PhD Project Description

School/Department:	Department of Molecular Genetics at Erasmus MC

Supervisor information:	

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Miao-Ping Chien received her PhD in chemistry and biochemistry from the University of California, San Diego in 2013, and went on to do a postdoc at Harvard University, working on technology development for biology (combining biophysics, computation and optical instrumentation). She joined Erasmus University Medical Center (EMC) as a group leader in June 2017 and became a principal investigator at Oncode Institute in 2019. Her current research focuses on developing and applying multidisciplinary technologies (advanced microscopy and imaging, computation, single cell technology, bioinformatics, (photo)chemistry) to investigate the underlying mechanisms of tumorigenesis, particularly of rare cancer-driving cells. She is also a founder of UFO Biosciences, which aims to enable better cancer care by creating treatment options for rare, cancer-driving cell populations that escape traditional treatment.

- **Dr. Miao-Ping Chien**
- **Email:** m.p.chien@erasmusmc.nl
- **Website:** http://www.mpchienlab.org/
- **Selected Grants:**
  - 2021 Oncode Technology Development Grant
  - 2020 Ammodo Science Award
  - 2020 Erasmus-TU Delft Convergence Grant
  - 2019 Oncode Institute Junior Fellow
  - 2018 Erasmus MC Fellowship
  - 2018 CancerGenomiCs.nl Junior PI's Grant
  - 2018 Dragon Gate Grant (Taiwan's Ministry of Science and Technology)
  - 2017 NWO Veni award (by NWO Talent Scheme)
  - 2017 CancerGenomiCs.nl Junior Fellow

- **Selected publications:**
  1. You, Li*, Su, P.R.*, Betjes, M.*, Ghadiri Rad, R., Chou, T.C., Beerens, C., van Oosten, E., Leufkens, F., Gasecka, P., Muraroʹ M., van Toľ R., van Steenderen, D., Farooq, S., Hardillo, J.A.O., Baatenburg de Jong, R., Brinks, D.A, **Chien, M.P**. "Functionally annotated transcriptomic profiling of single cells from heterogeneous populations based on dynamic phenotypes", **Nature Biomedical Engineering**, In press (2021)
  2. Su, P.R., You, L., Beerens, C., Bezstarosti, K., Demmers, J., Pabst, M., Kanaar, R., Hsu, C.C., **Chien, M.P.**, "Functional single cell proteomic profiling of cells with abnormal DNA damage response dynamics". Under review
  3. Li L., Ugalde A. P., Scheele C. LGJ, Dieter S. M., Nagel R., Ma J., Pataskar, A., Korkmaz, G., Elkon R., **Chien M.P.**, You L., Su P. R., Bleijerveld O. B., Altelaar, M., Momchev L., Manber Z., Han R., van Breugel P. C., Lopes R., ten Dijke P., van Rheenen J., Agami R. "A Comprehensive enhancer screen identifies TRAM2 as a key and novel mediator of YAP oncogenesis." **Genome Biology**, 2021, 22, 54, https://doi.org/10.1186/s13059-021-02272-8
  4. **Chien M.P.***, Brinks D.*, Adam, Y., Bloxham, W., Kheifets, S., Cohen A.E. "Photoactivated voltage imaging in tissue with an archaerhodopsin-derived reporter", **Science Advances**, 2021: Vol. 7, no. 19, eabe3216
  5. Werley C.A., **Chien M.P.**, Cohen A.E. "An ultrawidefield microscope for high-speed fluorescence imaging and targeted optogenetic stimulation." **Biomedical Optics Express**. 2017, 8(12), 5794-5813.
  6. **Chien M.P.**, Hu D., Barback C.V., Rush A.M., Orr G., Hall D.J., and Gianneschi N. C. "Enzyme-Directed Assembly of Nanoparticles in Tumors Monitored by In Vivo Whole Animal and Ex Vivo Super Resolution Fluorescence Imaging." **J Am Chem Soc**. 2013 Dec 18;135(50):18710-3.
  7. **Chien M.P.**, Thompson M.P., Ku T.H., Barback C. and Gianneschi N. C. "Enzyme-Directed Assembly of a Nanoparticle Probe in Tumor Tissue**.**" **Advanced Materials**. 2013, July 12 (25): 3599-3604.

PhD Project Description

Project Title:	***Investigation of tumorigenesis via advanced imaging and single cell -omics analysis***
Abstract:	The Chien Lab is looking for self-motivated PhD students with a strong interest in working in a multidisciplinary lab. In our lab, we develop single cell technologies combining optical, biomedical and bioinformatics methods to address biological questions, particularly in cancer biology and immuno-oncology. The candidate will have a chance to work on wet-lab projects, dry-lab projects or a combination of these two. For the wet-lab projects, the candidate can apply the technologies developed in Dr. Chien's group, including advanced imaging and single cell sequencing (analysis), to cancer cell lines or patient-derived primary cultures to investigate molecular mechanisms of tumorigenesis and therapy resistance. For the dry-lab projects, the candidate can work on advanced imaging analysis including machine learning-based approaches or bioinformatics analysis (-omics data analysis).

Requirements of candidate:	• We are looking for a highly motivated, hardworking student to join our very international team. Our strength is in using team work to tackle large scientific questions and thus requires a student with good communication skills.
	• Master degree or MD
	• Scholarship that will, at least, cover subsistence allowance and international air plane ticket (we could help with the scientific part of your scholarship proposal)
	• English language requirement:
	    ○ *English speaking countries & Netherlands:* no requirement
	    ○ *Other countries:* IELTS 7.0 *(min 6.0 for all subs)*, TOEFL 100 *(min 20 for all subs)*