

Robin D. Dowell

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ACADEMIC POSITIONS	University of Colorado Professor, Molecular, Cellular and Developmental Biology (2022-Present) BioFrontiers Institute Core Faculty (2009-Present) Affiliated Faculty, Computer Science (2009-Present) Core Faculty, Comp. Bioscience Program, CU Med. School (2009-Present) Associate Professor, Molecular, Cellular and Developmental Biology (2017-2022) Assistant Professor, Molecular, Cellular and Developmental Biology (2009-2017) Massachusetts Institute of Technology Postdoctoral Fellow; 2005-2009 Adviser: David K. Gifford	
FOUNDER	Arpeggio Biosciences , (2017)	
EDUCATION	Washington University in St. Louis D.Sc. Biomedical Engineering, December 2004 “Stochastic Context-Free Grammars for RNA Secondary Structure Prediction” Adviser: Sean R. Eddy M.S. Computer Science, May 2001 Advisers: Lincoln Stein, Sean R. Eddy, Michael R. Brent Project: “A Distributed Annotation System” (Tech report wucs-01-07) Texas A&M University B.S. Computer Engineering, May 1997, <i>cum laude</i> , Engineering Scholar B.S. Genetics, May 1997, University Honors, Foundation Honors Honors Thesis: “A Graphical User Interface for Contig Mapping”	
HONORS	Kavli Foundation Fellow, National Academy of Sciences, 2014 and 2015 Linda Crnic Institute Investigator, 2013 Boulder Faculty Assembly Recognition, 2013 Alfred P. Sloan Foundation Research Fellow, 2012 Boettcher Foundation Webb-Waring Investigator, 2010 Spencer T. and Ann W. Olin Medical Scientist Fellow, 2005 Mr. and Mrs. Spencer T. Olin Fellowship, 2002-2004 Association of Women Faculty Graduate Student Award, 1999 Howard Hughes Predoctoral Fellowship, 1997-2002 National Science Foundation Fellowship (declined), 1997	

University Undergraduate Research Fellow (Best Presentation Award), 1997

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PUBLICATIONS underline indicates my students; ‡ indicates undergraduates

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21. J. Hendrix, T. Read, J-F. Lalonde, P.K Jensen, W. Heymann, E.Z. Lovelace, S.A. Zimmermann, M. Brasino, J. Rokicki, **R.D. Dowell**. An engineered calcium-precipitable restriction enzyme. *ACS Synthetic Biology* 3(12):969-971, 2014
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18. J. Rokicki, D. Knox, **R.D. Dowell** and S. Copley. Chodachrome: A Tool for visualizing protein evolution across bacteria. *BMC Genomics* 15:65, 2014
17. M.A. Allen and **R.D. Dowell**. Retrospective reflections of a whistleblower-Opinions on misconduct responses. *Accountability in Research* 20:339-348, 2013
16. M.D. Galbraith, M. Allen, X. Wang, M. Scwhinn, D. Daniels, W. Hahn, **R.D. Dowell** and J.M. Espinosa. HIF1A activates transcriptional elongation via recruitment of CDK8-Mediator. *Cell* 153(6):1327–1339, 2013
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14. J. Shi, H. Zhang, **R.D. Dowell** and M.W. Klymkowsky. *sizzled* function and secreted factor network dynamics. *Biology Open*. 1, 286-294, 2012
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SUBMITTED
MANUSCRIPTS

Jessica Vy Westfall, Daniel Ramirez, Robin D. Dowell, Mary A. Allen. Interferon transcriptional responses and its temporal dynamics across a diverse population. (submitted)

A.R. Gilchrist, E.R. Worden-Sapper, A.C. Stabell, A. Barbachano-Guerrero, J.T. Stanley, L. St.Clair, N.R. Meyerson, K.L. McNally, V. Pujari, D. Crick, S.M. Best, **R.D. Dowell**, R. Perera*, S.L. Sawyer*. Computer-assisted virology identifies human DGAT2 as degraded by orthoflaviviruses during infection. (Reviews received)

L.E. Brusman, A.C. Fultz, **R.D. Dowell**, M.A. Allen*, Z.R. Donaldson*. Cellular-level transcription-based synchrony exists across different relationships. (Revised and resubmitted).

