Curriculum vitae - Ehud (Udi) ZelZion

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PROFESSIONAL EXPERIENCE

2018 - present: **Senior Scientist, Office of Advanced Research Computing, Rutgers University.**

- Serve as an Advanced Computing Infrastructure –Research and Education Facilitator (ACI-REF).
- Assisting users of the Amarel cluster run their computing jobs and interpret their data especially in genomic related research.
- Running genomic related workshops at all Rutgers campuses (New-Brunswick, Newark and Camden).

2011 - present: **Research Associate, Genome Cooperative, School of Environmental and Biological Sciences, Rutgers University.**

- Experiment design and bioinformatics analysis of all Genome Cooperative projects, involving prokaryotes, single cell eukaryotes and multi-cell eukaryotes organisms.
- Bioinformatics analyses of whole genome and transcriptome assembly, gene prediction, functional annotation, RNA-Seq, ChIP-Seq, variant analysis and single nucleotide polymorphism analysis (SNP), differential expression analysis, metabolic pathway mapping, metagenome and metatranscriptome analysis.
- Preparation of figures for presentations, publications and support for grant (e.g., NSF, GBMF, DOE, NIH, Moore foundation) and symposia

2008 - 2011: **Academic researcher, Biochemistry department, Tel Aviv University**

- Computing, running, analyzing and visualizing of molecular dynamics simulations of two-point mutations in platelet's integrins. Done in collaboration with Dr. Ronit Mor-Cohen from Chaim Sheba Medical Center, Tel-Hashomer, Israel.
- Designed and run the computational analysis on the effect of a single disulfidic bond disruption on the conformation of integrin αIIbβ3 using molecular dynamics tools.

2007 - 2008: Research assistant, **Mathematical Biology Unit, Holon Institute of Technology**

- Molecular dynamics simulations in the lab of Dr. Yulia Einav. This research yielded preliminary results from which my MSc research hypothesis emerged.

EDUCATION

2008-2010: **M.Sc. in Computational Biochemistry,** The George S. Wise Faculty of Life Sciences, Biochemistry department, Tel Aviv University, Israel.
Dissertation title: The effect of a single S-S bond disruption on the conformation of integrin αIIbβ3, a molecular dynamics study.

2004-2008: **B.Sc. in Applied Mathematics,** Graduated with specialization in applied mathematics for biology at the Faculty of Sciences, Holon Institute of Technology, Israel.

SKILLS

Programming/Scripting Languages: Perl, Python, C.
Other: R, Matlab, CLC Genomics Workbench, Ingenuity Pathway analysis, Linux/UNIX bash.
Languages: English, Hebrew.

PEER-REVIEW PUBLICATIONS

2019

J. Nissimov, D. Talmy, L. Haramaty, H. Fredricks, **E. Zelzion**, B. Knowles, M. Eren, R. Vandzura, C.P. Laber, B.M. Schieler, C.T. Johns, K. More, M.J.L. Coolen, M.J. Follows, D. Bhattacharya, B.A.S. Van Mooy, K.D. Bidle. Biochemical diversity of glycosphingolipid biosynthesis as a driver of Coccolithovirus competitive ecology. Environmental microbiology. 2019

A. Shumaker, H.M. Putnam, H. Qiu, D.C Price, **E. Zelzion**, A. Harel, N.E. Wagner, R.D. Gates, H.S. Yoon, D. Bhattacharya. Genome analysis of the rice coral *Montipora capitata*. Scientific Reports, 2019.

