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Last updated: 06/26/2023

EDUCATION

2003. 3 – 2008. 8 Pohang University of Science and Technology (POSTECH), Korea
Ph. D. in Developmental Genetics
Thesis title: “The role of Mind bomb-1 in the developing brain”
Advisor: Young-Yun Kong, Ph. D
1999. 3 – 2003. 2 Pohang University of Science and Technology (POSTECH), Korea
B. S. in Biology (*summa cum laude*)

RESEARCH EXPERIENCE

- 2018.10 – present Assistant Professor
Department of Biological Sciences, Korea Advanced Institute of Science and
Technology (KAIST), Korea
2017. 8 – 2018. 9 Research Associate
Department of Neuroscience, Perelman School of Medicine,
University of Pennsylvania (Mentors: Dr. Hongjun Song and Dr. Guo-li Ming)
2017. 1 – 2017. 7 Research Associate
Institute of Cell Engineering, Department of Neurology,
Johns Hopkins University (Mentors: Dr. Hongjun Song and Dr. Guo-li Ming)
2010. 1 – 2016. 12 Postdoctoral Fellow,
Institute of Cell Engineering, Department of Neurology,
Johns Hopkins University (Mentors: Dr. Hongjun Song and Dr. Guo-li Ming)
2008. 9. -2009. 12 Postdoctoral Fellow, Seoul National University, Korea
(Mentor: Dr. Young-Yun Kong)

HONORS AND AWARDS

- 2021 POSCO Science Fellowship, POSCO TJ Park Foundation, Korea
- 2019 SUHF Young Investigator Fellowship, Suh Kyungbae Foundation, Korea
- 2017 AKN Postdoctoral Award, Association of Korean Neuroscientists
- 2015 NARSAD Young Investigator Award, Brain and Behavior Research Foundation
- 2015 Postdoctoral Fellowship, Maryland Stem Cell Research Foundation
- 2010 Long-term Postdoctoral Fellowship, Human Frontier Science Program
- 2010 Postdoctoral Fellowship, Maryland Stem Cell Research Foundation
(Declined due to a conflict with HFSP fellowship)
- 2008 Excellent Thesis Award, Korean Society for Molecular and Cellular Biology
- 2008 The Best Doctoral Thesis Award, BK21 Division of Molecular and Life Sciences,
Pohang University of Science and Technology, Korea

