

Kyle A. Cottrell, Ph.D.

Assistant Professor
Department of Biochemistry
Purdue University
West Lafayette, IN

Curriculum Vitae

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Education

- Dec. 2017 Ph.D. in Molecular Cell Biology, Washington University, St. Louis, MO
Advised by Sergej Djuranovic, Ph.D.
Dissertation: *Regulation of gene expression by RNA binding proteins and microRNAs*
- May 2012 M.S. in Cell and Molecular Biology, Missouri State University, Springfield, MO
Advised by Joshua J. Smith, Ph.D.
Thesis: *Tetrahymena histone deacetylase 14, a stress-responsive class I sirtuin that changes localization and expression in response to genotoxic and metabolic stress*
- Dec. 2010 B.S. in Cell and Molecular Biology, Missouri State University, Springfield, MO
Magna cum laude
- N/A General courses, Ozarks Technical Community College, Springfield, MO

Professional Experience

- 2023 – *Assistant Professor*, Department of Biochemistry,
Purdue University, West Lafayette, IN
- 2018 – 2022 *Postdoctoral Research Associate*, Laboratory of Jason D. Weber, Ph.D.
Department of Medicine, Washington University, St. Louis, MO
- 2012 – 2017 *Graduate Student*, Laboratory of Sergej Djuranovic, Ph.D.
Department of Cell Biology, Washington University, St. Louis, MO
- 2008-2012 *Undergraduate and Graduate (M.S.) Student*, Laboratory of Joshua J. Smith, Ph.D.
Department of Biomedical Sciences, Missouri State University, Springfield, MO

Selected Publications (first authors underlined, co-first authors marked with *, co-corresponding author marked with ‡)

9. Cottrell KA[‡], Ryu S^{*}, Soto Torres L, Schab AM, Weber JD[‡]. Induction of viral mimicry upon loss of DHX9 and ADAR1 in breast cancer cells. [DOI](#)
^{*}Co-first author [‡]Co-corresponding author
8. Cottrell KA, Soto-Torres L, Dizon MG, Weber JD. 8-Azaadenosine and 8-Chloroadenosine are not Selective Inhibitors of ADAR. *Cancer Research Communications* 1, 56-64 (2021). [DOI](#)

7. [Kung CP*](#), [Cottrell KA*](#), Ryu S, Bramel ER, Kladney RD, Bao EA, Freeman EC, Sabloak T, Maggi L, Weber JD. Evaluating the therapeutic potential of ADAR1 inhibition for triple-negative breast cancer. *Oncogene* 2021; 40: 189-202. DOI [*Co-first author](#)
6. [Cottrell KA](#), Chiou RC, Weber JD. Upregulation of 5'-terminal oligopyrimidine mRNA translation upon loss of the ARF tumor suppressor. *Sci Rep* 2020; 10: 22276. DOI [DOI](#)
5. [Verma M*](#), [Choi J*](#), [Cottrell KA*](#), Lavagnino Z, Thomas EN, Pavlovic-Djuranovic S, et al., Djuranovic S. A short translational ramp determines the efficiency of protein synthesis. *Nat Commun* 2019; 10: 5774. DOI [*Co-first author](#)
4. [Cottrell KA](#), Chaudhari HG, Cohen BA, Djuranovic S. PTRE-seq reveals mechanism and interactions of RNA binding proteins and miRNAs. *Nat Commun* 2018; 9: 301. DOI [DOI](#)
3. [Cottrell KA](#), Szczesny P, Djuranovic S. Translation efficiency is a determinant of the magnitude of miRNA-mediated repression. *Sci Rep* 2017; 7: 14884. DOI [DOI](#)
2. [Cottrell KA](#), Djuranovic S. Urb-RIP - An Adaptable and Efficient Approach for Immunoprecipitation of RNAs and Associated RNAs/Proteins. *PLoS One* 2016; 11: e0167877. DOI [DOI](#)
1. [Slade KM](#), Freggiaro S, [Cottrell KA](#), Smith JJ, Wiley EA. Sirtuin-mediated nuclear differentiation and programmed degradation in Tetrahymena. *BMC Cell Biol* 2011; 12: 40. DOI [DOI](#)

