribosomes by Neuronal Netrin Receptor DCC*
- 2012**      **Postdoctoral Research Fellow**  
Department of Biochemistry & Molecular Biology  
Colorado State University  
*Project: Determining the Structure of Human 5'-tyrosyl-DNA-Phosphodiesterase-2*
- 2005 - 2016**      **Children's Workshop & Camp-In Program Teacher**  
Denver Museum of Nature & Science  
*Courses Taught: K-6<sup>th</sup> Paleontology, Anthropology, Geology, Meteorology, Chemistry & Space Science*
- 2004-2005**      **Undergraduate Teaching Assistant**  
University of Denver, Department of Biology  
*Courses Taught: Genetics & Microbiology Labs*
- 2003-2005**      **Undergraduate Research Assistant**  
University of Denver, Department of Biology  
*Job Duties: 3' and 5' RACE, cloning, cell transfection and culturing, filter-binding assays*

## Publications

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Nelson B., **Filbin M.E.**, and Kieft, J.S. *Start codon-independent 80S ribosome formation by the hepatitis C virus internal ribosome entry site RNA*. (In revision)

**Filbin M.E.** and Kieft, J.S. *Linking A to  $\Omega$ : diverse and dynamic RNA-based mechanisms to regulate gene expression by 5'-to-3' communication*. F1000 Research. 2016, 5(2037): 10.

**Filbin M.E.**, Vollmar, B., Shi, D., Gonen, T. and Kieft J.S. *Manipulation of the eukaryotic ribosome by the hepatitis C virus promotes the switch from translation initiation to elongation*. Nat Struct Mol Biol. 2013,20(2): 150-8.

**Filbin M.E.** and Kieft J.S. *HCV IRES domain IIb affects the configuration of coding RNA in the 40S subunit's decoding groove*. RNA. 2011, 17(7):1258-73.

Constantineau J., Greason E., West M., **Filbin M.**, Kieft J.S., Carletti M.S., Christenson L.K., Rodriguez A. *A synonymous variant in scavenger receptor, class B, type I gene is associated with lower SR-BI protein expression and function*. Atherosclerosis. 2010, 210(1):177-82.

Wallace A., **Filbin M.E.**, Veo B., McFarland C., Stepinski J., Jankowska-Anyszka M., Darzynkiewicz E., Davis R.E. *The nematode eukaryotic translation initiation factor 4E/G complex works with a trans-spliced leader stem-loop to enable efficient translation of trimethylguanosine-capped RNAs*. Mol Cell Biol. 2010, 30(8):1958-70.

**Filbin M.E.** and Kieft J.S. *Toward a Structural Understanding of IRES RNA*. Curr Opin Struct Biol. 2009,19(3):267-76. Review.

Hammond J.A., Rambo R.P., **Filbin M.E.**, Kieft J.S. *Comparison and functional implications of the 3D architectures of viral tRNA-like structures*. RNA. 2009, 15(2):294-307.

Kieft J.S., Costantino D.A., **Filbin M.E.**, Hammond J., Pflugsten J.P. *Structural Methods to Study IRES Function*. Mets Enz. Translation Initiation: Reconstituted Systems and Biophysical Methods. Ed. Jon Lorsch. 2007, 430:333-71.

## Awards, Honors & Research Support

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<b>2017-2018</b>	<b>ASBMB Undergraduate Faculty Travel Award</b> "Mediating Protein Synthesis in Developing Neurons: Netrin Receptor Deleted in Colorectal Cancer (DCC) Binds Eukaryotic Ribosomes to Prevent Translation of Messages Independent of Initiation Mechanism" Experimental Biology Conference, Chicago, IL \$500
<b>2017</b>	<b>Teaching Excellence Award Finalist</b> Faculty Senate Metropolitan State University of Denver
<b>2016-2017</b>	<b>Provost Start-Up Grant</b> "Examination of the Function of Viral Noncoding RNAs" Metropolitan State University of Denver \$2,500 each
<b>2016</b>	<b>Excellence in Teaching Award</b> National Society of Leadership & Success Metropolitan State University of Denver Chapter
<b>2015-2018</b>	<b>College of Letters, Arts and Sciences Mini-Grant</b> "Determining the Secondary Structure of Viral Non-coding RNAs that Direct Protein Synthesis" Metropolitan State University of Denver \$1,000 each

