

Mojdeh Dinarvand

School of Biotechnology and Biomolecular Sciences
The University of New South Wales, Sydney NSW 2033

Curriculum Vitae

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RESEARCH INTERESTS

Evolution of bacteria, Molecular microbiology, Bioinformatics, Systems biology and Evolutionary analysis.

EDUCATION

Doctor of Philosophy – University of Sydney, Sydney, Australia
School of Chemistry and Medicine (Immunology & Infectious Diseases),
Central Clinical School.
Thesis: *Discovery and development of novel antibacterials from natural products.*

Master of Microbial Biotechnology – University Putra, Kuala Lumpur, Malaysia
School of Biotechnology and Biomolecular Sciences.
Thesis: *Optimization of medium and process parameters for the production of extracellular inulinase and invertase from *Aspergillus niger* ATCC 20611.*

Bachelor of Cellular and Molecular Microbiology – Department of Molecular and Cellular Biology.

SKILLS (Scientific & Techniques)

- **Bacterial & Yeast Culture:** MRSA, *E. Coli*, *Mycobacterium Tuberculosis* RA, *Micrococcus Luteus*, *Mycobacterium smegmatis*, *Pseudomonas* species, *Streptomyces* species, *Bacillus* species, *Rhizobium* species, *Flavobacterium* species, *Caulobacter* species, *Ensifer* species, *Actinobacteria* species, *Saccharomyces cerevisiae*, yeast and else.
- **Molecular:** PCR, Real-Time, qPCR, colony PCR, DNA synthesis, Genotyping, Gel Electrophoresis, DNA and RNA extraction from bacteria and cells, DNA Gel Electrophoresis DNA Sequence Analysis, DNA Isolation, Molecular Genetics and Next Generation Sequencing, DNA and RNA extraction from Formalin Fixed Paraffin Embedded (FFPE) tumour samples, NanoString RNA expression analysis, Juno Fluidigm multiplex PCR next generation sequencing library preparations.
- **Microscopy:** evaluating interactions between synthesised drug structures from natural products and either cells or bacteria under wide field fluorescence microscopy, DeltaVision OMX structured illumination microscope and confocal microscopy.
- **Proteomics:** HPLC, ELISAs, SDS-PAGE, native-PAGE, Mass Spectrometry.
- **Cell Culture:** Maintenance of adherent and non-adherent cell lines e.g. Human alveolar epithelial cells (A549), Madin-Darby canine Kidney epithelial cells (MDCK), Human leukaemia cells (THP-1), Human hepatocellular carcinoma cells (Hep-G2) and Human embryonic kidney cells 293 (HEK293). Working with Primary cells such as spleens, lungs and preparation of Bone Marrow (BM) leukocytes.
- **Synthesising Techniques:** Nuclear Magnetic Resonance (NMR) and Mass spectroscopy.
- **Data Analysis:** RNA expression analysis of 513 genes including comparison of groups and boxplot. Association study of single nucleotide polymorphism (SNP) data.
- **Computer & Software:** R Studio and Python programming, ChemDraw, Prism Statistical Analysis Software, Flow Cytometry Data Analysis Software and Microsoft office – Intermediate.
- **Other:** Various bioactivity assays, Preparing Standard Operating Procedures and Risk Assessments.

AWARDS

- 2000 Achieved the Frist Grade in the field of Microbiology.
- 2014 International Postgraduate Research Scholarship (IPRS).
- 2014 Australian Postgraduate Award (APA).

EXPERIENCE

Academic Positions

- 2019 **Research Assistant**- University of New South Wales, School of Biotechnology and Biomolecular Sciences,
Research focus: Use of phage as Biocontrol of Food Poisoning.
- 2019 **Research Assistant**- University of New South Wales, School of Biotechnology and Biomolecular Sciences,
Research focus: Novel Therapies for Angiosarcoma.
- 2019 **Research Assistant**- University of New South Wales, School of Biotechnology and Biomolecular Sciences,
Research focus: Bioinformatics (Drug Repurposing, Computational Drug Repositioning and R Programming).
- 2014 **ResearchAssistant** – University Malaya, Department of Molecular Medicine
Research focus: Resistant *Helicobacter pylori* and antibiotic resistant bacteria.
- 2013 **ResearchAssistant** – University Malaya, Department of Microbiology
Research focus: Antibiotic resistant bacteria.
- 2010 **Research Assistant** – University Putra, Department of Microbiology
Research focus: Microbiology, Bioprocessing Technology and Enzymology.

