

SJ CLAIRE HUR, PhD

Johns Hopkins University

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Academic Position

Johns Hopkins Medicine	Assistant Professor, Oncology	10/2018 – present
Johns Hopkins University	Clare Boothe Luce Assistant Professor, Mechanical Eng	07/2017 – present
Johns Hopkins University	Assistant Research Professor	07/2015 – 07/2017
University of California, Los Angeles	Assistant Researcher (PI: Dino Di Carlo Ph.D.)	04/2016 – 04/2017
Harvard University	Rowland Fellow/Principal Investigator	09/2011 – 11/2015
University of California, Los Angeles	Postdoctoral Scholar (PI: Dino Di Carlo Ph.D.)	06/2011 – 08/2011

Education and Training

University of California, Los Angeles	Mechanical Engineering	Ph.D. 2011
University of California, Los Angeles	Mechanical Engineering	M.S. 2007
University of California, Los Angeles	Mechanical and Aerospace Engineering	B.S. 2005

Research Funding

Space@Hopkins (PI)	09/2020 – 08/2021
Hartwell Individual Biomedical Research Award (PI)	07/2020 – 06/2023
NIH NCI IMAT 1R21CA229024 (PI)	02/2020 – 01/2023
Susan G. Komen Career Catalyst Research Award (PI)	09/2019 - 09/2022
Patrick C. Walsh Prostate Cancer Research Fund (Co-I, PI: Amend)	09/2019 - 08/2019
JHU Discovery Award (Co-PI, PI: Gu)	07/2019 - 06/2020
NSF-CBET # 1804004 (Lead PI)	07/2018 - 06/2021
Johnson & Johnson, WiSTEM2D Scholar Award (PI)	02/2018 - 01/2021
Clare Boothe Luce Assistant Professorship (PI)	07/2017 - 06/2022
Elsa U. Pardee Cancer Research Fund (Co-PI, PI: Schulman)	01/2019 - 12/2019
Patrick C. Walsh Prostate Cancer Research Fund (Co-I, PI: An)	09/2018 - 08/2019
Sponsored Research Agreement with Vortex Biosciences, Inc. (Co-I, PI: Di Carlo)	11/2015 - 04/2017
Sponsored Research Agreement with Vortex Biosciences, Inc. (PI)	05/2014 - 10/2015
Rowland Junior Fellowship (5yr funding for independent research activities, PI)	09/2011 - 11/2015

Awards and Honors

Individual Biomedical Research Award , The Hartwell Foundation	07/2020
Japan-America Frontiers of Engineering Symposium , National Academy of Engineering	06/2020
Career Catalyst Research Award , Susan G. Komen	09/2019
Discovery Award , Johns Hopkins University	07/2019
1st Place Faculty Poster Award , 15th US-Korea Forum on Nanotechnology	07/2018
Whiting School of Engineering Junior Faculty Award , Johns Hopkins Medicine	04/2018
Inaugural WiSTEM2D Scholar Award , Johnson and Johnson	02/2018

