

Ido Bar

Curriculum Vitæ

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I am a highly motivated early career researcher, focused on improvements of aqua- and agriculture crops production through molecular, genomic and bioinformatic research. I am proficient with a diverse range of classical and advanced molecular methodologies; and application of supporting bioinformatics and statistical analysis tools. I am a fast learner, self-taught, with solid analytic and problem-solving abilities, a meticulous eye for details and endless curiosity and passion to produce high quality and innovative applied research.

Education

2012–2015 **PhD – Molecular Biology and Bioinformatics**, Faculty of Science, Health, Education and Engineering, Genecology Research Centre, University of the Sunshine Coast, QLD, Australia.

PhD Thesis

Title *Developing Spermatogonial Germ Cell Transplantation Technology for the Production of Southern Bluefin Tuna (Thunnus maccoyii) Seed-Producing Surrogates*

Supervisors Prof. Abigail Elizur and Dr. Scott Cummins

2009–2011 **MSc Agri – Animal Sciences**, Faculty of Agricultural, Food and Environmental Quality Sciences, Hebrew University of Jerusalem, Rehovot, Israel, 92.5/100.

First class honours and scholarship

Master Thesis

Title *Effects of the Melanocortin receptor 1 (MC1R) gene on black pigmentation in the Japanese ornamental carp (Koi, Cyprinus carpio)*

Supervisor Dr. Lior David

2003–2007 **BSc – Marine Biology and Biotechnology**, Faculty of Life Sciences, Ben Gurion University of the Negev, Israel, 90/100.

Bachelor Thesis (SRP)

Title *The use of an open channel, low pressure UV reactor for water treatment in low head recirculating aquaculture systems (LH-RAS)*

Supervisor Eng. Noam Mozes

Training and Certifications

2018 Software Carpentry Instructor Training ([QCIF](#) workshop)

2016 Hypothesis Testing Using R ([QFAB](#) workshop)

2014 Data Analysis for Genomics (HarvardX course [PH525x](#))

2014 Extended RNA-Seq Analysis ([QFAB](#) workshop)

Vocational Experience

- 2018–Present **Lecturer (Level B) in Biosciences**, *School of Environment and Science*, Griffith University, Nathan, QLD, Australia.
Develop, deliver and convene under/postgraduate level academic courses.
Courses: Introduction to Bioinformatics (3030NSC)
Responsibilities:
- Prepare and deliver original and up-to-date teaching material and practicals
 - Assemble and train teaching staff
 - Provide feedback and support to students
 - Assess the students' learning via assignments and exams
- 2016–Present **Postdoctoral Research Fellow**, *Environmental Futures Research Institute*, Griffith University, Nathan, QLD, Australia.
Investigate the genetic and molecular background of resistance to pathogenic fungi (*Ascochyta spp.*) in lentil and chickpea. Responsibilities and methodologies:
- Identify and apply appropriate experimental design and analysis methodology to gain informative results from RNA-Seq and Genome-by-Sequencing experiments
 - Analysis of high throughput RAD-Seq, RNA-Seq and Whole-Genome-Sequencing data: QC, assembly, mapping, variant analysis, differential expression analysis, gene data mining, SNP marker development, genome-wide association studies, QTL mapping
 - Script development using R, Python and Bash to automate pipelines, analysis and report production
 - Bioinformatics tools compilation and parallel execution in a Linux-based high-performance computing environment
 - Timely preparation of high quality reports, grants and manuscripts
 - Mentoring, training and supervision of undergraduate and postgraduate students
- 2016–2017 **Bioinformatician**, *Genecology Research Centre*, University of the Sunshine Coast, Sippy Downs, QLD, Australia.
Provide bioinformatics-based solutions to uncover the molecular and genetic mechanisms of productivity traits and population structure in a range of commercial aquaculture species, including the following projects:
- Identify pearl production related genes and tissues in pearl oyster using RNA-Seq transcriptome and differential gene expression analysis
 - Identify sex markers in spiny lobster using RAD-Seq analysis
 - Analyze DArT and RAD-Seq data to infer population structure, phylogenetic relationships, biogeographic patterns as well as genetic diversity, structure and connectivity in farmed yellowtail kingfish, barramundi and tropical lobster
 - Genotype-phenotype SNP-based association analysis to identify susceptibility to hepatopancreas virus in prawn culture
 - Provide bioinformatics training and support to undergraduate and postgraduate students; participate in manuscript preparation

