
BIOGRAPHICAL SKETCH

Sept. 2019

NAME	JaeHyung Koo	POSITION TITLE	Professor
e-MAIL	jkoo001@dgist.ac.kr		Department of New Biology, DGIST

EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Maryland, Baltimore, MD (Mentor: Dr. Frank L. Margolis)	Postdoc.	2000-2003	Neurobiology
Yonsei University, Korea (Mentor: Dr. Yu Sam Kim)	Ph.D.	1997-2000	Biochemistry
Yonsei University, Korea (Mentor: Dr. Yu Sam Kim)	M.S.	1995-1997	Biochemistry
Sungkyunkwan University, Korea	B.S.	1988-1995	Biology

A. Positions and Honors

Positions and Employment

2017-date	Professor, Department of New Biology, DGIST
2017-2018	Associated Vice-President for Research Affairs, DGIST
2010-2016	Associate Professor, Department of Brain and Cognitive Sciences, Daegu Gyeongbuk Institute of Science & Technology (DGIST), Daegu
2011-2016	Visiting Professor, Johns Hopkins University School of Medicine, Baltimore
2008-2010	Adjunct Professor, University of Maryland School of Medicine, Baltimore
2003-2008	Assistant Professor, Dept. of Anatomy and Neurobiology, University of Maryland School of Medicine, Baltimore, MD, USA

Other Experience and Professional Memberships

2019-date	Editor for Laboratory Animal Research
2018	24 th IUBMB Congress & 15 th FAOBMB Congress Committee member
2017-2018	BoMoon Conference 2017, 2018 Committee member
2017-2018	Sorak Conference 2017, 2018 Committee member
2017-date	Editor for BMB Reports
2017-2018	General Secretary for Korean Society for Brain and Neural Science (KSBNS)
2019-date	Science manager for KSBMB
2014-2018	Planning manager for KSBMB
2015-date	Science manager for Korean Association for Laboratory Animal Science (KALAS)
2011-date	Member for Korean Society Biochemistry and Molecular Biology (KSBMB)
2011-2014	Director of International Cooperation for Korean Society for Chemical Senses and Ingestive Behavior (KoSCI)
2010-date	Member for Korean Society for Brain and Neural Science (KSBNS)
2002-date	Member for the Society for Neuroscience (SfN)
2003-date	Member for Association for Chemoreception Science (AchemS)
2004-2008	Associate Member in the Graduate Faculty, University of Maryland
2005	BLSA president
2003-2010	Member for the Baltimore Life Scientists Association (BLSA)

Honors

2017 2017 DGIST Best Research Award
2016 1st DGIST Way Award
2014 First listed in Who's Who in the World (Marquis)
2012 Outstanding Poster Award from the Korean Society for Brain and Neural Science
2007 Outstanding Poster Award from the Baltimore Life Scientists Association
2003 Young Scientist Travel Award from HUPO 2nd Annual & International Union of Biochemistry and Molecular Biology (IUBMB) XIX Joint World Congress
1998-1999 Young Scientist Research Fund Award from Korea Research Foundation (KRF)
1998 Advanced Poster Award from the Korean Society for Molecular and Cellular Biology
1995-2000 Graduate Fellowships from Ministry of Education, Korea

B. Publications and presentations (peer-reviewed)

Publications

Cho TH*, Lee CE*, Lee NH, Hong YR, Koo JH (2019) Small-chain fatty acid activates astrocytic odorant receptor Olfr920. *Biochem Biophys Res Commun.* 510: 383-387.

Lee NH*, Sa M*, Hong YR, Lee CJ**, Koo JH** (2018) Fatty Acid Increases cAMP-dependent Lactate and MAO-B-dependent GABA Production in Mouse Astrocytes by Activating a G_{αs} Protein-coupled Receptor. *Exp Neurol.* 27(5):365-376.

Kang CW, Han YE, Lee MK, Cho YH, Kang NN, Koo JH, Ku CR, Lee, EJ (2018) Olfactory marker protein regulates prolactin secretion and production by modulating Ca²⁺ and TRH signaling in lactotrophs. *Exp Mol Med* 50(4): 15. doi: 10.1038/s12276-018-0035-z.

Kim D, Chung S, Lee SH, Choi SY, Kim SM, Koo JH, Lee JH, Jahng JW (2017) Decreased hippocampal brain-derived neurotrophic factor and impaired cognitive function by hypoglossal nerve transection in rats. *J Cell Mol Med* 21(12):3752-3760.