[PubMed Bibliography](#)

[Google Scholar](#)

Major Grants and Awards

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| 2023- | Maximizing Opportunities for Scientific and Academic Independent Careers (MOSAIC) Postdoctoral Career Transition Award to Promote Diversity (K99/R00), R00MD016946
Title: Identifying determinants of ADAR-dependency in triple-negative breast cancer |
| 2021-2022 | Maximizing Opportunities for Scientific and Academic Independent Careers (MOSAIC) Postdoctoral Career Transition Award to Promote Diversity (K99/R00), K99MD016946
Title: Identifying determinants of ADAR-dependency in triple-negative breast cancer |
| 2021 | AACR-Bristol Myers Squibb Cancer Disparities Research Fellowship, American Association for Cancer Research
Title: Addressing breast cancer disparities by targeting ADAR |
| 2019-2020 | Ruth L. Kirschstein National Research Service Award, Individual Postdoctoral Fellowship, F32GM131514
Title: The role of Arf tumor suppressor in translational reprogramming |

Other Grants and Awards

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| 2021 | Named an Associate for the Intersections Science Fellows Symposium |
| 2020 | Keystone Symposia Scholarship, RNA Editing and Modifications: From Biology to Therapy |
| 2018 | Appointed to Hematology Training Grant (T32HL007088) |
| 2016 | Travel Award, GRC: Translation Machinery in Health & Disease, Galveston TX |
| 2014 | Appointed to Cell and Molecular Biology Training Grant (T32GM007067) |

- 2010 Thesis Funding Award, Missouri State University, Springfield, MO
- 2009 Selected for Accelerated Master's Program in Cell and Molecular Biology
Missouri State University, Springfield, MO

Invited Presentations and Posters

- 2023 Amelia Project Annual Meeting, Kokomo, IN
Talk – “RNA editing in breast cancer – elucidating mechanisms and targeting ADAR”
- 2023 Invited Seminar, Department of Biochemistry, Purdue University
Talk – “Protecting self from self, the role of ADAR and DHX9 in suppression of double-stranded RNA sensing”
- 2023 Invited Seminar, CIS Science Chat, Purdue University
Talk – “Protecting self from self, the role of ADAR and DHX9 in suppression of double-stranded RNA sensing”
- 2022 Invited Seminar, Department of Medicine – Division of Oncology, Washington University in St. Louis
Talk – “RNA editing in breast cancer – elucidating mechanisms and targeting ADAR”
- 2022 RNA Society Annual Meeting, Boulder, CO
Talk – “Proximity labeling reveals a cooperative role for the RNA editing enzyme ADAR and the DEAD box helicase DDX54 in suppression of PKR activation”
- 2022 RNA Society Annual Meeting, Boulder, CO
Talk and Panel Discussion – “Diverse Voices from Rising Scientists”
- 2022 American Association for Cancer Research Annual Meeting, New Orleans, LA
Poster – “Proximity labeling reveals a role for ADAR and DDX54 in suppressing dsRNA sensing in breast cancer”
- 2022 Invited Seminar, Biochemistry and Molecular Biology Department, Saint Louis University
Talk – “RNA editing in breast cancer – elucidating mechanisms and targeting ADAR”
- 2022 Invited Seminar, Biochemistry Department, Purdue University
Talk – “RNA editing in breast cancer – elucidating mechanisms and targeting ADAR”
- 2021 Invited Seminar, Cell, Molecular and Cancer Biology Graduate Program, Indiana University School of Medicine
Talk – “RNA editing in breast cancer – elucidating mechanisms and targeting ADAR”
- 2021 RNA Society Annual Meeting 2021, Virtual
Poster – “RNA editing in breast cancer – elucidating mechanisms and targeting ADAR”
- 2020 Siteman Cancer Center: Cancer Research Symposium & Poster Showcase, Virtual
Talk – “Evaluating the therapeutic potential of ADAR inhibition for triple-negative breast cancer”
- 2020 Translational Control, Virtual
Poster – “ARF suppresses 5'-terminal oligopyrimidine mRNA translation”
- 2020 RNA Society Annual Meeting 2020, Virtual
Poster – “Evaluating the therapeutic potential of ADAR inhibition for triple-negative breast cancer”
- 2019 Breast Cancer Research Forum, Washington University in St. Louis, St. Louis MO
Poster – “Upregulation of 5'TOP mRNAs following loss of the tumor suppressor ARF”
*Awarded best poster presentation