PUBLICATION

1. **Yoon, K.J.** Voyages to map unexplored parts of the epitranscriptomic world. *Exp Mol Med* 54, 1599–1600 (2022).
2. **Yoon, K.J.***, Kim, Y.K*. Resolving m⁶A epitranscriptome with stoichiometry. *Trends in Genetics* S0168-9525 (22) 00151-2 (Preview) (2022) (*co-corresponding authors)
3. Koo, B., Lee, K.H., Ming, G.L., **Yoon, K.J.***, Song, H*. Setting the clock of neural progenitor cells during mammalian corticogenesis. *Seminars in Cell and Developmental Biology* S1084-9521 (Review) (2022) (*co-corresponding authors)
4. Jang, H., Kim, S.H., Koh, Y., **Yoon, K.J.** Engineering Brain Organoids: Toward Mature Neural Circuitry with an Intact Cytoarchitecture. *International Journal of Stem Cells* 15 (1), 41-59 (2022)
5. Park, S., Ku, J., Lee, S.M., Hwang, H., Lee, N., Kim, H., **Yoon, K.J.**, Kim, Y., Choi, S.Q. Potential toxicity of inorganic ions in particulate matter: Ion permeation in lung and disruption of cell metabolism. *Science of the Total Environment* 824:153818 (2022)
6. Ringeling, F.R., Chakraborty, S., Vissers, C., Reiman, D., Patel, A.M., Lee, K.H., Hong, A., Park, C.W., Reska, T., Gagneur, J., Chang, H., Spletter, M.L., **Yoon, K.J.**, Ming, G.L., Song, H., Canzar, S. Partitioning RNAs by length improves transcriptome reconstruction from short-read RNA-seq data. *Nature Biotechnology* (2022)
7. Kim, N.S., Ringeling, F.R., Zhou, Y., Nguyen, H.N., Temme, S.J., Lin, Y.T., Eacker, S., Dawson, V.L., Dawson, T.M., Xiao, B., Hsu, K.S., Canzar, S, Li, W, Worley, P, Christian, K. M., **Yoon, K.J.***, Song, H., Ming, G.L*. CYFIP1 dosages exhibit divergent behavioral impact via diametric regulation of NMDAR complex translation in mouse models of psychiatric disorders. *Biological Psychiatry* (2021) (*co-corresponding authors)
8. Kim, N.S., Wen, Z., Liu, J., Zhou, Y., Guo, Z., Xu, C., Lin, Y.T., **Yoon, K.J.**, Park, J., Cho, M., Kim, M., Wang, X., Yu, H., Sakamuru, S., Christian, K.M., Hsu, K.S., Xia, M., Li, W., Ross, C.A., Margolis, R.L., Lu, X.Y., Song, H., Ming, G.L. Pharmacological rescue in patient iPSC and mouse models with a rare DISC1 mutation. *Nature Communication* 12 (1), 1398 (2021)
9. Song, G, Lee, E.M., Pan, J., Xu, M., Rho, H.S., Cheng, Y., Whitt, N., Yang, S., Kouznetsova, J., Klumpp-Thomas, C., Michael, S.G., Moore, C., **Yoon, K.J.**, Christian, K.M., Simeonov, A., Huang, W., Xia, M., Huang, R., Lal-Nag, M., Tang, H., Zheng, W., Qian, J., Song, H., Ming, G.L., Zhu, H. An Integrated Systems Biology Approach Identifies the Proteasome as A Critical Host Machinery for ZIKV and DENV Replication. *Genomics Proteomics Bioinformatics* (2021)
10. Lee, J., Park, J., Kim, J.H., Lee, G., Park, T.E., **Yoon, K.J.**, Kim, Y.K., Lim, C. LSM12-EPAC1 defines a neuroprotective pathway that sustains the nucleocytoplasmic RAN gradient. *PLoS Biology* 18 (12), eCollection (2020)
11. Park, C.W., Lee, S.M., **Yoon, K.J.** Epitranscriptomic regulation of transcriptome plasticity in development and diseases of the brain. *BMB Reports* 53 (11), 551-564 (Review) (2020)
12. Lee, J., **Yoon, K.J.**, Park, P., Lee, C., Kim, M.J., Han, D.H., Kim, J.I., Kim, S., Lee, H.R., Lee, Y., Jang, E.H., Ko, H.G., Kong, Y.Y., Kaang, B.K. Neur1 and Neur2 are required for hippocampus-dependent spatial memory and synaptic plasticity. *Hippocampus* 30 (11), 1158-1166 (2020)
13. Habela, C., **Yoon, K.J.**, Kim, N.S., Taga, A., Bell, K., Bergles, D., Maragakis, N., Ming, G.L., Song, H. Persistent Cyfip1 expression is required to maintain the adult subventricular zone neurogenic niche. *Journal of Neuroscience* 40 (10), 2015-2024 (2020)
14. Koo, B., Choi, B., Park, H., **Yoon, K.J.** Past, Present, and Future of Brain Organoid Technology. *Molecules and Cells* 42 (9), 617-627 (Review) (2019)

