***CURRICULUM VITAE (Last updated: 12-22-2022)***

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**EDUCATION**

2003. 3. – 2006. 2. **Ph.D., School of Biological Sciences, Seoul National University**

2001. 3. – 2003. 2. **M.S., Institutes of Molecular Biology and Genetics, Seoul National University**

1994. 3. – 2001. 2. **B.S.,** **Department of Microbiology, Seoul National University**.

**PROFESSIONAL EXPERIENCE**

2022. 9. – present **Professor, Department of Life Sciences, POSTECH**

2015. 9. – 2022. 8. **Associate Professor, Department of Life Sciences, POSTECH**

2017. 9. – 2018. 8. **Visiting Associate Professor, Department of Genetics, Yale University**

2011. 8. – 2105. 8. **Assistant Professor, Department of Life Sciences, POSTECH**

2007. 1. – 2011. 7. **Postdoctoral Associate, Howard Hughes Medical Institute, Baylor College of Medicine**

Supervisor: Huda Y. Zoghbi, M.D.

2006. 3. – 2006.12. **Postdoctoral Associate,** **School of Biological Sciences, Seoul National University**

Supervisor: V. Narry Kim, Ph.D.

**PUBLICATIONS (As a corresponding author)**

**1.** Kim, E., Park, S., Choi, N., Lee, J., Yoe, J., Kim, S., Jung, H.-Y., Kim, K.-T., Kang, H., Fryer, J.D., Zoghbi, H.Y., Hwang, D., and **Lee, Y.** Deficiency of Capicua disrupts bile acid homeostasis. ***Scientific Reports.* 2015;** 5, 8272.

**2.** Choi, N., Park, J., Lee, J.-S., Yoe, J., Park, G.Y., Kim, E., Jeon, H., Cho, Y.M., Roh, T.-Y., and **Lee, Y.** miR-93/miR-106b/miR-375-CIC-CRABP1: A novel regulatory axis in prostate cancer progression. ***Oncotarget.* 2015;** 6(27): 23533-47

**3.** Park, S.\*, Lee, S.\*, Lee, C.-G.\*, Park, G.Y., Hong, H., Lee, J.-S., Kim, Y.M., Lee, S.B., Hwang, D., Choi, Y.S., Fryer, J.D., Im, S.-H.#, Lee, S.-W.# and **Lee, Y.**# (\*co-first authors, #co-corresponding authors)Capicua deficiency induces autoimmunity and promotes follicular helper T cell differentiation via derepression of ETV5. ***Nature Communications.*** **2017;** 8,16037

**4.** Kim, E., Kim, D., Lee, J.-S., Yoe, J., Park, J., Kim, C.-J., Jeong, D., Kim, S.#, and **Lee, Y.**# (#co-corresponding authors)Capicua suppresses hepatocellular carcinoma progression by controlling ETV4-MMP1 axis. ***Hepatology.*** **2018;** 67(6):2287-2301

**5.** Park, S.#, Park, J., Kim, E., and **Lee, Y.**# (#co-corresponding authors)The Capicua /ETS Translocation Variant 5 axis regulates liver-resident memory CD8+ T cell development and the pathogenesis of liver injury. ***Hepatology.*** **2019;** 70(1):358-371

**6.** **Lee, J.-S.\*, Kim, E.\*, Lee, J.\*,** Kim, D., Kim, H., Kim, C.-J., Kim, S., Jeong, D.# and **Lee, Y.**# **(\*co-first authors, #co-corresponding authors)** Capicua suppresses colorectal cancer progression via repression of ETV4 expression. **Cancer Cell International.** **2020;** 20:42

**7.** **Yoe, J.,** Kim, D., Kim, S.and **Lee, Y.** Capicua restricts cancer stem cell-like properties in breast cancer cells. **Oncogene. 2020;** 39:3489-3506

**8.** **Lee, Y.** Regulation and function of capicua in mammals. ***Experimental & Molecular Medicine.*2020;** 52:531-537 (Review article)

