

# Ana Fiszbein

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<https://www.fiszbeinlab.com>

## EDUCATION

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- 2012 – 2016 Ph.D. in Biology.  
University of Buenos Aires, Argentina
- 2006 - 2011 Lic. in Biology (equivalent to B.Sc. and M.Sc.). Summa cum laude  
University of Buenos Aires, Argentina  
Specialization in Molecular Biology and Biotechnology

## PROFESSIONAL EXPERIENCE

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- 2022 – Faculty Fellow, Computing & Data Sciences Department  
Boston University, Boston, MA
- 2021 – Assistant Professor, Biology Department  
Boston University, Boston, MA
- 2021 – Faculty in MCBB, CM, Bioinformatics PhD programs  
Boston University, Boston, MA
- 2016 – 2020 Postdoctoral Fellow, Mentor: Christopher B. Burge  
Massachusetts Institute of Technology, Cambridge, MA  
Computational and Systems Biology
- 2012 – 2016 Ph.D. Candidate, Mentor: Alberto R. Kornblihtt  
University of Buenos Aires, Argentina  
Molecular Biology and Genetics
- 2009 – 2012 Undergraduate Researcher, Mentor: Alberto R. Kornblihtt  
University of Buenos Aires, Argentina  
Molecular Biology and Genetics
- 2007 – 2009 Undergraduate Researcher, Mentor: Matias Pandolfi  
University of Buenos Aires, Argentina  
Physiology and Embryology
- 2006 – 2007 Research Trainee, Mentor: Gabriel Corfas  
Children's Hospital, Harvard University, Boston, MA  
Neuroscience
- 2005 – 2006 Undergraduate Researcher, Mentor: Marcelo Rodriguez Fermepin  
University of Buenos Aires, Argentina  
Microbiology

## PUBLICATIONS

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Calvo-Roitberg E#, Carroll CL#, Venev SV, Kim GY, Mick ST, Dekker J, **Fiszbein A\***, Pai AA\* (2024) mRNA initiation and termination are spatially coordinated. **bioRxiv**, doi: <https://doi.org/10.1101/2024.01.05.574404> \*co-corresponding authors #co-firts authors [abstract]

Mick ST, **Fiszbein A** (2023) evopython: a Python package for feature-focused, comparative genomic data exploration. **bioRxiv**, doi: <https://doi.org/10.1101/2023.09.02.556042> [abstract]

Uriostegui-Arcos M, Mick ST, Shi Z, Rahman R, **Fiszbein A** (2023) Splicing activates transcription from weak promoters upstream of alternative exons. **Nature Communications**, 14:3435 [abstract]

**Fiszbein A\***, McGurk M, Calvo-Roitberg E, Kim GY, Burge CB\*, Pai, AA\* (2022) Widespread occurrence of hybrid internal-terminal exons in human transcriptomes. **Science Advances**, 8(3) eabk1752 \*co-corresponding authors [abstract]

Wilson C, Giono LE, Rozés-Salvador V, **Fiszbein A**, Kornblihtt AR, Cáceres A (2020) The histone methyltransferase G9a controls axonal growth by targeting the RhoA signaling pathway. **Cell Reports**, 31(6): 107639. [abstract]

**Fiszbein A**, Krick KS, Begg BE, Burge CB (2019) Exon-mediated activation of transcription starts. **Cell**, 79(7):1551-1565 [abstract]

Highlighted in:

- a. Hoffmann T, Valcarcel J (2019) Splicing calls back. **Cell**, 79(7):1446-1447. [abs]
- b. Willson J (2019) Exons as enhancers. **Nat Rev Genet**, 21:68-69 [abs]
- c. Song Y (2020) New beginnings. **Nat Chemical Biology**, 16:106 [abs]
- d. Example of outstanding NIH-funded research at NHGRI's Director's report [link]

Berardino BG, Chertoff M, Gianatiempo O, Alberca CD, Priegue R, **Fiszbein A**, Long P, Corfas G, Cánepa ET (2019) Exposure to enriched environment rescues anxiety-like behavior and miRNA deregulated expression induced by perinatal malnutrition while altering oligodendrocyte morphology. **Neuroscience** (19)30178-2. [abstract]

Zalcman G\*, Federman N\*, **Fiszbein A**, de la Fuente V, Ameneiro L, Schor IE, Romano A (2019) Sustained CaMKII delta gene expression is specifically required for long-lasting memories in mice. **Mol Neurobiol** 56(2): 1437-1450. \*co-first authors [abstract]