15. Kim, J., Koo, B.K., **Yoon, K.J.** Modeling host-virus interactions in viral infectious diseases using stem-cell-derived systems and CRISPR/Cas9 technology. *Viruses* 11 (2), E124 (Review) (2019)
16. Zhou, Y., Bond, A.M., Shade, J.E., Zhu, Y., Davis, C.O., Wang, X., Su, Y., **Yoon, K.J.**, Phan, A.T., Chen, W.J., Oh, J.H., Marsh-Armstrong, N., Atabai, K., Ming, G.L., Song, H. Autocrine Mfge8 signaling prevents developmental exhaustion of the adult neural stem cell pool. *Cell Stem Cell* 23 (3), 444-452 (2018)
17. **Yoon, K.J.**, Ming, G.L., Song, H. Epitranscriptomes in the adult mammalian brain: dynamic changes regulate behavior. *Neuron* 99 (2), 243-245 (Preview) (2018)
18. **Yoon, K.J.**, Vissers, C., Ming, G.L., Song, H. Epigenetics and epitranscriptomics in temporal patterning of cortical neural progenitor competence. *Journal of Cell Biology* 217 (6), 1901-1914 (Review) (2018)
19. **Yoon, K.J.**, Ming, G.L., Song, H. Coupling Neurogenesis to Circuit Formation. *Cell* 173 (Preview) (2018)
20. Song, G., Rho, H.S., Pan, J., Ramos, P., **Yoon, K.J.**, Medina, F.A., Lee, E.M., Eichnger, D.J., Ming, G.L., Munoz-Jordan, J.L., Tang, H., Pino, I., Song, H., Qian, J., Zhu, H. Multiplexed biomarker panels discriminate Zika and Dengue virus infection in humans. *Molecular and Cellular Proteomics* mcp. RA117 (2017)
21. **Yoon, K.J.***, Ringeling, F.R.*, Vissers, C.*, Jacob, F., Pokrass, M., Jimenez-Cyrus, D., Su, Y., Kim, N.S., Zhu, Y., Zheng, L., Kim, S., Wang, X., Hyde, T.M., Weinberger, D.R., Jin, P., Zhuang, X., Regot, S., Regot, S., Canzar, S., He, C., Ming, G.L., Song, H. Temporal Control of Mammalian Cortical Neurogenesis by m⁶A mRNA Methylation. *Cell* 171, 1–13 (2017) (*equal contribution)
Highlighted with a "News and views" article in Nature 551(7681), 448-449 (2017)
Previewed in Neuron 96(4), 718-720 (2017)
22. **Yoon, K.J.**, Song, G., Qian, X., Pan, J., Rho, H.S., Kim, N.S., Habela, C., Zheng, L., Jacob, F., Zhang, F., Lee, E.M., Huang, W.K., Ringeling, F.R., Vissers, C., Li, C., Yuan, L., Kang, K., Kim, S., Yeo, J., Cheng, Y., Liu, S., Wen, Z., Qin, C.F., Wu, Q., Christian, K.M., Tang, H., Jin, P., Xu, Z., Qian, J., Zhu, H., Song, H., Ming, G.L. Zika-virus-encoded NS2A disrupts mammalian cortical neurogenesis by degrading adherens junction proteins. *Cell Stem Cell* 21(3), 349-358 (2017)
23. Zhang, F., Hammack, C., Ogden S.C., Cheng, Y, Lee, E.M., Wen, Z., Qian, X., Nguyen, H.N., Li, Y., Yao, B., Xu, M., Xu, T., Chen, L., Wang, Z., Feng, H., Huang, W.K., **Yoon, K.J.**, Shan, C., Huang, L., Qin, Z., Christian, K.M., Shi, P.Y., Xu, M., Xia, M., Zheng, W., Wu, H., Song, H., Tang, H., Ming, G.L., Jin, P. Molecular signatures associated with ZIKV exposure in human cortical neural progenitors. *Nuclear Acid Research* 44(18), 8610-8620 (2016)
24. Qian, X, Nguyen, H.N., Song, M.M., Hadiono, C., Ogden, S.C., Hammack, C, Yao, B, Hamersky, G.R., Jacob, F., Zhong, C., **Yoon, K.J.**, Jeang, W., Lin, L., Li, Y., Thakor, J., Berg, D.A., Zhang, C., Kang, E.C., Chickering, M., Nauen, D., Ho, C.Y., Wen, Z., Christian, K.M., Shi, P.Y., Maher, B.J., Wu, H., Jin, P., Tang, H., Song, H. and Ming, G.L. Brain-region-specific organoids using mini-bioreactors for modeling ZIKV exposure. *Cell* 165(5), 1238-1254 (2016)
25. Berg, D.A.* , **Yoon, K.J.*** , Will B., Xiao, A.Y, Kim, N.S., Christian, K.M., Song, H., Ming, G.L. Tbr2-expressing intermediate progenitor cells in the adult mouse hippocampus are unipotent neuronal precursors with limited amplification capacity under homeostasis. *Frontiers in Biology* 10(3), 262-271 (2015) (*equal contribution)
26. Wen, Z., Nguyen, H.N., Guo, Z., Lalli, M.A., Wang, X., Su, Y., Kim, N.S., **Yoon, K.J.**, Shin, J., Zhang, C., Makri, G., Nauen, D., Yu, H., Guzman, E., Chiang, C.H., Yoritomo, N., Kaibuchi, K., Zou, J., Christian, K.M., Cheng, L., Ross, C.A., Margolis, R.L., Chen, G., Kosik, K.S., Song, H., Ming, G.L. Synaptic dysregulation in a human iPS cell model of mental disorders. *Nature* 515, 414–418 (2014)
27. **Yoon, K.J.**, Nguyen, H.N., Ursini, G, Zhang, F, Kim, N.S., Wen, Z., Makri, G., Nauen, D., Shin, J.H., Park, Y., Chung, R., Pekle, E., Zhang, C., Towe, M., Lee, Y., Rujescu, D., St. Clair, D., Kleinman, J.E., Hyde, T.M., Christian, K.M., Rapoport, J.L., Weinberger, D.R., Song, H., Ming, G.L. Modeling a genetic risk for

