

ANGEL KRITTINAN KONGSOMBOONVECH, PH.D.

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Summary

- Postdoctoral scholar with over 7 years of experience in host-pathogen interactions, focusing on the interdisciplinary fields of parasitology, immunology, stem cell biology, and erythrocyte biology.
- Broad technical expertise in tissue culture, immunoassays, molecular biology techniques, microscopy, flow cytometry, and CRISPR/Cas9 genome editing.
- Highly organized and collaborative with strong mentorship experience. Excellent communication and presentation skills. Strong ability to work both independently and in teams.

Education

Ph.D., Quantitative and Systems Biology University of California, Merced (UC Merced)	12/2020
M.H.S., (Masters of Health Science) Biomedical Sciences Quinnipiac University	01/2014
Postgraduate certificate, Infectious Diseases London School of Hygiene and Tropical Medicine	11/2012
B.S., Biochemistry University of California, Los Angeles (UCLA)	09/2009

Research Experience

Postdoctoral Scholar; Egan Lab, Stanford University 01/2021 - Present

Investigating the function of erythrocyte CD44 during malaria parasite invasion

- Discover that cross-linking of erythrocyte CD44 promotes malaria parasite invasion
- Examine the molecular and signaling effects of CD44 cross-linking in erythrocytes
- Perform genomic editing of erythrocytes – CRISPR/Cas9 genome editing of stem cells and *ex vivo* erythropoiesis to assess the role of erythrocyte CD44 in malaria parasite invasion
- Awarded 2 competitive postdoctoral fellowships
- Mentored an undergraduate summer student from Stanford's Diversity, Respect, and Inclusion are Vital for Excellence (DRIVE) program

Investigating host cell responses of erythroid progenitor cells to parasite infection

Collaboration with Narla and Davis labs at Stanford

- Optimize and execute experiments to identify changes in erythroid progenitor in response to *Plasmodium falciparum* infection
- Provide support in experimental design

Developing innovative therapy for heart failure: Mitochondria-rich extracellular vesicles from erythroid progenitor cells

Collaboration with Dr. Gentaro Ikeda and Dr. Phillip C. Yang at Stanford

- Generate mitochondria-containing extracellular vesicles from erythroid progenitor cells by performing *ex vivo* erythropoiesis of human hematopoietic stem cell
- Advise the optimization of delivering mitochondria-rich extracellular vesicles derived from erythroid progenitor cells to cardiac cells

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Doctoral Student Researcher; Jensen Lab, University of California, Merced 06/2015 – 12/2020
Investigating host and parasite requirements for CD8 T cell IFN γ responses to *Toxoplasma gondii* infections

- Identified host requirements for CD8 T cell responses to *T. gondii* infection
- Explored the role of NLRP3 protein and inflammasome pathway as requirement(s) for CD8 T cell responses to *T. gondii* infection
- Identified novel parasitic protein(s) that modulates host adaptive immune response by utilizing genetic crosses of parasite strains and quantitative trait loci mapping
- Generated parasite mutant strains using CRISPR/Cas9 genome editing
- Animal handling and husbandry; managed several mice colonies
- Awarded several highly competitive fellowships for dissertation and mentorship works
- Mentored 3-4 incoming Ph.D. students per year and 7 undergraduate students in total

Publications

Baro B., Kim C.Y., Lin C., **Kongsomboonvech A.K.**, Tetard M., *et al.* (2023) *Plasmodium falciparum* exploits CD44 as a co-receptor for erythrocyte invasion. *Blood*. DOI: 10.1182/blood.2023020831.

Kongsomboonvech A.K.*, Garcia-López L.*, *et al.* (2023) Variation in CD8 T cell IFN γ differentiation to strains of *Toxoplasma gondii* is characterized by small effect QTLs with contribution from ROP16. *Front. Cell. Infect. Microbiol.* DOI: 10.3389/fcimb.2023.1130965. *Co-first authors.

Kongsomboonvech A.K., Rodriguez F., *et al.* (2020) Naïve CD8 T cell IFN γ responses to a vacuolar antigen are regulated by an inflammasome-independent NLRP3 pathway and *Toxoplasma gondii* ROP5. *PLOS Pathogens* 16(8): e1008327. DOI : 10.1371/journal.ppat.1008327.

Science Communication Awards

Poster Finalist, 13th Annual Pediatrics Research Retreat 04/2022
Stanford University School of Medicine

The AAI Young Investigator Award for oral presentation 04/2018
22nd Annual Woods Hole Immunoparasitology Meeting

Best Poster, Quantitative and Systems Biology Spring Retreat 05/2016
University of California, Merced

Skills

Laboratory Skills

- **Molecular and Cell Biology:** Tissue and cell culture (e.g. stem cell, immune cells, fibroblasts, immortalized cell lines, and parasites), *ex vivo* erythropoiesis, CRISPR/Cas9 genome editing, molecular cloning, bacteria culture and inoculation, Western Blot and phospho-Western Blot
- **Immunology:** Flow cytometry, ELISA, immunofluorescence, differentiation of bone marrow cells into macrophages and dendritic cells, T cell activation and cytokine response assays, *in vivo* work: mice handling, colony maintenance, breeding, dissection, tail bleeds

Software

- Microsoft Office— Word, Excel, PowerPoint
- GraphPad Prism
- FlowJo

References available upon request