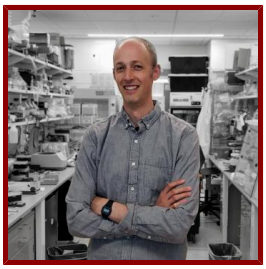
Stanford



Stephen M. Hinshaw

Assistant Professor (Research) of Molecular and Cellular Physiology

Bio

BIO

Stephen Hinshaw is an Assistant Professor in the Department of Molecular and Cellular Physiology and the Faculty co-Director of the Stanford Cryo-Electron Microscopy Center (cEMc). His laboratory develops and applies cutting-edge tools in chemical and structural biology to uncover fundamental cellular mechanisms and translate these insights into powerful new pharmacological strategies.

Stephen received his undergraduate degree from Stanford University and earned his Ph.D. from the Harvard Program in Genetics and Genomics, where he discovered fundamental mechanisms governing chromosome segregation during mitosis. He then conducted postdoctoral research as a Helen Hay Whitney Fellow supported by the Howard Hughes Medical Institute at Harvard Medical School, with additional training as a visiting postdoctoral fellow at the Janelia Research Campus. During this period, he used cryo-electron microscopy to determine the structures of protein complexes that underlie genetic inheritance in normal and cancer cells. Prior to joining the Stanford faculty, Stephen led discovery efforts for new therapeutic modalities as a Senior Research Scientist in the Center for Therapeutics Discovery and at the Stanford Cancer Institute.

ACADEMIC APPOINTMENTS

- Assistant Professor-Research, Molecular and Cellular Physiology
- Member, Bio-X
- Member, Stanford Cancer Institute

HONORS AND AWARDS

- Helen Hay Whitney Postdoctoral Fellow, HHWF/HHMI (2018)
- Janelia Visiting Scientist Program, HHMI/Janelia (2017)
- Albert J. Ryan Foundation Fellow, Ryan Found. (2013)
- NSF Graduate Research Fellow, NSF (2011)

PROFESSIONAL EDUCATION

- Postdoc, Harvard Medical School/JFRC (2021)
- PhD, Harvard Medical School (2016)
- BA, Stanford University (2008)

LINKS

- Hinshaw Lab Site: https://hinshawlab.stanford.edu/

Publications

PUBLICATIONS

- **A bivalent molecular glue linking lysine acetyltransferases to oncogene-induced cell death.** *Cell*
  Nix, M. N., Gourisankar, S., Bowman, K. J., Nettles, S. A., Yang, H., Dwyer, B. G., Sarott, R. C., Abuzaid, H., Martinez, M. M., Phillips, N., Cabaud, V., Hakobyan, A., Arakelov, et al
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- **A Type II CDK6 Degrader Enables Cellular Targeting beyond the Limits of Type II Inhibition.** *Journal of the American Chemical Society*
  Kim, J. H., Mills, C. E., Kozicka, Z., Scott, D. C., Jin, C., Jiang, Z., Dwyer, B. G., Geng, Q., Toenjes, S. T., Byun, W. S., ElHarouni, D., Li, H., Ligon, et al
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- **The molecular basis for nuclear pore destruction by a proximity-inducing molecular glue.** *Cell chemical biology*
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- **Activating p53Y220C with a mutant-specific small molecule.** *Nature communications*
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- **DNA damage chemical inducers of proximity (DD-CIP) for targeted cancer therapy**
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- **Charged molecular glue discovery enabled by targeted degron display.** *Nature chemical biology*
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- **A bivalent molecular glue linking lysine acetyltransferases to oncogene-induced cell death**
  Nix, M., Gourisankar, S., Nettles, S., Bowman, K., Yang, H., Dwyer, B. G., Sarott, R. C., Abuzaid, H., Martinez, M., Krokhotin, A., Chen, L., Davis, M. M., Fernandez, et al
  AMER ASSOC CANCER RESEARCH.2026

- **Epigenetic rewiring of BCL6 drives responses and unveils synthetic dependencies in large B cell lymphoma.**
  Yang, H., Bowman, K., Ji, W., Gourisankar, S., Wilson, A. L., Yang, Z., Marszalek, E., Hinshaw, S. M., Zhang, T., Liu, X., Krokhotin, A., Nettles, S., Kundu, et al
  AMER ASSOC CANCER RESEARCH.2026

