

# Curriculum Vitae (Last updated: 2022-4-1)

**Seung-min Park, Ph.D.**

## Professional/Academic Employment

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| 2021-Current | <b>Instructor</b> , Advisor: Joseph C. Liao<br>Department of Urology, Stanford University, Stanford, CA, USA                           |
| 2021-2021    | <b>Sr. Research Scientist</b> , Advisor: Joseph C. Liao<br>Department of Urology, Stanford University, Stanford, CA, USA               |
| 2017-2021    | <b>Sr. Research Scientist</b> , Advisor: Sanjiv S. Gambhir<br>Department of Radiology, Stanford University, Stanford, CA, USA          |
| 2014-2017    | <b>Instructor</b> , Advisor: Sanjiv S. Gambhir<br>Department of Radiology, Stanford University, Stanford, CA, USA                      |
| 2013-2014    | <b>Visiting Scholar</b> , Advisor: Sanjiv S. Gambhir<br>Department of Radiology, Stanford University, Stanford, CA, USA                |
| 2012-2014    | <b>Assistant Project Scientist</b> , Advisor: Luke P. Lee<br>Department of Bioengineering, University of California, Berkeley, CA, USA |

## Education and Training

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| 2010-2012 | <b>Postdoctoral Fellow</b> in Bioengineering, Advisor: Luke P. Lee<br>University of California, Berkeley, CA, USA  |
| 2008-2010 | <b>Postdoctoral Fellow</b> in Applied Physics, Advisor: Harold G. Craighead<br>Cornell University, Ithaca, NY, USA |
| 2002-2008 | <b>Ph.D.</b> in Applied Physics, Advisor: Harold G. Craighead<br>Cornell University, Ithaca, NY, USA               |
| 1997-2002 | <b>B.S.</b> in Physics, Advisor: Young Kuk<br>Seoul National University, Seoul, Republic of Korea                  |

## Publications

1. Ge TJ, Chan CT, Lee BJ, Liao JC, **Park S-m**. Smart toilets for monitoring COVID-19 surges: passive diagnostics and public health. *npj Digital Medicine*. 2022;5(1):39. doi: 10.1038/s41746-022-00582-0.
2. Bock S, Kim H-M, Kim J, An J, Choi Y-S, Pham X-H, Jo A, Ham K-m, Song H, Kim J-W, Hahm E, Rho W-Y, Lee SH, **Park S-m**, Lee S, Jeong DH, Lee H-Y, Jun B-H. Lateral Flow Immunoassay with Quantum-Dot-Embedded Silica Nanoparticles for Prostate-Specific Antigen Detection. *Nanomaterials*. 2022;12(1):33. PubMed PMID: doi:10.3390/nano12010033.
3. **Park S-m**, Ge TJ, Won DD, Lee JK, Liao JC. Digital biomarkers in human excreta. *Nature Reviews Gastroenterology & Hepatology*. 2021. doi: 10.1038/s41575-021-00462-0.