- 2010**                    **Excellence Award – Outstanding Community Service by an Individual Student**  
University of Colorado Denver, Anschutz Medical Campus
- 2010**                    **Hagerman Traveling Fellowship Award**  
University of Colorado Denver, Anschutz Medical Campus
- 2008-2010**            **American Heart Association Pre-doctoral Fellowship (#0815655G)**  
“Roles for RNA Structure in the Mechanism of Translation Initiation by the Hepatitis C Virus Internal Ribosome Entry Site”,  
University of Colorado, Anschutz Medical Campus  
\$24,000/year
- 2008-2009**            **Bolie Traveling Fellowship Award**  
“Understanding the Mechanism of HCV IRES-Mediated Translation Initiation”  
“Importance of Long-Range Communication Between Two Domains in the HCV IRES for Formation and Fidelity of 80S ribosomes”  
University of Colorado Denver, Anschutz Medical Campus
- 2005**                    **Department of Biology Chair Award**  
University of Denver
- 2003**                    **Pustmueller Undergraduate Research Fellowship**  
University of Denver  
\$3000
- 2002-2005**            **Puksta Scholarship for Civic Engagement**  
University of Denver  
\$6,000/year
- 2001-2005**            **Dean’s List**  
University of Denver
- 2001-2005**            **Chancellor’s Scholarship for Academic Merit**  
University of Denver  
\$10,000/year

### **Oral Presentations & Guest Lectures**

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- 2017**                    **Chemotropic Regulation of Protein Synthesis in Developing Neurons**  
University of Colorado, Denver, Department of Chemistry
- 2017**                    **David versus Goliath**  
Metropolitan State University of Denver, Department of Chemistry
- 2013**                    **Cryogenic Electron Microscopy**  
University of Colorado Denver, Anschutz Medical Campus
- 2010**                    **Highly Conserved Sequences in Subdomain IIb of the HCV IRES are Important for the Switch from Translation Initiation to Elongation**  
Translational Control Conference, Cold Spring Harbor Laboratories, NY
- 2008**                    **How Hepatitis C Virus Evades Us**  
University of Denver

### **Poster Presentations**

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- 2018**                    **Colorado Single Molecules & Membranes**, University of Colorado Denver, Denver, CO

- 2017-2018**      **Experimental Biology**, American Society of Biochemistry and Molecular Biology, Chicago, IL (2017) and San Diego, CA (2018)
- 2017**            **Translating Structural Biology to Medicine: Dissecting Basic Mechanisms, Driving Medical Discovery**, Structural Biology & Biochemistry Symposium, University of Colorado Denver, AMC
- 2011**            **Infectious Disease Symposium**, University of Colorado Denver, AMC
- 2009**            **Protein Synthesis and Translational Control Conference**, European Molecular Biology Laboratories, Heidelberg, Germany
- 2008**            **Translational Control Conference**, Cold Spring Harbor Laboratories, NY

## **Professional Activities**

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- 2016 -**            **Faculty Professional Development Committee Chair**  
Department of Chemistry, Metropolitan State University of Denver
- 2015 -**            **Women in STEM Conference Co-Founder**  
Metropolitan State University of Denver
- 2015 - 2017**      **Department of Chemistry Seminar Series Coordinator**  
Metropolitan State University of Denver
- 2010-2012**      **Faculty of 1000 Contributor** (*Associate Faculty*)
- 2010-2011**      **RNA Club Co-Coordinator**  
University of Colorado Denver, Anschutz Medical Campus
- 2009-2012**      **Molecular Biology Program Membership Committee**  
University of Colorado Denver, Anschutz Medical Campus
- 2007-2009**      **Translation Club Coordinator**  
University of Colorado Denver, Anschutz Medical Campus

## **Mentoring & Tutoring Activities**

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- 2016 -**            **Puksta Scholar Advisory Committee**  
Metropolitan State University of Denver
- 2015 -**            **Chemistry Club Faculty Co-Mentor**  
Department of Chemistry  
Metropolitan State University of Denver
- 2008-2013**      **CORE Paper Discussion Leader and Preliminary Exam Tutor**  
University of Colorado Denver, Anschutz Medical Campus
- 2001-2005, 2011**    **Algebra, Chemistry, Biology, Reading & Writing Tutor**  
East High School, Horace Mann Middle School, and Denver Green School

## **Memberships**

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- 2018-**            **Council on Undergraduate Research**
- 2016 -**            **American Society for Biochemistry & Molecular Biology**
- 2015 -**            **American Association for the Advancement of Science**
- 2015-**            **Front Range Forensic Chemists Association**
- 2014 -**            **RNA Society**