schizophrenia in iPSCs and mice reveals neural stem cell deficits associated with adherens junctions and polarity. *Cell Stem Cell* 15(1), 79-91 (2014)

Cover and Featured Article, previewed in *Cell Stem Cell* 15(1), 4-5 (2014)

Highlighted in *Nature Medicine* 20(8), 813 (2014)

28. **Yoon, K.J.***, Lee, H.R.*, Jo, Y.S., An, K., Jung, S.Y., Jeong, M.W., Kwon, S.K., Kim, N.S., Jeong, H.W., An, H.S., Kim, K.T., Lee, K., Kim, E., Kim, J.H., Choi, J.S., Kaang, B.K., Kong, Y.Y. Mind bomb-1 is an essential modulator of long-term memory and synaptic plasticity via the Notch signaling pathway. *Mol Brain* 5(1), 40 (2012) (*equal contribution)
29. Kim, N.S., Kim, H.T., Choi, S.W., Kim, Y.Y., **Yoon, K.J.**, Koo, B.K., Kong, M.P., Shin, J., Cho, Y., Kong, Y.Y. Survival and differentiation of mammary epithelial cells in mammary gland development require nuclear retention of Id2 due to RANK signaling. *Molecular and Cellular Biology* (2011)
30. Jung, Y.J., Park, Y.S., **Yoon, K.J.**, Kong, Y.Y., Park, J.W., Nam, H.G. Molecule-level imaging of Pax6 mRNA distribution in mouse embryonic neocortex by molecular interaction force microscopy. *Nucleic Acids Research* 37(2), e10 (2009)
31. Song, R., Kim, Y.W., Koo, B.K., Jeong, H.W., Yoon, M.J., **Yoon, K.J.**, Jun, D.J., Im, S.K., Shin, J., Kong, M.P., Kim, K.T., Yoon, K., Kong, Y.Y. Mind bomb 1 in the lymphopoietic niches is essential for T and marginal zone B cell development. *Journal of Experimental Medicine* 205, 2525-2536 (2008)
32. **Yoon, K.J.**, Koo, B.K., Im, S.K., Jeong, H.W., Ghim, J., Kwon, M.C., Moon, J.S., Miyata, T., and Kong, Y.Y. Mind bomb 1-expressing intermediate progenitors generate notch signaling to maintain radial glial cells. *Neuron* 58, 519-531 (2008)
33. Kwon, M.C., Koo, B.K., Moon, J.S., Kim, Y.Y., Park, K.C., Kim, N.S., Kwon, M.Y., Kong, M.P., **Yoon, K.J.**, Im, S.K., Ghim, J., Han, Y.M., Jang, S., Shong, M., and Kong, Y.Y. Crif1 is a novel transcriptional coactivator of STAT3. *EMBO Journal* (27), 642-653 (2008)
34. Koo, B.K.*, Yoon, M.J.*, **Yoon, K.J.***, Im, S.K., Kim, Y.Y., Kim, C.H., Suh, P.G., Jan, Y.N., and Kong, Y.Y. An obligatory role of mind bomb-1 in notch signaling of mammalian development. *PLoS ONE* 2, e1221 (*equal contribution) (2007)
35. Song, R., Koo, B.K., **Yoon, K.J.**, Yoon, M.J., Yoo, K.W., Kim, H.T., Oh, H.J., Kim, Y.Y., Han, J.K., Kim, C.H., and Kong, Y.Y. Neuralized-2 regulates a Notch ligand in cooperation with Mind bomb-1. *Journal of Biological Chemistry* 281, 36391-36400 (2006)
