

# Stanford

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## Sangkyun Cho

Postdoctoral Scholar, Cardiovascular Institute

### Bio

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#### HONORS AND AWARDS

- NIH K99/R00 Pathway to Independence Award, NHLBI (07/2023-Current)
- AHA Career Development Award (relinquished), American Heart Association (07/2023)
- 2021 Paper of the Year, Editorial Board, J Mol Cell Cardiol (1/1/2022)
- NIH F32 NRSA Postdoctoral Fellowship, NHLBI (08/2020-07/2022)
- NIH T32 Postdoctoral Training Grant, NIBIB (05/2019-04/2020)
- KUSCO-KSEA Graduate Scholarship, KSEA (2015)

#### PROFESSIONAL EDUCATION

- Ph.D., University of Pennsylvania (2018)
- B.S., Johns Hopkins University (2013)

#### STANFORD ADVISORS

- Joseph Wu, Postdoctoral Faculty Sponsor

### Publications

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#### PUBLICATIONS

- **Challenges and opportunities for the next generation of cardiovascular tissue engineering.** *Nature methods*  
Cho, S., Discher, D. E., Leong, K. W., Vunjak-Novakovic, G., Wu, J. C.  
2022
- **Single-cell RNA sequencing in cardiovascular development, disease and medicine.** *Nature reviews. Cardiology*  
Paik, D. T., Cho, S., Tian, L., Chang, H. Y., Wu, J. C.  
2020
- **Mechanosensing by the Lamina Protects against Nuclear Rupture, DNA Damage, and Cell-Cycle Arrest.** *Developmental cell*  
Cho, S., Vashisth, M., Abbas, A., Majkut, S., Vogel, K., Xia, Y., Ivanovska, I. L., Irianto, J., Tewari, M., Zhu, K., Tichy, E. D., Mourkioti, F., Tang, et al  
2019; 49 (6): 920-935.e5
- **Mechanosensing by the nucleus: From pathways to scaling relationships.** *The Journal of cell biology*  
Cho, S., Irianto, J., Discher, D. E.  
2017; 216 (2): 305-315
- **Fractal heterogeneity in minimal matrix models of scars modulates stiff-niche stem-cell responses via nuclear exit of a mechanorepressor.** *Nature materials*  
Dingal, P. C., Bradshaw, A. M., Cho, S., Raab, M., Buxboim, A., Swift, J., Discher, D. E.

