CURRICULUM VITAE

Xianjun Dong, PhD

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Education

2002	B.Sc.	Biomedical Engineering	Southeast University, China
2005	M.Sc.	Biomedical Engineering	Southeast University, China
2010	Ph.D.	Bioinformatics & Genomics (Advisor: Dr. Boris Lenhard)	University of Bergen, Norway

Postdoctoral Training

09/10 - 09/13	Postdoc Fellow	Program of Bioinformatics and Integrative Biology	University of Massachusetts Medical School

Faculty Academic Appointments

11/13 – 03/20	Instructor	Neurology	Harvard Medical School
04/20 - present	Assistant Professor	Neurology	Harvard Medical School
07/20 - present	Faculty member	HMS Initiative for RNA Medicine	Harvard Medical School
08/20 - present	Associate member	Broad Institute	Harvard and MIT

Appointments at Hospitals/Affiliated Institutions

09/13 - present	Assistant Scientist	Ann Romney Center for Neurologic Diseases	Brigham and Women's Hospital

Major Administrative Leadership Positions

2016 – present	Director of Computational Neuroscience	Center for Advanced Parkinson Research	Brigham & Women's Hospital
2020 – present	Director	Genomics and Bioinformatics Hub	Brigham and Women's Hospital

Professional Societies

2006 – present	International Society for Computational Biology (ISCB), Member
2013 – present	American Society for Human Genetics (ASHG), Member
2015	The 10th Annual DNA Day Essay Contest, Judge
2016 – present	American Academy of Neurology (AAN), Member
2021	MJFF/ASAP Data Repository Working Group, Chair

Grant Review Activities

2021	NIH NINDS Special Emphasis Panel study section

Editorial Activities

- Ad-hoc Reviewer –

General: *Nature Biotechnology*, *Nature Communication*, *Genome Research*, *Genome Biology*, *PloS Genetics*, *International Journal of Biological Sciences*, *The Pharmacogenomics Journal*, *Nucleic Acids Research*
Bioinformatics: *Bioinformatics*, *PloS Computational Biology*, *Evolutionary Bioinformatics*, *Journal of Biomedical Informatics*, *Current Bioinformatics, Journal of Bioinformatics and Computational Biology*
Neurology: *Movement Disorders*, *Neurogenetics*

- Editorial Roles –

2017 – present	*Personalized Medicine* (Editorial Board)
2017 – present	*PeerJ* (Academic Editor)
2018 – present	*Frontiers in Neuroscience, Frontiers in Genetics* (Academic Editor)
2019 – present	*iScience (*Editorial Board)

Honors and Prizes

2000	Distinguished Student with 1st grade Scholarship, Southeast University, China
2000	2nd prize of the National Undergraduate Mathematical Contest in Modeling
2000	*Liu Yonglin* Fellowship Award, Southeast University, China
2001	1st prize of 2001 "Sony Cup" National Undergraduate Electronic Design Contest, China (winning by designing a self-driving electronic toy car)
2001	Meritorious winner (top 10%) in the International Mathematical Contest in Modeling (MCM) (winning by modeling the growth control of zebra mussels in the Great Lakes)
2001	Distinguished Student with 1st grade Scholarship, Southeast University, China
2002	Distinguished Graduate Student Award, Southeast University, China
2009	Full Scholarship, "Chromatin Domains and Insulators" Workshop, Spain
2009	Travel Fellowship, MCB Research School, University of Bergen, Norway
2010	Chinese Government Award for Outstanding Self-financed Students Abroad, Ministry of Education, China (1 of 500 annual awardees worldwide)
2015	Reviewers' Choice – top 10% best posters in the American Society of Human Genetics (ASHG) meeting, US
2018	Finalist of the PacBio Structural Variant SMRT Grant program
2018	Research Excellence Award, Brigham and Women's Hospital
2019	Advanced Center for Parkinson's Disease Research (ACEPD) Seed Award

Report of Funded and Unfunded Projects

Funding Information

Past Grants:

2011 – 2016	*Epigenetic Markers in Huntington's Disease Brain* NIH R01 NS073947 Role: Co-Investigator (PI: Richard H. Myers) The goal of this project is to map genome-wide HD disease-related changes in histone methylation markings in prefrontal neurons.
2012 – 2016	*EDAC: ENCODE Data Analysis Center* NIH U41 HG007000 Role: Co-Investigator (PI: Zhiping Weng) The goal of this project is to perform integrative analysis on ChIP-Seq, CAGE, and RNA-Seq data as a part of the ENCODE data analysis center.
2012 – 2018	*Biomarkers for Early Intervention in Parkinson Disease* U01 NS082157 Role: Director, Computational Neuroscience Core (PI: Clemens Scherzer)

The goal of this project is to discover, confirm, and translate viable non-coding RNA biomarkers useful for the early detection of high-risk individuals.

2015 – 2017 *The PD Brain Map: From Genome to Function*
Department of Defense USAMRMC W81XWH-15-1-0007
Role: Director, Bioinformatics Core
The specific aims of this project are: Aim 1, we will characterize the landscape of bidirectionally transcribed enhancer RNAs in laser-captured nigral dopamine neurons. In Aim 2, we will clarify the genetic control of non-coding transcription in nigral dopamine neurons. In Aim 3, we will translate expression traits into potential precision markers.

2018 – 2018 *Identification of Gene Modifiers of Disease Penetrance and Age at Onset (Planning Grant)*
Michael J. Fox Foundation
Role: Co-Investigator (PI: Clemens Scherzer)
The goal of this project is to develop a project plan for the identification of gene modifiers of disease penetrance and age at onset.

2017 – 2019 *Cracking the Code of chr17q21 for Parkinson: From GWAS to Novel Drug Targets*
American Parkinson Disease Association (APDA) Research Grant - $50,000
Role: **Principal Investigator**
The goal of this project is to discover the causal variants in the chr17q21 locus and validate them in iPSC-derived neurons.

2016 – 2019 *Parkinson Disease: Predicting the Future*
NIH U01 NS095736
Role: Co-investigator (PI: Clemens Scherzer)
The goal of this project is to identify genetic variants in susceptibility loci and familial genes that predict cognitive or motor progression and to replicate and verify forwarded genetic variants in independent populations.

2018 – 2019 (NCE 2020) *Bioinformatics Club: A Weekly Meetup to Learn and Share Bioinformatics at BWH*
Brigham Research Institute (BRI) NextGen Awards - $5,000
Role: Principal Investigator
This award is for my leadership in the Bioinformatics Club to further improve the bioinformatics education environment in Brigham and Women's Hospital.

2019 – 2020 (NCE 2021) *Circular RNAs: A novel link between genetic susceptibility and Parkinson's disease?*
American Parkinson Disease Association (APDA) Research Grant - $75,000
Role: **Principal Investigator**
The goal of this project is to identify the role of the novel class of circular RNAs (circRNAs) in the early development of Parkinson's disease and their linkage to the susceptibility of PD.

Active grants (***9*** in total)**:**

2018 – 2023 *Translating GWAS peaks into novel drug targets*
APDA Advanced Center for Parkinson's Disease Research (ACEPD) Seed Award

Role: **Co-Principal Investigator ($10,000)**
The ACEPD Seed Award is "for young rising stars in Parkinson's research to study precision neurology of Parkinson from basic neuroscience to clinical." Working together with a yeast genetic scientist, I will integrate the powers of human genomics, transcriptomics, and epigenomics data to identify novel, potentially druggable mechanisms for PD.

2017 – 2022 *Integrative Multi-omic Discovery of Proximal Mechanisms Driving Age-Dependent Neurodegeneration*
NIA RF1AG057331
Role: **Bioinformatics Director** (PIs: Mel Feany, Ernest Fraenkel, Clemens Scherzer)
I will lead the analysis of computational transcriptomics in this multi-institutional grant and test my hypothesis that Alzheimer's disease risk loci specifically in human pyramidal neurons drive age-dependent neurodegeneration through dysregulation of variant-associated genes and networks in AD.

