About the Rising Star

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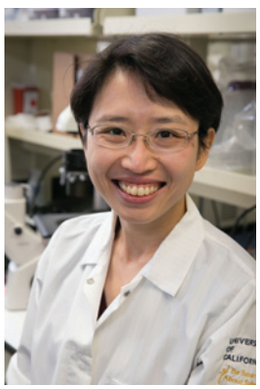

Photo courtesy of Reed Hutchinson for the Broad Stem Cell Research Center at UCLA

Yvonne Y. Chen, PhD, is an Associate Professor of Microbiology, Immunology, and Molecular Genetics at the University of California, Los Angeles (UCLA). She is also a Member Researcher in the Parker Institute for Cancer Immunotherapy.

Dr. Chen received her BS in Chemical Engineering from Stanford University and her PhD in Chemical Engineering from the California Institute of Technology. She performed postdoctoral research at the Seattle Children's Research Institute and the Department of Systems Biology at Harvard Medical School. Prior to joining UCLA in 2013, Dr. Chen was a Junior Fellow in the Harvard Society of Fellows.

The focus of Dr. Chen's research is applying synthetic biology and biomolecular engineering techniques to develop robust cell-based therapies for otherwise intractable diseases. Her work has been recognized by many early career investigator awards, including the Cancer Research Institute (CRI) Lloyd J. Old STAR Award.

As an inaugural CRI Lloyd J. Old STAR, Dr. Chen is exploring several strategies to improve the effectiveness of chimeric antigen receptor (CAR) T-cell therapy, which has shown remarkable success against B-cell cancers like leukemia and lymphoma, but limited efficacy and durability of benefits against other types of cancers. The approaches she is taking include the design of CARs that can recognize multiple targets, those that target soluble proteins and resist the immune-suppressing capabilities of the tumor environment, and those that can better discriminate between cancerous and healthy cells to avoid off-target effects.

Overall, as a CRI Lloyd J. Old STAR, Dr. Chen is working to further improve T-cell therapy by:

(i) gaining a systematic understanding of the sequence–structure–function relationship in CARs to enable more rational CAR designs;
(ii) building genetic circuitry to dynamically regulate the signaling pathways that influence the long-term persistence and functionality of CAR T cells; and
(iii) engineering T cells that can effectively modify the tumor microenvironment to promote immune infiltration and recruit natural immune responses against cancers that would otherwise escape immune attack.

With these technologies that are grounded in mechanistic understanding, Dr. Chen hopes that it will enable the development of innovative technologies that can benefit more patients with hard-to-treat cancers.

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