**9. Park, G.-Y.,** Lee, G.-W., **Kim, S., Hong, H., Park, J.S.,** Cho, J..# and **Lee, Y.**# **(#co-corresponding authors)** Deletion timing of Cic alleles during hematopoiesis determines the degree of peripheral CD4+ T cell activation and proliferation. ***Immune Network.*2020;** 20(5):e43

**10. Kim, S., Park, G.-Y., Park, J.S., Park, J., Hong, H.,** and **Lee, Y.**Regulation of positive and negative selection and TCR signaling during thymic T cell development by capicua. ***eLife.*2021;** 10:e71769

**11. Hong, H., Lee, J., Park, G.-Y., Kim, S., Park, J., Park, J.S., Song, Y., Lee, S., Kim, T.J., Lee, Y.J., Roh, T.-Y., Kwok, S.-K., Kim, S.W., Tan, Q.,** and **Lee, Y.**Postnatal regulation of B-1a cell development and survival by the CIC-PER2-BHLHE41 axis. ***Cell Reports.*2022;** 38(7):110386

**12.** **Hong, H.#** and **Lee, Y.**# **(#co-corresponding authors)** Generation of hematopoietic lineage cell-specific chimeric mice using retrovirus-transduced fetal liver cells. ***STAR Protocols.* 2022;** 3,101526

**13.** Nguyen, K.T., Mun, S.-H., Yang, J., **Lee, J.,** Seok. O.-H., **Kim, E.,** Kim, D., An, S.Y., Seo, D.-Y., Suh, J.-Y., **Lee, Y.**#and Hwang, C.-S.# **(#co-corresponding authors)** The MARCHF6 E3 ubiquitin ligase acts as an NADPH sensor for the regulation of ferroptosis. ***Nature Cell Biology.* 2022; 24,1239-1251**

**14. Park, J., Park, G.-Y., Lee, J., Park, J., Kim, S., Kim, E.**, Park, S.-Y., Yoon, J.H., and **Lee, Y.** ERK phosphorylation disrupts the intramolecular interaction of capicua to promote cytoplasmic translocation of capicua and tumor growth. ***Frontiers in Molecular Biosciences.* 2022;**9:1030725

# PUBLICATIONS (Full list)

**1.** **Lee, Y.**, Jeon, K.P., Lee, J.T., Kim, S and Kim, V.N., MicroRNA maturation: stepwise processing and subcellular localization. ***EMBO Journal.*** **2002**; 21:4663-4670.

**2.** **Lee, Y.**, Ahn, C., Han, J., Choi, H., Kim, J., Yim, J., Lee, J., Provost, P., Rådmark, O., Kim, S., and Kim, V.N., The Nuclear RNase III Drosha Initiates MicroRNA Processing. ***Nature.*** **2003**; 425:415-419.

**3.** Suh, M.R., **Lee, Y.**, Kim, J.Y., Kim, S.K., Moon, S.H., Lee, J.Y., Cha, K.Y., Chung, H.M., Yoon, H.S., Moon, S.Y., Kim, V.N.#, and Kim, K.S.# (#co-corresponding authors), Human embryonic stem cells express a unique set of microRNAs. ***Developmental Biology.*****2004**; 270:488-498.

**4.** **Lee, Y.**, Kim, M.J., Han, J., Yeom, K.-H., Lee, S.H., Baek, S.H. and Kim, V.N. MicoRNA genes are transcribed by RNA polymerase II. ***EMBO Journal.*** **2004**; 23:4051-4060.

**5.** Han, J.\*, **Lee, Y.**\*, Yeom, K.-H., Kim, Y.-K., Jin, H., and Kim, V.N. (\*co-first authors)The Drosha-DGCR8 complex in primary microRNA processing. ***Genes and Development.*** **2004**; 18:3016-3027.