**Fiszbein A** & Kornblihtt AR (2017) Alternative splicing switches: Important players in cell differentiation. **BioEssays** 39: 1600157. [abstract]

**Fiszbein A** & Kornblihtt AR (2016) Histone methylation, alternative splicing and neuronal differentiation. **Neurogenesis** 3:2326-2133. [abstract]

**Fiszbein A**, Giono LE, Quaglino A, Berardino BG, Singaut L, von Bilderling C, Schor IE, Steinberg JHE, Rossi M, Pietrasanta LI, Caramelo JJ, Srebrow A, Kornblihtt AR (2016) Alternative splicing of G9a regulates neuronal differentiation. **Cell Reports** 14:2797–2808. Featured on the cover. [abstract]

Ramallo M, Morandini L, Alonso F, Birba A, Tubert C, **Fiszbein A**, Pandolfi M (2014) The endocrine regulation of cichlids social and reproductive behavior through the eyes of the chanchita, *Cichlasoma dimerus* (Percomorpha; Cichlidae). **Journal of Physiology** 4; 108:194-202. [abstract]

Schor IE\* and **Fiszbein A\***, Petrillo E, Kornblihtt AR (2013) Intragenic epigenetic changes modulate NCAM alternative splicing upon neuronal differentiation. **EMBO Journal** 14; 32:2264-74. [abstract] \*co-first authors

Gómez Acuña LI, **Fiszbein A**, Alló M, Schor IE, Kornblihtt AR (2012) Connections between chromatin signatures and splicing. **Wiley Interdisciplinary Reviews RNA** 16; 4:77-91. [abstract]

Dujardin G, Lafaille C, Petrillo E, Buggiano V, Gómez Acuña LI, **Fiszbein A**, Godoy Herz MA, Nieto Moreno N, Muñoz MJ, Alló M, Schor IE, Kornblihtt AR (2012) Transcriptional elongation and alternative splicing. **Biochim Biophys Acta** 1829:134-40. [abstract]

**Fiszbein A**, Cánepa M, Vázquez GR, Maggese C, Pandolfi M (2010) Photoperiodic modulation of reproductive physiology and behavior in the cichlid fish *Cichlasoma dimerus*. **Physiology and Behaviour** 30; 99:425-32. [abstract]

## BOOKS

**Fiszbein A**, Gomez Acuña LI, Godoy Herz MA, Kornblihtt AR (2016) Interplay between chromatin and splicing. Chapter from the book *Chromatin Regulation and Dynamics*. Elsevier Science & Technology

**Fiszbein A**, Schor IE, Kornblihtt AR (2015) Fundamentals of NCAM expression, function and regulation of alternative splicing in neuronal differentiation. Chapter from the book *Neural surface antigens - from basic biology toward biomedical applications*. Elsevier Science & Technology ISBN: 0128011262

## PATENTS

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U.S. patent 62/740,881 [abstract] and International Patent Application PCT/US2019/044936. MIT patent #20890, "Splicing-Dependent Transcriptional Gene Silencing or Activation", by Christopher B. Burge and Ana Fiszbein.

## PRESENT FUNDING

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2022 – 2025 The Smith Family Foundation Program for Excellence in Biomedical Research, *Evolution and regulation of hybrid exons*, \$300,000 total cost. PI: Ana Fiszbein

2022 – 2027 NIH R35 ESI MIRA, *Probing co-transcriptional gene regulatory logics in human transcriptomes*, \$2,062,500 total cost. PI: Ana Fiszbein

2024 – 2028 Hevolution Foundation, Geroscience Research Opportunities, *Tracking tissue-specific gene boundaries in aging*, \$1,971,184 total cost. PI: Ana Fiszbein

2024 – 2029 NSF CAREER, *Uncovering the role of splicing factors in transcriptional regulation*, \$1,810,523 total cost. PI: Ana Fiszbein

## STUDENTS' FELLOWSHIPS

2022 – 2024 PEW Latin American Postdoctoral Fellowship (\$160,000 total cost) to postdoc Maritere Uriostegui-Arcos

2023 – 2026 National Science Foundation (NSF) Graduate Research Fellowship (\$147,000 total cost) to graduate student Renata Serio

## PENDING FUNDING

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2024 – 2027 Pew Trust, Pew-Stewart Scholars Program, *Uncovering the mechanisms behind splicing signatures in cancer survival*, \$400,000 total cost. PI: Ana Fiszbein