J.S. Patel, H. Al-Tameemi, A.L. Perryman, X. Wang, J. Occi, R. Russo, S. Park, C. Grady, **E. Zelzion**, M. Zimmerman, H. Ho, D.S. Perlin, V. Dartois, N. Connell, S. Ekins, P. Kumar, J.M. Boyd, J.S. Freundlich. The platforms of naïve bayesian modeling and intrabacterial drug metabolism applied to drug-resistant *Staphylococcus aureus.* Cell Chemical Biology. 2019. (In Review)

2018

J. Lee, E.C. Yang, L. Graf, J.H. Yang, H. Qiu, **E. Zelzion**, C.X. Chan, T.G. Stephens, A.P.M. Weber, G.H. Boo, S.M. Boo, K.M. Kim, Y. Shin, M. Jung, S.J. Lee, H.S. Yim, J.H. Lee, D. Bhattacharya, and H.S. Yoon. Analysis of the draft genome of the red seaweed *Gracilariopsis chorda* provides insights into genome size evolution in rhodophyta. Molecular biology and evolution, 2018

2017

H. Qiu, **E. Zelzion**, H.M. Putnam, R.D. Gates, N.E. Wagner, D.K. Adams, D. Bhattacharya. Discovery of SCORs: Anciently derived, highly conserved gene-associated repeats in stony corals. Genomics, 2017.

H.M. Putnam, D.K. Adams, **E. Zelzion**, N.E. Wagner, H. Qiu, T. Mass, P.G. Falkowski, R.D. Gates, D. Bhattacharya. Divergent evolutionary histories of DNA markers in a Hawaiian population of the coral *Montipora capitata*. *PeerJ* 5:e3319, 2017.

Honig, J. A., **E. Zelzion**, N. E. Wagner, C. Kubik, V. Averello, J. Vaiciunas, D. Bhattacharya, S. A. Bonos, and W. A. Meyer, Microsatellite (SSR) Identification in Perennial Ryegrass (Lolium perenne L.) using Next Generation Sequencing. Crop Sci., 2017.

2016

Cheng, D. M., D. E. Roopchand, A. Poulev, P. Kuhn, I. Armas, W. D. Johnson, A. Oren, D. Ribnicky, **E. Zelzion,** D. Bhattacharya, and I. Raskin, High phenolics Rutgers Scarlet Lettuce improves glucose metabolism in high fat diet-induced obese mice. Mol. Nutr. Food Res., 2016.

Méheust, R., **E. Zelzion**, D. Bhattacharya, P. Lopez, and E. Bapteste,
Protein networks identify novel symbiogenetic genes resulting from plastid endosymbiosis. Proc Natl Acad Sci USA, 2016.

Mass, T., J.L. Drake, H.M. Putnam, **E. Zelzion**, D. Bhattacharya, and P.G. Falkowski,
Temporal and spatial expression patterns of biomineralization proteins during early development in the stony coral *Pocillopora damicornis*. Proc. R. Soc. B, 2016.

Bhattacharya, D., S. Agrawal, M. Aranda, S. Baumgarten, M. Belcaid, J.L. Drake, D. Erwin, S. Foret, R.D. Gates, D.F. Gruber, B. Kamel, M.P. Lesser, O. Levy, Y.J. Liew, M. MacManes, T. Mass, M. Medina,

S.Mehr, E. Meyer, D.C. Price, H.M. Putnam, H. Qiu, C. Shinzato, E. Shoguchi, A.J. Stokes, S.Tambutté, D. Tchernov, C.R. Voolstra, N. Wagner, C.W. Walker, A.P.M. Weber, V. Weis, **E. Zelzion**, D. Zoccola, and P. G. Falkowski, A comparative genomic approach to explaining the ecological success of reef-forming corals. e*Life*, 2016.

Hollie M. P., D. K. Adams, **E. Zelzion**, N. E. Wagner, H. Qiu, T. Mass, P. G. Falkowski, R. D. Gates and D. Bhattacharya, Divergent evolutionary histories of DNA markers in a Hawaiian population of the coral *Montipora capitata.* FEBS letters (under review), 2016.

Huan Q., **E. Zelzion**, H. M. Putnam, R. D. Gates, N. Wagner, D. K. Adams, and D. Bhattacharya, Discovery of a novel class of mobile and structured gene-associated repeats in stony corals. (in prep.) 2016.

