

Juan I. Fuxman Bass, Ph.D.

Boston University
Department of Biology
5 Cummington Mall
Boston, MA 02215
fuxman@bu.edu
(617) 353-2448

EDUCATION

- 2006-2010 Ph.D. Biology.
University of Buenos Aires and National Academy of Medicine, Argentina.
Advisor: Dr. Analia S. Trevani
- 1999-2005 Lic. in Biology (equivalent to B.S./M.S.). Summa cum laude.
University of Buenos Aires, Argentina.
Specialization: Molecular Biology and Biotechnology.

POSTDOCTORAL TRAINING

- 2011-2016 Postdoctoral fellow
University of Massachusetts Medical School, Worcester, MA.
Advisor: Dr. A.J. Marian Walhout

APPOINTMENTS

- 2019-present Director of Graduate Admissions
Molecular Biology, Cell Biology & Biochemistry Program
Boston University, Boston, MA.
- 2016-present Assistant Professor
Biology Department
Boston University, Boston, MA.
- 2003-2011 Teaching Assistant
University of Buenos Aires, Buenos Aires, Argentina.
- 1999-2005 Elementary and high-school mathematics teacher
Mary Graham, North Hills, and Pilar's Parish schools.
Pilar and Buenos Aires, Argentina

PROGRAMATIC APPOINTMENTS

- 2018-present Member of the BU-BMC Cancer Center.
- 2017-present Member of the Bioinformatics Program (Boston University).
- 2017-present Member of the Genome Sciences Institute (Boston University).
- 2017-present Member of the Molecular Biology, Cell Biology and Biochemistry Program (Boston University).
- 2016-present Member of the Center for Cancer Systems Biology (Dana-Farber Cancer Institute).

AWARDS AND HONORS

- 2019 Milstein Young Investigator Award, International Cytokine & Interferon Society.
- 2007 “Leonardo Satz” Award, Argentine Immunology Society (award to the best oral presentation).
- 2005 Bronze Medal in the 8th Iberoamerican Mathematical Olympiad for University Students.
- 2004 National Academy of Medicine Award (best original work in immunology developed in Argentina).
- 2004 Argentine Council for the Information and Development of Biotechnology Award (best research and development project). Declared project of national interest by the Argentine Parliament.
- 2004-2006 Undergraduate Fellowship for research Initiation. School of Medicine, University of Buenos Aires, Argentina.
- 2002-2003 Undergraduate Scholarship “Paulo D. Barroso Mastronardi” in Biological Sciences. National Academy of Exact, Physics and Natural Sciences, Argentina.
- 2002 Bronze Medal in the 5th Iberoamerican Mathematical Olympiad for University Students.
- 2000 Bronze Medal in the 3rd Iberoamerican Mathematical Olympiad for University Students.
- 1999 Bronze Medal in the 2nd Iberoamerican Mathematical Olympiad for University Students.
- 1999 Silver Medal in the XI Asian Pacific Mathematics Olympiad.
- 1998-2000 Undergraduate scholarship in mathematics, Bernardo Houssay Foundation, Argentina.
- 1998 Presidential Silver Medal in mathematics.
- 1998 Silver Medal in the VII Rioplatense Mathematical Olympiad.
- 1998 Silver Medal in the 13th Iberoamerican Mathematical Olympiad.
- 1998 Bronze Medal in the 39th International Mathematical Olympiad.
- 1998 Bronze Medal in the X Asian Pacific Mathematical Olympiad.
- 1998 First place in the Buenos Aires Province Mathematical Olympiad.

- 1998 Second place in the Argentinean Mathematical Olympiad.
- 1997 Bronze Medal in the VI Rioplatense Mathematical Olympiad.
- 1997 Silver Medal in the 12th Iberoamerican Mathematical Olympiad.
- 1997 Bronze Medal in the 38th International Mathematical Olympiad
- 1997 Third place in the Argentinean Mathematical Olympiad.
- 1996 First place in the Buenos Aires Province Mathematical Olympiad.