- 2013–2015 **Research Assistant**, *Genecology Research Centre*, University of the Sunshine Coast, Sippy Downs, QLD, Australia.
Providing wet-lab and analysis services in various aquaculture projects.
Responsibilities and methodologies:
- Sample collection, RNA/DNA extraction, quantification and purification, histology, *in-situ* hybridization, etc.
 - Primer design, microsatellite marker development and implementation for Cobia breeding program, including PCR, allele calling, genotyping using an ABI 3500 genetic analyzer and parental assigning
 - Timely preparation of high quality reports, grants and manuscripts
 - Mentoring and training of undergraduate and postgraduate students
- 2013–2017 **Teaching Assistant**, *School of Science and Engineering*, University of the Sunshine Coast, Sippy Downs, QLD, Australia.
Preparing and delivering teaching material and practicals, marking exams and assignments.
Courses: Bioinformatics (MBT355), R Programming for Engineers (ENG203), Molecular Biology (LFS252), Research Methodologies (6003NSC), Aquaculture (ENS371), Anatomy and Physiology (HLT100)
- 2009–2011 **Research Assistant**, *Faculty of Agriculture*, Hebrew University of Jerusalem, Rehovot, Israel.
Common carp and Koi fish genetic research, including the following responsibilities and methodologies::
- Fish handling and husbandry: feeding, sampling, bleeding, etc.
 - Molecular genetics techniques: DNA and RNA extraction and purification, PCR, RT-qPCR, gene cloning, microsatellite and SNP genotyping, data mining and comparative genomics
 - Guidance and training of undergraduate students

Academic Achievements

Publications

- 2018 Peter Palma, Josephine Nocillado, Joshua Superio, Evelyn Grace de Jesus Ayson, Felix Ayson, **Bar, Ido**, and Abigail Elizur. “Gonadal Response of Juvenile Protogynous Grouper (*Epinephelus fuscoguttatus*) to Long Term Recombinant Follicle-Stimulating Hormone Administration”. In: *Biology of Reproduction* (2018)
- 2018 Wayne Knibb, Cuong Le, Moha Katouli, **Bar, Ido**, and Charles Lloyd. “Assessment of the Origin of White Spot Syndrome Virus DNA Sequences in Farmed *Penaeus Monodon* in Australia”. In: *Aquaculture* 494 (2018), pp. 26–29
- 2018 Kelli Anderson, Chia-Yu Kuo, Ming-Wei Lu, **Ido Bar**, and Abigail Elizur. “A Transcriptomic Investigation of Digestive Processes in Orange-Spotted Grouper, *Epinephelus Coioides*, before, during, and after Metamorphic Development”. In: *Gene* 661 (2018), pp. 95–108
- 2018 Mahsa Khorramdelazad, **Ido Bar**, Paul Whatmore, Gabrielle Smetham, Vijay Bhaaskaria, Yuedong Yang, Shahla Hosseini Bai, Nitin Mantri, Yaoqi Zhou, and Rebecca Ford. “Transcriptome profiling of lentil (*Lens culinaris*) through the first 24 hours of *Ascochyta lentis* infection reveals key defence response genes”. In: *BMC Genomics* 19 (2018), p. 108
- 2017 H. K. A. Premachandra, Fabiola Lafarga-De Cruz, Yutaka Takeuchi, Adam Miller, Stewart Fielder, Wayne O’Connor, Celine H. Frère, Nguyen Hong Nguyen, **Ido Bar**, and Wayne Knibb. “Genomic DNA Variation Confirmed *Seriola lalandi* Comprises Three Different Populations in the Pacific, but with Recent Divergence”. In: *Scientific Reports* 7.1 (2017), p. 9386
- 2016 **Ido Bar**, Scott Cummins, and Abigail Elizur. “Transcriptome analysis reveals differentially expressed genes associated with germ cell and gonad development in the Southern bluefin tuna (*Thunnus maccoyii*)”. In: *BMC Genomics* 17 (2016), p. 217

- 2015 **Ido Bar**. “Developing Spermatogonial Germ Cell Transplantation Technology for the Production of Southern Bluefin Tuna (*Thunnus maccoyii*) Seed-Producing Surrogates”. PhD Thesis. Sippy Downs, QLD, Australia: University of the Sunshine Coast, Dec. 2, 2015. 194 pp.
- 2015 **Ido Bar**, Luke Dutney, Peter Lee, Ryosuke Yazawa, Goro Yoshizaki, Yutaka Takeuchi, Scott Cummins, and Abigail Elizur. “Small-scale capture, transport and tank adaptation of live, medium-sized Scombrids using “Tuna Tubes””. In: *SpringerPlus* 4.1 (2015), p. 604
- 2015 **Ido Bar**, Andre Smith, Erin Bubner, Goro Yoshizaki, Yutaka Takeuchi, Ryosuke Yazawa, Ben Nan Chen, Scott Cummins, and Abigail Elizur. “Assessment of yellowtail kingfish (*Seriola lalandi*) as a surrogate host for the production of southern bluefin tuna (*Thunnus maccoyii*) seed via spermatogonial germ cell transplantation”. In: *Reprod. Fertil. Dev.* (2015)
- 2013 **Ido Bar**, Ethan Kaddar, Ariel Velan, and Lior David. “Melanocortin receptor 1 and black pigmentation in the Japanese ornamental carp (*Cyprinus carpio* var. Koi)”. In: *Livestock Genomics* 4.6 (2013), p. 11
- 2010 Hadas Mamane, **Ido Bar**, Angelo Colorni, Ido Ori, and Noam Mozes. “The use of an open channel, low pressure UV reactor for water treatment in low head recirculating aquaculture systems (LH-RAS)”. in: *Aquacultural Engineering* 42.3 (2010), pp. 103–111
- Reviewing I am an active peer reviewer of manuscripts for journals such as BMC Genomics, Frontiers and PLoS ONE (see [Publons](#) profile)