Research Mentorship

- 8/2019- Present - **PhD Student**, Fatemeh Khorshidi, Faculty of Medicine, UNSW Sydney.
Research: Pharmacological promotion of NAD⁺ anabolism to reduce AD pathology and delay cognitive decline.
- 9/2019– 9/2020 - **Honours Student**, Afia Tanzim, School of BABS, UNSW Sydney.
Research: Biomarker discovery, systems biology
- 6/2019-8/2019 - **Undergraduate Project**, Eugene Lee, School of BABS, UNSW Sydney.
Research: Novel Therapies for Angiosarcoma.

Research Experience

- 2018 **Volunteer**- University of New South Wales, School of Women's and Children's Health,
Research focus: Molecular Oncology.
- 2018 **Volunteer**- University of New South Wales, School of Biotechnology and Biomolecular Sciences,
Research focus: Molecular and Cellular Biology.

Teaching Experience

- 2014 – 2017 **Casual teaching of undergraduate and graduate courses** – University of Sydney
- Teaching MSc students (Infection control and epidemiology) and first year postgraduate students in Medicine and Dentistry (Discipline of Infectious Diseases and Immunology, an introduction to microbiology). This included leading and taking overall responsibility for lab-based classes of >20 students.
 - Laboratory classes: managing students in wet labs and assisting students in understanding the course material, facilitating discussion and assisting with queries.
- 2007 **Technical Officer** – Parasitology and Microbiology Lab, Paramedical Science
Faculty, University of Shiraz, Iran

Work Experience

- 2008 **Blood Collector** – Blood Transfusion Organisation, Shiraz, Iran.
- 2006 **Microbiologist Technician in Laboratory**, Namazi Hospital-Shiraz, Iran.

PUBLICATIONS

Full papers peer-reviewed:

1. **Mojdeh Dinarvand**, Proschogo, Nicholas; Spain, Malcolm; Nagalingam, Gayathri; Szczepina, Cody; Martinez, Elena; Sintchenko, Vitali; Triccas, James; Rutledge, Peter (2019). Discovery of antimicrobial compounds from Lendenfeldia, Ircinia and Dysidea sponges using bioassay guided fractionation of marine extracts. *Drug Discovery Today* (under-review). *Preprints on BioRxiv* (doi: <https://doi.org/10.1101/489849>).
2. **Mojdeh Dinarvand**, Malahat Rezaee, Majid Foroughi (2017). Optimizing culture conditions for production of intra and extracellular inulinase and invertase from *Aspergillus niger* ATCC 20611 by response surface methodology (RSM). *Brazilian Journal of Microbiology*.
3. Aimi Hanafi, Woon Ching Lee, Mun Fai Loke, Xinsheng Teh, Ain Shaari, **Mojdeh Dinarvand**, Philippe Lehours, Francis Mégraud, Alex Hwong Ruy Leow, Jamuna Vadivelu, and Khean Lee Goh (2016). Molecular and Proteomic Analysis of Levofloxacin and Metronidazole Resistant *Helicobacter pylori*. *Frontiers in Microbiology*.
4. Seyed Sadegh Mousav, Hassan Moeini, Rosfarizan Mohamad, **Mojdeh Dinarvand**, Arbakariya Ariff, Foo Hooi Ling and Abdul Rahim Raha (2013). Effects of medium and culture conditions on folate production by *Streptococcus thermophiles* BAA-250. *Electronic Journal of Biotechnology*.
5. **Mojdeh Dinarvand**, Malahat Rezaee, Malihe Masomian, Seyed Davoud Jazayeri, Mohsen Zareian, Sahar Abbasi, and Arbakariya B. Ariff (2013). Effect of C/N Ratio and Media Optimization through Response Surface Methodology on Simultaneous Productions of Intra- and Extracellular Inulinase and Invertase from *Aspergillus niger* ATCC 20611, *BioMed Research International*.
6. Zahra Ajdari, Musaalbakri Abdul Manan, Saadi Bayat, **Mojdeh Dinarvand**, Sahar Abbasiliasi, Rosfarizan Mohamad, Arbakariya Ariff (2012). Profiling of Metabolite produced by *Monascus purpureus* FTC5391 in two different substrates using HPLC- PDA and GC- MS. *Pertanika*.
7. **Dinarvand Mojdeh**, Arbakariya B. Ariff, Moeini Hassan, Ajdari Zahra, Sadegh Mousavi Seyed, Nahavandi Reza (2012). Optimization of medium composition and culture conditions for invertase production by *Aspergillus niger* ATCC 20611, *Minerva Biotechnologica*.
8. **Mojdeh Dinarvand**, Arbakariya Ariff, Hassan Moeini, Malihe Masomian, Seyed Sadegh Mousavi, Reza Nahavandi and Shuhaimi Mustafa (2012). Effect of extrinsic and intrinsic parameters on inulinase production by *Aspergillus niger* ATCC 2061, *The Electronic Journal of Biotechnology*.