4. Lee H, Sohn S, Alizadeh S, Kwon S, Kim TJ, **Park S-m**, Soh HT, Mani A, Kim SJ. Overlimiting Current in Nonuniform Arrays of Microchannels: Recirculating Flow and Anticrystallization. *Nano Letters*. 2021. doi: 10.1021/acs.nanolett.0c05049.
5. Kim H-M, Kim J, Bock S, An J, Choi Y-S, Pham X-H, Cha MG, Seong B, Kim W, Kim Y-H, Song H, Kim J-W, **Park S-m**, Lee SH, Rho W-Y, Lee S, Jeong DH, Lee H-Y, Jun B-H. Silver-Assembled Silica Nanoparticles in Lateral Flow Immunoassay for Visual Inspection of Prostate-Specific Antigen. *Sensors*. 2021;21(12):4099. PubMed PMID: doi:10.3390/s21124099.
6. Pham X-H, **Park S-m**, Ham K-M, Kyeong S, Son BS, Kim J, Hahm E, Kim Y-H, Bock S, Kim W, Jung S, Oh S, Lee SH, Hwang DW, Jun B-H. Synthesis and Application of Silica-Coated Quantum Dots in Biomedicine. *International Journal of Molecular Sciences*. 2021;22(18):10116. PubMed PMID: doi:10.3390/ijms221810116.
7. Pham X-H, **Park S-m**, Jun B-H. Metal Nano/Microparticles for Bioapplications. *International Journal of Molecular Sciences*. 2021;22(9):4543. PubMed PMID: doi:10.3390/ijms22094543.
8. Yu JH, Steinberg I, Davis RM, Malkovskiy AV, Zlitni A, Radzyminski RK, Jung KO, Chung DT, Curet LD, D'Souza AL, Chang E, Rosenberg J, Campbell J, Frostig H, **Park S-m**, Pratz G, Levin C, Gambhir SS. Noninvasive and Highly Multiplexed Five-Color Tumor Imaging of Multicore Near-Infrared Resonant Surface-Enhanced Raman Nanoparticles In Vivo. *ACS Nano*. 2021;15(12):19956-69. doi: 10.1021/acsnano.1c07470.
9. Huynh K-H, Hahm E, Noh MS, Lee J-H, Pham X-H, Lee SH, Kim J, Rho W-Y, Chang H, Kim DM, Baek A, Kim D-E, Jeong DH, **Park S-m**, Jun B-H. Recent Advances in Surface-Enhanced Raman Scattering Magnetic Plasmonic Particles for Bioapplications. *Nanomaterials*. 2021;11(5):1215. PubMed PMID: doi:10.3390/nano11051215.
10. Nesvet JC, Antilla KA, Pancirer DS, Lozano AX, Preiss JS, Ma W, Fu A, **Park S-m**, Gambhir SS, Fan AC, Neal JW, Padda SK, Das M, Li T, Wakelee HA, Wang SX. Giant Magnetoresistive Nanosensor Analysis of Circulating Tumor DNA Epidermal Growth Factor Receptor Mutations for Diagnosis and Therapy Response Monitoring. *Clinical Chemistry*. 2021;67(3):534-42. doi: 10.1093/clinchem/hvaa307.
11. Achterberg FB, Sibinga Mulder BG, Meijer RPJ, Bonsing BA, Hartgrink HH, Mieog JSD, Zlitni A, **Park S-m**, Farina Sarasqueta A, Vahrmeijer AL, Swijnenburg R-J. Real-time surgical margin assessment using ICG-fluorescence during laparoscopic and robot-assisted resections of colorectal liver metastases. *Annals of Translational Medicine*. 2020;8(21):1448.
12. **Park S-m**, Won DD, Lee BJ, Escobedo D, Esteva A, Aalipour A, Ge TJ, Kim JH, Suh S, Choi EH, Lozano AX, Yao C, Bodapati S, Achterberg FB, Kim J, Park H, Choi Y, Kim WJ, Yu JH, Bhatt AM, Lee JK, Spitler R, Wang SX, Gambhir SS. A mountable toilet system for personalized health monitoring via the analysis of excreta. *Nature Biomedical Engineering*. 2020. doi: 10.1038/s41551-020-0534-9.
13. Lee SH, **Park S-m**, Kim BN, Kwon OS, Rho W-Y, Jun BH. Emerging ultrafast nucleic acid amplification technologies for next-generation molecular diagnostics. *Biosensors and Bioelectronics*. 2019:111448.
14. Aalipour A, Chuang H-Y, Murty S, D'Souza AL, **Park S-m**, Gulati GS, Patel CB, Beinat C, Simonetta F, Martinić I. Engineered immune cells as highly sensitive cancer diagnostics. *Nature Biotechnology*. 2019;37(5):531.
15. Vermesh O, Aalipour A, Ge TJ, Saenz Y, Guo Y, Alam IS, **Park S-m**, Adelson CN, Mitsutake Y, Vilches-Moure J. An intravascular magnetic wire for the high-throughput retrieval of circulating tumour cells in vivo. *Nature Biomedical Engineering*. 2018;2(9):696.
16. Aalipour A, Dudley JC, **Park S-m**, Murty S, Chabon JJ, Boyle EA, Diehn M, Gambhir SS. Deactivated CRISPR Associated Protein 9 for Minor-Allele Enrichment in Cell-Free DNA. *Clinical Chemistry*. 2017. doi: 10.1373/clinchem.2017.278911.
17. Ooi CC, Mantalas GL, Koh W, Neff NF, Fuchigami T, Wong DJ, Wilson RJ, **Park S-m**, Gambhir SS, Quake SR. High-throughput full-length single-cell mRNA-seq of rare cells. *PLoS one*. 2017;12(11):e0188510.
18. **Park S-m**, Aalipour A, Vermesh O, Yu JH, Gambhir S. Towards clinically translatable in vivo nanodiagnostics. *Nature Reviews Materials*. 2017;2:17014.