## **PREVIOUS FUNDING**

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2021 – 2023 Massachusetts Life Science Center (MLSC) Women's Health Innovation Program, *Elucidating the role of G9a alternative splicing in breast cancer to develop novel targeted therapies*, \$300,000 total cost. PI: Ana Fiszbein

## **AWARDS AND HONORS**

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2022 – 2025 BU Computing & Data Science Faculty Fellowship (\$50,000 award)

2021 – 2024 Innovation Career Development Professorship Award (\$150,000 award)

2021 – 2024 Junior Faculty Fellow of the Hariri Institute for Computing (\$10,000 award)

2017 – 2020 PEW Latin American Postdoctoral Fellowship (\$160,000) \* Featured in MIT news (06/20/2017)

2016 Postdoctoral Fellowship from CONICET (National Council of Scientific and Technical Investigations, Argentina) - declined

2012 – 2016 Graduate Fellowship form CONICET

2005 Early scientist award, University of Buenos Aires

## **PROFESSIONAL SERVICE**

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2023 – Member of the Independent Review Committee of Target ALS

2022 – 2023 Invited conference session chair at Eukaryotic mRNA Processing Meeting, Cold Spring Harbor Laboratory, NY; Keystone Symposia on Gene Regulation, New Mexico; PEW Trust Annual Meeting, Costa Rica

2019 – 2022 Co-chair of the Post-transcriptional Gene Regulation Gordon Research Seminar, ME, USA

2020 – Grant reviewer panelist for the National Institute of Health (NIH), National Science Foundation (NSF), UK Medical Research Council (MRC), Israel Science Foundation (ISF), and Academia Sinica (Taiwan's National Academy of Sciences)

2020 – Guest editor, Genes

2020 – Reviewer for Nature Communications, Cell Reports, RNA, eLife, PLOS Computational Biology, Nature Structural & Molecular Biology, BMC Bioinformatics, iScience

2017 – 2020 Co-chair of the MIT B68 Postdoc Association. Organizer of MIT Biology Colloquiums

## **ACADEMIC SERVICE**

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2022 – 2023 Academic Policy Committee Member, Center for Computing and Data Sciences, Boston University

2022 – 2023 Selection Committee Member, Society of Fellows, College of Arts & Science, Boston University

2022 – 2023 Ad-hoc Committee Member, MCBB Graduate Admissions Committee, Department of Biology, Boston University

Spring 2022	Professor & organizer, CM/Neuro graduate Seminar Series, Department of Biology, Boston University
2021 – present	Organizer committee, Departmental Seminar Series, Department of Biology, Boston University
2021 – 2023	Committee Member, MC Graduate Admissions Committee, Department of Biology, Boston University
2021 – 2022	Faculty search committee member, Biology Department, Molecular Neurobiology search, Boston University
2021 – 2022	Faculty search committee member, Data Science Department, Boston University
2021 – present	Faculty member, Bioinformatic Graduate Program, Boston University
2021 – present	Faculty member, RISE Summer Internship Program, Boston University
2021 – present	Faculty member, NSF Bioinformatics Research and Interdisciplinary Training Experience (BRITE), Boston University
2021 – present	Ph.D. thesis committee member and Ph.D. qualifying exam committee member for > 15 Ph.D. students at Boston University from CM, MCBB, BME and Bioinformatics programs
2020 – 2021	Ad-hoc Committee Member, MCBB Graduate Admissions Committee, Department of Biology, Boston University

## **TEACHING EXPERIENCE**

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2021- present	Professor in Advanced Molecular Biology BI 753. BU
Spring 2019	Instructor in Advanced Undergraduate Seminar 7.341 DNA's sister does all the work: The central roles of RNA in gene expression. MIT
2015 - 2016	Senior teaching Assistant (by contest) in Molecular and Cellular Biology and Genetic engineering. University of Buenos Aires
2010 - 2014	Teaching Assistant (by contest) in Molecular and Cellular Biology, Immunochemistry, Microbiology. Development and Differentiation, Genetic Engineering and Molecular Physiology. University of Buenos Aires

## **INVITED TALKS and SELECTED ABSTRACTS**

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2023	Systems Biology meeting, Cold Spring Harbor Laboratory, NY
2023	Eukaryotic mRNA processing meeting, Cold Spring Harbor Laboratory, NY
2023	Annual RNATx symposium, RNA Therapeutic Institute, UMASS, MA
2023	Remix Therapeutics, Atlas Venture
2023	NIH National Cancer Institute, RNA Therapeutics symposium, DC
2022	Institute of Physiology, Molecular and Cellular Biology, Argentina
2022	Institute of functional genomics of Lyon (IGFL), France
2022	Department of Dermatology, Boston University Medical School
2022	Biennial Symposium of the RNA Society of North Carolina, NC