**6.** Kim, J., Jung, J.H., Reyes, J.L., Kim, Y.S., Kim, S.Y., Chung, K.S., Kim, J.A., Lee, M., **Lee, Y.**, Kim, V.N., Chua, N.H. and Park, C.M. microRNA-directed cleavage of ATHB15 mRNA regulates vascular development in Arabidopsis inflorescence stems. ***Plant Journal.*****2005**; 42, 84-94.

**7.** **Lee, Y.** and Kim, V.N., Preparation and Characterization of Drosha. ***Methods in Molecular Biology.*** **2005**; 309:17.

**8.** Nam, J.-W., Shin, KR., Han, J., **Lee, Y.**, Kim, V.N., Zhang, BT. Human microRNA prediction through a probabilistic co-learning model of sequence and structure. ***Nucleic Acids Research.*****2005**; 33:3570.

**9.** **Lee, Y**.\*, Hur, I.\*, Park, S.-Y.\*, Kim, Y.-K., Suh, M.R., and Kim, V.N. (\*co-first authors) The role of PACT in the RNA silencing pathway. ***EMBO Journal.*** **2006**; 25:522-532.

**10.** Han, J.\*, **Lee, Y.**\*, Yeom, K.-H.\*, Nam, J.-W., Heo, I., Rhee, J.-K., Sohn, S.Y., Cho, Y., Zhang, B.-T., and Kim, V.N. (\*co-first authors) Molecular basis for the recognition of primary microRNAs by the Drosha-DGCR8 complex. ***Cell.*** **2006**; 125(5):887-901

**11.** **Yeom, K.-H., Lee, Y., Han, J.,** Suh, M.R. and Kim, V.N. Characterization of DGCR8/Pasha, the essential cofactor for Drosha in primary miRNA processing. ***Nucleic Acids Research.* 2006**;34(16):4622-9

**12. Lee, Y.,** Han, J., Yeom, K.-H., Jin, H. and Kim, V.N.Drosha in primary microRNA processing. ***Cold Spring Harbor Symposia on Quantitative Biology.* 2006**; 71:51-7

**13.** **Lee, Y.** and Kim, V.N.In vitro and in vivo assays for the activity of drosha complex. ***Methods in Enzymology.*** **2007**; 427:87-106

**14.** **Lee, Y.**, Samaco, R.C., Gatchel, J.R., Thaller, C., Orr, H.T. and Zoghbi, H.Y. miR-19, miR-101, and miR-130 co-regulate ATXN1 levels to potentially modulate SCA1 pathogenesis. ***Nature Neuroscience.*** **2008**; 11:1137-9

**15.** Jin, H., Suh, M.R., Han, J., Yeom, K.-H., **Lee, Y.**, Heo, I., Ha, M., Hyun, S.and Kim, V.N.Human UPF1 modulates small RNA-induced mRNA down-regulation. ***Molecular and Cellular Biology.* 2009**;29(21): 5789-99

**16.** **Lee, Y.**, Fryer, J.D., Kang, H., Crespo-Barreto, J., Bowman, A.B., Kahle, J.J., Gao, Y., Hong, J.S., Kheradmand, F., Orr, H.T., Finegold, M.J. and Zoghbi, H.Y. ATXN1 protein family and CIC regulate extracellular matrix remodeling and lung alveolarization. **Developmental Cell. 2011**; 21: 746-57

**17.** Han, K.\*, Gennarino, V.A.\*, **Lee, Y.**, Pang, K., Hashimoto-Torii, K., Choufani, S., Raju, C.S., Oldham, M.C., Weksberg, R., Rakic, P., Liu, Z. and Zoghbi, H.Y**. (\*co-first authors)** Human-specific regulation of MeCP2 levels in fetal brains by microRNA miR-483-5p. **Genes and Development.** **2013**; 27(5): 485-490

**18.** Kahle, J.J.\*, Souroullas, G.P.\*, Yu, P., Zohren, F., **Lee, Y.**,  Shaw, C.A.#,  Zoghbi, H.Y.#, Goodell M.A.# (\*co-first authors, #co-corresponding authors) Ataxin1L is a regulator of HSC function highlighting the utility of cross-tissue comparisons for gene discovery. ***PLoS Genetics.*** **2013;** 9(3):e1003359.