2019 – 2021 *400 Virtual Clinical Trials for Parkinson's Disease.*
The Michael J. Fox Foundation for Parkinson's Disease
Role: **Lead Bioinformatics Investigator** (PIs: Clemens Scherzer, Trond Riise)
The goal is to discover and confirm candidate drugs with a known safety profile that can be repurposed and developed for patients with PD. I will lead the bioinformatics analysis done at Harvard site in this dual-institute grant.

2020 – 2021 *AI2AMP-PD: Accelerating Parkinson's Diagnosis Using Multi-Omics and Artificial Intelligence*
NIH 1U01NS120637-01
Role: **Principal Investigator** (PIs: Dong, Scherzer) **$300,000**
The goal is to leverage the harmonized, large-scale dataset in the AMP PD consortium to build a multi-omics classifier for Parkinson's diagnosis using advanced machine learning data analytic methods.

2020 – 2023 *Parkinson5D: Deconstructing Proximal Disease Mechanisms across Cells, Space and Progression*
The Michael J. Fox Foundation for Parkinson's Disease
Role: **Principal Investigator** (PIs: Scherzer, Dong, Feany, Levin, Zhang) **$9,000,000**
The goal is to reveal the complex human genetics of Parkinson's disease through a dynamic, five-dimensional view of proximal cellular mechanisms across brain cells (1D), brain space (3D), and disease stage (1D).

2022 – 2023 *An inverse translational research project for identifying new treatments for Parkinson's disease: The Epi-screening project*
The Research Council of Norway
Role: **Subcontract Instructor** (Subcontract PI: Clemens Scherzer)
The goal of this study is to evaluate whether existing drugs (molecules) can be repurposed as an effective treatment of PD. I will lead the analysis of computational pharmacome analysis based on Harvard Biomarkers Study longitudinal data.

2021 – 2022 *Developing RNA biomarkers of early PD pathology from brain organoids and extracellular vesicles*
American Parkinson Disease Association (APDA) Research Grant **- $75,000**
Role: **Principal Investigator**
The goal of the study is to develop RNA biomarkers of early PD pathology from brain 3D organoids and extracellular vesicles (EV).

2021 - 2022 *EXODUS-enabled High-throughput Multi-omics Profiling of Extracellular Vesicles for Diagnosis of Preclinical Alzheimer's Disease*
NIH R41 AG076098-01
Role: **Principal Investigator** (PIs: Chen, Dong) - **$250,000**
The goal of this STTR is to develop a platform and workflow for biomarker discovery and diagnosis of preclinical Alzheimer's disease (AD) based on multi-omics profiling of circulating extracellular vesicles.

2021 – 2026 *Systematic study of extracellular vesicles and their integrative analysis with Parkinson's organoids MAP*
NIH R01 NS124916-01
Role: **Principal Investigator** (PIs: Dong, Lee) - **$2,500,000**
The goal of this study is to develop a new 3D mini-brain microphysiological analysis platform (MAP) to recapitulate the dopamine neurons' interconnectivity and study molecular neurodegeneration systematically.

Projects Submitted for Funding

2022 - 2027 *MIA: Multi-omics Interface for Alzheimer's disease related dementias*
NIH R01 - **$2,500,000**
Role: **Principal Investigator**
The goal of this study is to harmonize the existing brain multi-omics datasets relevant to Alzheimer's disease related dementias (ADRD) to identify ADRD-associated RNAs, their regulatory networks, and genetic association in expression, splicing, and chromatin accessibility, and from there to develop a comprehensive, cloud-based, interactive web portal -- Multi-omics Interface for ADRD (MIA).

2022 - 2027 *Regulation mechanism and functional genomics of LINE1 RNA in TDP-43 linked neurodegeneration*
NIH R01 - **$2,500,000**
Role: **Principal Investigator** (PIs: Sun, Dong)
The goal of this project is to study the regulation mechanism and functional genomics of LINE1 RNA in TDP-43 linked neurodegeneration.