Clare Boothe Luce Assistant Professorship, Johns Hopkins University

Edward K. Rice Outstanding Doctoral Student Award, UCLA HSSEAS

Rowland Junior Fellowship, Rowland Institute at Harvard University

UCLA Dean's Special Graduate Fellowship

UCLA MAE Department Chevron Scholarship

Henry Samueli School of Engineering and Applied Science Academic Scholarship

11/2011

09/2011

09/2005

04/2004

01/2004

Publications

1. Becky Tu-Sekine, Abinash Padhi, Sunghee Jin, Jade West, Srivathsan Kalyan*, Karanpreet Singh, Rakesh Kapania, **SJ. Claire Hur**, Amrinder Nain, Sanwon F. Kim, "Inositol Polyphosphate Multifunction is a Metformin Target that Regulates Cell Migration", *FASEB Journal*, 33, 14137-14146 (2019)
2. Mengxing Ouyang, Jung Hyun Lee, Winfield Hill, **SJ Claire Hur**, "Microscale Symmetrical Electroporator Array as a Versatile Molecular Delivery System", *Scientific Reports*, 7, 44757; doi:10.1038/srep44757(2017)
3. Dwayne A. L. Vickers, Mengxing Ouyang, Chris Hyunseok Choi, and **SJ Claire Hur**, "Direct Drug Cocktail Analyses using Microscale Vortex-assisted Electroporation", *Analytical Chemistry*, 2014, 86, 10099-10105.
4. Dwayne A. L. Vickers and **SJ Claire Hur**, "Microscale Vortex-assisted Electroporator for Sequential Molecular Delivery", *Journal of Visualized Experiments*, 2014, 90, e51702, doi: 10.3791/51702.
5. Hoyoung Yun and **SJ Claire Hur**, "Sequential Multi-molecule Delivery using Vortex-assisted Electroporation", *Lab on a Chip*, 2013, 13, 2764-2772 (**Selected as Backside Cover Page Article**)
6. **SJ Claire Hur**, Tatiana Z. Brinckerhoff, Christopher M. Walthers, James C. Y. Dunn, and Dino Di Carlo, "Label-free Enrichment of Adrenal Cortical Progenitor Cells using Inertial Microfluidics", *PLoS ONE*, 2012, 7 (10): e46550 (**Featured in BioTechniques**)
7. Keisuke Goda, Ali Ayazi, Daniel R. Gossett, Jagannath Sadasivam, Cejo K. Lonappan, Elodie Sollier, Ali Fard, **SJ Claire Hur**, Jost Adam, Coleman Murray, Cao Wang, Nora Brackbill, Dino Di Carlo, and Bahram Jalali, "High-throughput Single-microparticle Imaging Flow Analyzer", *PNAS*, 2012, 109 (29), 11630-11635
8. **SJ Claire Hur**, Sung-Eun Choi, Sunghoon Kwon and Dino Di Carlo, "Inertial Focusing of Non-spherical Particles", *Applied Physics Letters*, 2011, 99, 044101
9. **SJ Claire Hur**, Albert J. Mach and Dino Di Carlo, "High-throughput Size Based Rare Cell Enrichment using Microscale Vortices", *Biomicrofluidics* 2011, 5, 1, 1-10
10. **SJ Claire Hur**, Nicole K. Henderson-MacLennan, Edward R.B. McCabe and Dino Di Carlo, "Deformability-based Cell Classification and Enrichment using Inertial Microfluidics", *Lab on a Chip*, 2011, 11, 912-920
11. Albert Mach, Jae Kim, Armin Arshi, **SJ. Claire Hur** and Dino Di Carlo, "Automation of Cellular Sample Preparation using a Centrifuge-on-a-chip", *Lab on a chip*, 2011, 11, 2827-2834 (**Selected as Cover Page Article, Highlighted as HOT article in Lab on a Chip Blog**)
12. Youngjae Chun, **SJ Claire Hur**, Colin Kealey, Daniel S. Levi, Dino Di Carlo, KP Mohanchandra, Fernando Vinuela, and Gregory P. Carman, "A Novel Neurovascular Stent Covered in Stretchable Thin

Film NiTi Significantly Decreases Flow into a Wide-Neck Aneurysm *In Vitro*", *Smart materials and structures*, 2011, 20, 055021

13. **SJ Claire Hur**, Henry T. K. Tse and Dino Di Carlo, "Sheathless Inertial Cell Ordering for Extreme Throughput Flow Cytometry", *Lab on a Chip*, 2010,10, 274-280 **(Selected as Cover Page Article, Highlighted in Chemical Biology News)**
14. Colin P. Kealey, S.A. Whelan, Youngjae Chun, **SJ Claire Hur**, Alan W. Tulloch, K.P. Mohanchandra, Dino Di Carlo, Daniel S. Levi, Gregory P. Carman, David A. Rigberg, "In vitro Hemocompatibility of Thin Film Nitinol in Stenotic Flow Conditions", *Biomaterials*, 2010, 31, 8864-8871
15. Daniel R. Gossett, Westbrook M. Weave, Albert J. Mach, **SJ Claire Hur**, Henry T.K. Tse, Wonhee Lee, Hamed Amini and Dino Di Carlo, "Label-free Cell Separation and Sorting in Microfluidic Systems", *Analytical and Bioanalytical Chemistry* 2010, 397,3249-3267