19. **Park S-m**, Wong D, Ooi CC, Nesvet J, Nair V, Wang S, Gambhir S. Multigene Profiling of Single Circulating Tumor Cells. *Molecular & Cellular Oncology*. 2017.
20. Leeper N, **Park S-m**, Smith B. High-Density Lipoprotein Nanoparticle Imaging in Atherosclerotic Vascular Disease. *JACC: Basic to Translational Science*. 2017;2(1).
21. Ooi CC, **Park S-m**, Wong DJ, Gambhir SS, Wang SX. Capture and Genetic Analysis of Circulating Tumor Cells Using a Magnetic Separation Device (Magnetic Sifter). *Circulating Tumor Cells: Humana Press, New York, NY; 2017*. p. 153-62.
22. **Park S-m**, Wong DJ, Ooi CC, Kurtz DM, Vermesh O, Aalipour A, Suh S, Pian KL, Chabon JJ, Lee SH. Molecular profiling of single circulating tumor cells from lung cancer patients. *Proceedings of the National Academy of Sciences*. 2016;113(52):E8379-E86.
23. **Park S-m**, Lee J-y, Hong S, Lee SH, Lee H, Suh S, Pan Q, Li K, Wu A, Mumenthaler S. Dual transcript and protein quantification in a massive single cell array. *Lab on a Chip*. 2016(16):3682-8.
24. Hudak CS, Gulyaeva O, Wang Y, **Park S-m**, Lee L, Kang C, Sul HS. Pref-1 Marks Very Early Mesenchymal Precursors Required for Adipose Tissue Development and Expansion. *Cell reports*. 2014;8(3):678-87.
25. **Park S-m**, Sabour AF, Son JH, Lee SH, Lee LP. Toward Integrated Molecular Diagnostic System (iMDx): Principles and Applications. *IEEE Transactions on Biomedical Engineering*. 2014;61(5):1506-21.
26. Dimov IK, Lu R, Lee EP, Seita J, Sahoo D, **Park S-m**, Weissman IL, Lee LP. Discriminating cellular heterogeneity using microwell-based RNA cytometry. *Nature Communications*. 2014;5.
27. Son JH, Lee SH, Hong S, **Park S-m**, Lee J, Dickey AM, Lee LP. Hemolysis-free blood plasma separation. *Lab on a Chip*. 2014;14(13):2287-92.
28. Lee SH, **Park S-m**, Lee LP. Optical Methods in Studies of Olfactory System. *Bioelectronic Nose: Springer; 2014*. p. 191-220.
29. **Park S-m**, Huh YS, Szeto K, Joe DJ, Kameoka J, Coates GW, Edel JB, Erickson D, Craighead HG. Rapid Prototyping of Nanofluidic Systems Using Size-Reduced Electrospun Nanofibers for Biomolecular Analysis. *small*. 2010;6(21):2420-6.
30. **Park S-m**, Huh YS, Craighead HG, Erickson D. A method for nanofluidic device prototyping using elastomeric collapse. *Proceedings of the National Academy of Sciences*. 2009;106(37):15549-54.
31. **Park S-m**, Ahn J-Y, Jo M, Lee D-k, Lis JT, Craighead HG, Kim S. Selection and elution of aptamers using nanoporous sol-gel arrays with integrated microheaters. *Lab on a Chip*. 2009;9(9):1206-12.
32. **Park S-m**, Lee KH, Craighead HG. On-chip coupling of electrochemical pumps and an SU-8 tip for electrospray ionization mass spectrometry. *Biomedical microdevices*. 2008;10(6):891-7.
33. Aubin KL, Huang J, **Park S-m**, Yang Y, Kondratovich M, Craighead HG, Ilic BR. Microfluidic encapsulated nanoelectromechanical resonators. *Journal of Vacuum Science & Technology B: Microelectronics and Nanometer Structures Processing, Measurement, and Phenomena*. 2007;25(4):1171-4.

### **Patent Granted**

1. Lead Inventor, "Molecular Analysis Using a Magnetic Sifter and Nanowell System," U.S. Patent No. 10,167,515, 2019.
2. Lead Inventor, "Intravascular Magnetic Wire for Detection, Retrieval or Elimination of Disease-Associated Biomarkers and Toxins," U.S. Patent No. 10,064,653, 2018.
3. Lead Inventor, "Device for rapid identification of nucleic acids for binding to specific chemical targets," KR101769743B1, 2017.
4. Lead Inventor, "Nanofilter Devices Using Elastomeric Micro to Nanochannel Interfaces and Methods Based Thereon," U.S. Patent No. 8,691,588, 2014.

### **Honors and Awards**

1. Best Poster Award, Stanford Radiology Retreat (2017).
2. Best Poster Award, Stanford Center for Cancer Systems Biology Annual Symposium (2017).

3. Best Poster Award, Canary Foundation Early Detection Symposium (2017).
4. Best Poster Award, NCI Alliance for Nanotechnology in Cancer Annual PIs' Meeting (2016).
5. Best Poster Award, NCI Alliance for Nanotechnology in Cancer Annual PIs' Meeting (2012).
6. Frameworks for Global Health Postdoctoral Fellowship, UC Berkeley – UCSF (2011).
7. Mogam Scholarship by Green Cross Inc., South Korea, (2006)

### **Teaching Experience**

1. Stanford University, Department of Chemistry, Nanotechnology Introseminar, Guest Lecturer (2017).
2. Stanford University, Department of Bioengineering, Topics in Molecular Imaging, Guest Lecturer (2016).
3. Stanford University, Department of Chemistry, Nanotechnology Introseminar, Guest Lecturer (2015).
4. University of California, Berkeley, Department of Bioengineering, Introduction to Micro- & Nano-Biotechnology: BioMEMS (BioE 121L), Full-time Instructor (2014).
5. University of California, Berkeley, Department of Bioengineering, Introduction to Micro- & Nano-Biotechnology: BioMEMS (BioE 121L), Full-time Instructor (2013).
6. University of California, Berkeley, Department of Bioengineering, BioMEMS and Bionanotechnology (BioE 190A), Part-time Instructor, 2010-2012.