36. Yoo, K.W., Kim, E.H., Jung, S.H., Rhee, M., Koo, B.K., **Yoon, K.J.**, Kong, Y.Y., and Kim, C.H. Snx5, as a Mind bomb-binding protein, is expressed in hematopoietic and endothelial precursor cells in zebrafish. *FEBS Letters* 580, 4409-4416 (2006)
37. Koo, B.K., Lim, H.S., Song, R., Yoon, M.J., **Yoon, K.J.**, Moon, J.S., Kim, Y.W., Kwon, M.C., Yoo, K.W., Kong, M.P., Lee J, Chitnis A.B., Kim C.H. and Kong Y.Y. Mind bomb 1 is essential for generating functional Notch ligands to activate Notch. *Development* 132, 3459-3470 (2005)
38. Koo, B.K., **Yoon, K.J.**, Yoo, K.W., Lim, H.S., Song, R., So, J.H., Kim, C.H., and Kong, Y.Y. Mind bomb-2 is an E3 ligase for Notch ligand. *Journal of Biological Chemistry* 280, 22335-22342 (2005)

PRESENTATIONS

2019. 8. 12 Invited speaker, 12th UK-Korea Neuroscience Symposium, "Deciphering the neural epitranscriptome using mouse and human organoid models," London, United Kingdom
2019. 7. 3 Invited speaker, 13th Annual Meeting of the New Champions, World Economic Forum, "Growing an artificial brain in a dish," Dalian, China
2018. 8. 3 Invited speaker, UKC 2018, "Temporal control of mammalian cortical neurogenesis by m⁶A methylation," Queens, NY

2018. 5. 12 Invited speaker, NEBS annual meeting, "Temporal control of mammalian cortical neurogenesis by m⁶A methylation," Boston, MA
2017. 9. 28 Invited speaker, Cold Spring Harbor Laboratory meeting, "Temporal control of mammalian cortical neurogenesis by m⁶A methylation," Cold Spring Harbor, NY
2016. 11. 14 Invited speaker, Society for Neuroscience annual meeting, "Altered doses of psychiatric risk factor CYFIP1 lead to dysregulated protein and behavioral abnormalities in models of psychiatric disorders," San Diego, CA
2014. 11. 15 Invited speaker, Society for Neuroscience annual meeting, "Modeling a genetic risk for schizophrenia in iPSCs and mice reveals neural stem cell deficits associated with adherens junctions and polarity," Washington DC
2013. 5. 13 Invited speaker, JHU CCD/DBRIC seminar, "CYFIP1 is essential for maintaining the adherens junctions and polarity of neural stem cells in the developing cortex," Baltimore, MD
2012. 10. 7. Invited speaker, Society for Neuroscience annual meeting, "CYFIP1 is essential for maintaining the adherens junctions and polarity of neural stem cells in the developing cortex," New Orleans, LA