PRESENT FUNDING

- 2018-2023 NIH Maximizing Investigator's Research Award (R35), R35-GM128625: *Structure and function of immune gene regulatory networks*. \$2,062,500 total cost. PI: **JI Fuxman Bass**.
- 2018-2023 NIH National Cancer Institute, U01-CA232161: *Rewiring of regulatory networks in breast cancer by transcription factor isoforms*. \$3,736,932 total cost. Co-PIs: **JI Fuxman Bass (BU)**, Marc Vidal (DFCI), Martha Bulyk (Harvard Medical School).

PAST FUNDING

- 2016-2018 NIH Pathway to Independence Award (K99/R00), R00-GM114296: *Delineation of a cytokine gene regulatory network and rewiring in disease*. \$505,931 total cost (direct cost = \$307,557, indirect cost = \$198,374). PI: **JI Fuxman Bass**.
- 2015-2016 NIH Pathway to Independence Award (K99/R00), K99-GM114296: *Delineation of a cytokine gene regulatory network and rewiring in disease*. \$90,000 total cost (direct cost = \$83,333, indirect cost = \$6,667). PI: **JI Fuxman Bass**.
- 2012-2014 Pew Latin American Postdoctoral Fellowship. \$60,000 total cost (direct cost = \$60,000, indirect cost = \$0). PI: **JI Fuxman Bass**.
- 2006-2011 Graduate Fellowship from CONICET (National Council of Scientific and Technical Investigations, Argentina).

TEACHING

- 2020 Biology Department, Boston University
Course: BI 565 (Functional Genomics).
Students: 25 (graduate and undergraduate)
- 2019 Biology Department, Boston University
Course: BI 565 (Functional Genomics).
Students: 13 (graduate and undergraduate)
- 2018 Biology Department, Boston University

Course: BI 594 (Topics in Biology).
Students: 17 (graduate and undergraduate)

- 2017 Biology Department, Boston University
Course: BI 553 (Molecular Biology II).
Students: 24 (graduate and undergraduate)
- 2014 Guest lecturer, Lewis-Sigler Institute of Integrative Genomics.
Princeton University.
Course: Introduction to Genomics and Computational Biology.
- 2010 Organizer and lecturer of the “Solving math problems” course for High School teachers organized by the Argentine Mathematics Olympiad, Mar del Plata, Argentina.
- 2005-2011 Teaching assistant, Department of Physiology, Molecular and Cell Biology.
School of Exact and Natural Sciences, University of Buenos Aires, Argentina.
Courses: Introduction to Molecular and Cell Biology, Genetics, Cell Biology, Biological Chemistry IIA.
Students: 30-50 in each course (undergraduate)
- 2004-2006 Teaching assistant, Department of Microbiology, Parasitology and Immunology.
School of Medicine, University of Buenos Aires.
Course: Immunology.
Students: ~200 (undergraduate)
- 2004-2005 Teaching assistant, Department of Immunology.
National Academy of Medicine, Argentina.
Course: Update in the acute inflammatory response.
Students: ~30 (graduate)
- 2003-2004 Teaching assistant, Department of Biochemistry.
School of Exact and Natural Sciences, University of Buenos Aires, Argentina.
Course: Biochemistry.
Students: ~40 (undergraduate)
- 1999-2005 Mathematics Olympiad instructor in Elementary and High School. Mary Graham School, North Hills School and Pilar’s Parish Institute, Argentina.

MENTORING EXPERIENCE

Postdoctoral Fellows

- 2018-present Dr. Xing Liu
- 2016-2017 Dr. Jared Sewell. Now Associate Director, Molecular & Cellular Biology at Sigilon Therapeutics.