Papers under-review/in-prep:

9. **Mojdeh Dinarvand**, Malcolm Spain, James A. Triccas, Peter J. Rutledge Identification bioactive compound from marine microorganism and exploration of structure–activity relationships (SARs). *Journal of Medicinal Chemistry*.
10. **Mojdeh Dinarvand**, Malcolm Spain, Pamela Young, Amy Bottomley, Michael Johnson, Professor Liz Harry, James A. Triccas, Peter J. Rutledge. Design and Development of antimicrobial derivatives with Fluorescently Labeled Analogues and monitor inside live cells. Targeted Journal. *Biochimica et Biophysica Acta*.
11. **Mojdeh Dinarvand**, Fatemeh Vafaee, Gayathri Nagalingam, James A. Triccas, Peter J. Rutledge Pharmacodynamic Functions of synthetic derivatives for Treatment of MRSA and *Mycobacterium tuberculosis*. *Journal of Antimicrobial Chemotherap*.

Abstracts peer-reviewed:

12. **Mojdeh Dinarvand**, Triccas, James; Rutledge, Peter (2017). Discovery and development of novel antibacterials from natural products. **Organic One Day Symposium, RACI Natural Products Symposium**.
13. **Mojdeh Dinarvand**, Triccas, James; Rutledge, Peter (2017). Discovery and development of novel antibacterials from natural products. **Marie Bashir Institute for Infectious Diseases and Biosecurity, MBI Colloquium Symposium**.
14. **Mojdeh Dinarvand**, Triccas, James; Rutledge, Peter (2015). High-throughput screening of marine extracts for anti-bacterial agents to combat methicillin-resistant *Staphylococcus aureus* (MRSA). **Organic One Day Symposium, RACI Natural Products Symposium**.
15. **Mojdeh Dinarvand**, Triccas, James; Rutledge, Peter (2014). High-throughput screening of marine extracts for anti-bacterial agents to combat methicillin-resistant *Staphylococcus aureus* (MRSA). **Marie Bashir Institute for Infectious Diseases and Biosecurity, MBI Colloquium Symposium**.

WORKSHOPS & TRAINING

- **Introduction to R;** Stats Central, UNSW hold one day the Introduction to R Workshop- on 24th September **2018 at Business School- UNSW.**
- **Introduction to Programming with Python;** The Intersect, UNSW hold one day the Introduction to Programming with Python Workshop- on 9th October **2018 at Computer Lab in the Wallace Wurth Building- UNSW.**
- **Introduction to Programming with R;** The Intersect, UNSW hold one day the Introduction to Programming with R Workshop- on 29th October **2018 at Computer Lab in the Wallace Wurth Building- UNSW.**
- **Intermediate to Advanced Programming in R;** The Intersect, UNSW hold one day the Intermediate to Advanced Programming with R Workshop- on 5th November **2018 at Computer Lab in the Wallace Wurth Building- UNSW.**
- **Flow Cytometry Workshop;** The Flow Cytometry Core Facilities hold the Miltenyi AutoMACS Pro workshop- on 10th November **2018 at Charles Perkins Centre- The University of Sydney.**
- **R software Workshop;** The Research Data Scientist hold the R course- on 9th June **2017 at Services Building - G12- The University of Sydney.**
- **Mass spectrometry Workshop;** Mass spectrometry Facility in The University of Sydney hold one week the Mass spectrometry Workshop- from 31st May to 3rd Jun **2016 at School of Chemistry- The University of Sydney.**
- **NMR Workshop;** NMR Facility in The University of Sydney hold the NMR Workshop- on 2nd May **2016 at School of Chemistry- The University of Sydney.**
- **HPLC Workshop;** The Charles Perkins Centre Core Facilities hold two days HPLC training- on 15th-16th September **2014 at Charles Perkins Centre - The University of Sydney.**
- **GraphPad Prism Workshop;** Infectious Diseases and Immunology school hold GraphPad Prism Interactive Workshop- on 2nd October **2015 at Charles Perkins Centre - The University of Sydney.**
- **qPCR Workshop;** The Roche hold two days qPCR Workshop modules- on 10th and 11th September **2014 at Charles Perkins Centre - The University of Sydney.**

ADMINISTRATION & PROFESSIONAL ACTIVITY

10/2018 – **Assistant to the Associate Editor of Journal of PLOS ONE.**
- percent

10/2018 – **Assistant to the Associate Editor of Journal of Artificial Intelligence Review.**
- percent

10/2018- **UNSW Bioinformatics Connect.**
(<https://www.science.unsw.edu.au/content/unsw-bioinformatics-connect>)

11/2019-**Artificial Intelligence for Biomedicine Symposium.**
(<https://www.babs.unsw.edu.au/artificial-intelligence-biomedicine-symposium>)