**19.** Park, J.\*, Al-Ramahi, I.\*, Tan, Q., Mollema, N., Diaz-Garcia, J.R., Gallego-Flores, T., Lu, H.-C., Lagalwar, S., Duvick, L., Kang, H., **Lee, Y.**, Jafar-Nejad, P., Sayegh, L.S., Richman, R., Liu, X., Gao, Y., Shaw, C.A., Arthur, J.S.C., Orr, H.T.#, Westbrook, T.F.#, Botas, J.# and Zoghbi, H.Y.# (\*co-first authors, #co-corresponding authors) RAS–MAPK–MSK1 pathway modulates ataxin 1 protein levels and toxicity in SCA1. ***Nature.* 2013;** 498: 325-331.

**20.** Kim, E., Park, S., Choi, N., Lee, J., Yoe, J., Kim, S., Jung, H.-Y., Kim, K.-T., Kang, H., Fryer, J.D., Zoghbi, H.Y., Hwang, D., and **Lee, Y.** Deficiency of Capicua disrupts bile acid homeostasis. ***Scientific Reports.* 2015;** 5, 8272.

**21.** Choi, N., Park, J., Lee, J.-S., Yoe, J., Park, G.Y., Kim, E., Jeon, H., Cho, Y.M., Roh, T.-Y., and **Lee, Y.** miR-93/miR-106b/miR-375-CIC-CRABP1: A novel regulatory axis in prostate cancer progression. ***Oncotarget.* 2015;** 6(27): 23533-47

**22.** Seo, M., Seo, K., Hwang, W., Koo, H.J., Hahm, J.H., Yang, J.S., Han, S.K., Hwang, D., Kim, S., Jang, S.K., **Lee, Y.**, Nam, H.G.# and Lee, S.J.V.# (#co-corresponding authors)RNA helicase HEL-1 promotes longevity by specifically activating DAF-16/FOXO signaling in C. elegans. ***PNAS.* 2015**; 112(31):E4246-55

**23.** Lee, K., Kim, H., An, K., Kwon, O.B.,Park, S., Cha, J.H., Kim, M.H., **Lee, Y.**, Kim, J.H., Cho, K., Kim, H.S. Replenishment of microRNA-188-5p restores the synaptic and cognitive deficits in 5XFAD Mouse Model of Alzheimer’s Disease. ***Scientific Reports.*** **2016;** 6, 34433

**24.** Lu, H.C.\*, Tan, Q.\*, Rousseaux, M.W., Wang, W., Kim, J.Y., Richman, R., Wan, Y.W., Yeh, S.Y., Patel, J.M., Liu, X., Lin, T., **Lee, Y.**, Fryer, J.D., Han, J., Chahrour, M., Finnell, R.H., Lei, Y., Zurita-Jimenez, M.E., Ahimaz, P., Anyane-Yeboa, K., Van Maldergem, L., Lehalle, D., Jean-Marcais, N., Mosca-Boidron, A.L., Thevenon, J., Cousin, M.A., Bro, D.E., Lanpher, B.C., Klee, E.W., Alexander, N., Bainbridge, M.N., Orr, H.T., Sillitoe, R.V., Ljungberg, M.C., Liu, Z, Schaaf, C.P., Zoghbi, H.Y. **(\*co-first authors)** Disruption of the ATXN1-CIC complex causes a spectrum of neurobehavioral phenotypes in mice and humans. **Nature Genetics.** **2017;** 49(4):527-536

**25.** Park, S.\*, Lee, S.\*, Lee, C.-G.\*, Park, G.Y., Hong, H., Lee, J.-S., Kim, Y.M., Lee, S.B., Hwang, D., Choi, Y.S., Fryer, J.D., Im, S.-H.#, Lee, S.-W.# and **Lee, Y.**# (\*co-first authors, #co-corresponding authors)Capicua deficiency induces autoimmunity and promotes follicular helper T cell differentiation via derepression of ETV5. ***Nature Communications.*** **2017;** 8, 16037