2015

Levitan, O., J. Dinamarca, **E. Zelzion**, D.S. Lun, L.T Guerra, M.K. Kim, J. Kima, Benjamin A. S. Van Mooy, D. Bhattacharya, and P.G. Falkowski, Remodeling of intermediate metabolism in the diatom *Phaeodactylum tricornutum* under nitrogen stress. Proc Natl Acad Sci USA, 2015.

Levitan, O., J. Dinamarca, **E. Zelzion**, M.Y. Gorbunov, P.G. Falkowski,
An RNA interference knock-down of nitrate reductase enhances lipid biosynthesis in the diatom *Phaeodactylum tricornutum*. The Plant Journal, 2015.

2014

Perrineau, M.-M., J. Gross, **E. Zelzion**, D.C. Price, O. Levitan, J. Boyd, and D. Bhattacharya,
Using natural selection to explore the adaptive potential of *Chlamydomonas reinhardtii.* PLoS One, 2014.

Polashock, J., **E. Zelzion**, D. Fajardo, J. Zalapa, L. Georgi, D. Bhattacharya, and N. Vorsa,
The American cranberry: first insights into the whole genome of a species adapted to bog habitat. BMC Plant Biology, 2014.

2013

Drake, J.L., T. Mass, L. Haramaty, **E. Zelzion**, D. Bhattacharya, and P.G. Falkowski,
Proteomic analysis of skeletal organic matrix from the stony coral *Stylophora pistillata.* Proc Natl Acad Sci USA, 2013. **110**(10): p. 3788-93.

Drake, J.L., T. Massa, L. Haramaty, **E. Zelzion**, D. Bhattacharya, and P.G. Falkowski,
Reply to Ramos-Silva et al.: Regarding coral skeletal proteome. Proc Natl Acad Sci U S A, 2013. **110**(24): p. E2147-8.

Gross, J., S. Wajid, D.C. Price, **E. Zelzion**, J. Li, C.X. Chan, and D. Bhattacharya,
Evidence for widespread exonic small RNAs in the glaucophyte alga *Cyanophora paradoxa.* PLoS One, 2013. **8**(7): p. e67669.

Levin, L., **E. Zelzion**, E. Nachliel, M. Gutman, Y. Tsfadia, and Y. Einav,
A single disulfide bond disruption in the beta3 integrin subunit promotes thiol/disulfide exchange, a molecular dynamics study. PLoS One, 2013. **8**(3): p. e59175.

Mass, T., J.L. Drake, L. Haramaty, J.D. Kim, **E. Zelzion**, D. Bhattacharya, and P.G. Falkowski,
Cloning and characterization of four novel coral acid-rich proteins that precipitate carbonates *in vitro.* Curr Biol, 2013. **23**(12): p. 1126-31.

Perrineau, M.M., **E. Zelzion**, J. Gross, D.C. Price, J. Boyd, and D. Bhattacharya,
Evolution of salt tolerance in a laboratory reared population of *Chlamydomonas reinhardtii.* Environ Microbiol, 2013.

2012

Mor-Cohen, R., N. Rosenberg, Y. Einav, **E. Zelzion**, M. Landau, W. Mansour, Y. Averbukh, and U. Seligsohn,
Unique disulfide bonds in epidermal growth factor (EGF) domains of beta3 affect structure and function of alphaIIbbeta3 and alphavbeta3 integrins in different manner. J Biol Chem, 2012. **287**(12): p. 8879-91.

2011

Mor-Cohen, R., N. Rosenberg, Y. Einav, **E. Zelzion**, W. Mansour, Y. Averbukh, and U. Seligsohn,
Different structural and functional roles for integrin unique disulfide bonds in the beta 3 subunit of alpha IIB beta 3 and alpha V beta 3. Journal of thrombosis and haemostasis, 2011. **9**: p. 67-67.