- **A small molecule PTER-selective inhibitor reduces food intake and body weight.** *Cell chemical biology*
  Fu, S., Wang, L., Li, V. L., Lyu, X., Wei, W., Shi, X., Deng, S., Barber, J. L., Tahir, U. A., Adams, C., Carson, A., Hidalgo, B., Raffield, et al
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- **A small molecule PTER-selective inhibitor reduces food intake and body weight.** *bioRxiv : the preprint server for biology*
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- **An AKR1C3-activated kinase inhibitor prodrug.** *RSC chemical biology*
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- **Therapeutic targeting of the nuclear pore complex with molecular glue degraders in pancreatic cancer**
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- **Generating Surprisingly Powerful Pharmacology from Chemically Induced Protein Interactions.** *Accounts of chemical research*
  Hinshaw, S. M., Banik, S. M., Gray, N. S.
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- **A Bivalent Molecular Glue Linking Lysine Acetyltransferases to Oncogene-induced Cell Death.** *bioRxiv : the preprint server for biology*
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  2025

- **Concatemer-assisted stoichiometry analysis: targeted mass spectrometry for protein quantification.** *Life science alliance*
  Cai, J., Quan, Y., Zhang, C. Y., Wang, Z., Hinshaw, S. M., Zhou, H., Suhandynata, R. T.
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- **Development of Potent and Selective CK1α Molecular Glue Degraders.** *Journal of medicinal chemistry*
  Geng, Q., Jiang, Z., Byun, W. S., Donovan, K. A., Zhuang, Z., Jiang, F., Jones, H. M., Razumkov, H., Tang, M. T., Sarott, R. C., Fischer, E. S., Corsello, S. M., Hinshaw, et al
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- **Discovery of CRBN-Dependent WEE1 Molecular Glue Degraders from a Multicomponent Combinatorial Library.** *Journal of the American Chemical Society*
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- **Discovery of bivalent small molecule degraders of cyclin-dependent kinase 7 (CDK7).** *European journal of medicinal chemistry*

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- **Convergence of coronary artery disease genes onto endothelial cell programs.** *Nature*
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- **Recognition of centromere-specific histone Cse4 by the inner kinetochore Okp1-Ame1 complex.** *EMBO reports*
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- **Targeted kinase degradation via the KLHDC2 ubiquitin E3 ligase.** *Cell chemical biology*
  Kim, Y., Seo, P., Jeon, E., You, I., Hwang, K., Kim, N., Tse, J., Bae, J., Choi, H., Hinshaw, S. M., Gray, N. S., Sim, T.
  2023
- **Structure-Based Design of Y-Shaped Covalent TEAD Inhibitors.** *Journal of medicinal chemistry*
  Lu, W., Fan, M., Ji, W., Tse, J., You, I., Ficarro, S. B., Tavares, I., Che, J., Kim, A. Y., Zhu, X., Boghossian, A., Rees, M. G., Ronan, et al
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- **Lactate regulates cell cycle by remodeling the anaphase promoting complex.** *Nature*
  Liu, W., Wang, Y., Bozi, L. H., Fischer, P., Jedrychowski, M. P., Xiao, H., Wu, T., Darabedian, N., He, X., Mills, E. L., Burger, N., Shin, S., Reddy, et al
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- **Multi-site phosphorylation of yeast Mif2/CENP-C promotes inner kinetochore assembly.** *Current biology : CB*
  Hinshaw, S. M., Quan, Y., Cai, J., Zhou, A. L., Zhou, H.
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- **Recognition of Divergent Viral Substrates by the SARS-CoV-2 Main Protease.** *ACS infectious diseases*
  MacDonald, E. A., Frey, G., Namchuk, M. N., Harrison, S. C., Hinshaw, S. M., Windsor, I. W.
  2021
- **Ctf3/CENP-I provides a docking site for the desumoylase Ulp2 at the kinetochore.** *The Journal of cell biology*
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- **The Structural Basis for Kinetochore Stabilization by Cnn1/CENP-T** *CURRENT BIOLOGY*
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- **The structure of the Ctf19c/CCAN from budding yeast (vol 8, e44239, 2019)** *ELIFE*
  Hinshaw, S. M., Harrison, S. C.
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- **The structure of the yeast Ctf3 complex** *ELIFE*
  Hinshaw, S. M., Dates, A. N., Harrison, S. C.
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- **The structure of the Ctf19c/CCAN from budding yeast** *ELIFE*
  Hinshaw, S. M., Harrison, S. C.
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  Hinshaw, S. M., Harrison, S. C.
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- **An Iml3-Chl4 Heterodimer Links the Core Centromere to Factors Required for Accurate Chromosome Segregation** *CELL REPORTS*
  Hinshaw, S. M., Harrison, S. C.
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