Report of Local Teaching and Training

Teaching of Students in Courses

2007 "Ensembl in a Nutshell" bioinformatics workshop, University of Bergen, Norway
Bioinformatics students and researchers, 1-hr sessions per day for five days

2017 – present	Lecture in the Bioinformatics Club, Brigham and Women's Hospital Bioinformatics students and researchers, 1 hour per lecture for six lectures
2021	Single-cell RNA-seq analysis, Brigham and Women's Hospital 40 students and researchers, a 2-day in-person course

Laboratory and Other Research Supervisory and Training Responsibilities

2013 – present	Supervision of Harvard learners (incl. HMS graduate students and postdoctoral fellows with a formal appointment at BWH) for bioinformatics in the Lab of Neurogenomics, Brigham and Women's Hospital (average of 2 students per year) 1:1 supervision one hour per week per student
2013 – present	Informal mentorship and consultancy to non-Harvard visiting scholars and summer interns in the Lab of Neurogenomics, Brigham and Women's Hospital (average of 3 students per year) 1 hour per week per student

Formally Mentored Harvard Medical and Graduate Students

2014 – 2016	Alyssa Ehrlich (Medical student in Harvard Medical School) Conducted her rotation in the bioinformatics team. Presented a poster titled "Discovering Circular RNAs in Dopamine Neurons of Human Brain: Implications for Parkinson's Disease" at the 2016 Soma Weiss Student Research Day in Harvard Medical School. She got all "Excellent" assessments for her PiM funding proposal.
2015 -2016	Ellen DeGennaro (PhD student in Harvard-MIT HST PhD program) Conducted her internship in the laboratory and worked on a Huntington's disease project. Co-authored a manuscript.
2016 – 2016	Rebeca Borges Monroy (PhD student in the BIG program at Harvard University) Conducted her PhD rotation in the laboratory and worked together on a circRNA project. Drafting a co-authored manuscript.
2020 – 2020	Varshini Odayar (Freshman at Harvard College) She chose us from the HUROS Fair as her first laboratory for research and participated in a top-secret project in the lab.

Other Mentored Trainees and Faculty

2009 – 2012	Yogita Sharma (Graduate student at University of Bergen, Norway) Mentor, co-supervisor for her research project & thesis, and co-author of an article in *BMC Bioinformatics*
2013 – 2014	Carmen Portenkirchner (Medical student in Paracelsus Medical University, Austria) Thesis co-advisor, research advisor
2013 – 2014	Dr. Shuilin Jin (Visiting research scholar from Harbin Institute of Technology, China) Co-supervisor, Bioinformatics trainer
2014 – 2015	Ruoting Wang (Undergraduate in University of Massachusetts) Supervisor, research advisor for his summer internship in the Neurogenomics Laboratory
2014 – 2016	Dr. David Gritsch (Postdoc in BWH Neurogenomics laboratory) Research advisor for his research in the laboratory, and co-authored an article published in *Nature Neuroscience* and a manuscript
2015 – 2015	Will Nemirovsky (Junior high school student in Buckingham Browne & Nichols School) Supervisor, research advisor for his summer bioinformatics training at Harvard
2015 – 2017	Kristy Abo (Medical student in School of Medicine, Boston University) Supervisor and project manager for her summer bioinformatics training at Harvard
2015 – 2018	Tao Wang (PhD Joint Training Program student, Harbin Institute of Technology, China)

Supervisor, research advisor for his three-year bioinformatics training in Harvard, and co-authored an article published in *Nature Neuroscience* and a manuscript

2016 – 2018 Zhuo Wang (PhD Joint Training Program student, Harbin Institute of Technology, China)
Supervisor, research advisor for her two-year bioinformatics training in Harvard, and co-authored a manuscript

2016 – 2018 Dr. Miguel E. Renteria (Postdoc in QIMR Berghofer Medicine Research Institute, Australia)
Supervisor, research advisor for his two-year bioinformatics training in the lab, and drafting a co-authored manuscript

2018 – 2019 Yaiza Van Waes Rubio (M.S. student in Universidad Complutense of Madrid, Spain)
Supervisor, research advisor for her five-month research traineeship in Bioinformatics, and co-authored a manuscript.