Graduate students

- 2020-present Devlin Moyer (Bioinformatics graduate student)
- 2020-present Jaice Rottenberg (CM graduate student)
- 2019-present Samantha Drinan (CM graduate student)
- 2019-present Anna Berenson (MCBB graduate student)

2018-present Clarissa Santoso (MCBB graduate student)
2017-2020 Sebastian Carrasco-Pro (Bioinformatics Ph.D. candidate)

Undergraduate students

2020 Yilin Chen (Nutritional sciences student)
2020 Fernanda De la Rosa (work study student)
2019-present Isabella Ho (UROP student)
2019-present Cheng-Che Lee (UROP student)
2019 Xeila Cendan (work study student)
2019 Andrew Munoz (NSF-REU student)
2018-present Samson Yuan (UROP student)
2018-present Amisha Gandhi (BME student)
2018-2019 Nicholas Hahn (work study student)
2018 Luiza Damotta (work study student)
2018 Mary Rolfes (work study student)
2018 Heejoo Kang (work study student)
2018 Giuliano Lobos (NSF-REU undergraduate student)
2017 Rebecca Sereda. Now research assistant in the Regenerative Biology Department at Harvard University.
2017-2018 Alvaro Dafonte Imedio. Now graduate student at Boston College.
2017-2018 Shivani Mehta (BMB student)
2017 Melissa Martinez (NSF-REU undergraduate student)

Research technicians and associates

2019-present Zhaorong Li (bioinformatics research assistant)
2018-2020 Dr. Meimei Yin (Lab manager)
2017-2018 Shaleen Shrestha (Senior research technician). Now Sr. Associate Scientist at Sigilon Therapeutics.

INVITED LECTURES AND PRESENTATIONS

2019 Biology Department, University at Albany, Albany, NY.
2019 International Cytokine & Interferon Society, Vienna, Austria.
2019 Center for Cancer Systems Biology annual retreat, Gloucester, MA.
2019 Center for Autoimmune Genomics & Etiology, Cincinnati Children's Hospital, Cincinnati, OH.

2019 Tertulia, Boston University, Boston, MA.

2018 Genome Science Institute, Boston University, Boston, MA.

2018 Center for Cancer Systems Biology annual retreat, Gloucester, MA.

2018 BIRS meeting: Rules of protein-DNA recognition: computational and experimental advances. Oaxaca, Mexico.

2017 Center for Cancer Systems Biology annual retreat, Gloucester, MA.

2017 Cold Spring Harbor Laboratory meeting "Systems Biology: Networks", Huntington, NY.

2017 Microbiology Department, Boston University School of Medicine, Boston, MA.

2016 Worcester Area Worm Meeting, Worcester, MA.

2016 Program in Systems Biology, UMass Medical School, Worcester, MA.

2016 BioFrontiers Institute, Colorado University, Boulder, CO.

2016 Bioengineering Department, University of Washington, Seattle, WA.

2016 Molecular, Cell and Developmental Biology Department, University of California, Santa Cruz, CA.

2016 Biochemistry Department, Boston University School of Medicine, Boston, MA.

2016 Biology Department, Boston University, Boston, MA.

2015 Center of Cancer Systems Biology meeting, Rockport, MA.

2015 Microbiology and Physiological Systems Department, UMass Medical School, Worcester, MA.

2015 Molecular, Cell and Cancer Biology Department, UMass Medical School, Worcester, MA.

2015 20th International *C. elegans* Meeting, Genetics Society of America, Los Angeles, CA.

