# Sangwoo Lee

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## RESEARCH FOCUSES

- Salivary gland development/morphogenesis
- Salivary gland tissue engineering
- Salivary gland regeneration
- Nanomaterials for salivary gland protection
- Sjogren's syndrome and other salivary gland dysfunction

## DEGREE & EDUCATION

**Ph.D. in Neurobiology Mar 2015 - Feb 2021**

School of Dentistry, Seoul National University, Seoul, Republic of Korea

**M.S. in Doctor of Dental Surgery Mar 2011 - Feb 2015**

School of Dentistry, Seoul National University, Seoul, Republic of Korea

**B.S. in Biological Science Sep 2006 - Aug 2010**

Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Republic of Korea

## RESEARCH EXPERIENCE

**Postdoctoral fellow** **Mar 2021 – Aug 2021**
Department of Oral Physiology, School of Dentistry, Seoul National University

**Research Professor** **Sep 2021 – Feb 2022**
Department of Oral Physiology, School of Dentistry, Seoul National University

**Assistant Professor** **Mar 2022 – Present**
Department of Oral Physiology, School of Dentistry, Seoul National University

## PUBLICATIONS

**First/Corresponding Authored Papers**

1. Lee, E. H., **Lee, S. W.**, Seo, Y., Deng, Y. H., Lim, Y. J., Kwon, H. B., ... & Kim, M. J. (2022). Manganese

Oxide Nanozyme-Doped Diatom for Safe and Efficient Treatment of Peri-Implantitis. ACS Applied Materials & Interfaces.

2. Lee, S. M., **Lee, S. W**., Kang, M., Choi, J. K., Park, K., Byun, J. S., & Kim, D. Y. (2021). FoxO1 as a Regulator of Aquaporin 5 Expression in the Salivary Gland. *Journal of Dental Research*, 100(11), 1281-1288.

3. **Lee, S. W.**, Kim, J., Cong, X., Yu, G. Y., Ryu, J. H., & Park, K. (2021). Efficient Surface Immobilization of Chemically Modified Hyaluronans for Enhanced Bioactivity and Survival of In Vitro-Cultured Embryonic Salivary Gland Mesenchymal Cells. *Polymers*, 13(8), 1216.

4. Kim, J., **Lee, S. W.**, & Park, K. (2021). CXCR4 Regulates Temporal Differentiation via PRC1 Complex in Organogenesis of Epithelial Glands. *International journal of molecular sciences*, 22(2), 619.

5. **Lee, S. W.**, Kim, J., Do, M., Namkoong, E., Lee, H., Ryu, J. H., & Park, K. (2020). Developmental role of hyaluronic acid and its application in salivary gland tissue engineering. *Acta Biomaterialia*, 115, 275-287.

6. Han, S. I., **Lee, S. W.**, Cho, M. G., Yoo, J. M., Oh, M. H., Jeong, B., ... & Hyeon, T. (2020). Epitaxially strained CeO2/Mn3O4 nanocrystals as an enhanced antioxidant for radioprotection. *Advanced Materials*, 32(31), 2001566.

7. **Lee, S. W.**, Ryu, J. H., Do, M. J., Namkoong, E., Lee, H., & Park, K. (2020). NiCHE platform: nature-inspired catechol-conjugated hyaluronic acid environment platform for salivary gland tissue engineering. *ACS Applied Materials & Interfaces*, 12(4), 4285-4294.

8. Shin, Y., **Lee, S. W.**, Namkoong, E., An, W., Lee, J. H., Brown, P. D., & Park, K. (2019). Epigenetic modification as a regulatory mechanism for spatiotemporal dynamics of ANO1 expression in salivary glands. *International journal of molecular sciences*, 20(24), 6298.

**Co-authored Papers**

1. Kim, M., **Lee, S. W.**, Kim, J., Shin, Y., Chang, F., Kim, J. M., ... & Park, K. (2021). LPS-induced epithelial barrier disruption via hyperactivation of CACC and ENaC. American Journal of Physiology-Cell Physiology, 320(3), C448-C461.

2. Choi, S., Han, S. I., Jung, D., Hwang, H. J., Lim, C., Bae, S., ... & Kim, D. H. (2018). Highly conductive, stretchable and biocompatible Ag–Au core–sheath nanowire composite for wearable and implantable bioelectronics. Nature nanotechnology, 13(11), 1048-1056.

3. Cong, X., Zhang, X. M., Zhang, Y., Wei, T., He, Q. H., Zhang, L. W., ... & Wu, L. L. (2018). Disruption of endothelial barrier function is linked with hyposecretion and lymphocytic infiltration in salivary glands of Sjögren's syndrome. Biochimica et Biophysica Acta (BBA)-Molecular Basis of Disease, 1864(10), 3154-3163.

4. Kim, J. M., Choi, S., **Lee, S. W.**, & Park, K. (2018). Voltage-dependent Ca2+ channels promote branching morphogenesis of salivary glands by patterning differential growth. Scientific reports, 8(1), 1-11.

5. Namkoong, E., **Lee, S. W.**, Kim, N., Choi, Y., & Park, K. (2017). Effect of anti-muscarinic autoantibodies on leukocyte function in Sjögren’s syndrome. Molecular Immunology, 90, 136-142.

6. Shin, Y. H., **Lee, S. W.**, Kim, M., Choi, S. Y., Cong, X., Yu, G. Y., & Park, K. (2016). Epigenetic regulation of CFTR in salivary gland. Biochemical and biophysical research communications, 481(1-2), 31-37.

7. Lee, S. H., Lee, Y., **Lee, S. W.**, Ji, H. Y., Lee, J. H., Lee, D. S., & Park, T. G. (2011). Enzyme-mediated cross-linking of Pluronic copolymer micelles for injectable and in situ forming hydrogels. Acta biomaterialia, 7(4), 1468-1476.

## AWARDS AND HONORS

**2016** 1st Place in senior researcher group, **Bumho-Hatton Award**, Korea Association of Dental Research held in Korea

**2016** 1st Place in Salivary gland researcher group, **Salivary Gland Research Award**, International Association of Dental Research held in Korea

**2018** 1st Place in senior researcher group, **Hatton Award**, International Association of Dental Research held in London (57 competitors from 26 countries / Korea's first ever win at IADR Hatton competition)

**2019** 2nd Place in senior researcher group, **JADR Award**, Korea Association of Dental Research held in Korea

**2022 제41회 신인학술상 (41th Young Investigator Award)**, Korean Dental Association (KDA)

## PATENTS

◦ '방사선 보호 나노입자' 국내 특허 등록 (등록일: 2020.4.13./등록번호: 10-2102535)

◦ '원포트 코팅법을 통한 히알유론산의 코팅 및 타액선 조직재생 플랫폼' 국내 특허 출원 (출원일: 2020.8.12./출원번호: 10-2020-0101052)

◦ '히알루론산-카테콜 화합물을 포함한 조직재생 플랫폼 및 이의 제작방법' 국내 특허 출원 (출원일: 2019.9.2./출원번호:10-2019-0108175)