2018 – 2020 Dr. Jiajie Peng (Associate Professor in Northwest Polytechnical University, China)
Co-supervisor, research advisor for his two-year visiting scholarship in Brigham

2018 – 2020 Dr. Young Eun Huh (Assistant Professor of Neurology at CHA University School of Medicine, South Korea)
Supervisor, research advisor for her two-year bioinformatics training at Harvard

2018 – 2019 Haotian Liao (Graduate student in West China Medical School, Sichuan University, China)
Supervisor, research advisor for his two-year bioinformatics training at Brigham

2019 – 2019 Carmen Domínguez (Undergraduate student from National Autonomous University of Mexico, Mexico)
Career stage: postgraduate 5-month internship.
Mentoring role: research advisor and mentor.
Accomplishments: awarded a Summer Student Fellowship from the Parkinson's Foundation; invited to give an oral presentation on the "Genomics of Brain Disorders 2020" conference (Wellcome Genome Campus, Cambridge, UK); published a first-author paper in *Scientific Reports*.

2020 - 2021 Xiaoqi Li (Undergraduate student from University of Wisconsin–Madison)
Career stage: postgraduate 11-month internship.
Mentoring role: research advisor and mentor.
Accomplishments: implemented an R shiny application in 1 month; led two innovative projects (PD imaging genetics based on UK Biobank data; SARS-Cov-2 circRNAs); three poster presentations in local and national scientific conferences; published one co-first author paper in the journal of *Bioinformatics*; received Data Science Internship Program award ($20,800) by Massachusetts Life Sciences Center; three manuscripts in preparation

2021 - 2021 Ariela Buxbaum Grice (Undergraduate student from Connecticut College)
Career stage: postgraduate 8-month internship.
Mentoring role: research advisor and mentor.
Accomplishments: Led an exploratory project (pathogen detection in AD brain); prepared a first-author manuscript.

2021 - 2021 Mrinal Subash (Master student in Northeastern University)
Research advisor and mentor for his 5-months co-op internship in bioinformatics.

2021 - Dr. Tingting Zhao (Full-time research scientist in the Bioinformatics Hub)
Career stage: transition from molecular biologist to bioinformatics specialist.
Mentoring role: supervisor
Accomplishments: leading the bioinformatics analysis for three collaborative projects; two poster presentations in the local conference; TA in the Single-cell RNA-seq course

2021 -	Dr. Ruifeng Hu (Postdoctoral Research Fellow) Mentoring role: supervisor Accomplishments: leading an NIH-sponsored research project (AMP PD); one poster presentation at the local conference; preparing a first-author manuscript
2021 -	Dr. Jie Yuan (Postdoctoral Research Fellow) Mentoring role: supervisor Accomplishments: leading an ASAP-sponsored research project (Parkinson5D); two poster presentations in the local and international conference; preparing a first-author manuscript

Formal Teaching of Peers (e.g., CME and other continuing education courses)

No presentations below were sponsored by outside entities

2017	Make Interactive Web Applications Using Shiny Bioinformatics Club, Brigham and Women's Hospital	Single presentation Boston
2017	Introducing the UCSC Genome Browser Bioinformatics Club, Brigham and Women's Hospital	Single presentation Boston
2018	Using *reshape2* and *tidyr* for Data Transformation The "Mini R Camp" talk series, Brigham and Women's Hospital	Single presentation Boston
2019	Introducing Artificial Intelligence (AI) and the AI Camp The "2019 AI Camp" talk series, Brigham and Women's Hospital	Single presentation Boston
2019	Making Your First AI Program Using CoLab and TensorFlow The "2019 AI Camp" talk series, Brigham and Women's Hospital	Teaching assistant Boston
2019	Unsolved Problems and Future Challenges of Using AI in Medicine The "2019 AI Camp" talk series, Brigham and Women's Hospital	Single presentation Boston

