Jun Huang, Ph.D.
Assistant Professor
Institute for Molecular Engineering
University of Chicago
ERC371, 5640 S Ellis Ave
Chicago, IL 60637

Telephone: (773) 702-3218
Fax: (773) 834-7756
Email: huangjun@uchicago.edu

February 26, 2019

Benjamin Werth, PhD
Senior Science Editor, *JoVE*
benjamin.werth@jove.com
Tel 617.500.6899

Dear Dr. Werth,

On behalf of my colleagues, I would like to submit our manuscript entitled "Visualizing Surface T Cell Receptor Dynamics four-dimensionally Using Lattice Light Sheet Microscopy" for publication in JoVE.

Lattice light-sheet microscopy is a powerful technique that can image the nanostructure and dynamics of cell surface receptors, intracellular molecules and cellular interactions with unprecedented speed and resolution. In this manuscript, we used T cell receptors (TCRs) as an example to show the dynamics of immunological synapse formation in 4D (x, y, z and time) using live primary T cells. The frame rate reaches 100 frames/second, which results imaging a single cell three dimensionally in 0.85 second. This allow us to track each individual TCR molecules/microclusters with a spatiotemporal resolution that has never been reached before.

The submission is in the form of JoVE with a 151-word summary paragraph (abstract), a 1512-word main text, a 1243-word method section, 19 references, 2 figures and 2 movies.

As we discussed before, we would like to publish this JoVE method paper after the publication of our primary research paper.

We thank you for handling this paper and look forward to hearing from you.

Best regards,

Jun Huang, Ph.D.
Institute for Molecular Engineering
University of Chicago
Phone: 773-702-3218
Email: huangjun@uchicago.edu