# Heechul (Ryan) Chung

*2660 Oak Street, Vancouver, BC V6H 3Z6 Canada*

| ✉ heechulrchung@gmail.com | ✉ rhcchung@student.ubc.ca |

## RESEARCH INTERESTS

*Computational biology; single-cell and spatial genomics; Translational Cancer genomics; Machine Learning for precision medicine*

## PROFESSIONAL WORK & RESEARCH EXPERIENCE

**Research Institute of the McGill University Health Centre**  Aug 15,2022 – Jan 14,2023
*Research Associate (Research supervisor: Jun Ding, Ph.D.)*  *Montreal, Quebec*
- Participated in research about the role of cancer-associated fibroblasts in reduced lung metastasis of mammary tumor from ElF4E deficient mice samples and WT samples.

**Veraverse, Inc. (*In collaboration with Milner Therapeutics Institute*)**  Sep 01,2021 – July 31,2022
*Computational biologist*  *Seoul, Korea*
*(Research supervisor: Namshik Han, Ph.D.)*
- Participated in research about Stem-like subtype of gastric cancer
- Investigated the characteristics of Stem-like gastric cancer derived metastasis

**Asan Center for Cancer Genome Discovery in Collaboration with Dana-Farber Cancer Institute**  Mar 01, 2020 – Aug 15, 2021
*Seoul, Korea*
*Computational biologist/Research associate*
*(Research supervisor: Chang Ohk Sung, M.D., Ph.D.)*
- Participated in research about colon cancer organoids and primary tumors
- Investigated the genetic lineage between cancer-associated fibroblasts and normal tissue resident fibroblasts
- Investigated the putative biomarkers for HCC, predicted immunotherapy response in HCC patients by machine learning
- Participated in research to identify specific lung cancer organoids and corresponding primary tissues for developing new immunotherapy

## RESEARCH EXPERIENCES

**Collins Lab, The University of British Columbia**  May 2023 -
*Ph.D. student (Supervisor: Colin Collins, Ph.D.)*  *Vancouver, BC*
- Graduate research assistant and Ph.D. student focusing on translational cancer genomics with computational biology

**AndersenLab, Northwestern University**  Sep 2018 - Sep 2019
*MS student (Supervisor: Erik Andersen, Ph.D.)*  *Evanston, IL*
- Investigated natural variation in mtDNA copy number of *C. elegans* wild isolates by both laboratory experiments and computational analyses

**Department of Computer and Information Technology, Purdue University**  Summer 2017
*Internship (Advisor: Erik Matson, Ph.D.)*  *West Lafayette, IN*
- Selected as one of the 30 South Korea government sponsored students, participated in big-data research about two months

**Genomic Diversity Lab, Sogang University,** *Undergraduate Research Assistant*  Sep 2017 - Aug 2018
*(Advisor: Hyung-Doo Shin, DVM., Ph.D.)*  *Seoul, Korea*
- Participated on researching on validation of Acute Myeloid Leukemia (AML) specific genetic variants
Learned basic lab techniques and how to deal with basic equipment

## CORE COURSES

**Northwestern University**  Sep 2018 - Sep 2019
- Computational biology- *Quantitative Biology, Quantitative Analysis of Biology*  *Evanston, IL*
- Genetics/Genomics- *Functional Genomics, Genetics & Epigenetics, Biomedical Genetics*
- Machine Learning/Statistics- *Statistics for Life Sciences*

**Sogang University**  Feb 2012 – Aug 2018
- CS major- *Data Structures, Programming Languages, Computer Organization and Logic, Design and Analysis of Algorithms, Operating Systems, Introduction to Computer Network*  *Seoul, Korea*
- Life Sciences major- *General Biology 1&2, Biochemistry 1&2, Molecular Biology, Molecular Cell Biology, Genetics, Cancer Biology, Applied Biotechnology Experiment*
- Math courses- *Calculus 1&2, Linear Algebra, Applied Mathematics 1&2*

## PUBLICATIONS

- **Chung, H.C**., Cho, E.J., Lee, H., Kim, W.-K., Oh, J.-H., Kim, S.-H., Lee, D. and Sung, C.O. (2021), Integrated single-cell RNA sequencing analyses suggest developmental paths of cancer-associated fibroblasts with gene expression dynamics. Clin. Transl. Med., 11: e487. https://doi.org/10.1002/ctm2.487 (*2020 Citation Impact:* ***11.492***)

- Cho, E.J., Kim, M., Jo, D. *et al.* Immuno-genomic classification of colorectal cancer organoids reveals cancer cells with intrinsic immunogenic properties associated with patient survival. *J Exp Clin Cancer Res* 40**,** 230 (2021). https://doi.org/10.1186/s13046-021-02034-1 (*5 years Citation Impact:* ***11.161***)

## EDUCATION

| | |
|---|---|
| **The University of British Columbia - Faculty of Medicine** | May 2023 - |
| *Ph.D. in Interdisciplinary Oncology* | *Vancouver, BC* |
| **Northwestern University - Department of Molecular Biosciences** | Sep 2018 - Sep 2019 |
| *Master of Science in Quantitative and Systems biology* | *Evanston, IL* |
| *Thesis project: Elucidating the molecular mechanism underlying natural variation in C. elegans mitochondrial DNA copy number* | |
| **Sogang University – School of Engineering & Natural Sciences** | Feb 2012 - Aug 2018 |
| *Bachelor of Science in computer science & Life science (Double Degree)* | *Seoul, Korea* |
| **Gyeonggi Academy of Foreign Languages** | Feb 2008 - Feb 2011 |
| *High school* | *Uiwang-Si, Gyeonggi-Do* |

## LEADERSHIP EXPERIENCE & EXTRA CURRICULAR ACTIVITIES

**Sogang Software Education Center – Undergraduate teaching assistant**  Sep 2016 - Aug 2017
- An undergraduate teaching assistant for basic Python programming - Was essential to all freshmen  *Seoul, Korea*

**USFK, 2nd operations command – Interpreter/Squad Leader**  Sep 2013 – Aug 2014
- Interpreter/Squad Leader at the 2nd operations command of ROK Army & 2502nd DLD of 8th army, USFK  *Daegu, Korea*

Provided simultaneous translations, leaded the squad of interpreters

## AWARDS & CERTIFICATIONS

- Medal from Colonel Robert G. Mcneil of US army for my contribution as an interpreter/squad leader
- Certificate from Professor Erik T. Matson of Purdue University for my summer internship
- Nominated for the "Hanbitsa" (Korean academic distinction for outstanding scholars) in the Biological Research Information Center (BRIC)

## SKILLS

**Programming languages**: R (Proficient), Bash (Proficient), Python (Competent)
**Machine learning frameworks***:* TensorFlow, Pytorch