Local Invited Presentations

No presentations below were sponsored by outside entities

2011	Correlate histone modifications and gene expression / BIB seminar Program of Bioinformatics and Integrative Biology, UMass Medical School
2012	Redefining the piRNA-producing loci of the mouse testis as genes / Bioinformatics Seminar Program of Bioinformatics and Integrative Biology, UMass Medical School
2014	From ENCODE to PD Brain Map: Bioinformatics in Big Data Research / ADPD seminar Center of Neurologic Diseases, Brigham and Women's Hospital
2015	BRAINCODE: Decoding neuronal genome function in human brain / ADPD seminar Center for Neurologic Diseases, Brigham and Women's Hospital
2016	Barcodes of neuronal genome function in human brain / ADPD seminar Ann Romney Center for Neurologic Diseases, Brigham and Women's Hospital
2017	An encyclopedia of transcribed elements in human brain dopamine neurons / ADPD seminar Ann Romney Center for Neurologic Diseases, Brigham and Women's Hospital
2018	Enhancers active in dopamine neurons are a primary link between genetic variation and neuropsychiatric disease / ADPD seminar Ann Romney Center for Neurologic Diseases, Brigham and Women's Hospital

2018	BRAINcode: An encyclopedia of human neuron transcriptomes in health and disease **Award Speaker** of Discover Brigham Day Brigham and Women's Hospital
2018	Enhancers active in dopamine neurons are a primary link between genetic variation and neuropsychiatric disease **Featured Speaker** 2018 HMS Epigenetics Symposium Department of Genetics, Harvard Medical School
2019	Circular or not: Cell specificity of circRNAs in human brain neurons / ADPD seminar Ann Romney Center for Neurologic Diseases, Brigham and Women's Hospital
2020	Exploring the dark matter in the human brain neurons **Invited Speaker** Harvard Initiative of RNA Medicine seminar Beth Israel Deaconess Medical Center (BIDMC)
2020	Circular RNAs: Challenging linear thinking of neurodegenerative diseases / ADPD seminar Ann Romney Center for Neurologic Diseases, Brigham and Women's Hospital
2021	Making Every Bit Count in Your RNA Sequencing Data / ADPD seminar Ann Romney Center for Neurologic Diseases, Brigham and Women's Hospital

Report of Regional, National, and International Invited Teaching and Presentations

No presentations below were sponsored by outside entities

Regional

2013	Studying gene regulation using comparative genomics and epigenomics Dana-Farber Cancer Institute, Boston, MA
2017	7th Bioinformatics Strategy Meeting USA (East Coast) The Westin Boston Waterfront, Boston, MA

National

2007	Remnants of lost bystander genes under non-coding selection pressure in human-zebrafish synteny blocks Bioinformatics Research and Education Workshop (BREW) 2007, Norway
2011	Modeling gene expression with chromatin features ENCODE conference, Stanford University
2012	Modeling gene expression using chromatin features in various cellular contexts ENCODE conference, MIT
2013	Long-range gene regulation in the vertebrate genome Berkeley Lawrence Laboratory, CA
2017	From the known world to an expanding universe of genomic dark matter **Invited Speaker** NIH Huntington's Disease Biomarkers Workshop

National Institute of Health, Bethesda, MD

2018 Update on current PD brain transcriptomics analysis
Invited Speaker
NIH Accelerating Medicine Partnership (AMP) – Parkinson's Disease Conference
National Institute of Health, Bethesda, MD

2019 Bioinformatics Strategy Meeting USA East Coast 2019
Invited Panelist
The Le Meridien Cambridge, Boston, MA

2021 Online sandboxes and tools for open science: AMP-PD, BRAINcode, power-eQTL
ASAP Collaborative Research Network (CRN) Tech 1 meeting
Aligning Science Across Parkinson's (ASAP) foundation

International

2010 Translog, a web browser for studying the expression divergence of homologous genes
The 8th Asia Pacific Bioinformatics Conference
Bangalore, India

2010 Web resources to study the long-range gene regulation
Huazhong Agricultural University, Wuhan, China

2010 Evolutionary mechanisms of developmental long-range gene regulation in vertebrate genomes
Genome Institute of Singapore, Singapore

2013 Studying gene regulation using comparative genomics and epigenomics
Tongji University, Shanghai, China

2015 NGS and its application in translational medicine
Huazhong University of Science and Technology, Tongji Hospital, Wuhan, China

2019 Dark matter in the human genome and its regulation in complex diseases
Invited Speaker
The 2nd Academic Symposium of Rare Disease
Sichuan Medical Association, Chengdu, China

