

## AMIR MITCHELL, Ph.D.

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## EDUCATION

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**Ph.D. Weizmann Institute of Science, Rehovot, Israel** 2009  
Department of Molecular Genetics  
*Advisor:* Yitzhack Pilpel  
*Committee:* Uri Alon, Naama Barkai, Dan Tawfik  
*Thesis:* Adaptive Environmental Conditioning: Prediction of Environmental Changes by Eukaryotic and Prokaryotic Micro-Organisms

**M.Sc. Tel Aviv University, Tel Aviv, Israel** 2003  
Interdisciplinary program for outstanding students (direct M.Sc. track)  
Department of Zoology  
*Advisor:* Dan Graur  
*Thesis:* Patterns of Mutation in Bacteria as Inferred from Unitary Pseudogenes of *Mycobacterium leprae*

## AWARDS AND FELLOWSHIPS

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**Program for Breakthrough in Biomedical Research, Postdoctoral research award** 2012  
A competitive postdoctoral award for innovative research initiatives given by the University of California - San Francisco (role PI)

**European Molecular Biology Organization (EMBO) postdoctoral fellowship** 2010-2011  
A competitive postdoctoral fellowship based on academic excellence (fellow)

**Fulbright postdoctoral fellowship (declined)** 2010-2011  
A postdoctoral fellowship funded by the US Department of State Bureau of Educational and Cultural Affairs. Based on academic excellence (declined due to EMBO) (fellow)

**Haim Holtzman Memorial Prize of excellence for PhD research** 2010  
An award for excellence in PhD research given by the Weizmann Institute of Science, Israel

## AWARDS AND FELLOWSHIPS (continued)

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- The Israeli Society for Biochemistry and Molecular Biology award for PhD research** 2010  
An award for excellence in PhD research, Israel
- Fellowship at the Lautman interdisciplinary program for outstanding students at Tel-Aviv** 2000-2003  
An interdisciplinary program for outstanding undergraduate students based at Tel-Aviv University. Fellows are trained in a direct M.Sc. track.

## RESEARCH EXPERIENCE

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- Assistant Professor** 2016-  
Program in Systems Biology, University of Massachusetts Medical School  
Program in Molecular Medicine, University of Massachusetts Medical School
- Postdoctoral fellow** 2010-2016  
Department of Cellular and Molecular Pharmacology, University of California – San Francisco  
Advisor – Wendell A. Lim  
Studied cellular signaling dynamics and regulatory response in yeast and mammalian cells. Research utilized various experimental approaches as microfluidics, optogenetics, and RNA-seq as well as mathematical approaches for modeling cellular response and analyzing high-throughput genomic data. Accepted for publication in Science, additional manuscript in review.
- Graduate student researcher (Ph.D.)** 2004-2009  
Department of Molecular Genetics, Weizmann Institute of Science, Israel  
Advisor – Yitzhack Pilpel  
Studied the response of model microorganisms to external perturbations. Research utilized robotic systems for high-throughput measurements of cellular response and fitness as well as mathematical approaches for modeling cellular response and analyzing microarray data. Results published in Nature and PNAS
- Visiting student** 2003  
Department Cell Research and Immunology, Tel-Aviv University, Israel  
Advisor – Tal Pupko  
Studied statistical methods for inferring conservation rates of coding sequences. Developed a new algorithm for inference of evolutionary conservation rate using Bayesian statistics. Results published in Journal of Molecular Evolution.
- Graduate student researcher (M.Sc.)** 2002-2003  
Department of Zoology, Tel-Aviv University, Israel  
Advisor – Dan Graur

A bioinformatics study to uncover the pattern of spontaneous mutation in Bacteria. Research included developing bioinformatics tools to assemble and compare genomic sequences in order to infer underlying mutation pattern. Results published in Journal of Molecular Evolution.