Patents

1. **SJ Claire Hur**, "Circulating Tumor Cell Immortalization via Vortex Electroporation Mediated Gene Delivery", (Application No: PCT/US2016/057117)
2. **SJ Claire Hur**, "System and Method for Modulating Physical Stimuli on Living Cells/organisms to Manipulate Biological Processes", *International Patent* (Application No: PCT/US2016/27573)
3. **SJ Claire Hur** and Mengxing Ouyang, "Electrode Array for the Vortex-Assisted Electroporation", *International Patent* (Application No: PCT/US2016/027581)
4. **SJ Claire Hur** and Dwayne A. L. Vickers, "Drug Cocktail Analyses using Microscale Vortex-Assisted Electroporation", *International Patent* (Application No: PCT/US2015/040422)
5. **SJ Claire Hur** and Hoyoung Yun, "Microfluidic Vortex-Assisted Electroporation System and Method", *International Patent* (**Granted**: 3196.030WO1)
6. Dino Di Carlo, **SJ Claire Hur**, and Albert Mach, "Isolation of Larger Target Cells from Heterogeneous Solution using Microfluidic Cancer Cell Trapping Vortex (μ CCTV)", *US Patent* (**Granted**: US9133499 B2) *International Patent* WO/2012/037030
7. Dino Di Carlo, Aydogan Ozcan, Bahram Jalali, **SJ Claire Hur**, and Henry Tse, "Inertial Particle Focusing Flow Cytometry", **Granted US Patent** 20120063664
8. Dino Di Carlo and **SJ Claire Hur**, "Systems and Methods for Particle Classification and Sorting", **Granted US Patent** US9090865 B2

Invited Seminars and Lectures

Virtual Seminar , YouTube Live , The Mid-Atlantic Micro/Nano Alliance	05/22/2020
Queensland University of Technology , Australia, Institute of Health and Biomedical Innovation	02/12/2020
Temple University , Bioengineering Seminar	09/13/2019
Saint Joseph's University , McGroddy Frontiers in Science Seminar Series	03/06/2019
Johns Hopkins Medicine , Breast and Ovarian Cancer Program Seminar Series	02/05/2019
Johns Hopkins University , Center for Environmental & Applied Fluid Mechanics Seminar	09/14/2018
15th US-Korea Forum on Nanotechnology , Nanomedicine focusing on Single-Cell Level	07/13/2018
Johns Hopkins Medicine , Department of Medicine Annual Retreat	03/16/2018
Myongji University, Republic of Korea , Mechanical Engineering Seminar	12/14/2017

POSTECH, Republic of Korea , Mechanical Engineering Seminar	12/13/2017
KAIST, Republic of Korea , Graduate School of Nanoscience & Technology	12/12/2017
Kyung Hee University, Republic of Korea , Mechanical Engineering Seminar	12/11/2017
Portland State University , Mechanical Engineering Seminar	05/15/2015
Stevens Institute of Technology , Mechanical Engineering Seminar	03/24/2015
Johns Hopkins University , Mechanical Engineering Seminar	03/10/2015
Georgia Institute of Technology , Mechanical Engineering Seminar	02/09/2015
4th annual netScientific Workshop, Switzerland	12/13/2014
Technische Universität Dresden, Germany , Biotec Forum	12/08/2014
Stanford University , School of Medicine	09/26/2014
University of Southern California , Biomedical Engineering Seminar	08/11/2014
Stanford University , Chemical Engineering Seminar	08/05/2014
Harvard Medical School , NSF Workshop on Micro- and Nanotechnologies for Medicine	07/30/2014
Brown University , Center for Fluid Mechanics	02/11/2014
MIT , Rising Stars in EECS, An Academic Career Workshop for Women	11/04/2013
MIT , Topics in Applied Microfluidics (Graduate Course 10.S95)	10/22/2013
Harvard Medical School , NSF Workshop on Micro- and Nanotechnologies for Medicine	08/01/2013
53rd New England Workshop on Complex Fluids	11/30/2012
Seoul National University, Republic of Korea , BK21 Seminar	11/06/2012
Northeastern University , Special Chemical Engineering Seminar	10/03/2012
MIT , Khademhosseini research group seminar	02/17/2012
Harvard University , Squishy Physics & Pizza Seminar Series	02/05/2012
MIT , Micro/Nanofluidic BioMEMS group seminar	12/06/2011

Membership in Professional Association

<i>American Association for Cancer Research</i>	2019 – present
<i>American Society of Mechanical Engineers</i>	2018 - present
<i>American Chemical Society</i>	2010 – present
<i>American Physical Society</i>	2010 – present
<i>Biomedical Engineering Society</i>	2008 – present
<i>Korean-American Scientists and Engineers Association</i>	2003 – present
<i>Tau Beta Pi, the Engineering Honor Society</i>	2003 – present
<i>Society of Rheology</i>	2009 – 2010
<i>American Society of Mechanical Engineers</i>	2003 – 2007
<i>American Institute of Aeronautics and Astronautics</i>	2003 – 2005
<i>Society of Women Engineers</i>	2003 – 2005