2020 Exploring the Dark Matters in the Human Brain Neurons
Invited Speaker and Panelist
NextGen Omics Series – the 6th Single Cell Analysis Congress
Boston, USA

2021 Decoding the dark matters in the human genome
Invited Speaker
The 11'th International Forum on Post-Genome Technologies (11'IFPT) -- virtual
Nanjing, China

Report of Activities and Innovations

Technological and Other Scientific Innovations

Synorth A website designed for genome research, allowing to explore the evolution of synteny and long-range regulatory interactions between vertebrate genomes

	URL: http://synorth.genereg.net Published as first author on *Genome Biology* (Impact factor: 11.91), 25 citations
Translog	A website designed to study the expression divergence of homologous genes URL: http://translog.genereg.net Published as the first author on *BMC Bioinformatics* (Impact factor: 2.21)
Factorbook	A Wiki-based database for transcription factor-binding data generated by ENCODE URL: http://factorbook.org Published as co-author on *Nucleic Acid Research* (Impact factor: 10.16), 158 citations
BRAINcode	A web resource allowing users to query the gene expression profile and eQTL result in human brain neurons. URL: http://humanbraincode.org
powerEQTL	An R package and shiny application for sample size and power calculation of bulk tissue and single-cell eQTL analysis URL: https://bwhbioinfo.shinyapps.io/powerEQTL Published as the first author on *Bioinformatics* (Impact factor: 6.94)

Educational Activities to the Community

2008 – present	Owner of the bioinformatics blog, "*One Tip Per Day*" (http://onetipperday.sterding.com), which has 200 visits per day on average and more than 1,000,000 visits in total
2012	Innovation Month in the Worcester Public Schools: How to extract DNA from an onion Claremont Academy, Worcester http://www.umassmed.edu/news/2012/education/gsbs-students-take-science-on-road.aspx
2017 – present	Founder and Director of the *Bioinformatics Club* (http://bioinformatics.bwh.harvard.edu/training), which is a weekly forum for learning and sharing bioinformatics at the whole hospital level. To date, we have already scheduled over 70 talks, serving more than 1000 persons.
2021	Lecture in the course of "Single-cell RNA-seq Analysis" (https://singlecellcourse.org) at Brigham and Women's Hospital, with 40 participants

Media Coverage

ENCODE consortium et al. *Nature*, 2012	CNN: http://www.cnn.com/2012/09/05/health/encode-human-genome/ BBC: http://www.bbc.com/news/health-19202141 Scientific American: http://www.scientificamerican.com/article/junk-dna-encode/ Evolution News: http://www.evolutionnews.org/2012/09/junk_no_more_en_1064001.html New York Times: http://www.nytimes.com/2012/09/06/science/far-from-junk-dna-dark-matter-proves-crucial-to-health.html LA Times: http://articles.latimes.com/2012/sep/05/science/la-sci-dna-encode-20120906 The Guardian: http://www.theguardian.com/science/2012/sep/05/genes-genome-junk-dna-encode
Dong et al. *Genome Biology*, 2012	GenomeWeb: http://www.genomeweb.com/blog/week-genome-biology-59 Biomed Central: http://blogs.biomedcentral.com/bmcblog/2012/09/07/human-genomics-comes-of-age-encode-open-access-and-biomed-central/ UmassMed News: http://www.umassmed.edu/news/news-archives/2012/09/umms-faculty-integral-to-consortium-decoding-human-genome/
Dong et al. *Nature Neuroscience*, 2018	EurekAlert!: https://www.eurekalert.org/pub_releases/2018-09/bawh-gdm092018.php Alzforum: https://www.alzforum.org/news/research-news/noncoding-rnas-evince-world-

gene-regulation-dopaminergic-neurons
Neurology Today:
https://journals.lww.com/neurotodayonline/Fulltext/2018/11010/Disease_Mechanisms_Parkinson_s_Disease__Activity.2.aspx
R&D: https://www.rdmag.com/news/2018/09/laser-capture-method-investigates-parkinsons-and-psychiatric-diseases

Report of Scholarship

Peer-Reviewed Scholarship in print or other media:

