Juan B. Rodríguez-Molina, PhD

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Academic Degrees

2023 **Master of Arts**
University of Cambridge, Cambridge, U.K.
(under Statute B.II.2, as Fellow of Clare Hall)

2014 **PhD in Biochemistry**
Department of Biochemistry, University of Wisconsin-Madison, U.S.A.
Dissertation title: Discovering unexpected connections and developing tools to define the CTD code of Pol II.
- Developed a covalent inhibition strategy to study the role of Kin28/CDK7 during transcription *in vivo* (Rodríguez-Molina et al. 2016)

PhD advisor: Dr Aseem Z. Ansari
(2nd child born in 2011)

2007 **BS in Industrial Biotechnology**
University of Puerto Rico-Mayagüez, Puerto Rico, U.S.A.
(1st child born in 2006)

Professional Experience

September 2025-Present — Assistant Professor
Department of Molecular and Cellular Biosciences
University of Cincinnati Medical School, Ohio, U.S.A.

June 2024-July 2025 — Senior Laboratory Research Scientist
The Francis Crick Institute, London, U.K.

2021- 2023 — Investigator Scientist
MRC-Laboratory of Molecular Biology, Cambridge, U.K.

2017-2021 — Postdoctoral Research Scientist
MRC-Laboratory of Molecular Biology, Cambridge, U.K.
Postdoc mentor: Dr Lori A. Passmore

2015-2017 — Postdoctoral Research Scientist
Babraham Institute, Cambridge, U.K.

2007-2014 +1 year postdoc — Graduate Research Assistant
University of Wisconsin-Madison, U.S.A.

Awards, Traineeships and Fellowships

2021, 2022 — Special Awards Scheme, MRC Laboratory of Molecular Biology
(2021: *£1,875,* 2022: *£1,500*)

2019-Present — Research Fellowship in the Sciences (2019-2023)
- Elected College Associate (2023-2025)

Clare Hall, University of Cambridge

2017 — Juan de la Cierva Postdoctoral Fellowship (gratefully declined)

2015 — Computation and Informatics in Biology and Medicine Postdoctoral Traineeship, University of Wisconsin-Madison

2014	American Society for Biochemistry and Molecular Biology Travel Award *($1,000*)
2012-2013	Biochemistry WARF Research Assistant Award, University of Wisconsin-Madison
2012	Jerome Stefaniak Predoctoral Fellowship (gratefully deferred)
2008-2011	Genomic Sciences Predoctoral Traineeship, University of Wisconsin-Madison
2007, 2013	Advanced Opportunity Fellowship, University of Wisconsin-Madison
2006-2007	Sloan Undergraduate Research Fellowship, University of Puerto Rico-Mayagüez
2006	American Society for Cell Biology MAC Travel Award (*$1,500*)
2006	Pfizer Global Research and Development Undergraduate Research Fellowship, University of Puerto Rico-Mayagüez
2004-2005	Puerto Rico Louis Stokes Access for Minority Participation (PR-LSAMP) Fellowship, University of Puerto Rico-Mayagüez

Talks

Dec 2024-Jan 2025 — The CPF Orchestrion: Decoding RNA for 3'-end processing and transcription termination.
- University of Cincinnati College of Medicine, Department of Molecular and Cellular Biosciences
- Rice University, Department of Biosciences

Spring 2024 — All hands on deck! CPF's concerted role in 3'-end processing *and* transcription termination.
- University of Michigan Medical School, Department of Biological Chemistry
- University of Colorado-Boulder, Department of Biochemistry

2023 — An emerging picture: determining protein structures using cryo-electron microscopy and what they tell us about biological function.
- Clare Hall Three-slide talks, University of Cambridge

A pre-mRNA binding sensor to rule all of 3'-end processing.
- University of Puerto Rico-Río Piedras, Department of Biology (*guest lecturer*)
- Johns Hopkins University, Department of Biology
- Stony Brook University, Department of Biochemistry and Cell Biology
- Iowa State University, Department of Biochemistry, Biophysics and Molecular Biology
- University of Massachusetts Medical School, Department of Biochemistry and Molecular Biotechnology