**26.** Bok, S., Kim, Y.-E., Woo, Y., **Kim, S.,** Kang, S.-J., **Lee, Y.**, Park, S.K., Weissman, I.L., and Ahn, G.-O. Hypoxia-inducible factor-1α regulates microglial functions affecting neuronal survival in the acute phase of ischemic stroke in mice. **Oncotarget.** **2017;** 8(67):111508-111521

**27.** Han, J., Perez, JT., Chen, C., Li, Y., Benitez, A., Kandasamy, M., **Lee, Y.**, Andrade, J., tenOever, B., and Manicassamy, B. Genome-wide CRISPR/Cas9 screen identifies host factors essential for Influenza virus replication. **Cell Reports.** **2018;**23(2):596-607

**28.** Kim, E., Kim, D., Lee, J.-S., Yoe, J., Park, J., Kim, C.-J., Jeong, D., Kim, S.#, and **Lee, Y.**# (#co-corresponding authors)Capicua suppresses hepatocellular carcinoma progression by controlling ETV4-MMP1 axis. ***Hepatology.*** **2018;** 67(6):2287-2301

**29.** Cho, H.\*, Cho, H.S.\*, Nam, H., Jo, H., Yoon, J., Park, C., Dang, T.V.T., Kim, E., Jeong, J., Park, S., Wallner, E.S., Youn, H., **Park, J.**, Jeon, J., Ryu, H., Greb, T., Choi, K., **Lee, Y.**, Jang, S.K., Ban, C., and Hwang, I**. (\*co-first authors)** Translational control of phloem development by RNA G-quadruplex-JULGI determines plant sink strength. **Nature Plants.** **2018;** 4(6):376-390

**30.** Islam, M.R., Kwak, J.-W., **Lee, J.-S.**, Hong, S.-W., Khan, M.R.I., Lee, Y., **Lee, Y.**, Lee, S.-W., and Hwang, I. Cost-effective production of tag-less recombinant protein in Nicotiana benthamiana. **Plant Biotechnology Journal.** **2019;** 17(6):1094-1105

**31.** Park, S.#, Park, J., Kim, E., and **Lee, Y.**# (#co-corresponding authors)The Capicua /ETS Translocation Variant 5 axis regulates liver-resident memory CD8+ T cell development and the pathogenesis of liver injury. ***Hepatology.*** **2019;** 70(1):358-371

**32.** **Lee, J.-S.\*, Kim, E.\*, Lee, J.\*,** Kim, D., Kim, H., Kim, C.-J., Kim, S., Jeong, D.# and **Lee, Y.**# **(\*co-first authors, #co-corresponding authors)** [Capicua suppresses colorectal cancer progression via repression of ETV4 expression.](https://cancerci.biomedcentral.com/articles/10.1186/s12935-020-1111-8) **Cancer Cell International.** **2020;** 20:42

**33.** **Yoe, J.,** Kim, D., Kim, S.and **Lee, Y.** Capicua restricts cancer stem cell-like properties in breast cancer cells. **Oncogene. 2020;** 39:3489-3506

**34.** **Lee, Y.** Regulation and function of capicua in mammals. ***Experimental & Molecular Medicine.*2020;** 52:531-537 (Review article)

**35.** Lee, S.-H., Zhang, Y., Park, J., Kim, B., Kim, Y., Lee, S.H., Kim, G.H., Huh, Y.H., Lee, B., Kim, Y., Lee, Y., Kim, J.Y., Kang, H., Choi, S.-Y., Jang, S., Li, Y., Kim, S., Jin, C., Pang, K**., Kim, E.,** **Lee, Y.**, Kim, H., Kim, E., Choi, J., Kim, J.H., Lee , K.J.#, Choi, S.-Y.# and Han, K.# **(#co-corresponding authors)** Haploinsufficiency of Cyfip2 causes lithium-responsive prefrontal dysfunction. **Annals of Neurobiology. 2020;** 88(3):526-543

