Curriculum Vitae

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CONTACT INFORMATION

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EDUCATION

2008-2011 Ph.D., Department of Biotechnology, Yonsei University

2006-2008 M.S., Department of Biotechnology, Yonsei University

2000-2006 B.S., Department of Biotechnology, Yonsei University
B.S., Department of Life Science, Yonsei University

PROFESSIONAL EXPERIENCE

2021-current Assistant Professor
Brain & Cognitive Science, DGIST

2017-2021 Project Scientist
Department of Neurobiology, University of California, Los Angeles

2013-2017 Postdoc-Employee
Department of Neurobiology, University of California, Los Angeles

2012-2013 Fellow Postdoc
Department of Biological and Environmental Engineering, Cornell University

2011-2012 Researcher
Department of Biotechnology, Yonsei University, South Korea

PEER-REVIEWED PUBLICATIONS

First-Author papers

1. **Lee K***, Claar LD*, Hachisuka A, Bakhurin KI, Nguyen J, Trott JM, Gill JL Masmanidis SC, Temporally restricted dopaminergic control of reward-conditioned movements, *Nature Neuroscience*, 2020;23(2):209-216. *(I.F. 21.126)*
2. Yang L*, **Lee K***, Villagracia J, Masmanidis SC, Open source silicon microprobes for high throughput neural recording, *Journal of Neural Engineering*, 2020;17(1):016036. *(I.F. 4.551)*
3. **Lee K**, Bakhurin KI, Claar LD, Holley SM, Chong NC, Cepeda C, Levine MS, Masmanidis SC, Gain multiplication by corticostriatal and thalamostriatal input signals during reward-conditioned behavior, *Cell Reports*, 2019;29(8):2438-2449. *(I.F. 7.815)*
4. **Lee K**, Masmanidis SC, Aberrant features of in vivo striatal dynamics in movement

disorders, *Journal of Neuroscience research*, 2019:97(12):1678-1688. *(I.F. 4.139)*

5. Li B*, **Lee K***, Masmanidis SC, Li M, A nanofabricated optoelectronic probe for manipulating and recording neural dynamics, *Journal of Neural Engineering*, 2018; 15(4):046008. *(I.F. 4.551)*
6. **Lee K***, Holley SM*, Shobe JL, Chong NC, Cepeda C, Levine MS, Masmanidis SC**,** Parvalbumin interneurons amplify striatal output and enhance performance during associative learning, *Neuron*, 2017;93(6):1451-1463. *(I.F. 14.403)*
7. **Lee K**, Jung H, Drawing lithography for microneedles: a review of fundamentals and biomedical application, *Biomaterials*, 2012;33(30): 7309-7326. *(I.F. 10.273)*
8. **Lee K**, Kim JD, Lee CY, Her S, Jung H, A high-capacity, hybrid electro-microneedle for in-situ cutaneous gene transfer, *Biomaterials*, 2011;32(30):7705-7710. *(I.F. 10.273)*
9. **Lee K,** Lee CY, Jung H, Dissolving microneedles for transdermal drug administration prepared by stepwise controlled drawing of maltose, *Biomaterials*, 2011;32(11):3134-3140. *(I.F. 10.273)*
10. **Lee K**, Lee HC, Lee DS, Jung H, Drawing lithography: Three-dimensional fabrication of an ultrahigh-aspect-ratio microneedle, *Advanced Materials,* 2010;22(4):483-486*. (I.F. 25.809)*

Co-Author papers

11. Dorst MC, Tokarska A, Zhou M, **Lee K**, Stagkourakis S, Broberger C, Masmanidis SC & Silberberg G, Polysynaptic inhibition between striatal cholinergic interneurons shapes their network activity patterns in a dopamine-dependent manner, Nature Communication, 2020;11(1):5113.
12. Kim JD, Kim M, Yang H, **Lee K**, Jung H, Droplet-born air blowing: novel dissolving microneedle fabrication, *Journal of Controlled Release,* 2013;170(30):430-436.
13. Hartman MR, Yang D, Tran TN, **Lee K**, Kahn JS, Kiatwuthinon P, Yancey KG, Trotsenko O, Minko S, Luo D, Thermostable branched DNA nanostructures as modular primers for polymerase chain reaction, *Angewandte Chemie*, 2013;52(33):8699-8702.
14. Lee CY, **Lee K**, You YS, Lee SH, Jung H, Tower microneedle via reverse drawing lithography for innocuous intravitreal drug delivery, *Advanced Healthcare Materials*, 2013;2(6):812-816.
15. Li CG, Lee CY, **Lee K**, Jung H, An optimized hollow microneedle for minimally invasive blood extraction, *Biomedical Microdevices*, 2013;15(1):17-25.
16. Li CG, **Lee K**, Lee CY, Dangol M, Jung H, A minimally invasive blood-extraction system: elastic self-recovery actuator integrated with an ultrahigh-aspect-ratio microneedle, *Advanced Materials*, 2012;24(33):4583-4586.

BOOK CHAPTER

1. Roh YH, **Lee K**, Ye JJ, Luo D, Multivalent DNA-Based Vectors for DNA Vaccines Delivery. *Methods in Molecular Biology*, Springer publishing group, 2014;1143:159-179.

PATENTS

1. Hollow microneedle having variable appearance and method for manufacturing the same (US 8956545)
2. Method of manufacturing microstructure (US 8545741)
3. A method for preparing a hollow microneedle (US 8236368)
4. 망막하 주사 또는 추출용 중공형 마이크로니들 및 망막하 주사기 (10-1483988)
5. 유리체강 주사용 중공형 마이크로니들 (10-1412535)

6. 송풍방식을 이용하여 제조된 솔리드 마이크로 구조체 및 그의 제조방법 (10-1386442)
7. 신체 유체 채취용 디바이스 (10-1329563)
8. 치료 부위내 경피 유전자 전달을 위한 일렉트로 마이크로니들 집적체 및 이의 제조방법 (10-1314091)
9. 최소 침습 혈액채취용 중공형 마이크로구조체 (10-1195974)
10. 외형 조절이 가능한 중공형 마이크로니들의 제조방법 (10-1180032)
11. 송풍에 의한 솔리드 마이크로구조체의 제조방법 및 이로부터 제조된 솔리드 마이크로구조체 (10-1136738)
12. 다기능 하이브리드 마이크로구조체 및 그의 제조방법 (10-1136739)
13. 솔리드 마이크로구조체의 제조방법 (10-0938631)
14. 생분해성 약침 및 이의 제조방법 (10-0806026)
15. 생분해성 솔리드 마이크로니들 및 이의 제조방법 (10-0793615)
16. 중공형 마이크로니들 및 이의 제조방법 (10-0781702)

TECHNOLOGY TRANSFER

1. “Solid type microneedle and methods for preparing it” to RAPHAS, 06/2009.
   Product- Acropass, http://en.acropass.com/
2. “Method for preparing a hollow microneedle” to INCYTO, 08/2007.
   Product- Hollow microneedle, www.incyto.com