Stanford

Stefan L. Oliver

Lead Staff Scientist, Stanford Synchrotron Radiation Lightsource

Bio

BIO

Stefan Oliver is a creative senior scientist and educator with a special interest in the membrane fusion mechanisms of viral pathogens. Stefan uses and develops multidisciplinary approaches to delineate the molecular functions that underpin the mechanics of herpesvirus fusion. Recently he has been focused on solving near atomic resolution structures of antibody-bound glycoproteins using contemporary cryo-EM technologies. One of his overarching goals is to understand the complex interplay of the herpesvirus fusion complex with cellular factors at the atomic level using state-of-the-art structural biology tools.

In addition to his dedication to lab-based science, Stefan is involved in community outreach supporting scientists of the future. He participates as a judge for science competitions and also lectures to high school students about STEM. He is a strong advocate for the scientific method and seeks to get the best out of his mentees at all stages of their careers, guiding high school students and postdocs through their research projects.

Stefan's educational background includes a B.Sc. in Immunology and a Ph.D. in Veterinary Virology. He has spent more than 25 years in academic and biotechnology research laboratories in fields spanning immunology, pharmaceuticals, infectious diseases and structural biology. Special interests outside of his primary field of research are evolution and motorcycles. Stefan was the recipient of an American Motorcycling Association (AMA) Service award for providing information related to COVID-19.

SERVICE, VOLUNTEER, AND COMMUNITY WORK

- Speaker for STEM Outreach Collective (2017)

Publications

PUBLICATIONS

- **Cryogenic electron tomography reveals herpesvirus capsid assembly intermediates inside the cell nucleus.** *Nature communications*
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- **Targeted mutagenesis of the herpesvirus fusogen central helix captures transition states.** *Nature communications*
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- **A glycoprotein B-neutralizing antibody structure at 2.8A uncovers a critical domain for herpesvirus fusion initiation.** *Nature communications*
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- **An immunoreceptor tyrosine-based inhibition motif in varicella-zoster virus glycoprotein B regulates cell fusion and skin pathogenesis** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
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- **Extracellular filaments revealed by affinity capture cryo-electron tomography of lymphocytes.** *bioRxiv : the preprint server for biology*
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- **Preface** *VARICELLA-ZOSTER VIRUS*
  Arvin, A. M., Moffat, J. F., Abendroth, A., Oliver, S. L.
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- **The Structures and Functions of VZV Glycoproteins.** *Current topics in microbiology and immunology*
  Oliver, S. L.
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- **Target highlights in CASP14: analysis of models by structure providers.** *Proteins*
  Alexander, L. T., Lepore, R., Kryshtafovych, A., Adamopoulos, A., Alahuhta, M., Arvin, A. M., Bomble, Y. J., Bottcher, B., Breyton, C., Chiarini, V., Chinnam, N. B., Chiu, W., Fidelis, et al
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- **The N-terminus of varicella-zoster virus glycoprotein B has a functional role in fusion.** *PLoS pathogens*
  Oliver, S. L., Xing, Y. n., Chen, D. H., Roh, S. H., Pintilie, G. D., Bushnell, D. A., Sommer, M. H., Yang, E. n., Carfi, A. n., Chiu, W. n., Arvin, A. M.
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- **Varicella-zoster virus: molecular controls of cell fusion-dependent pathogenesis.** *Biochemical Society transactions*
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- **Dysregulated Glycoprotein B-Mediated Cell-Cell Fusion Disrupts Varicella-Zoster Virus and Host Gene Transcription during Infection** *JOURNAL OF VIROLOGY*
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- **Heterogeneity in the capsid protein of bovine enteric caliciviruses belonging to a new genus** *VIROLOGY*
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  Mendy, M., D'Mello, F., Kanellos, T., Oliver, S., Whittle, H., Howard, C. R.
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