2021-2022 — Mpe1 senses the polyadenylation signal in pre-mRNA to promote efficient cleavage and control polyadenylation.
- RNA Club, University of Cambridge
- 26th Annual RNA Society Conference (online)
- Eukaryotic mRNA Processing, Cold Spring Harbor Laboratory
- MRC Laboratory of Molecular Biology Symposium
- University of Manchester, Division of Molecular and Cellular Function
- CNRS Workshop Conference: Gene transcription in yeast, Sant Feliu de Guixols
- University of Leicester, Department of Molecular and Cell Biology

2015 — Covalent inhibition of Kin28 reveals its role in transcription and surveillance of non-coding RNAs.
MARC-RISE Seminar, University of Puerto Rico-Rio Piedras

2013 Chemical-genomic (re)dissection of the RNA Polymerase II CTD code.
Department of Biochemistry Retreat (student selected), University of Wisconsin-Madison

2010 Chemical-genomic dissection of Pol II phospho-CTD marks.
Transcription and chromatin regulation seminar, University of Wisconsin-Madison

Posters (selected)

2023 Dephosphorylation of RNA Polymerase II promotes its dimerization and transcription termination.
Mechanisms of Eukaryotic Transcription, Cold Spring Harbor Laboratory

2022 Mpe1 senses the polyadenylation signal in pre-mRNA to promote efficient cleavage and control polyadenylation.
- FEBS3+ Meeting: 86th Harden Conference – Machines on Genes
- EMBO Workshop: RNA 3' end formation and the regulation of eukaryotic genomes
- MRC Laboratory of Molecular Biology Symposium

2019 Transcription homeostasis is safeguarded by CPF-dependent termination.
Mechanisms of Eukaryotic Transcription, Cold Spring Harbor Laboratory

2014 A novel chemical-genomic approach for the dissection of the CTD code.
American Society for Biochemistry and Molecular Biology

2013 Unexpected gene-class specific differences in Nrd1 recruitment.
Mechanisms of Eukaryotic Transcription, Cold Spring Harbor Laboratory

2012 Global Nrd1 distribution is regulated by dynamic phosphorylation states of the C-terminal domain of RNA Polymerase II.
Biology of Genomes, Cold Spring Harbor Laboratory

Mentoring

2021-2023 Holly Fagarasan (PhD student, MRC-Laboratory of Molecular Biology)

Summer 2018 Eleanor Sheekey (3rd year undergraduate)
- *Currently:* Postdoctoral Researcher, RIKEN

2014-2015 Shane Simonett (3rd year undergraduate)
- *Currently:* Senior Research Associate II at Exact Sciences

2012-2015 Jiayue Liu (2nd year undergraduate)
- *Currently:* Bioinformatics Scientist II at Guardant Health

2012-2014 Alex Burford (2nd year undergraduate)
- *Currently*: Paediatric Critical Care Fellowship, Medical College of Wisconsin

Teaching Experience and Training

2018 Early Career Researchers-Teach (ECR-Teach), Institute of Continuing Education, University of Cambridge.
- Experiential training on course design for higher education.
- Designed and proposed a short course for a broad audience.

2009 Teaching Assistant: Eukaryotic Molecular Biology (Biochem 620).
University of Wisconsin-Madison.
- Graduate/advanced undergraduate course.
- Organized study sections before exams.
- Marked exams and assignments.

2009 Teaching Assistant: General Biochemistry I (Biochem 507).
University of Wisconsin-Madison.
- Undergraduate course.

- Organized weekly study sections.
- Marked exams.

2009 Instruction Specialist: Pre-College Enrichment Opportunity Program for Learning Excellence (PEOPLE).
University of Wisconsin-Madison.
- Independently designed a short course (1 week) on evolution. Included lectures and simple experiments illustrating the power of natural selection.

Service and Governance

2020-2023 Fellowship Committee, Clare Hall, University of Cambridge
- Evaluated and provided recommendation on applications for Visiting Fellowships, Postdoctoral Associateships and Research Fellowships.

2020-2023 Stewardship Committee, Clare Hall, University of Cambridge
- Provided recommendation on matters relating to catering within the college.

2019-2023 Member of Governing Body and Trustee of Clare Hall College, University of Cambridge
- Involved in general governance of the college.

2022, 2017 Abstract reviewer for the Annual Biomedical Research Conference for Minoritized Scientists (ABRCMS)

2019 Manuscript co-reviewer (with Dr Lori Passmore) for Cell Reports

Consulting

2023-present Design Therapeutics
- I provide comprehensive literature summary, analysis, and perspective on relevant aspects of transcription regulation and RNA processing.