Park BB*, Lee NH*, Kim YH, Jae YG, Choi S, Kang NN, Hong YR, Ok K, Cho J, Jeon YH, Lee EH, Byun Y**, Koo JH** (2017) Analogue of Dehydroacetic Acid as a Selective and Potent Agonist of Ectopic Odorant Receptor through a Combination of Hydrophilic and Hydrophobic Interactions. *ChemMedChem* 12(7): 477-482.

Gillam MP, Ku CR, Lee YJ, Kim J, Kim SH, Lee SJ, Hwang B, Koo JH, Kineman RD, Kiyokawa H, Lee EJ (2017) Somatotroph-specific Aip deficient mice display pre-tumorigenic alterations in cell cycle signaling. *J. Endocr. Soc.* 1(2): 78-95.

Kim D, Chung S, Lee JY, Koo JH, Lee J-H, Jahng JW (2017) Decreased expression of 5-HT1A in the circumvallate taste cells in an animal model of depression. *Archives of Oral Biology.* 76:42-47.

Kim JH and Koo JH (2017) Ectopic Odorant Receptor: Expression and Function. 2017(1) *TiBMB, KSBMB Webzine.*

Kim H*, Kang NN*, An KH, Kim D, Koo JH**, Kim MS** (2017) MRPrimerV: A database of PCR primers for RNA virus detection. *Nucleic Acids Res.* 45(D1): D475-D481.

Park YJ, Lee SK, Jung YS, Lee M, Lee HY, Kim SD, Park JS, Koo JH, Hwang JS, Bae YS (2016) Promotion of formyl peptide receptor 1-mediated neutrophil chemotactic migration by antimicrobial peptides isolated from the centipede *Scolopendra subspinipes mutilans*. *BMB Rep.* 49(9):520-525.

Koo JH, Wang S, Kang NN, Hur SJ, Bahk YY. (2016) Induction of MAP kinase phosphatase 3 through Erk/MAP kinase activation in three oncogenic Ras (H-, K- and N-Ras)-expressing NIH/3T3 mouse embryonic fibroblast cell lines. *BMB Rep.* 49(7):370-375.

Bae GY, Hong SK, Park JR, Kwon OS, Kim KT, Koo JH, Oh E, Cha HJ. (2016) Chronic TGFβ stimulation promotes the metastatic potential of lung cancer cells by Snail protein stabilization through integrin β3-Akt-GSK3β signaling. *Oncotarget.* 7(18):25366-76.

Cho SJ, Koo JH, Chun KH, Cha HJ (2016) Control of stress signaling in stem cells: crossroads of stem cells and cancer. *Tumour Biol.* 37(10):12983-12990.

Kim H*, Kang NN*, An KH, Koo JH**, Kim M-S** (2016) MRPrimerW: A tool for rapid design of valid high-quality primers for multiple target qPCR experiments. *Nucleic Acids Res.* 44(W1):W259-66.

Kim N, Cho A, Watanabe H, Choi YL, Aziz M, Kassner M, Joung JG, Park AK, Francis JM, Bae JS, Ahn SM, Kim KM, Park JO, Park WY, Ahn MJ, Park K, Koo JH, Yin HH, Cho J. (2016) Integrated genomic approaches identify upregulation of *SCRN1* as a novel mechanism associated with acquired resistance to erlotinib in PC9 cells harboring oncogenic EGFR mutation. *Oncotarget*, 7(12):13797-809.

Kang NN, Koo JH, Sen S, Hur SJ, Bahk YY. (2016) A Systematic Study of Nuclear Interactome for C-Terminal Domain Small Phosphatase-Like 2 using the Inducible Expression System and Shotgun Proteomics. *BMB Rep.* 49(6):319-24.

Kwon OS, Oh E, Park JP, Lee JS, Bae GY, Koo JH, Kim H, Choi YL, Choi YS, Kim J, Cha HJ (2015) GalNAc-T14 promotes metastasis through Wnt dependent HOXB9 expression in lung adenocarcinoma. *Oncotarget*, 6(39):41916-28.

Youn S, Kim KI, Ptacek J, Ok K, Novakova Z, Kim Y, Koo JH, Barinka C, Byun Y (2015) Carborane-containing urea-based inhibitors of glutamate carboxypeptidase II: Synthesis and structural characterization. *Bioorg Med Chem Lett.* 25(22): 5232-6.

