Stanford

Renato Navarro

Postdoctoral Scholar, Materials Science and Engineering

Curriculum Vitae available Online

Bio

BIO

My research goal is to achieve comprehensive solutions to cardiovascular clinical challenges via chemistry approaches to produce tailorable materials that serve as scaffolds or therapeutic delivery vehicles that enhance tissue regeneration. I am a trained polymer chemist with expertise in biomaterials engineering for cardiovascular regeneration and nanomedicine. My graduate research experience, under the supervision of Peter X. Ma, focused on broadening the use of tunable tissue engineering scaffolds by developing polymers with chemical functionality that can be easily and rapidly fashioned into biomimetic physical constructs and activated with regulatory signals (biomolecules, peptides, and growth factors). I accomplished this by developing novel polymer synthesis methods that are cost-effective and facile to ease the path toward clinical translation. As a postdoctoral scholar, my current training is under the co-supervision of Prof. Sarah Heilshorn and Prof. Joseph Wu as a K99/R00 MOSAIC Fellow. My work entails the development of tailored injectable hydrogels for the local delivery of therapies after a myocardial infarct.

HONORS AND AWARDS

- K99/R00 Career Transition Award, Stanford University (14/07/23 - 30/06/28)
- Postdoc Leadership Institute, Society for Advancement of Chicanos & Native Americans in Science (2023)
- American Heart Association Postdoctoral Fellowship, Stanford University (01/01/22 - 31/01/23)
- BIOX Research Mentor Award, Stanford University (2021)

STANFORD ADVISORS

- Sarah Heilshorn, Postdoctoral Faculty Sponsor

PATENTS

- Renato Navarro, Michelle Huang. Julien Roth, Kelsea Hubka, Sarah Heilshorn. "United States Patent 63/380,486 Dynamic recombinant hydrogels with degradation-independent relaxation kinetics", Leland Stanford Junior University
- Renato Navarro, Peter Ma. "United States Patent 17/919,834 Biodegradable copolymers and nanofibrous scaffold thereof", Jun 15, 2023

LINKS

- My Website: https://www.renatosamnavarro.com

Publications

PUBLICATIONS

- **A Library of Elastin-like Proteins with Tunable Matrix Ligands for In Vitro 3D Neural Cell Culture.** *Biomacromolecules*
  Suhar, R. A., Huang, M. S., Navarro, R. S., Aviles Rodriguez, G., Heilshorn, S. C.
  2023

- **Single-Cell RNA-Sequencing Identifies Modulator of Foreign Body Response with Use of Acellular Dermal Matrix in Breast Reconstruction**
  Liang, N., Tevlin, R., Griffin, M., Parker, J. B., Henn, D., Navarro, R. S., Dung Nguyen, Momeni, A., Wan, D. C., Longaker, M. T.
  LIPPINCOTT WILLIAMS & WILKINS.2023: S389-S390

- **Cell Microencapsulation Within Engineered Hyaluronan Elastin-Like Protein (HELP) Hydrogels.** *Current protocols*
  Hefferon, M. E., Huang, M. S., Liu, Y., Navarro, R. S., de Paiva Narciso, N., Zhang, D., Aviles-Rodriguez, G., Heilshorn, S. C.
  2023; 3 (11): e917

- **Tunable hydrogel viscoelasticity modulates human neural maturation.** *Science advances*
  Roth, J. G., Huang, M. S., Navarro, R. S., Akram, J. T., LeSavage, B. L., Heilshorn, S. C.
  2023; 9 (42): eadh8313

- **3D printing microporous scaffolds from modular bioinks containing sacrificial, cell-encapsulating microgels.** *Biomaterials science*
  Seymour, A. J., Kilian, D., Navarro, R. S., Hull, S. M., Heilshorn, S. C.
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- **3D printing microporous scaffolds from modular bioinks containing sacrificial, cell-encapsulating microgels** *BIOMATERIALS SCIENCE*
  Seymour, A. J., Kilian, D., Navarro, R. S., Hull, S. M., Heilshorn, S. C.
  2023

- **Design Parameters for Injectable Biopolymeric Hydrogels with Dynamic Covalent Chemistry Crosslinks.** *Advanced healthcare materials*
  Narciso, N. d., Navarro, R. S., Gilchrist, A., Trigo, M. L., Rodriguez, G. A., Heilshorn, S. C.
  2023: e2301265

- **3D bioprinting of dynamic hydrogel bioinks enabled by small molecule modulators.** *Science advances*
  Hull, S. M., Lou, J., Lindsay, C. D., Navarro, R. S., Cai, B., Brunel, L. G., Westerfield, A. D., Xia, Y., Heilshorn, S. C.
  2023; 9 (13): eade7880

- **Elastin-like protein hydrogels with controllable stress relaxation rate and stiffness modulate endothelial cell function.** *Journal of biomedical materials research. Part A*
  Shayan, M., Huang, M. S., Navarro, R., Chiang, G., Hu, C., Oropeza, B. P., Johansson, P. K., Suhar, R. A., Foster, A. A., LeSavage, B. L., Zamani, M., Enejder, A., Roth, et al
  2023

- **Tuning Polymer Hydrophilicity to Regulate Gel Mechanics and Encapsulated Cell Morphology.** *Advanced healthcare materials*
  Navarro, R. S., Huang, M. S., Roth, J. G., Hubka, K. M., Long, C. M., Enejder, A., Heilshorn, S. C.
  2022: e2200011