O. Luyties, L. Sanford, J. Rodino, T. Jones, J.K. Rimel, G.S. Shelby, F. Brennan, C.C. Ebmeier, L.P. Watts, S. Spencer, R.D. Dowell, D.J. Taatjes*. CDK7 inhibition suppresses RNA polymerase II re-initiation and triggers degradation of elongation and 3'-end processing factors. (Revised and resubmitted).

H. Liu*, L. Li*, J. Gao*, S. Leah, S. Hunter, H. Huang, T. Houles, P.P. Roux, **R. Dowell**, G. Zhang. CDK11 is the human ortholog of the yeast Bur1 kinase and phosphorylates CDK12 to trigger the elongation of RNA Polymerase II. (submitted)

L. Li, S. Hunter, S. Leach, Y. Zhuang, H. Liu, J. Gao, T. Stasevich, H. Kimura, **R. Dowell**, G. Zhang*. Histone pan-phosphorylation as pan-acetylation couples with the elongation of RNA Polymerase II (Submitted).

J. Chakraborty, C. Ugorji, M.L Bomber, K. Ledalla, M. Arnold, C.D. Ozeroff, J. Wang, J.P. Morales, K. Bonis, J.D. Ellis, L.N. Bartlett, S. Zhang, **R. Dowell**, M.A. Allen, S.W Hiebert, K.R Stengel*. Transcriptome factor associations fine-tune the RUNX1 gene network to confer regulatory logic to hematopoietic gene expression programs. (Submitted).

PUBLISHED ABSTRACTS

M.A. Ehringer, H.M. Kamens, R.P. Corley, M. Simonson, A. Poole, P. Richmond, J.A. Stitzel, **R.D. Dowell**, K. Krauter, M.B. McQueen, M.C. Stallings, C. Hopfer, T. Crowley, J.K. Hewitt. Behavioral Disinhibition: Sequencing CHRN genes in a selected sample to identify novel variants. Alcohol Clin Exp Res. 37(S2), 256A, 2013.

H.M. Kamens, A. Poole, R.P. Corley, M.B. McQueen, M.C. Stallings, C. Hopfer, J. Stitzel, J.K. Hewitt, **R.D. Dowell**, M.A. Ehringer. Sequencing nicotinic acetylcholine receptor subunits for association with dependence vulnerability. Society for Research on Nicotine and Tobacco, Abstract Book PA17-1, p.38, 2012.

R.A. Radcliffe, A.W. Poole, C.J. Larson, **R.D. Dowell**, B. Bennett. Genetic influences on alternative splicing in a mouse model of differential alcohol sensitivity. Alcohol Clin Exp Res 36:S158, 2012.

R.D. Dowell. A graphical user interface for contig mapping (an abstract). *Texas A&M University Undergraduate Journal of Science*, Spring 1997.

CLASSROOM TEACHING

University of Colorado, Boulder, Colorado USA

Instructor

MCDB 3450 Biological Data Science (Spring 2020-2025)

MCDB 6440 Advanced Biological Data Science (Spring 2024-2025)

MCDB 4520/5520; CSCI 4830/7000 Bioinformatics and Genomics (Spring 2016-19, Fall 2010)

MCDB 4521/5521 Bioinformatics and Genomics Laboratory (Spring 2016-19)

MCDB 2150 Principles of Genetics (Spring 2013-2015)

APPM 4720/5720; CSCI 4830/7000; MCDB 6440; CHEM 4921/5921 Statistics & Computation for Genomics and Metagenomics (Spring 2012; co-taught Manuel Lladser)

MCDB 5520 Methods and Logic (Spring 2012; co-taught Tom Blumenthal)

Independent Study Mentor

CSCI 5900 (Fall 2024: 3 hours) Georgia Barone and Hope Townsend

CSCI 5900 (Spring 2024: 3 hours) Hope Townsend

MCDB 7840 (Spring 2022: 3 hours) Jessica Westfall

MCDB 7840 (Fall 2021: 3 hours) Samuel Hunter
MCDB 7840 (Fall 2021: 3 hours) Samuel Hunter
BCHM 6901 (Fall 2018: 5 hours) Martin Fenk
MCDB 4840 (Fall 2014; Spring 2016) Josphephina Hendrix; Jon DeMassi