## PUBLICATIONS

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- Mitchell, A., Wei P., and Lim WA.** **BioEssays** 2016  
Cellular perception and misperception: Internal models for decision-making shaped by evolutionary experience (in press)
- Mitchell, A., Wei P., and Lim WA.** **Science** 2015  
Oscillatory stress stimulation uncovers an Achilles heel of the yeast MAPK signaling network  
PMID: 26586187
- Yona AH, Manor YS, Herbst RH, Romano GH, **Mitchell A**, Kupiec M, Pilpel Y, Dahan O. **PNAS** 2012  
Chromosomal duplication is a transient evolutionary solution to stress  
PMCID: PMC3529009
- Mitchell, A.** and Pilpel, Y. **PNAS** 2011  
A Mathematical Model for Adaptive Prediction of Environmental Changes by Microorganisms  
PMCID: PMC3084127
- Mitchell, A.** Romano GH, Groisman B, Yona A, Dekel E, Kupiec M, Dahan O, Pilpel Y. **Nature** 2009  
Adaptive Prediction of Environmental Changes by Microorganisms  
PMCID: 19536156
- Mayrose, I.\*, **Mitchell, A.\***, and Pupko, T. (\*equal contribution) **Journal of Mol Evolution** 2005  
Site-Specific Evolutionary Rate Inference: Taking Phylogenetic Uncertainty into Account  
PMID: 15871045
- Mitchell, A.** and Graur, D. **Journal of Mol Evolution** 2005  
The Pattern of Spontaneous mutation In Mycobacterium leprae and a comparison of mutation patterns across large evolutionary distances  
PMCID: PMC16315108
- Books
- Machluf, Y. Dahan, O. Shpalter, C. **Mitchell, A.** and Yarden, A. Ministry of Education, Israel 2010  
Bioinformatics in the service of Biotechnology – an online textbook for Israeli high school students

## RESEACH TALK (HIGHLIGHTS)

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<b>Third annual meeting for Quantitative Biology (Q-Bio), Maui, Hawaii, USA</b>	2015
National Centers for System Biology meeting - San Diego, California, USA	2014
UCSF Center for Systems and Synthetic Biology - San Francisco, California, USA	2014
<b>EMBO fellows meeting - San Diego, California, USA</b>	2014
Department of Systems Biology, Harvard Medical School, Boston, USA	2014
<b>Conference of Metabolomics and Systems Biology - San Francisco, USA</b>	2012
Rabin Medical Center-Beilinson Campus, Felsenstein Medical Research Center, Israel	2010
FAS Center for Systems Biology, Cambridge, USA	2010
The MRC Laboratory of Molecular Biology, Cambridge, UK	2010
<b>Biological Networks Conference. International Centre for Theoretical Physics, Trieste, Italy</b>	<b>2009</b>
Hebrew University, Department of Microbiology, Jerusalem, Israel	2009
Tel-Aviv University, Faculty of Life Sciences, Tel Aviv, Israel	2009
Technion - Israel Institute of Technology, Faculty of Biology, Haifa, Israel	2009
Ben Gurion University, Department of Life Sciences, Be'er Sheva, Israel	2009
University of Florence, Department of Pharmacology, Florence, Italy	2009
<b>RECOMB conference on Regulatory Genomics and Systems Biology, Boston, USA</b>	2009
Harvard Medical School, Department of System Biology, Boston, USA	2008
The Cancer Research UK London Research Institute, London, England	2008

## TEACHING EXPERIENCE

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### Lecturer (full academic courses)

<b>Bioinformatics: databases and tools for high-school teachers (co-lecturer)</b>	2008-2010
Davidson Institute of Science Education, Weizmann Institute of Science, Israel	
<b>Introduction to Bioinformatics for high-school teachers (co-lecturer)</b>	2007
Davidson Institute of Science Education, Weizmann Institute of Science, Israel	
<b>Bioinformatics Research for Graduate students</b>	2003-2004
Bioinformatics Unit, Faculty of Life Sciences, Tel Aviv University, Israel	
<b>Introduction to Bioinformatics (extension course)</b>	2002

Davidson Institute of Science Education, Weizmann Institute of Science, Israel

Instructor (academic workshop)

**Systems and Synthetic Biology workshop – Optogenetics team challenge** 2012  
A 10-day workshop held by Peking University and University of California - San Francisco

Teaching assistant

**iGEM challenge** – an international competition for undergraduates in genetic engineering 2013-2014  
Advisor for a team of high-school students. University of California - San Francisco.

**Bioinformatics laboratory for undergraduate students** 2002-2003  
Faculty of Life Sciences, Tel Aviv University

**Programing in Perl for undergraduate students** 2002  
Faculty of Life Sciences, Tel Aviv University