2015 Leloir Foundation Institute, Buenos Aires, Argentina.

2014 Center of Cancer Systems Biology meeting, Rockport, MA.

2014 Systems Biology: Global Regulation of Gene Expression Meeting, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

2014 Pew Annual Meeting. Costa Rica.

2014 National Academy of Medicine, Buenos Aires, Argentina.

2014 Lewis-Sigler Institute of Integrative Genomics, Princeton University, Princeton, NJ.

2014 Program in Bioinformatics and Integrative Biology, UMass Medical School, Worcester, MA.

2012 Center of Cancer Systems Biology meeting, Rockport, MA

2007 Argentinean Immunology Society meeting, Mar del Plata, Argentina.

2006 Argentinean Immunology Society meeting, Mar del Plata, Argentina.

PROFESSIONAL SERVICE

External service

- 2019 External examiner for Dr. Kelly Biette graduate thesis dissertation, Harvard Medical School.
- 2018 Thesis Defense Committee member for Dr. Alexandre Palagi, University of Nice Sophia Antipolis (France) and Harvard Medical School.
- 2017-present Associate Editor, *Bioinformatics and Computational Biology (Frontiers journals)*
- 2017-2018 Guest Editor, *The Journal of Molecular Biology. Special issue on "Theory and Application of Network Biology Toward Precision Medicine."*
- 2017-2018 NSF ad hoc reviewer.
- 2015-present Member, Advisory Editorial Board of *Genomics*.
- 2014-present Reviewer for *Cell Systems, Nature Communications, Nucleic Acids Research, G3 (Genes, Genomes, Genetics), BMC Biology, Current Opinions in Systems Biology, Journal of Visualized Experiments, Scientific Reports, Genome Research*.
- 2017 External examiner for Dr. Benjamin Vincent graduate thesis dissertation, Harvard Medical School.
- 2017 Thesis Defense Committee member for Dr. Xu Yang, University of Massachusetts Medical School.

University service

- 2020 Member of the Tertulia Organization Committee.
- 2019 Director of Graduate Admissions of the MCBB Program.
- 2017-present MCBB Program committee member.
- 2017 Responsible Conduct of Research training mentor.
- 2016-present MCBB graduate student selection committee.
- 2016-2019 Poster judge at the Genome Science Institute Symposium.
- 2017-present Thesis committee member: Jessica Keenan (Bioinformatics), David Bray (Bioinformatics), Marzie Rasekh (Bioinformatics), Aaron Chevalier (Bioinformatics), Boting Ning (Bioinformatics), Xingyi Shi (Bioinformatics), Meghan Bragdon (MCBB).

Biology Department service

- 2019 Thesis Defense Committee member for Dr. Bryan Matthews, Boston University.
- 2017-present Thesis committee member: Kellan Andrienas, Christopher Thomas, Christopher DiRusso, Natalie Vaisman, Heather Hook.
- 2018-2019 Biology Department annual retreat committee.
- 2018 Biology Department representative to the SACNAS conference, San Antonio, TX.
- 2017 Thesis Defense Committee member for Dr. Pengying Hao, Boston University.

2016-present Cell and Molecular Biology graduate student selection committee.

2017-present Biology Department Seminar Series (co-organizer).