- 2018 Breast Cancer Research Forum, Washington University in St. Louis, St. Louis MO
Poster – “The role of Arf tumor suppressor in translational reprogramming”
- 2017 GRC: Translation Machinery in Health & Disease, Galveston TX
Talk - "Probing miRNA and RBP Function with CRE-seq"
- 2016 Translational Control, Cold Spring Harbor, NY
Poster – “Systematic analysis of mRNA elements reveals modulation of miRNA-mediated repression”
- 2014 Translational Control, Cold Spring Harbor, NY
Talk – “Modulation of miRNA-mediated, post-transcriptional gene regulation”
- 2012 Midwest Protozoology Society, Peoria, IL
Talk – “The role of Thd14, a *Tetrahymena thermophila* sirtuin, in stress response”
- 2011 Missouri Academy of Sciences Annual Conference, Jefferson City, MO
Talk – “The role of Thd14, a *Tetrahymena thermophila* sirtuin, in stress response”
- 2011 Midwest Protozoology Society, Peoria, IL
Poster – “The role of Thd14, a *Tetrahymena thermophila* sirtuin, in stress response”
- 2011 Arkansas INBRE Research Conference, Fayetteville, AR
Poster – “The role of Thd14, a *Tetrahymena thermophila* sirtuin, in stress response”

Teaching

- Fall 2018 *Discussion leader*, BIOL 548: Nucleic Acids and Protein Biosynthesis, Washington University in St. Louis
- Spring 2018 *Guest lecturer*, “Small regulatory RNAs”, BIOL 6602 - Advanced Molecular Biology, University of Missouri St. Louis
- Summer 2016 *Instructor*, Young Scientist Program: Summer Focus Bootcamp, Washington University in St. Louis
- Spring 2014 *Teaching Assistant*, BIOL 3492: Laboratory Experiments with Eukaryotic Microbes, Washington University in St. Louis
- Fall 2012 *Laboratory instructor*, BMS 110: Introduction to Biomedical Sciences, Missouri State University
- Spring 2012 *Laboratory instructor*, BMS 110: Introduction to Biomedical Sciences, Missouri State University
- 2007 – 2011 *Academic Tutor*, Chemistry and Biology, Speckman Tutoring and Learning Center, Ozarks Technical Community College

Mentored Trainees

- 2023 - Estelle Gardner, undergraduate student, Cottrell Lab
- 2023 – 2023 Sydney Beechboard, rotating graduate student, Cottrell Lab
- 2022 – 2022 Louis Kerestes, post-baccalaureate, Weber Lab
- 2022 – 2022 Anbrielle Blake, Young Scientist Program (high school student), Weber Lab
- 2021 – 2021 Hung Mai, rotating graduate student, Weber Lab
- 2019 – 2021 Michael Dizon, undergraduate, Weber Lab
- 2020 – 2021 Luisángely Soto Torres, post-baccalaureate, Weber Lab
- 2018 – 2020 Ryan Chiou, undergraduate, Weber Lab

2019 – 2019 Naba Yasir, Young Scientist Program (high school student), Weber Lab
2018 – 2018 Angela Schab, rotating graduate student, Weber Lab
2017 – 2017 Kellan Weston, rotating graduate student, Djuranovic Lab
2014 – 2015 Denise Rogers, undergraduate, Djuranovic Lab

Service

- Founder and President of First-Gen Scholars – a group at Washington University in St. Louis for graduate students and postdocs that were first-generation undergraduates
- American Association for Cancer Research Early Career Hill Day Participant (2020 & 2021)
- Founder and organizer of the Postdoc Chalk Talk Series at Washington University in St. Louis
- Mentor for the NIH Fellowship Writing Workshop at Washington University in St. Louis

Affiliations

- RNA Society – Member
- American Association for Cancer Research – Associate Member