Lecturer in Team Taught Classes

MCDB 5240 Graduate Core 2 (Spring 2019-2023; 4 lectures/year)
GRAD 5000 Responsible Conduct of Research (Spring 2018, Fall 2018-2024: 1 lecture/term)
CBPS 7711 Methods and Tools in Biomedical Informatics (Fall 2010-22: 2 lectures/year)
CBPS 7712 Research Methods in Biomedical Informatics (Spring 2010-21,2024: 2 lectures/year)
MCDB 5230 Graduate Core 1 (Fall 2012-2017, 2024); 2-4 lectures/year)

Guest Lecturer

CSCI 3352 Biological Networks (Spring 2020: 2 lectures)
CHEM 5801 Advanced Topics in Signal Transduction and Cell Cycle Regulation (Spring 2020, 2016: 1 lecture)
CSCI 7000-009 Computational Genomics Seminar (Fall 2018: 1 lecture)
CSCI 3434 Theory of Computation (Spring 2011-2012: 1 lecture)
CSCI 4810 Seminar in Computational Biology (Spring 2010: 1 lecture)

Massachusetts Institute of Technology, Cambridge, Massachusetts USA

6.874;7.90 Computational Systems Biology (Spring 2008-2009: 2 lectures)

Washington University in St. Louis, St. Louis, Missouri USA

BME 140 Introduction to Biomedical Engineering (Fall 2001-2004: 1 lecture)
Bio 5495;BME 537 Computational Molecular Biology (Spring 1999: Teaching Assistant)

WORKSHOP
INSTRUCTION

University of Colorado, Boulder, Colorado USA

Short Read Sequence Analysis Workshop (Summer 2014-2019, 2021-2024; 2 weeks/year, reverse classroom)
Nascent Transcription Workshop (Rocky Mountain Genomics HackCon 2018; 1.5 days)
Global Run-on Protocol Workshop (April 2016, March 2019; 1 week)
Online Course in Python Programming (Winter 2013: 2 weeks; now MOOC)

ICAR-Indian Agricultural Research Institute, New Delhi

NAHEP-CAAST “Next Generation Sequencing and Computational Biology for Agriculture” March 2020 (1 day)

CURRICULUM
DEVELOPMENT

University of Colorado, Boulder, Colorado USA

Integrated Data Science Certificate Development (2020-2021)
Computational Biology Minor Development (2018-2021)
Interdisciplinary Quantitative Biology Program Development (2010-2012)
Course Creation and Development
MCDB 3450 Biological Data Science (first offered Spring 2020)
MCDB 4521/5521 Bioinformatics and Genomics Laboratory (first offered Spring 2016)

APPM 4720/5720; CSCI 4830/7000; MCDB 6440; CHEM 4921/5921 Statistics & Computation for Genomics and Metagenomics (first offered Spring 2012)
Math 1310 Redesign (2010)

REFeree

Boettcher Foundation Webb-Waring Award Review Panel (2014-2021,2022-2024)
National Institute Health Pioneer series Panel (2023,2024)
External Professor Assessment, University of Copenhagen (2024)
German Cancer Research Center (DKFZ) Grant program (2020, 2021, 2023)
National Science Foundation *ad hoc* grant reviewer (2013-2020,2022)
National Institute Health F series Panel (2020,2021)
UK Medical Research Council (MRC) Grants program (2021)
Austrian FWF grants program (Der Wissenschaftsfonds) (2020)
National Institute Health GCAT grant reviewer (2019)
Wellcome Trust Grants Program (2017)
National Institute of Health *ENCODE* Grant Panel (2016)
National Institute Health NHGRI Grant Panel (2016)
Linda Crnic Institute Seed Grants Program (2016)
CCTSI Pilot Grant Reviewer (2012-2018)
iGEM Jamboree Judge (2012, 2013, 2015, 2018)
Rocky Mountain Celebration of Women in Computing Conference Paper Reviewer (2012)
Manuscript Reviewer for Journals: Bioinformatics, BMC Bioinformatics, BMC Genomics, Cell Reports, eLife, Genome Biology, Genome Research, Molecular Cell, NAR, Nature, Nature Genetics, Nature Communications, Nature Structural Biology, PLoS Computational Biology, PLoS Genetics, Transcription

PROFESSIONAL
MEMBERSHIPS

- Association of Computing Machinery
- Biomedical Engineering Society
- Institute of Electrical and Electronics Engineers
- International Society for Computational Biology
- Genetics Society of America
- Trisomy 21 Research Society