

# Dona Ferdinando

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## EDUCATION

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### Carnegie Mellon University Qatar (CMUQ) | Class of 2020

B.Sc. Biological Sciences

*Dean's Honor's List - Fall 2016 and Spring 2019*

## RESEARCH EXPERIENCE

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### Delivering CRISPR-Cas systems through Bacteriophage to Disrupt Antibiotic Resistance in Bacteria | Summer 2019

Vincent Lab Undergraduate researcher – CMUQ

- Proposed this research to the Qatar Student Initiated Undergraduate Research Program under guidance from Dr. Vincent and received a grant
- Have designed gRNA and engineered plasmids to transform into bacteriophage and infect bacteria

### Using CRISPR-Cas 12a as a Detection Mechanism for Cystic Fibrosis Carriers | Spring 2019

iGEM competition team member – CMUQ

- Part of a team that will travel to Boston in Fall 2019 to present research at the iGEM forum
- Expressed, isolated and purified Cas 12a in order to target cystic fibrosis gene in carriers

### Mutating, Isolating and Expressing Dihydrofolate Reductase in Bacterial Cells | Fall-Spring 2019

Vincent Lab Independent Research Project – CMUQ

- Investigated the effect of mutation on dihydorfolate reductase using site-directed mutagenesis, transformation, induction and purification
- Used FoldX to predict effect of various mutations on target sites to confirm findings

### Investigating the Role of the Assembly Factor Drs1 in Ribosome Assembly Using Yeast | Summer 2017

Woolford Lab Undergraduate researcher – CMU Pittsburgh

- Mutated the assembly factor Drs1, purified protein and analyzed proteins present using Western blots

### Isolating and Computationally Characterizing Novel Bacteriophages from Soil in Qatar | Fall 2016

Bacteriophage Research | Phage Genomics Research course – CMUQ

- Isolated bacteriophages from soil samples, extracted DNA and analyzed reads using DNA master

### Comparing the Effects of Calcium Propionate and Potassium Sorbate on MDC Kidney cells | Spring 2019

Experimental Biochemistry Course – CMUQ

- Conducted an MTT assay, nucleosomal fragmentation and Quantitative DCFH-DA assay using various concentrations of additivies to test the effect on MDC Kidney cells

## SKILLS

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- **Molecular Biology:** DNA isolation, Polymerase Chain Reaction (PCR), Multiplex PCR, Agarose Gel Electrophoresis, Restriction Enzyme Digests, Site-Directed Mutagenesis
- **Cell/Tissue Culture:** Cell based assays, Nucleosomal Fragementation, Trypan Blue Exclusion
- **Microbiology:** Protein Expression, Plasmid Transformation
- **Biochemistry :** SDS-PAGE gel electrophoresis, Western Blots, Enzyme Kinetics, DCFH-DA assay, MTT assay, Column Chromatography, Gel Filtration, Affinity Chromatography, Protein Isolation from Yeast and Bacteria
- **Computational Biology:** BLAST, NCBI, PDB, OMIM, Protein Alignment, gRNA and Primer Design, Basic Python Programming
- **Organic Chemistry:** Recrystallization, Distillation, Reflux, Solvent Phase Extraction, Thin Layer Chromatography,

## **POSTER PRESENTATIONS**

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- **Ferdinando D.**, Khan M.N., Soto S.V., Micic J., Woolford J. (2018). Truncations of Drs1 Arms Provide Insight into Their Possible Functions. Meeting of the Minds. Doha, Qatar.
- **Ferdinando D.**, Khan M.N., Vincent A. (2019). Expression and Purification of Dihydrofolate Reductase. Meeting of the Minds. Doha, Qatar
- **Ferdinando D.**, Khan M.N., Vincent A. (2019). Effect of EDTA on enzymatic activity of calf intestinal alkaline phosphatase. Meeting of the Minds. Doha, Qatar.

## **WORK EXPERIENCE**

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### **CMUQ Head Orientation Counsellor – Class of 2022 | Summer 2018**

- Part of a team of four that planned, led and executed CMUQ's orientation
- Planned team retreats, led team-building activities and conducted training for a 40-membered orientation team

### **Special Events Assistant – Marketing & Public Relations – CMUQ | Spring 2017**

- Involved in social media coverage and preparation for events and seminars held at CMUQ

### **Course Assistant for the Mellon College of Science Core course ‘Eureka’ – CMUQ | Fall 2017**

- Lead weekly recitations to facilitate first year students' success
- Worked with faculty to develop ice-breaker activities and give student feedback on first year progress

## **LEADERSHIP and INVOLVEMENT**

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### **Leader of service learning trip to Cambodia | Summer 2018**

- Planned a construction project in Cambodia under Volunteering Solutions and led 14 students

### **Instructor - Student Taught Course in Piano at Carnegie Mellon University in Qatar | Spring 2019**

- Proposed a syllabus, planned and conducted a course in Piano Music as part of CMUQ's StuCo program

### **Student Representative on the Academic Review Board | 2017-2019**

- Represented the student body in reviewing cases of academic and conduct violation in CMUQ

### **Habitat for Humanity Service , Vietnam | May 2017**

- Part of a 14 membered team that built a house in Vietnam under Habitat for Humanity

### **Ritsona Refugee Camp Volunteer, Greece | March 2019**

- Volunteered to run a store, provide laundry services and work with women under Cross Cultural Solutions

### **Teaching Service Learning , Sri Lanka | Spring 2017**

- Volunteered to teach English at a kindergarten in Kandy

### **Part of Initiating Meaningful Pittsburgh and Qatar Ties, Pittsburgh | Spring 2018**

- Chosen to participate in exchange program with Carnegie Mellon University in Pittsburgh to enhance ties

### **Economies of the Future Trip, Japan | May 2019**

- Aimed to understand the integration between Science, Technology, Business and Culture in a thriving economy

### **Executive member of the Bio Sci Club & Marketing Executive for Andrew Knight Club**

## **INTERESTS**

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### **Associated Board of the Royal Schools of Music (ABRSM) Piano Music Grade 8 qualified**

- Currently completing teaching diploma (dipABRSM) under the ABRSM board

### **Trekked the Himalayas to Annapurna Base Camp, Nepal | May 2016**

- Took part in a 9 day trek to the base camp at 4,130 m (13,550 ft) above sea level.