**36. Park, G.-Y.**, Lee, G.-W.**, Kim, S., Hong, H., Park, J.S.,** Cho, J..# and **Lee, Y.**# **(#co-corresponding authors)** [Deletion timing of Cic alleles during hematopoiesis determines the degree of peripheral CD4+ T cell activation and proliferation.](https://immunenetwork.org/DOIx.php?id=10.4110/in.2020.20.e43) ***Immune Network.*2020;** 20(5):e43

**37. Kim, S., Park, G.-Y., Park, J.S., Park, J., Hong, H.,** and **Lee, Y.**[Regulation of positive and negative selection and TCR signaling during thymic T cell development by capicua.](https://www.biorxiv.org/content/10.1101/2021.07.11.451936v1.full) ***eLife.*2021;** 10:e71769

**38. Hong, H., Lee, J., Park, G.-Y., Kim, S., Park, J., Park, J.S., Song, Y., Lee, S., Kim, T.J., Lee, Y.J., Roh, T.-Y., Kwok, S.-K., Kim, S.W., Tan, Q.,** and **Lee, Y.**[Postnatal regulation of B-1a cell development and survival by the CIC-PER2-BHLHE41 axis.](https://www.biorxiv.org/content/10.1101/2021.07.11.451936v1.full) ***Cell Reports.*2022;** 38(7):110386

**39.** **Hong, H.#** and **Lee, Y.**# **(#co-corresponding authors)** [Generation of hematopoietic lineage cell-specific chimeric mice using retrovirus-transduced fetal liver cells.](https://www.google.com/url?q=https%3A%2F%2Fwww.sciencedirect.com%2Fscience%2Farticle%2Fpii%2FS2666166722004063&sa=D&sntz=1&usg=AOvVaw1VhGPgOPt3fnTKwQBWHebO) ***STAR Protocols.* 2022;** 3,101526

**40.** Nguyen, K.T., Mun, S.-H., Yang, J., **Lee, J.,** Seok. O.-H., **Kim, E.,** Kim, D., An, S.Y., Seo, D.-Y., Suh, J.-Y., **Lee, Y.**#and Hwang, C.-S.# **(#co-corresponding authors)** The MARCHF6 E3 ubiquitin ligase acts as an NADPH sensor for the regulation of ferroptosis. ***Nature Cell Biology.* 2022; 24,1239-1251**

**41. Park, J., Park, G.-Y., Lee, J., Park, J., Kim, S., Kim, E.**, Park, S.-Y., Yoon, J.H., and **Lee, Y.** ERK phosphorylation disrupts the intramolecular interaction of capicua to promote cytoplasmic translocation of capicua and tumor growth. ***Frontiers in Molecular Biosciences.* 2022;**9:1030725

**42.** Kim, Y.-J., Oh, J., Jung, S., Kim, C.J., Choi, J., Jeon, Y.K., Kim, H.J., Kim, J.-W., Suh, C.-H., **Lee, Y.**, Im, S.-H., Crotty, S. and Choi, Y.S. The transcription factor Mef2d regulates B:T synapse-dependent GC-Tfh differentiation and IL-21-mediated humoral immunity. ***Science Immunology.* 2023;**

 **HONORS AND AWARDS**

2004 Lotte fund scholarship

1. BK21 distinguished studentship, President award (Korean Ministry of Science and Technology)
2. Weintraub graduate student award (Fred Hutchinson Cancer Research Center at Seattle)

2006 Best thesis award (Korean Society for Molecular and Cellular Biology)

2008 Young investigator award (the 2nd Ataxia Investigator’s Meeting at Las Vegas)

2012 TJ Park Junior Faculty Fellowship

2013 Knowledge creation award (Korean Ministry of Science, ICT and Future Planning)

2019 Blue Ribbon Lecturer (Korean Society for Molecular and Cellular Biology)

2022 Macrogen scientist award (Korean Society for Molecular and Cellular Biology)

2022 Mueunjae chair professor (POSTECH)