Emad Manni

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Objective

Highly motivated in the field of Biochemistry and Molecular Cell Biology, with interests in research related to molecular biology and diseases of ageing such as cancer, diabetes mellitus, and cardiovascular disease.

Education

PhD | JANUARY 2019-MAY 2023 | THE UNIVERSITY OF EXETER, ENGLAND, UNITED KINGDOM

POSTGRADUATE RESEARCHER | SEPTEMBER 2017-AUGUST 2018 | THE UNIVERSITY OF WESTERN ONTARIO, CANADA

- Research on understanding the formation and regulation of coding and non-coding RNAs.

MASTER DEGREE | OCTOBER 2015 | THE UNIVERSITY OF WINDSOR, CANADA

- Master of Chemistry and Biochemistry
- Specialized in Medical Biochemistry
- Thesis title: "Utilization of Poly(A)-Binding Protein in Monitoring the Formation of mRNP Granules in *Toxoplasma gondii*"

BACHELOR OF MEDICAL SCIRNCES | JUNE 2011 | JAZAN UNIVERSITY, KSA

- Department of Medical Laboratory Technology
- Major in Medical Laboratory Technology
- Research project: "Distribution of *Toxoplasma gondii* in Jazan district"

Skills & Abilities

MOLECULAR BIOLOGY AND BIOCHEMISTRY SKILLS

- DNA & RNA & Protrein extraction and purification from mammalian and bacterial Cells.
- All types of PCR and Primer designing.
- Cloning.
- Vector modification.
- Western blotting.
- In vitro transcription and translation.
- Bacterial transformation.
- Cell culture technique.

MEDICAL LAB EXPERIENCE

- Hematology and Blood Bank.
- Microbiology
- Serology
- Parasitology
- Histopathology
- Phlebotomy

COMPUTER AND SOFTWARE SKILLS

- Proficient in Microsoft Office Suite (Word, Excel, PowerPoint, Visio)
- Adobe Photoshop CS6
- ImageJ to analyze microscopy images.
- OriginLab, SPSS, and GraphPad prism (an industry-leading scientific graphing and data analysis softwares).

Experience

TEACHING ASSISTANT | THE UNIVERSITY OF WESTERN ONTARIO | 2017-CURRENT

- **Courses:** Biomolecules and General Chemistry for undergraduate Students.
- **Responsibilities:** Developing and administering brief tutorials; supervising, guiding, and fielding questions from undergraduate students; lab report and exam grading.

LEADER FOR STUDENT RESOURCE CENTER | UNIVERSITY OF WINDSOR | 2013-2015

- **Courses:** Biomolecules and General Chemistry for undergraduate Students.
- **Responsibilities:** teaching students individually calculations and basic of Biochemistry and helping them to improve writing reports for Biochemistry labs.

UNDERGRADUATE MENTOR | THE UNIVERSITY OF WESTERN ONTARIO | FALL 2017

- **Responsibilities:** participating in research project design; co-supervision of undergraduate students; demonstrating best lab practices; teaching relevant theory and practical considerations behind lab techniques; providing general guidance and mentorship.

MEDICAL LABORATORY TECHNICIAN | ALMORYA′A HOSPITAL (ABU AREESH BRANCH), JAZAN, SAUDI ARABIA | 2012

- **Responsibilities:** Diagnostic analysis in Hematology and Biochemistry Lab.

Conferences and Meeting

- **SWRNA MEETING IN BATH UNIVERSITY | JUNE 2021**
- **SWRNA MEETING IN BATH UNIVERSITY | JULY 2019**
- **ARE CONFERENCE IN EXETER UNIVERSITY | 1-3 JULY 2019**
- **THE THIRD ANNUAL TORONTO RNA ENTHUSIASTS DAY| 31 JULY 2018**
- **DEGRADATION PATHWAYS OF RNAs | FASEB | 24-29 JUNE 2018**
- **15TH ANNUAL ONCOLOGY RESEARCH AND EDUCATION DAY | 8 JUNE 2018**
- **LONDON HEALTH RESEARCH DAY | 10 MAY 2018**