2024-present Glen Clova Scientific
- I provide structural bioinformatics consultation and services including structural analyses, model building and instruction.

Public Engagement (selected)

2022 Big Biology Day
- Co-presented the CryoEMazing exhibit.
- Welcomed over 200 participants from the general public to the exhibit.

2019 LifeLab2019
- Contributed to creating a cryoEM exhibit.
- Took the exhibit to Ely, U.K. as part of LifeLab2019, which attracted hundreds of participants.

2018, 2019 Royal Society Young People's Book Prize Session Leader
- Coordinated judging panel of home-educated children in Cambridge, U.K.
- Organised final event to share results and announce winning book.
- Raised £200 to promote science literacy among children.
- Event featured in MRC-LMB news.

2016 School visit coordinator
- Coordinated visit to the Babraham Institute (Cambridge, U.K.) for home-educated children.
- Contributed blog post describing the event and its outcomes (**Rodriguez-Molina, Juan B.** "Home-education family visit to the labs." Web Blog Post. Babraham Institute Engagement Blog. The Babraham Institute. 17 Oct. 2016).

2015 Citizen Scientist project coordinator
- Initiated a collaborative effort between the Natural Products Discovery Group at the University of Oklahoma and local home school groups in Madison, W.I.

to gather soil samples for natural product discovery (https://www.youtube.com/watch?v=ntO2pAuat5k).

2009-2011, 2014-2015 Judge at Capital Science and Engineering Fair.

Courses and additional training

2022 Time management workshop
MRC Laboratory of Molecular Biology

2017 MRC Grant Writing Workshop
MRC Laboratory of Molecular Biology

2016 EMBO Laboratory Management Course for Postdocs (Heidelberg, Germany)

2015 Babraham Institute
- Advanced Analysis with SeqMonk (Bioinformatics)
- Plotting Complex Figure using R (Bioinformatics)

2007-2014 University of Wisconsin-Madison
- Eukaryotic Molecular Biology
- Genomic and Proteomic Analysis
- Protein and Enzyme Structure and Function
- Scientific Ethics
- Wisconsin Entrepreneurial Bootcamp (Business School)

Languages

- Spanish (1st, native speaker) and English (native speaker)

Additional activities

2020-present Clare Hall Boat Club
- +3 in May Bumps 2025 (stroke seat, M5 Division)
- 2nd of 27 Newnham Head 2025 (6 seat, 8+ Men's College Lents Lower Division)
- AISL-Harrow Tinmuk Regatta 2024 (Co-captain, 7 seat, 8+ Men's)
- 1st of 3 Great Ouse Marathon 2024 (7 seat, 8+ Mixed)
- 1st of 4 Peterborough Summer Regatta 2024 (7 seat, 8+ Op Band 3)
- Awarded Blades, May Bumps 2024 (7 seat, M3 Division)
- 1st of 4 regatta races Emma Sprints 2023 (Cox, M2 Division)
- Awarded Technical Blades, Lent Bumps 2023 (3 seat, M3 Division)
- Club Secretary (2022-2023)
- Virtual workout officer (2021)

2024-present Cambridge Rowing Experience (City of Cambridge Rowing Club)
- Cox and Instructor

2017-2019, 2022 Christmas Skit, MRC Laboratory of Molecular Biology
- Actor

Publications

(Google Scholar: 897 citations, h-index 12)

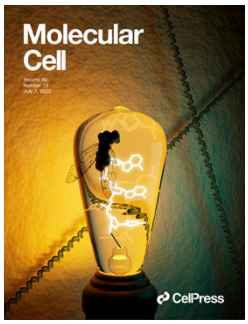
13. Mäeots ME, Tupin S, Esfahani NMH, **Rodriguez-Molina JB**, Clapperton JA, Amin A, Imbert A, Enchev RI. Chronobot: Deep learning guided time-resolved cryo-EM captures molecular choreography of RecA in homology search**.** BioRXiv 2025.

