

Emmeline L. Cheng

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EDUCATION

University of Washington (Seattle, WA) Sep 2016 - present
Doctor of Philosophy, Department of Bioengineering - **Anticipated October 2021**
Enrolled in M.S. program in 2016 and transferred to Ph.D. program in 2018

National Yang-Ming University (Taipei, Taiwan) Sep 2014 – Aug 2016
Master of Science, Institute of Biomedical Engineering

China Medical University (Taichung, Taiwan) Sep 2010 – June 2014
Bachelor of Science., Department of Biological Science and Technology

LAB EXPERIENCE

University of Washington, Graduate Student Researcher Jan 2017 – present
Advisor: Dr. Suzie H. Pun

- Developing a simultaneous, traceless cell isolation system with DNA aptamers
- Identifying novel DNA aptamer as synthetic targeting ligands for T cells
- Using aptamer-drug conjugate or complex as malignant T cell-targeting drug delivery systems

National Yang-Ming University, Graduate Student Researcher July 2014 – Aug 2016
Advisor: Dr. Tse-Ying Liu

- Developed a gene delivery system with polymers and plasmid DNA for preventing in-stent restenosis

China Medical University, Undergraduate Researcher July 2011 – June 2014
Advisor: Dr. Wen-Wen Huang

- Studied the intracellular signal transduction pathways of an herbal bioactive molecule inhibiting melanoma

MENTORSHIP AND TEACHING

Mentor of Undergraduate Capstone Researcher Mar 2019 – present
University of Washington, Bioengineering Department

- The project focuses on improving aptamer identification protocols
- Mentee received Mary Gates Research Scholarship with her capstone project proposal

Teaching Assistant in Introductory Biology Mar 2017 – June 2017
University of Washington, Biology Department

- Gave lectures and led experiments for undergraduate students in the laboratory sections
- Held office hours, maintained on-line discussion board, and graded exams

Teaching Assistant in Biotechnology Instruments, Introductory Biology, and Introductory Biology Laboratory Sep 2012 – Jun 2014
China Medical University, Department of Biological Science and Technology

- Prepared lecture presentations and lab materials
- Held office hours, graded exams, and organized student feedback

WORK EXPERIENCE

Seattle Genetics (Bothell, WA) June 2017 – Aug 2017
Summer Intern, Translational Medicine Biomarker Group

- Investigated the impact of ADCETRIS®-induced cell death on the innate immune system
- Evaluated the potential of an immunogenic cell death marker being used in clinical settings

PUBLICATIONS

**authors contributed equally*

1. **Cheng, E.L.***, Cardle, I.I.* , Kacherovsky, N.* , Zhou, Y., Raman J., Yen, A., Salipante, S.J., Jensen, M.C., & Pun, S.H. Discovery of a transferrin receptor 1-binding aptamer for removing cancer cells from adoptive T-cell therapy manufacturing. (manuscript in preparation)
2. **Cheng, E.L.**, Kacherovsky, Yen, A., Salipante, S.J., & Pun, S.H. Drug delivery to T leukemic cells with a novel aptamer. (manuscript in preparation)
3. **Cheng, E.L.**, Kacherovsky, & Pun, S.H. Traceless multiplexed cell isolation system with aptamers. (manuscript in preparation)
4. Cardle, I.I.* , **Cheng, E.L.***, Jensen, M.C., & Pun, S. H. Biomaterials in Chimeric Antigen Receptor T-Cell Process Development. *Accounts of Chemical Research*. 53(9), 1724-1738 (2020).
5. **Cheng, L.Y.**, Wang, Y.C., Chen, M.H., Tung, F.I., Chiu, K.M., Liu, & T.Y. An Engineered Gene Nanovehicle Developed for Smart Gene Therapy to Selectively Inhibit Smooth Muscle Cells: An In Vitro Study. *International Journal of Molecular Sciences*. 21(4), 1530 (2020).
6. Kacherovsky, N.* , Cardle, I.I.* , **Cheng, E.L.**, Yu, J.L., Baldwin, M.L., Salipante, S.J., Jensen, M.C., & Pun, S. H. Traceless Aptamer-Mediated Isolation of CD8+ T Cells for Chimeric Antigen Receptor T-Cell Therapy. *Nature Biomedical Engineering*. 3, 783–795 (2019).
7. Olden, B. R., **Cheng, E.**, Cheng, Y. & Pun, S. H. Identifying key barriers in cationic polymer gene delivery to human T cells. *Biomaterials Science*. 7, 789-797 (2019).

PRESENTATIONS

1. Kacherovsky, N.* , Cardle, I.I.* , **Cheng, E.L.**, Yu, J.L., Baldwin, M.L., Salipante, S.J., Jensen, M.C., & Pun, S. H. Traceless Isolation of CD8+ T Cells by Reversible, Aptamer-Based Selection for CAR T Cell Therapy. Biomedical Engineering Society Annual Meeting (Poster), 2019.
2. **Cheng E.L.Y.**, Huang H.H., Liu T.Y. Development of Carboxymethyl-hexanoyl chitosan/Polyethylenimine gold Nanocomplex as Non-viral Gene Carrier. Annual Meeting of Polymer Society (Poster), 2016.
3. **Cheng E.L.Y.**, Pai S.J., Peng S.F., Huang W.W. Baicalin induces B16-F10 murine melanoma G2/M cell cycle arrest and apoptosis. Asia University and China Medical University Joint Conference (Poster), 2013.

AWARDS

Excellence in Poster Presentation - Asia University and China Medical University Joined Conference on Biotechnology	2013
Excellence in Teaching Assistant Performance - China Medical University	2013
Academic Achievement Awards - China Medical University	2011-2012