

Jacob Tyler Polaski, Ph.D.

Postdoctoral Fellow

Robert K. Bradley lab

Fred Hutchinson Cancer Research Center

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EDUCATION

University of Colorado, Boulder, CO Ph.D., Biochemistry Advisor: Robert T. Batey, Ph.D.	2010-2016
Benedictine University, Lisle, IL B.S., Biochemistry and Molecular Biology, <i>Cum laude</i> Advisor: Cheryl Mascarenhas, Ph.D.	2007-2010
College of DuPage, Glen Ellyn, IL	2005-2007

PROFESSIONAL EXPERIENCE

Postdoctoral Fellow	Robert K. Bradley lab, Fred Hutchinson Cancer Research Center Seattle, WA. Public Health Sciences and Basic Sciences	2017-
Postdoctoral Researcher	Robert T. Batey lab, University of Colorado, Boulder Dept. of Chemistry and Biochemistry	2016-2017
Graduate Student	Robert T. Batey lab, University of Colorado, Boulder Dept. of Chemistry and Biochemistry	2010-2016

AWARDS AND HONORS

EvansMDS Foundation Young Investigator Award	2020-
Chromosome Metabolism and Cancer Training Grant (NCI)	2017-2019
Molecular Biophysics Training Grant (NIH)	2013-2015

PUBLICATIONS

Lead author

1. **Polaski JT**, Kletzien OA, Drogalis LK, and Batey RT*. A functional genetic screen reveals sequences preferences within a key tertiary interaction in cobalamin riboswitches required for ligand selectivity. *Nucleic Acids Res.* **46**, 9094-9105 (2018).
2. **Polaski JT**[†], Webster SM[†], Johnson JE, and Batey RT*. Cobalamin riboswitches Exhibit a broad range of ability to discriminate between methylcobalamin and adenosylcobalamin. *J. Biol. Chem.* **28**, 11650-11658 (2017). [†]Equal contribution.
3. **Polaski JT**, Holmstrom ED, Nesbitt DJ*, and Batey RT*. Mechanistic insights into cofactor-dependent coupling of RNA folding and mRNA transcription/translation by a cobalamin riboswitch, *Cell Reports* **15**, 1100-1110 (2016).

Co-author

1. Pangallo J, Kiladjian J-J, Cassinat B, Renneville A, Taylor J, **Polaski JT**, North K, Abdel-Wahab O, Bradley RK*. Rare and private spliceosomal gene mutations drive partial, complete, and dual phenocopies of hotspot alterations. *Blood*. (2020).
2. Thomas JD, **Polaski JT**[†], Feng Q[†], De Neef EJ, Hoppe ER, McSharry MV, Pangallo J, Gabel AM, Belleville AE, Watson J, Nkinsi NT, Berger AH, Bradley RK*. RNA isoform screens uncover the essentiality and tumor-suppressor activity of ultraconserved poison exons. *Nat. Genet.* **52**, 84-94 (2020). [†]Equal contribution.
3. Braselmann E, Wierzba AJ[†], **Polaski JT**[†], Chrominski M, Holmes ZE, Hung ST, Batan D, Wheeler JR, Parker R, Jimenez R, Gryko D, Batey RT, and Palmer AE*. A multicolor riboswitch-based platform for imaging of RNA in live mammalian cells. *Nat Chem Biol.* **14**, 964-971 (2018). [†]Equal contribution.
4. Porter EB, **Polaski JT**, Morck MM, and Batey RT*. Use of biological scaffolds with *in vitro* selection to generate robust small molecule binding aptamers for genetically encodable devices. *Nat. Chem. Biol.* **13**, 295-301 (2017).
5. Wostenberg C, Ceres P, **Polaski JT**, and Batey RT*. A highly coupled network of tertiary interactions in the SAM-I riboswitch and their role in regulatory tuning, *J. Mol. Biol* **427**, 3473-3490 (2015).
6. Holmstrom ED, **Polaski JT**, Batey RT*, and Nesbitt DJ*. Single-Molecule Conformational Dynamics of a Biologically Functional Hydroxocobalamin Riboswitch, *J. Am. Chem. Soc* **136**, 16832-16843 (2014).
7. Johnson JE[†], Reyes FE[†], **Polaski JT**, and Batey RT*. B₁₂ Cofactors Directly Stabilize an mRNA Regulatory Switch, *Nature* **492**, 133-137 (2012). [†]Equal contribution.

ORAL PRESENTATIONS

Splicing factor mutations in myelodysplastic syndromes

Chromosome Metabolism and Cancer Training Grant Colloquium 2019
Fred Hutchinson Cancer Research Center, Seattle, WA

Genetic signatures of pancreatic adenocarcinoma

RNA Metabolism Seminar, Fred Hutchinson Cancer Research Center, Seattle, WA 2019

Chromosome Metabolism and Cancer Training Grant Colloquium 2018
Fred Hutchinson Cancer Research Center, Seattle, WA

RNA structure and design using riboswitches

Biophysics Supergroup, University of Colorado, Boulder, CO 2015

RNA Society, University of Wisconsin, Madison, WI 2015

Biophysics Supergroup, University of Colorado, Boulder, CO 2014

RNA Club, University of Colorado, Boulder, CO 2014

TEACHING AND MENTORING

Mentor for Undergraduate Students	Mentored Lea Drogalis and Samantha Webster University of Colorado, Boulder, CO Faculty Advisor: Robert T. Batey, Ph.D.	2015-2017
Mentor for Graduate Students	Mentored Nicholas Parsonette, Vanessa Neibauer, and Otto Kletzien University of Colorado, Boulder, CO Faculty Advisor: Robert T. Batey, Ph.D	2012-2016
Graduate Teaching Assistant	General Biochemistry-I/General Chemistry-I Lab University of Colorado, Boulder, CO	2010-2011

PROFESSIONAL MEMBERSHIPS

RNA Society	2016-
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RESEARCH INTERESTS

Hematologic malignancies, RNA splicing, cancer genomics, RNA structure, synthetic biology

REFERENCES

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