

# Mengdi Zhang

## Curriculum Vitae

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### Education:

M.S.	Biomedical Engineering University at Buffalo, Buffalo, NY <b>Project Title:</b> “Exosome Delivery of Anti-microRNA-21 for Idiopathic Pulmonary Fibrosis Treatment”	Aug.2020-Dec.2021 GPA:3.852/4.0
B.S.	Biomedical Science University at Buffalo, Buffalo, NY Magna Cum Laude, Dean’s honor list	Aug.2016-May 2020 GPA:3.585/4.0

### Professional Experiences:

#### **Randstad Professionals US, LLC/**

#### **Astellas Innovation Management LLC**

Cambridge/Westborough, MA

*Research Associate Support Resource Contractor, mRNA therapy* March 2022-Present

- **Successfully proposed**, designed, and conducted protocols for engineered extracellular vesicles (EV)-based delivery for mRNA therapy with high loading efficiency.
- Built up strong collaboration skills with cross-functional teams.
- **Successfully developed** the first internal mRNA product via plasmid construction, E.coli colony culture, colony PCR, gel electrophoresis, sanger sequencing, maxi-prep, plasmid purification, plasmid linearization and in vitro transcription (IVT) synthesis.
- **Successfully performed** I.V. injection for drug delivery and harvested liver, muscle, lung, and bone for tissue dissociation, flow cytometry, single cell sorting, MacsQuant analysis and high-throughput RNA extraction.
- Ensured mRNA quality check via bioanalyzer, endotoxin measurement, temperature melting (TM) assay, ELISA and Dot blot for dsRNA detection.
- Utilized techniques to analyze protein expression by AlphaLISA, Quantigene Plex, Western Blot, 384 wells In-cell western (ICW), and JESS.
- Proficient in performing opal multiplex and single plex staining for immunohistochemistry (IHC), In situ hybridization (ISH), immunofluorescence (IF), and RNAscope assays on Leica Bond.
- Formulated various types of **LNP** by Nanoassemblr and characterized by Zetasizer, Nanosight, and RiboGreen assay.
- Qualified small animal handling, subcutaneous injection, I.V. injection, I.P. injection, I.M. injection, euthanasia, anesthesia, and tissue harvest from both Astellas’ Animal Vivarium and Charles River Laboratories (CRADL).
- Routinely analyzed laboratory data via Excel and GraphPad Prism, recorded entries in electronic laboratory notebook, and effectively communicated findings to colleagues.
- Participated and presented group weekly update, bi-weekly data sharing meeting, and monthly data sharing meeting with Japan team.

**University at Buffalo (UB)**

Buffalo, NY

*Graduate Research Assistant, Engineered Theranostics Lab*

Sep.2020-Feb.2022

- Conducted research in Dr.Yun Wu's laboratory on different cell source's exosome delivery of anti-microRNA-21 for idiopathic Pulmonary Fibrosis treatment
- Gained hands-on experience on western blot, mammalian cell culture, RT-qPCR, size exclusion chromatography, electroporation, UV-spectrophotometer, Nanosight, exosome isolation, dynamic light scattering, ELISA, and flow cytometry.
- Obtained animal training from Institutional Animal Care and Use Committee (IACUC) such as I.P. injection, I.V. injection, subcutaneous injection, euthanasia, anesthesia, tissue harvest, and post procedural monitoring.
- Mentored undergraduate student in appropriate laboratory techniques and provide ideas on poster design for CLIMP UP summer program.

*Undergraduate student researcher, Biochemistry Lab*

March 2019-May 2019

- Learned the key relationship between tissue inhibitors of metalloproteinases (TIMPs) and Matrix metalloproteinase (MMPs) in liver fibrosis.
- Conducted transformation of DH5 $\alpha$ E. Coli cells for mini-prep plasmid production
- Extracted and purified recombinant DNA, and characterized by restriction enzyme digestion via SDS-PAGE
- Routinely recorded, organized, and summarized laboratory data.

**Extracurricular Activities:****VA Western New York Healthcare Center**

Buffalo, NY

*Escort and Emergency Room Volunteer*

Oct. 2018 – Jan 2020

- Communicated with patient's needs to nurse and acted as liaison for healthcare team.
- Cleaned patient space and equipment, prepared beds, restocked medical supplies.
- Transport patients to all areas within hospital
- Completed 180+ hours of volunteer services.

**UB Association for Pre-Medical Student (APMS)**

Buffalo, NY

*Volunteer Coordinator*

Oct. 2017-May 2020

- Participated in volunteering at Ronald McDonald House to cook a meal for families of children receiving medical treatment in Buffalo.
- Communicated with local non-profit organization for volunteering.
- Involved in 718 Ministries non-profit organization construction projects.
- Learned basic suture clinic techniques from health professional speakers.
- Scheduled multiple volunteer activities for students willing to help community.

**MDA-Rochester Rotary Sunshine Camp**

Rochester, NY

*Onondaga Camp Counselor*

Summer 2019

- Developed close relationship with campers between the ages of 8 and 11 that are diagnosed with muscular dystrophy and other counselors through effective communication and active mental support.
- Taken the role of 24/7 caregiver, friend, and confidence-builder.

- Collaborated and planned camp activities with other camp counselors to create the best week of the summer for the campers.

**University at Buffalo (UB)**

Buffalo, NY

*International orientation leader*

Summer 2018 – 2019

- Attended international student welcome series to provide new international students a smooth transition from one country to another country.
- Guided diverse groups of students to a campus tour and essential grocery shops.
- Served as “Humans of Buffalo” on the International BULLETin Spotlight in 2019.
- Used professional portrait photography skills to capture memorable moments during the international orientation welcome party.

**UB Academic Success Center**

Buffalo, NY

*Student Assistant*

Sept. 2017-May 2020

- Answered phones and assisted with questions that students may have had.
- Instructed and assisted students in the study center with academic resources.
- Scheduled and confirmed special room request for student to study.

**Dr. Jade Hon’s Neurology Office**

Flushing, NY

*Volunteer*

Feb. 2016-May 2016

- Organized files and communicated with patients to help with their needs.
- Checked patients’ insurance eligibility.
- Scanned patients’ consultation notes for data storage.

**Chinese-American Planning Council (CPC), Inc.**

Flushing, NY

*Teacher’s assistant at P.S.20*

July 2015-Aug. 2015

- Assisted the head teacher with planning classroom activities and lesson plans.
- Tutored 3<sup>rd</sup> grade students on Math and English.
- Developed and designed games for Bazaar.

**Skills:** Familiar with MATLAB, MS suite, Prism GraphPad, ImageJ, FlowJo, Bio Render, Snapgene, Phenochart, ImageScope, ZEN3.4 (Blue edition), Printer operation

**Language:** English, Mandarin (Proficiency), Japanese (Beginner), Wenzhounese