

Jason Dichtenberg, Ph.D.

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Experience

CEO and Chief Scientist, AccelBio LLC, New York, 2014- present

DMC Advanced Biotechnology Incubator

Scientific director, primary and stem cell biology collection using various genetic mouse models, in a biotechnology startup company dedicated to the molecular genetics of primary cell research. Responsible for the setup, execution and delivery of a line of novel primary cells and gene expression reagents for commercialization within the global scientific and clinical research community. Head of genetic database curation, primary and stem cell collection for mouse modeling of complex human disease phenotypes. Initiator for biotechnology / pharma partnerships on actionable strategies for therapeutic indications based on available models and best research practices.

Research Associate Professor, SUNY Downstate Medical Center, 2013 – present

Department of Cell Biology, Brooklyn, NY

Instructor in Cell Biology and Board Member, Institute for Animal Care and Use Committee.

Visiting Professor, The Scripps Research Institute, La Jolla, 2014 – present

Department of Cell and Molecular Biology, La Jolla, CA

Co-PI on pre-clinical project focused on computational biology modeling of human autism splice variant RNA in mice, clinical biomarker design, and high-throughput RNA / small molecule drug assay discovery with Dr. Peter Vanderklish, Professor.

Asst Professor / Laboratory Director, Molecular Biology, City University, New York, 2007-2013

Mechanism of gene mutations, variant mRNA effects, and associated protein dysfunction in human genetic diseases

- Program Leader / Principal Investigator for numerous NIH and NSF grants on quantifying gene expression dynamics
- Led and trained team of 8-10 staff scientists and post-doctoral fellows
- Coordinated team results with CROs and external collaborators on project (Scripps, Cornell Med., U. of Texas Medical)
- Created new genetic variants of mice to model human disease phenotype and interrogate mechanistic pathways
- Designed and executed numerous *in vitro* cell-based and cell-free assays for mRNA and protein functional analyses
- Responsible for creation and annotation of gene network bioinformatics cluster and RexDB genomic database
- Presented research findings globally and published in high-impact journals

Albert Einstein Scholar, Research Fellow (Post-Doc) in Cell and Molecular Biology, 2001-2006

Albert Einstein Medical School (AECOM), Bronx, NY

- Molecular modeling of human disease in mice, discovered new function for FMRP (cited *OMIM 309550*)
- Identified novel genomic sequences implicated in the human phenotype and mouse model of Fragile X syndrome
- Developed *in vitro* assays for identifying mRNA gene variants, validated sequences for human drug targeting
- Instructor in Cell Biology and Neuroscience, lectured in medical and graduate classes

Research Associate, Graduate Program in Molecular Medicine, 1995-2000

University of Massachusetts Medical School, Worcester, MA

- Molecular genetics of cancer genotype / phenotype analysis, cell cycle protein structure / function
- Discovered a novel, universal structure of the centrosome, the microtubule-organizing center in animal cells
- Demonstrated molecular motor gene variants affected spindle assembly and mitosis using *in vitro* assays

Education

Ph.D., Molecular Medicine, University of Massachusetts Medical School/Harvard Medical School, 2000

- Thesis, "Pericentrin and gamma-tubulin form a novel lattice and a protein complex that is an essential unit of centrosome assembly"

B.A., Molecular Biology and Genetics, Highest Honors in Research, Brandeis University, 1994

- Thesis, "Hyperlipidemic effects of trans fatty acids in a rodent model of human hypercholesterolemia"

Grants

NIH PI: Dichtenberg GM084805 2008-2012 \$1,456,850
Imaging gene expression dynamics of mRNAs in disease models.

NSF PI: Dichtenberg 0819022 2008-2010 \$175,000
Imaging spatio-temporal dynamics of mRNA transport and translation in response to synapse activity.

NSF PI: Dichtenberg 0960367 2010-2012 \$691,869
Engineering a novel microscope for following mRNA dynamics in living cells.

Research Skills (select list)

- Developing novel assays for proof-of-concept and mechanistic validation of gene mutants on RNA and protein expression (eg. small molecule drug library screen using quantitative *in vitro* assays of mutant protein translation)

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- Engineering of optimal DNA/RNA sequence for biochemical assay to maximize protein translation/mammalian cells
- Pioneering delivery strategy using multiple therapeutic agents (antibodies, RNA, drugs) with fully neutralized human stem cells
- Designing microscope-based high-throughput drug assays (as previously with Clinical/Translational Center grant (Cornell/NIH))
- Creating rapid splicing assay for targeted therapeutic testing in mouse models of mutant gene phenotypes

Honors/Awards

<i>Entrepreneurial Lab Fellow</i> , MBA in Biotechnology and Pharmaceuticals, NYCEDC	2013
<i>Awardee</i> , NIH/Cornell Medical School (National CTSC) Translational Grant for Drug Discovery	2012
<i>Young Investigator Award</i> , International Society for Developmental Neuroscience	2008
<i>National Research Service Award</i> (NRSA), National Institutes of Health	2002-2004
<i>Albert Einstein Scholar Award</i> , Belfer Institute, AECOM	2001-2003
<i>Highest Honors</i> , Senior Thesis Research in Molecular Biology, Brandeis University	1993

Review Panels / Advisory Boards

<i>Board Member</i> , Blue Horizon Stem Cells Inc.	2014 – present
<i>Board Member</i> , SUNY Downstate Medical Center, University IACUC Committee	2014 – present
<i>Study Section Member</i> , US Department of Defense, Congressionally Directed Medical Research Programs	2013 – present
<i>Editor</i> , ISRN Molecular Biology, CellR4	2011 – present
<i>Reviewer</i> , Journals: J. Cell Bio., J. Neurosci., Mol. Biol. Cell, PLoS Bio/One, Canc. Res., Cell Stem Cell	2011 – present
<i>Study Section Member</i> , National Science Foundation (NSF), MCB Bioscience Directorate, MRI Panel	2010 – present

