**JIATONG LI**

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### Education

**Columbia University** New York, NY

Major: Biostatistics 2023.08-Present

**Emory University** Atlanta, GA

*Bachelor of Science* 2021.07-2023.06

Major: Biological Science

**Sichuan University** Chengdu, Sichuan, China

*Bachelor of Science* 2019.09-2021.06

Major: Bioengineering

### Research Experience

**Determining heme metabolism in *Streptococcus pyogenes* through import of various surface proteins**

*Research Assistant* 2021.10-2022.10

* Determined the CFU/ml coefficient in regards to OD600 for *Streptococcus pyogene* to serve as a standard for calculating bacteria harvested for end-point assays
* Determined the effects of removing the SiaFGH genes on gene expression including Shr and SiaA by Western Blot and rtPCR

**Co-culturing genetically modified *C. minutissima* and *E. coli* for efficient biofuel production**

*Research Assistant* 2022.07-2022.10

* Developed a synthetic biological system to increase lipid production in genetically modified microalgae to serve as an intermediate for chemical reactions creating biofuels.
* Established a co-culturing system using genetically modified *C. minutissima and E. coli.*
* Genetically engineered *E. coli* producing indole-3-acetic acid (*IAA*) to increase microalgae growth and genetically modified *C. minutissima* to express lipid-producing genes such as *glycerol-3-phosphate acyltransferase* (*GPAT*), *lysophosphatidic acid acyltransferase* (*LPAAT*), *and diglyceride acyltransferase* (*DGAT*) to increase lipid production.

**Technology on using Phenylalanine ammonia-lyase (PAL) for enzyme replacement treatment of phenylketonuria (PKU)**

*Team Leader*  2022.02-2022.10

* Established a biosynthetic methodto produce the highly active FuPAL *enzyme* derived from *Fritillaria unibracteata* *for* the *treat*ment of *PKU.*
* Designed and implemented an experimental protocol to clone the *PAL* gene by performing bioinformatics analysis, codon bias analysis, and expressing it in genetically modified *E. coli*.
* Expressed FuPAL protein at optimal levels by determining ideal induction conditions and characterized mutant protein function.
* Determined the effects of sodium alginate mass fraction and CaCl2 concentrations on immobilized FuPAL enzymatic activity
* Performed orthogonal experiments to improve the immobilization process.

**Hnoss——An effective way to cure stress-related and androgenetic alopecia**

*Core Researcher* 2021.02-2021.10

* Developed *a* synthetic *product* to promote *hair growth and reliev*e *stress*-induced *hair loss.*
* Performed a literature review on the role of GAS6 protein in hair follicle stem cells and its involvement in stress-induced hair loss.
* Constructed a plasmid for the heterologous expression of GAS6 and EGF in *Bacillus subtilis*, including the introduction of a toxin-antitoxin system to address safety concerns.
* Combined the genetically modified *Bacillus subtilis* with a hydrogel material to create a hair care product attenuating stress-induced hair loss.

**Aqueous two-phase droplet-templated alginate/calcium carbonate colloidal capsules via biomineralization**

*Research Assistant* 2019.04-2020.05

* Fabricated *a two-phase aqueous microfluidic device capable of producing uniformly sized gel microspheres* using *a high throughput single-pass approach and* desirable *colloidal capsules with* improved *biocompatibility* compared to *conventional methods.*
* Optimized experimental conditions to improve the stability of the two-phase aqueous system.
* Prepared porous alginate/calcium carbonate colloidal capsules using the instillation method.
* Investigated the effects of different proteins on calcium carbonate coverage on the surface of calcium alginate microspheres.

### Awards, Honors, & Scholarships

First Prize Winner, 2019 FLTRP Cup National English Writing Competition 2019

Second Prize Winner, 2019 FLTRP Cup National English Reading Competition 2019

Best Debater on Freshmen Debate Competition, College Debate Society 2019

The Third Prize Scholarship 2020

The Third Prize Scholarship 2021

Outstanding Student Leader 2020

Outstanding Student Leader 2021

### Skills

**Technical Skills**: DNA extractions, protein purification, PCR, and bacterial culture.

**Computer Skills**:SAS, R.

**Research Interests**: Cancer therapy, tissue engineering, and regenerative medicine.

**Standard Tests:** TOEFL: 108 (R 30, L 29, S 22, W 27) GRE: 328 (V 162, Q 166, AW 4.0)