The immune system comprises a small, powerful network of blood cells that survey, detect and destroy almost all harmful invasions by germs or viruses but it often is unable to fight against deadly diseases such as cancer and HIV/AIDS. Lili Yang, PhD, seeks to understand how the immune system responds to attack by disease. Through her research, Yang hopes to develop effective therapies that will engineer the immune system of patients suffering from cancer and AIDS by manipulating their own blood cells to fight their diseases.

Our bodies often do not mount an immune response to cancer because the disease is the uncontrolled division of our own cells. Yang’s earlier research showed that immune cells, including hematopoietic (blood) stem cells, T cells and dendritic cells can be engineered to promote an immune response against disease. Her current research builds upon her past work on the immune system monitoring of and interaction with cancer cells, the suppression of the immune response against cancer, and ultimately, the translation of these discoveries into clinical uses such as engineering the immune system to fight cancer.

Yang’s research is collaborative involving a multi-disciplinary and multi-institutional research group called the Translational Consortium in Engineered Immunity. The group includes UCLA scientists as well as researchers from California Institute of Technology, USC, and the University of Connecticut.

Yang arrived at UCLA in January 2013 as a member the Broad Stem Cell Research Center and an assistant professor of microbiology, immunology and molecular genetics (MIMG). Previously, she worked with Nobel laureate Dr. David Baltimore as lead scientist and project manager of the engineering immunity program in the division of biology at Caltech.

Yang received her bachelor's degree at the University of Science & Technology of China, her master’s degree at UC Riverside, and her doctorate at Caltech. Her research is funded by the National Cancer Institute of the National Institutes of Health, and various UCLA entities including the Broad Stem Cell Research Center, the Translational Consortium in Engineered Immunity, the Department of MIMG, the David Geffen School of Medicine, the UCLA Clinical and Translational Science Institute, and the Jonsson Comprehensive Cancer Center.