PUBLICATIONS

Peer-reviewed publications

1. Liu X, Hong T, Parameswaran S, Ernst K, Marazzi I, Weirauch MT, **Fuxman Bass JI**. Human Virus Transcriptional Regulators. **Cell**. 2020 Jul 9;182(1):24-37.
2. Shrestha S, Sewell JA, Santoso CS, Forchielli E, Carrasco Pro S, Martinez M, **Fuxman Bass JI**. Discovering human transcription factor physical interactions with genetic variants, novel DNA motifs, and repetitive elements using enhanced yeast one-hybrid assays. **Genome Research**. 2019 Sep 29: 1533-1544; doi:10.1101/gr.248823.119
3. Shrestha S, Liu X, Santoso CS, **Fuxman Bass JI**. Enhanced yeast one-hybrid screens to identify transcription factor binding to human DNA sequences. **J Vis Exp**. 2019 Feb 11;(144). doi: 10.3791/59192
4. Mookerjee-Basu J, Hua X, Ge L, Nicolas E, Li Q, Czyzewicz P, Zhongping D, Peri S, **Fuxman Bass JI**, Walhout AJM, Kappes DJ. Functional conservation of a developmental switch in mammals since the Jurassic age. **Mol Biol Evol**. 2018 Oct 8. doi: 10.1093/molbev/msy191
5. Carrasco Pro S, Dafonte Imedio A, Santoso CS, Gan KA, Sewell JA, Martinez M, Sereda R, Mehta S, **Fuxman Bass JI**. Global landscape of mouse and human cytokine transcriptional regulation. **Nucleic Acids Res**. 2018 Sep 3. doi: 10.1093/nar/gky787.
6. Demchak B, Kreisberg JF, **Fuxman Bass JI**. Theory and Application of Network Biology Toward Precision Medicine. **J Mol Biol**. 2018 Jul 18. pii: S0022-2836(18)30811-8.
7. Gan KA, Carrasco Pro S, Sewell JA, and **Fuxman Bass JI**. Identification of Single Nucleotide Non-coding Driver Mutations in Cancer. **Frontiers in Genetics**. 2018 Feb 2;9:16. doi: 10.3389/fgene.2018.00016.
8. Sewell JA, **Fuxman Bass JI**. Options and considerations when using a yeast one-hybrid system. **Methods Mol Biol**. 2018;1794:119-130.
9. Sewell JA, **Fuxman Bass JI**. Cellular network perturbations by disease-associated variants. **Curr Opin Sys Biol**. 2017 June; 3: 60–66.
10. #Fuxman Bass JI, Reece-Hoyes JS, #Walhout AJ. Gene-Centered Yeast One-Hybrid Assays. **Cold Spring Harb Protoc**. 2016 Dec 1;2016(12):pdb.top077669. (#co-corresponding author).
11. #Fuxman Bass JI, Reece-Hoyes JS, #Walhout AJ. Zymolyase-Treatment and Polymerase Chain Reaction Amplification from Genomic and Plasmid Templates from Yeast. **Cold Spring Harb Protoc**. 2016 Dec 1;2016(12):pdb.prot088971. (#co-corresponding author).
12. #Fuxman Bass JI, Reece-Hoyes JS, #Walhout AJ. Colony Lift Colorimetric Assay for β -Galactosidase Activity. **Cold Spring Harb Protoc**. 2016 Dec 1;2016(12):pdb.prot088963. (#co-corresponding author).
13. #Fuxman Bass JI, Reece-Hoyes JS, #Walhout AJ. Performing Yeast One-Hybrid Library Screens. **Cold Spring Harb Protoc**. 2016 Dec 1;2016(12):pdb.prot088955. (#co-corresponding author).