In total, 34 publications, over 17,000 citations, H-index = 21, 60% articles with Impact Factor > 10

- **Research Investigation** (including **9** first-author publications* and **3** corresponding-author publications+)

1. Mungpakdee S, Seo HC, Angotzi AR, **Dong X**, Akalin A, Chourrout D. Differential evolution of the 13 Atlantic salmon Hox clusters. ***Molecular Biology and Evolution***. 2008; 25(7):1333-43. PMID: 18424774 **(IF = 14.8)**

2**. ***Dong X**, Fredman D, Lenhard B. Synorth: exploring the evolution of synteny and long-range regulatory interactions in vertebrate genomes. ***Genome Biology. 2009; 10(8):R86. PMID: 19698106 **(IF = 14.0)**

3. Akalin A, Fredman D, Arner E, **Dong X**, Bryne JC, Suzuki H, Daub CO, Hayashizaki Y, Lenhard B. Transcriptional features of genomic regulatory blocks. ***Genome Biology***. 2009; 10(4):R38. PMID: 19374772 **(IF = 14.0)**

4**. ***Dong X**, Akalin A, Sharma Y, Lenhard B. Translog, a web browser for studying the expression divergence of homologous genes. ***BMC Bioinformatics. 2010; 11 Suppl 1:S59. PMID: 20122234 (IF = 2.5)

5**. ***Dong X**, Navratilova P, Fredman D, Drivenes Ø, Becker TS, Lenhard B. Exonic remnants of whole-genome duplication reveal cis-regulatory function of coding exons. ***Nucleic Acids Research. 2010; 38(4):1071-85. PMID: 19969543 **(IF = 11.2)**

6. Yildirim O, Li R, Hung JH, Chen PB, **Dong X**, Ee LS, Weng Z, Rando OJ, Fazzio TG. Mbd3/NURD complex regulates expression of 5-hydroxymethylcytosine marked genes in embryonic stem cells. ***Cell***. 2011; 147(7):1498-510. PMID: 22196727 **(IF = 36.2)**

7. Fredman D, **Dong X**, Lenhard B. Making enhancers from spare parts of the genome. ***Genome Biology***. 2011; 12(12):138. PMID: 22206586 **(IF = 14.0)**

8**. ***Dong X**, Greven MC, Kundaje A, Djebali S, Brown JB, Cheng C, Gingeras TR, Gerstein M, Guigó R, Birney E, Weng Z. Modeling gene expression using chromatin features in various cellular contexts. ***Genome Biology. 2012; 13(9):R53. PMID: 22950368 **(IF = 14.0)**
**** Cited 203 times so far**
**** In the top 5% of all research outputs scored by Altmetric**
**** High Attention Score (95th percentile) compared to outputs of the same age tracked by Altmetric**

9. Wang J, Zhuang J, Iyer S, Lin X, Whitfield TW, Greven MC, Pierce BG, **Dong X**, Kundaje A, Cheng Y, Rando OJ, Birney E, Myers RM, Noble WS, Snyder M, Weng Z. Sequence features and chromatin structure around the genomic regions bound by 119 human transcription factors. ***Genome Research***. 2012; 22(9):1798-812. PMID: 22955990 **(IF = 10.1)**

10. Cheng C, Alexander R, Min R, Leng J, Yip KY, Rozowsky J, Yan KK, **Dong X**, Djebali S, Ruan Y, Davis CA, Carninci P, Lassman T, Gingeras TR, Guigó R, Birney E, Weng Z, Snyder M, Gerstein M. Understanding transcriptional regulation by integrative analysis of transcription factor binding data. ***Genome Research***. 2012; 22(9):1658-67. PMID: 22955978 **(IF = 10.1)**

11. ENCODE Project Consortium. An integrated encyclopedia of DNA elements in the human genome. ***Nature***. 2012; 489(7414):57-74. PMID: 22955616 **(IF = 43.1)**
**** Dong X is listed as "Lead Analyst" among the authorship**
**** Cited more than 800 times in the first year of publication**
**** Featured as "*Top 10 Breakthroughs of the Year 2012*"**

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