Publications (partial list)

- A. Musnier, T. Zhu, I. Cohen, H. Wu and **J DICTENBERG**. (reviewed, *Nature*) Altered RNA splicing of a human autism-associated synaptic cell adhesion molecule in a mouse model of Fragile X syndrome.
- H. Wu, K.J. Verhey, A. Friedland, J. Goldman, G.J. Bassell and R.H. Singer, **J. DICTENBERG** (reviewed/*Genes Dev*) A novel kinesin adapter directly mediates dendritic mRNA localization during excitatory synapse development.
- M. Song, J. Giza, **J. DICTENBERG** and F.S. Lee. (Accepted, *Dev Cell*) Slitrk4 mediates BDNF-induced TrkB internalization involving a Rab-mediated pathway.
- J. Wilkerson, M. Maksimova, N. Tsai, H. Wu, **J. DICTENBERG** and K. Huber (2014) A role for mGluR5-mediated local translation of Arc/Arg3.1 in MEF2-dependent synapse elimination. *Cell Reports* 7: 1589-600.
- **J.B. DICTENBERG** (2012) Genetic encoding of fluorescent RNA ensures a bright future for visualizing nucleic acid dynamics. *Trends Biotech* 30: 621-26. *Cited 58 times*
- **J.B. DICTENBERG** and R.H. Singer. (2009). Dendritic RNA transport: Spatio-temporal control of neuronal gene expression. *Encyclopedia of Neuroscience*, Larry R. Squire, Editor-In-Chief, pp. 437-444. Oxford: Academic Press. *Cited 98 times*
- **J.B. DICTENBERG**, S. Swanger, L. Antar, R.H.Singer and G.J. Bassell (2008) A direct role for FMRP in activity-dependent mRNA transport links filopodial-spine morphogenesis to fragile X syndrome. *Dev Cell* 14: 926-39. *Cited 124 times*
- H. Wang*, **J.B. DICTENBERG***, L. Ku, Z. Liang, G.J. Bassell, Y. Feng (2008) Dynamic association of the Fragile X mental retardation protein as an mRNP between microtubules and translating polyribosomes. *Mol Biol Cell* 19 (1):105-14. *Cited 54 times*
- S. Heuttlemeier, D. Zenklusen, M. Lederer, **J.B. DICTENBERG**, M. Lorenz, X. Meng, G.J. Bassell, J. Condeelis, and R.H. Singer (2005) Spatial regulation of beta-actin mRNA translation by Src phosphorylation of ZBP1. *Nature* 438(7067): 512-5. *Cited 221 times*
- L. Antar, **J.B. DICTENBERG**, M. Plociniak, R. Afroz and G.J. Bassell (2005) Localization of FMRP-associated mRNA granules and requirement of microtubules for activity-dependent trafficking in neurons. *Genes Brain Behav* 4(6): 350-9. *Cited 89 times*
- L. Antar, R. Afroz*, **J.B. DICTENBERG***, R. Carroll and G.J. Bassell (2004) mGluR activation regulates fragile X mental retardation protein and fmr1 mRNA localization in dendrites and synapses. *J Neurosci* 24(11): 2648-55. (*equal contribution) *Cited 189 times*
- R. Willemsen, B. Oostra, G.J. Bassell and **J.B. DICTENBERG** (2004) The fragile X syndrome: from molecular genetics to neurobiology. *Ment Retard Dev Disabil Res Rev* 10(1): 60-7. *Cited 56 times*
- H.L. Zhang, T. Eom, Y. Oleynikov, S. Shenoy, D. Liebelt, **J.B. DICTENBERG**, R.H. Singer, and G.J. Bassell, (2001) Transport of b-actin mRNA with ZBP in neurons increases b-actin and stimulates growth cones in response to NT-3. *Neuron* 31: 261-75 *Cited 198 times*
- Young, **J.B. DICTENBERG**, R. Tuft, S.J. Doxsey (2000) Dynein-mediated assembly of pericentrin and g-tubulin onto centrosomes. *Mol Biol Cell* 11:2047-56. *Cited 135 times*
- **J.B. DICTENBERG**, W. Zimmerman, C.A. Sparks, A. Young, C. Vidair, F.S. Fay and S. Doxsey (1998) Pericentrin and gamma-tubulin are contained in a protein complex and form a novel lattice at the centrosome. *J Cell Biol* 141: 163-174. *Cited 302 times*
- **J. B. DICTENBERG**, A. Pronczuk, and K.C. Hayes (1995) Hyperlipidemic effects of trans-fatty acids are accentuated by dietary cholesterol in gerbils. *J Nutr Biochem* 6, 353-61. *Cited 159 times*

References (upon request)

Dr. Peter Vanderklish, Ph.D., Associate Professor, Cell and Molecular Biology, The Scripps Research Institute, La Jolla
 Dr. Randi Hagerman, M.D., Clinical Genetics Director, MIND Institute, UC Davis Medical School, Sacramento
 Dr. Daniel Geschwind, M.D., Ph.D., Distinguished Professor of Human Genetics, UCLA, Los Angeles
 Dr. Barry Kosofsky, M.D., Ph.D., Distinguished Professor and Chair, Pediatric Neurology, Weill-Cornell Medical College, New York