- 2022 Post-transcriptional Gene Regulation, Gordon Conference, ME
- 2022 Keystone Symposia on Gene Regulation, New Mexico
- 2022 Artificial Intelligence Lab at Illumina, CA
- 2022 RNA Club of Poland, Warsaw, Poland
- 2021 Mechanisms of eukaryotic transcription meeting, Cold Spring Harbor Laboratory, NY
- 2021 Eukaryotic mRNA processing meeting, Cold Spring Harbor Laboratory, NY
- 2021 RNA Club of Argentina and Uruguay, Montevideo Uruguay
- 2021 Frontiers in Genomics Seminar, National University of Mexico (UNAM), Mexico
- 2021 SpliceCon 2021: A Steenbock Symposium organized by UW-Madison Department of Biochemistry and The RNA Society
- 2021 System Biology Seminar Series, Boston University
- 2020 Genome Science Institute (GSI) Symposium, Boston University
- 2020 Molecular biology and genetics seminars, Brandeis University
- 2020 iRNA-COSI, ISCB and the RNA Society (webinar series)
- 2020 GEARS series, MIT & Harvard
- 2020 Department of Biochemistry and Molecular Biology, University of British Columbia, Canada
- 2020 Physiology Department and Green Center for Reproductive Biology Sciences, UT Southwestern
- 2020 Remix Therapeutics, Atlas Venture
- 2019 Eukaryotic mRNA processing Meeting, Cold Spring Harbor Laboratory, NY
- 2019 Neuroscience Institute at FLENI, Argentina
- 2018 Work in Progress Seminar, MIT, Biology Department
- 2018 Post-transcriptional Gene Regulation, Gordon Conference, ME
- 2018 Post-transcriptional RNA processing: Surveys, mechanism and disease, Gordon Research Seminar, ME
- 2018 MIT Retreat, Biology Department, Falmouth MA
- 2018 Biological and Biomedical Sciences, Yale University
- 2017 Institute of Molecular and Cellular Biology, Argentina
- 2015 Eukaryotic mRNA processing Meeting, Cold Spring Harbor Laboratory, NY

## **MENTORING AND TRAINEES SUPERVISED**

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### Postdoctoral Associates at BU

2021 – Maritere Uriostegui-Arcos

### PhD students at BU

2023 – Steven Mick

2023 – Renata Serio

2023 – Mustafa Tuncay  
2022 – 2023 Edward Ruiz (co-mentored with Dr. Ruben Dries)  
2022 – Zachary Wakefield  
2022 – Yunwei Lu (co-mentored with Dr. Juan Fuxman Bass)  
2021 – Christine Carroll  
2021 – GyeongYun Kim  
2021 – 2022 Rufuto Rahman

Undergraduate students at BU

2022 – 2023 Douglas Alvarado  
2021 – 2022 Xingpei Zhang  
2021 – 2022 Timothy Zhu  
2021 – 2023 Steven Mick  
2020 – 2023 Kaveri Bhargava  
2020 – 2023 Meredith Kaplan  
2020 – 2022 Helen Feng  
2020 – 2021 Megan Costa  
Fall 2020 Jessica Riley

Other students from short programs and summer internships

2023 Mariana Suaya  
Summer 2023 Emilee Walden (BRITE)  
Summer 2023 Simrah Bawa (GROW)  
Summer 2023 Martin Igman  
Summer 2021 Miguel Yanez (BRITE)  
Summer 2021 Poornima Dorairaj (RISE)  
Summer 2021 Apurva Mishra (RISE)  
Summer 2021 Sana Majid (GSI bioinformatic fellowship)

Undergraduate, MD students and Technicians in Burge Lab at MIT and Kornblihtt Lab

2019 - 2020 Jowa Shi (MD student in the Harvard-MIT HST Program)  
2017 - 2020 Keegan S. Krick and Christine Minor  
Sequence preferences of human RNA binding proteins (ENCODE)  
2014 - 2015 Lara Mariel Chirich

Mentoring panels

2019 Mentor in Mentorship Table on Graduate Programs in the Life Science of the eight annual National Collegiate Research Conference (NCRC), Harvard University