14. #Fuxman Bass JI, Reece-Hoyes JS, #Walhout AJ. Generating Bait Strains for Yeast One-Hybrid Assays. **Cold Spring Harb Protoc.** 2016 Dec 1;2016(12):pdb.prot088948. (#co-corresponding author).
15. **Fuxman Bass JI**, Pons C, Kozlowski L, Reece-Hoyes JS, Shrestha S, Holdorf AD, Mori A, Myers CL, Walhout AJ. A gene-centered *C. elegans* protein-DNA interaction network provides a framework for functional predictions. **Mol Syst Biol.** 2016 Oct 24;12(10):884.
16. **Fuxman Bass JI**, Sahni N, Shrestha S, Garcia-Gonzalez A, Mori A, Bhat N, Yi S, Hill DE, Vidal M, Walhout AJ. Human Gene-Centered Transcription Factor Networks for Enhancers and Disease Variants. **Cell.** 2015 Apr 23;161(3):661-73.
17. *Sahni N, *Yi S, *Taipale M, ***Fuxman Bass JI**, *Coulombe-Huntington J, Yang F, Peng J, Weile J, Karras GI, Wang Y, Kovács IA, Kamburov A, Krykbaeva I, Lam MH, Tucker G, Khurana V, Sharma A, Liu YY, Yachie N, Zhong Q, Shen Y, Palagi A, San-Miguel A, Fan C, Balcha D, Dricot A, Jordan DM, Walsh JM, Shah AA, Yang X, Stoyanova AK, Leighton A, Calderwood MA, Jacob Y, Cusick ME, Salehi-Ashtiani K, Whitesell LJ, Sunyaev S, Berger B, Barabási AL, Charleatoux B, Hill DE, Hao T, Roth FP, Xia Y, Walhout AJ, Lindquist S, Vidal M. Widespread Perturbation of Disease-Specific Macromolecular Interactions in Human Genetic Disorders. **Cell.** 2015 Apr 23;161(3):647-60. (*co-first author).
18. Narasimhan K, Lambert SA, Yang AW, Riddell J, Mnaimneh S, Zheng H, Albu M, Najafabadi HS, Reece-Hoyes JS, **Fuxman Bass JI**, Walhout AJ, Weirauch MT, Hughes TR. Mapping and analysis of *Caenorhabditis elegans* transcription factor sequence specificities. **Elife.** 2015 Apr 23;4.
19. #**Fuxman Bass JI**, Diallo A, Nelson J, Soto JM, Myers CL, #Walhout AJ. Using networks to measure similarity between genes: association index selection. **Nature Methods.** 2013 Dec. 10(12):1169-76. (*co-corresponding author).
20. **Fuxman Bass JI**, Tamburino AM, Mori A, Beittel N, Weirauch MT, Reece-Hoyes JS, Walhout AJ. Transcription factor binding to *Caenorhabditis elegans* first introns reveals lack of redundancy with gene promoters. **Nucleic Acids Res.** 2014 Jan;42(1):153-62.
21. Gabelloni ML, Sabbione F, Jancic C, **Fuxman Bass JI**, Keitelman I, Iula L, Oleastro M, Geffner JR, Trevani AS. NADPH oxidase derived reactive oxygen species are involved in human neutrophil IL-1 β secretion but not in inflammasome activation. **Eur J Immunol.** 2013 Dec;43(12):3324-35.
22. Ritter AD, Shen Y, **Fuxman Bass J**, Jeyaraj S, Deplancke B, Mukhopadhyay A, Xu J, Driscoll M, Tissenbaum HA, Walhout AJ. Complex expression dynamics and robustness in *C. elegans* insulin networks. **Genome Research.** 2013 Jun;23(6):954-65.
23. Traglia GM, Sala CD, **Fuxman Bass JI**, Soler-Bistué AJ, Zorreguieta A, Ramírez MS, Tolmasky ME. Internalization of Locked Nucleic Acids/DNA Hybrid Oligomers into *Escherichia coli*. **Biores Open Access.** 2012 Oct;1(5):260-3.
24. Nahmod K, Walther T, Cambados N, Fernandez N, Meiss R, Tappenbeck N, Wang Y, Raffo D, Simian M, Schwiebs A, Pozner R, **Fuxman Bass J**, Geffner J, Kordon E, Schere Levy C. AT1 receptor blockade delays post-lactational mammary gland involution: a novel role for the renin angiotensin system. **FASEB J.** 2012 May;26(5):1982-94.
25. **Fuxman Bass J**, Russo D, Gabelloni M, Geffner J, Giordano M, Catalano M, Zorreguieta A, Trevani A. Extracellular DNA: A Major Proinflammatory Component of *P. aeruginosa* Biofilms. **J Immunol.** 2010 Jun 1;184(11):6386-95.

26. Salamone G, Petracca Y, **Fuxman Bass J**, Rumbo M, Geffner J, Trevani A. Flagellin delays spontaneous human neutrophil apoptosis. *Lab Invest*. 2010 Jul;90(7):1049-59.
27. **Fuxman Bass J**, Alvarez M, Gabelloni M, Geffner J, Vermeulen M, Amaral M, Trevani A. GM-CSF enhances a CpG-independent pathway of neutrophil activation triggered by bacterial DNA. *Mol Immunol*. 2008 Nov;46(1):37-44.
28. **Fuxman Bass J**, Gabelloni M, Alvarez M, Vermeulen M, Russo D, Zorreguieta A, Geffner J, Trevani A. Characterization of bacterial DNA binding to human neutrophil surface. *Lab Invest*. 2008 Sep;88(9):926-37.
29. Alvarez M, **Fuxman Bass J**, Geffner J, Fernández Calotti P, Costas M, Coso O, Gamberale R, Vermeulen M, Salamone G, Tanos T, Trevani A. Neutrophil signaling pathways activated by bacterial DNA stimulation. *J Immunol*. 2006 Sep 15;177(6):4037-46.

Books

1. **Fuxman Bass JI**. *Solving math problems*. Buenos Aires: Red Olímpica (2010). 252 pages. ISBN 978-987-9072-66-0.