12. Carminati M, **Rodríguez-Molina JB**, Manav MC, Bellini D, Passmore LA. A direct interaction between CPF and Pol II links RNA 3'-end processing to transcription. *Mol Cell.* 2023 Dec 21; 83(24): 4461-4478. (16 citations, Google Scholar).
    - Pre-print: https://doi.org/10.1101/2022.07.28.501803

11. **Rodríguez-Molina JB**, West S, Passmore LA. Knowing when to stop: Transcription termination by eukaryotic Pol II. *Mol Cell.* 2023 Jan 5; S1097-2765(22)01178-9. (46 citations, Google Scholar)

10. **Rodríguez-Molina JB** and Turtola M. Birth of a poly(A) tail: Mechanisms and control of mRNA polyadenylation. *FEBS Open Bio.* 2022 Nov 23. (18 citations, Google Scholar)

9. **Rodríguez-Molina JB**, O'Reilly FJ, Fagarasan H, Sheekey E, Maslen S, Skehel JM, Rappsilber J, Passmore LA. Mpe1 senses the binding of pre-mRNA and controls 3' end processing by CPF. *Mol Cell.* 2022 Jul 7; 82 (13): 2490-2504. (17 citation, Google Scholar).
    - Pre-print: https://doi.org/10.1101/2021.09.02.458805
    - Featured in Insight on Research (MRC LMB)
    - Featured in *Saccharomyces* Genome Database blog
    - Featured cover July 7, 2022, 82 (13) issue.



8. Kumar A, Yu CWH, **Rodríguez-Molina JB**, Li XH, Freund SMV, Passmore LA. Dynamics in Fip1 regulate eukaryotic mRNA 3'-end processing. *Genes Dev.* 2021 Nov 1; 35 (21-22): 1510-1526. (14 citation, Google Scholar).

7. Ross NT, et al. (11th out of 42 authors) CPSF3-dependent pre-mRNA processing as a druggable node in AML and Ewing's sarcoma. *Nat Chem Biol.* 2020 16 (1), 50-59 (70 citations, Google Scholar)
    - Featured in News and Views: Erb, M.A. Processing for destruction. *Nat Chem Biol* **16,** 3–4 (2020).

6. Lidschreiber M*, Easter AD*, Battaglia S, **Rodríguez-Molina JB**, Casañal A, Carminati M, Baejen C, Grzechnik P, Maier KC, Cramer P, Passmore LA. The APT complex is involved in non-coding RNA transcription and is distinct from CPF. *Nucleic Acids Res.* 2018 46 (21), 11528-11538 (*These authors contributed equally) (26 citations, Google Scholar)

5. **Rodríguez-Molina JB***, Tsend SC*, Simonett SP, Taunton J, Ansari AZ. Engineered Covalent Inactivation of TFIIH-kinase Reveals an Elongation Checkpoint and Results in Widespread mRNA Stabilization. *Mol Cell.* 2016 Aug 4; 63(3): 433–444. (*These authors contributed equally) (77 citations, Google Scholar)
    - Featured in Nature Chemical Biology News & Views (October issue)
    - Featured in University of Wisconsin, Biochemistry Department blog
    - Featured in UWMadScience blog (removed)

4. Zhang DW, **Rodríguez-Molina JB**, Tietjen JR, Nemec CM, Ansari AZ. Emerging views on the CTD code. *Genet Res Int.* 2012; 2012:347214. (75 citations, Google Scholar)

3. Chinchilla K, **Rodríguez-Molina JB**, Ursic D, Finkel JS, Ansari AZ, Culbertson MR. Interactions of Sen1, Nrd1, and Nab3 with Multiple Phosphorylated Forms of the Rpb1 C-Terminal Domain in Saccharomyces cerevisiae. *Eukaryot Cell.* 2012 Apr;11(4):417-29. (70 citations, Google Scholar)

2. Zhang DW, Mosley AL, Ramisetty SR, **Rodríguez-Molina JB**, Washburn MP, Ansari AZ. Ssu72 phosphatase-dependent erasure of phospho-Ser7 marks on the RNA polymerase II C-terminal domain is essential for viability and transcription termination. *J Biol Chem.* 2012 Mar 9;287(11):8541-51. (153 citations, Google Scholar)

- Featured cover March 9, 2012, 287(11) issue

1. Tietjen JR, Zhang DW*, **Rodríguez-Molina JB*,** White BE*, Akhtar MS, Heidemann M, Li X, Chapman RD, Shokat K, Keles S, Eick D, Ansari AZ. Chemical Dissection of the CTD code. *Nat Struct Mol Biol.* 2010 Sep;17(9):1154-61. (*These authors contributed equally) (189 citations, Google Scholar)

- Featured in Nature Chemical Biology
  Transcription: Bumping into Bur1 *Nat Struct Mol Biol.* 17, 1154–1161 (2010)