JUNSOO KIM

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EDUCATION

University of Oxford, UK *2012 - 2013*
M.Phil in Integrated Immunology
Nuffield Department of Surgical Sciences

University of Edinburgh, UK *2008 - 2012*
B.Sc (Hons) in Biological Sciences (Biotechnology)
School of Biological Sciences

RESEARCH INTERESTS

I am motivated to develop computational models to understand the effect of the RNA tailing on gene regulation. I am excited by the potential of long-read sequencing technologies for elucidating the dynamic nature of RNA tail that were recalcitrant to detection with short-read sequencing.

PUBLICATIONS

1. Seo JS*, Rhie A*, **Kim J***, Lee S*, Sohn MH, Kim CU et al., De novo assembly and phasing of a Korean human genome. Nature. 2016 Oct 13:538(7624):243-247 (*co-first author)

PROFESSIONAL EXPERIENCE

Data Strategy Team, Macrogen Inc., Korea *2019 - Present*

– Disease risk prediction modelling

(a) developing a machine learning based analysis pipeline using electronic medical records and genetic data for predicting the complex disease risk.

(b) built an automatic marker selection system to improve the speed of service development.

In silico Team, Seegene Inc., Korea *2018 - 2019*

– High Multiplex primer design

(a) constructed an automatic primer design system for the multiplex detection of infectious microorganism (including COVID-19).

(b) developed a web-based program for evaluation and visualization of the primer performance.

Bioinformatics Division, Macrogen Inc., Korea *2013 - 2017*

– Next-generation sequencing data analysis

(a) developed a pipeline for assembly-based structural variation detection and annotation.

(b) analyzed structural variation using population data for discovery of Asian specific mutations.

RESEARCH EXPERIENCE

Postgraduate research at University of Oxford Summer 2013
Supervisor: Prof Jan Rehwinkel
Research: PA-X and RIG-I: How flu modulates the innate immune response

Retinoic acid-induced gene I (RIG-I) plays a crucial role in detecting infection by RNA viruses and in inducing antiviral immunity via induction of type I interferons (IFNs). We aimed to identify whether Influenza A virus is evolved to block IFN production by targeting the RIG-I pathway.

Undergraduate research at University of Edinburgh Summer 2012
Supervisor: Dr Jo Stevens
Research: Identification of B.pseudomallei factors that subvert cellular actin pathways

B.pseudomallei facilitate cellular actin pathway to enter non-phagocytic cells and induce intracellular actin-based motility. In this project, the ability of the two putative effector proteins to interact and remodel the host cell actin cytoskeleton were assessed.

Research internship at University of Edinburgh Summer 2011
Supervisor: Prof. Jeremy Hughes
Research: The induction of M1 macrophage to M2 macrophage using IL-4 treatment

Two distinct macrophage sub-populations with different functions, the inflammatory (M1) and the anti-inflammatory (M2) macrophages have been recognized. In this project, we aimed to identify whether chimeric M1/M2 macrophage subset displaying both M1 and M2-like phenotype can exist by assessing the genetic markers and cytokine secretion.

Research internship at KAIST Summer 2010
Supervisor: Prof Yong-Mahn Han
Research: Differentiation of human embryonic stem cells to dopaminergic neurons

Parkinson's disease is a neuro-degenerative disorder characterized by progressive and selective loss of dopaminergic (DA) neurons in the mid-brain substantia nigra. We aimed to develop a method for the efficient generation of functional DA neurons from human embryonic stem cells on a large scale.

AWARDS

The Top 5 Biological Research Achievement in Korea Winter 2016
Biology Research Information Center (BRIC)

The Korean genome assembly paper, which was published in Nature in 2016, was listed as one of the top five biological research achievements in Korea.

SKILLS

Programming language	Python, JavaScript, HTML, LATEX
Wet lab techniques	Western blot, qPCR/rtPCR, Flow Cytometry, ELISA, ELISPOT