Publications

Roscoe, S., **Manni, E.**, Roberts, M., & Ananvoranich, S. (2020). Formation of mRNP granules in Toxoplasma gondii during the lytic cycle. *Molecular and Biochemical Parasitology*, *242*, 111349. https://doi.org/10.1016/j.molbiopara.2020.111349

- Two poly(A) binding proteins (PABPs) of Toxoplasma gondii, were identified and characterized. They were named TgPABPC and TgPABPN as they were found to localize in the cytoplasm and nucleus respectively. TgPABPC, which colocalizes with mRNA granules, is therefore used as a cellular marker of mRNP granules. We detected that the formation of mRNP granules was independent of polymerized microtubules, and that the granules were distributed stochastically within the cytosol. Formation of mRNP granules was found to occur prior to parasite egress when a Ca(2+) ionophore is used to induce egress. It was also found that maturation of mRNP granules could be described as a two-phase process. First, prior to host cell lysis, mRNP granules were formed rapidly within the cytosol. Second, the mRNP granule load was reduced within 10 min post egress. To investigate the link between translational state and mRNP granule formation, treatments with salubrinal, nutrient deprivation, and pH stress were used. While salubrinal induced granule formation in tachyzoites, nutrient starvation and pH stress showed no induction effect on mRNP granule formation. Interestingly, salubrinal treatment in bradyzoites did not induce RNP granule formation, thus suggesting that mRNP granule formation is not a ubiquitous response or directly related to translational repression. Instead, mRNP granule formation is likely a response to the rapid increase in non-translating RNA brought on by sudden changes in translational state.

Abdelhameed, M., Aly, S., Maity, P., Manni, E., Mohammed, O. F., & Charpentier, P. A. (2019). Impact of the chemical nature and position of spacers on controlling the optical properties of silicon quantum dots. *Physical Chemistry Chemical Physics : PCCP*, *21*(31), 17096–17108.

Chung, C. Z., Balasuriya, N., Manni, E., Liu, X., Li, S. S.-C., O'Donoghue, P., & Heinemann, I. U. (2019). Gld2 activity is regulated by phosphorylation in the N-terminal domain. *RNA Biology*, *16*(8), 1022–1033.

Turk, M. A., Chung, C. Z., **Manni, E.**, Zukowski, S. A., Engineer, A., Badakhshi, Y., … Heinemann, I. U. (2018). MiRAR — miRNA activity reporter for living cells. *Gene*.

- In this paper, We developed a green fluorescence protein (GFP)-based reporter system that allows for a direct, real-time readout of changes in miRNA activity in live cells. The miRNA activity reporter (MiRAR) consists of GFP fused to a 3′ untranslated region containing specific miRNA binding sites, resulting in miRNA activity-dependent GFP expression. Using qPCR, we verified the inverse relationship of GFP fluorescence and miRNA levels. We demonstrated that this novel optogenetic reporter system quantifies cellular levels of the tumor suppressor miRNA let-7 in real-time in single Human embryonic kidney 293 (HEK 293) cells. Our data shows that the MiRAR can be applied to detect changes in miRNA levels upon disruption of miRNA degradation pathways. We further show that the reporter could be adapted to monitor another disease-relevant miRNA, miR-122. With trivial modifications, this approach could be applied across the miRNome for quantification of many specific miRNA in cell cultures, tissues, or transgenic animal models.
- **Contribution:** Data curation, Formal analysis, Investigation, Validation and Visualization, and Writing, review and editing.

Crater, A. K., **Manni, E.**, & Ananvoranich, S. (2015). Utilization of inherent mirnas in functional analyses of toxoplasma gondii genes. *Journal of Microbiological Methods*, *108*, 92–102.

- In this paper, we developed a genetic system that exploits and directs the most abundant Tg-miR-60a for loss-of-function analyses in T. gondii. As a proof of principle, we showed that when the binding sites for Tg-miR-60a were introduced into the parasite transcripts via homologous recombination at the locus of (i) DEAD-box RNA helicase (TgHoDI), or (ii) lactate dehydrogenase isoform 1 (TgLDH1), the expression levels of the selected genes can be altered. It was thus proven that inherit Tg-miR-60a could be directed and used to assist in the loss-of-function analyses.
- **Contribution:** Preparation of the plasmid and making the transgenic clone of *Toxoplasma gondii*