Conference Presentations

- PAG 2019 *Oral Presentation*: Pathogenicity Factors in the Fast Evolving Australian *Ascochyta rabiei* Population. Plant and Animal Genome XXVII 2019, San Diego, CA, USA
- useR! 2018 *Oral Presentation*: Shinotate: an R-based shiny server for annotation and analysis of RNA-Seq transcriptome assemblies. useR! 2018, Brisbane, QLD, Australia. Available on [R Consortium YouTube channel](#)
- IFLRC 2018 *Oral Presentation*: Identification of function-associated pathogenicity markers in *Ascochyta rabiei* through whole-genome-sequencing. 7th International Food Legume Research Conference 2018, Marrakech, Morocco
- PBA 2018 *Oral Presentation*: Identification of candidate resistance genes and molecular markers associated with lentil defence response to *Ascochyta lentis*. Pulse Breeding Australia Collaborators Meeting 2018, Adelaide, SA, Australia
- SPPH 2017 *Poster*: Transcriptome profiling to identify lentil defence-related genes to *Ascochyta lentis*. Science Protecting Plant Health 2017, Brisbane, QLD, Australia
- NPP 2017 *Oral Presentation*: Transcriptional changes in lentil in response to *Ascochyta lentis* and proposed roles in defence. National Pulse Pathology Meeting 2017, Brisbane, QLD, Australia
- B³ 2015 *Oral Presentation*: Transcriptome analysis reveals key genes involved in the reproductive molecular pathway of the Southern bluefin tuna (*Thunnus maccoyii*). Big Biology and Bioinformatics Symposium (B³) 2015, QUT, Brisbane, QLD, Australia
- WAS 2014 *Oral Presentation*: Development of molecular tools to establish germ cell transplantation technology of Southern bluefin tuna (*Thunnus maccoyii*) spermatogonial cells in yellowtail kingfish (*Seriola lalandi*) surrogate hosts. World Aquaculture Society 2014, Adelaide, SA, Australia
- GIA 2011 *Poster*: Effects of the melanocortin receptor 1 (*MC1R*) gene on black pigmentation in the Japanese ornamental carp (Koi, *Cyprinus carpio*). Genomics In Aquaculture 2011, Crete, Greece

Grants and Awards

- 2018 Bill & Melinda Gates foundation – Global Grand Challenges: Tools and Technologies for Broad-Scale Disease Surveillance of Crop Plants in Low-Income Countries (\$100,000). Applied as a CI along with Prof. Rebecca Ford, Dr. Jeremy Brownlie and Dr. Muhammad Shiddiky. Application under review
- 2014 University of the Sunshine Coast – HDR Student Grant to attend the WAS 2014 conference
- 2012 University of the Sunshine Coast – HDR Student Grant to fund germ cell transplantation training trip to Japan
- 2011–2014 Australian Federal Government – Australian Postgraduate Award
- 2011–2014 University of the Sunshine Coast – International Postgraduate Research Scholarship
- 2011 Australian Seafood Cooperation Research Centre – PhD Stipend Scholarship
- 2010 The state of Israel, Ministry of Agriculture – Whole Organism related research award
- 2007 Toronto Jewish community, the Sacta-Rashi Foundation and Eilat foundation – Scholarship for performing voluntary activities contributing to the Eilat community
- 2003 Ben Gurion University of the Negev – Excellence scholarship

Voluntary Activities

- 2018 Teaching and assisting in Software Carpentry training events and Griffith's Hacky Hour
eResearch support for researchers

Computer Skills

- NGS Analysis A wide range of tools for NGS data QC, assembly, annotation, variant detection and analysis, such as Samtools, Trinity/ABYSS/Oases, STAR, Bowtie/2, BLAST, DESeq2/edgeR/Limma, Freebayes, Stacks and other Linux and R packages and tools
- Development R, Python, relational database design and implementation (MariaDB, MySQL, SQLite), Bash (sed, awk, GNU-Parallel, etc.), HPC workload management (PBS, SLURM), version control (git)
- Reporting MS-Office, L^AT_EX, Rmarkdown, R-Shiny
- Genetics Sequence analysis (BioEdit, MEGA), microsatellite allele calling (GeneMarker), GenAlEx, STRUCTURE, poppr, adegenet, SNPRelate, R/qtl and more
- OS Windows, Linux