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2015; 14 (9): 951-60

- **Heterozygous LMNA mutation-carrying iPSC lines from three cardiac laminopathy patients.** *Stem cell research*  
Cho, S., Lee, C., Lai, C., Zhuge, Y., Haddad, F., Fowler, M., Sallam, K., Wu, J. C.  
1800; 59: 102657
- **Generation of three iPSC lines from dilated cardiomyopathy patients carrying a pathogenic LMNA variant.** *Stem cell research*  
Lee, C., Cho, S., Lai, C., Shenoy, S., Vagelos, R., Wu, J. C.  
1800; 59: 102638
- **Scaling concepts in 'omics: Nuclear lamin-B scales with tumor growth and often predicts poor prognosis, unlike fibrosis.** *Proceedings of the National Academy of Sciences of the United States of America*  
Vashisth, M., Cho, S., Irianto, J., Xia, Y., Wang, M., Hayes, B., Wieland, D., Wells, R., Jafarpour, F., Liu, A., Discher, D. E.  
2021; 118 (48)
- **Reconstructing the heart using iPSCs: Engineering strategies and applications.** *Journal of molecular and cellular cardiology*  
Cho, S., Lee, C., Skylar-Scott, M. A., Heilshorn, S. C., Wu, J. C.  
2021
- **An extracellular matrix paradox in myocardial scar formation.** *Signal transduction and targeted therapy*  
Cho, S., Paik, D. T., Wu, J. C.  
2020; 5 (1): 151
- **Tension in fibrils suppresses their enzymatic degradation - A molecular mechanism for 'use it or lose it'.** *Matrix biology : journal of the International Society for Matrix Biology*  
Saini, K., Cho, S., Dooling, L. J., Discher, D. E.  
2019
- **Manipulating the mechanics of extracellular matrix to study effects on the nucleus and its structure.** *Methods (San Diego, Calif.)*  
Xia, Y., Cho, S., Vashisth, M., Ivanovska, I. L., Dingal, P. C., Discher, D. E.  
2019; 157: 3-14
- **Nuclear rupture at sites of high curvature compromises retention of DNA repair factors.** *The Journal of cell biology*  
Xia, Y., Ivanovska, I. L., Zhu, K., Smith, L., Irianto, J., Pfeifer, C. R., Alvey, C. M., Ji, J., Liu, D., Cho, S., Bennett, R. R., Liu, A. J., Greenberg, et al  
2018; 217 (11): 3796-3808
- **Stem Cell Differentiation is Regulated by Extracellular Matrix Mechanics.** *Physiology (Bethesda, Md.)*  
Smith, L. R., Cho, S., Discher, D. E.  
2018; 33 (1): 16-25
- **Nuclear mechanosensing** *Emerging Topics in Life Sciences*  
Xia, Y., Pfeifer, C. R., Cho, S., Discher, D. E., Irianto, J.  
2018; 2 (5): 713-725
- **Progerin phosphorylation in interphase is lower and less mechanosensitive than lamin-A,C in iPS-derived mesenchymal stem cells.** *Nucleus (Austin, Tex.)*  
Cho, S., Abbas, A., Irianto, J., Ivanovska, I. L., Xia, Y., Tewari, M., Discher, D. E.  
2018; 9 (1): 230-245
- **Mechanosensing of matrix by stem cells: From matrix heterogeneity, contractility, and the nucleus in pore-migration to cardiogenesis and muscle stem cells in vivo.** *Seminars in cell & developmental biology*  
Smith, L., Cho, S., Discher, D. E.  
2017; 71: 84-98
- **SIRPA-Inhibited, Marrow-Derived Macrophages Engorge, Accumulate, and Differentiate in Antibody-Targeted Regression of Solid Tumors** *CURRENT BIOLOGY*  
Alvey, C. M., Spinler, K. R., Irianto, J., Pfeifer, C. R., Hayes, B., Xia, Y., Cho, S., Dingal, P., Hsu, J., Smith, L., Tewari, M., Discher, D. E.  
2017; 27 (14): 2065-+
- **Cross-linked matrix rigidity and soluble retinoids synergize in nuclear lamina regulation of stem cell differentiation.** *Molecular biology of the cell*  
Ivanovska, I. L., Swift, J., Spinler, K., Dingal, D., Cho, S., Discher, D. E.  
2017; 28 (14): 2010-2022

- **Matrix Mechanosensing: From Scaling Concepts in 'Omics Data to Mechanisms in the Nucleus, Regeneration, and Cancer.** *Annual review of biophysics*  
Discher, D. E., Smith, L., Cho, S., Colasurdo, M., García, A. J., Safran, S.  
2017; 46: 295-315
  
- **Mechanical signaling coordinates the embryonic heartbeat** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Chiou, K. K., Rocks, J. W., Chen, C., Cho, S., Merkus, K. E., Rajaratnam, A., Robison, P., Tewari, M., Vogel, K., Majkut, S. F., Prosser, B. L., Discher, D. E., Liu, et al  
2016; 113 (32): 8939–44
  
- **Matrix Elasticity Regulates Lamin-A,C Phosphorylation and Turnover with Feedback to Actomyosin** *CURRENT BIOLOGY*  
Buxboim, A., Swift, J., Irianto, J., Spinler, K. R., Dingal, P. P., Athirasala, A., Kao, Y. C., Cho, S., Harada, T., Shin, J., Discher, D. E.  
2014; 24 (16): 1909–17
  
- **Tight coupling between nucleus and cell migration through the perinuclear actin cap.** *Journal of cell science*  
Kim, D. H., Cho, S., Wirtz, D.  
2014; 127 (Pt 11): 2528-41