Kim H*, Kang NN*, Chon KW, Kim S, Lee NH, Koo JH**, and Kim MS** (2015) MRPrimer: a MapReduce-based method for the through design of valid and ranked primers for PCR. *Nucleic Acids Res.* 43(20):e130.

Kim JY, Lee JH, Kim D, Kim SM, Koo JH, Jahng JW (2015) Beneficial Effects of Highly Palatable Food on the Behavioral and Neural Adversities induced by Early Life Stress Experience in Female Rats. *Int. J. Biol. Sci.* 11(10): 1150-1159.

Kang NN*, Bahk YY*, Lee NH, Jae YG, Cho YH, Ku CR, Byun Y, Lee EJ, Kim MS**, Koo JH** (2015) Olfactory receptor Olfr544 responding to azelaic acid regulates glucagon secretion in α -cells of mouse pancreatic islets. *Biochem Biophys Res Commun.* 460(3):616-621.

Kim D, Lee SH, Kim JY, Koo JH, Kim SM, Kim KN, Lee JH, Jahng JW (2015) Anorexia, anhedonia and depression in rats by chronic dexamethasone. *Int. J. Biosci.* 6(11): 32-41.

Kim SH, Yoon YC, Lee AS, Kang NN, Koo JH, Rhyu MR, Park JH (2015) Expression of human olfactory receptor 10J5 in heart aorta, coronary artery, and endothelial cells and its functional role in angiogenesis. *Biochem Biophys Res Commun.* 460(2):404-408.

Kang NN*, Kim H*, Jae YG*, Lee NH, Ku CR, Margolis FL, Lee EJ, Bahk YY, Kim MS**, Koo JH** (2015) Olfactory marker protein expression is an indicator of olfactory receptor-associated events in non-olfactory tissues. *PLoS ONE.* 10(1):e0116097.

Lee JY, Kim JY, Ryu V, Kim BT, Koo JH, Lee JH, Jahng JW (2015) Bicuculline ameliorated chronic, but not acute, stress-induced feeding suppression. *Int. J. Pharmacol.*, 11(4): 335-342.

Lee NH*, Jung YS*, Lee HY, Kang NN, Park YJ, Hwang JS, Bahk YY, Koo JH**, and Bae YS** (2014) Mouse neutrophils express functional umami taste receptor T1R1/T1R3. *BMB Rep.* 47(11):649-654.

Choi S, Kim YH, Park BB, Park S, Park J. Ok K, Koo JH, Jung YW, Jeon YH, Lee EH, Lee KS, Byun Y (2014) X-ray diffraction and VT-NMR studies of [E]-3-[piperidinyl]-1[2'-hydroxyphenyl]-prop-2-en-1-one. *J Mol Struct.* 1076: 600-605.

Koo JH and Bahk YY (2014) In vivo putative O-GlcNAcylation of human SCP1 and evidence for possible role of its N-terminal disordered structure. *BMB Rep.* 47(10):593-598.

Koo JH** and Byun Y** (2013) Current Status of PET-Imaging Probes of β -Amyloid Plaques. *Arch Pharm Res* 36(10):1178-1184.

- Kang NN and Koo JH (2012) Olfactory receptor in non-chemosensory tissues. *BMB reports* 45 (11):612-622.
- Khazaei MR, Halfter H, Karimzadeh F, Koo JH, Margolis FL, Young P. (2010) Bex1 is involved in the regeneration of axons after injury. *J Neurochem.* 115(4):910-920.
- Koo JH (2010) Bex1 participates in muscle regeneration by regulating myogenic satellite cell differentiation. *Lab Anim Res.* 26(2):145-151.
- Kwon HJ*, Koo JH*, Zufall F, Leinders-Zufall T, Margolis FL. (2009) Ca extrusion by NCX is compromised in olfactory sensory neurons of OMP mice. *PLoS ONE.* 4(1):e4260.
- Kwon HJ, Koo JH, Margolis JW, Margolis FL. (2008) Molecular Mechanism of NCX regulation via Dynamic Interaction of CAM, OMP and Bex in Olfactory Sensory Neurons. *Chemical Senses* 33 (8), S59-60.
- Koo JH**, Smiley MA, Lovering RM, Margolis FL. (2007) Bex1 knockout mice show altered skeletal muscle regeneration. *Biochem Biophys Res Commun.* 363(2):405-410.
- Pyrski M*, Koo JH*, Polumuri SK, Ruknudin AM, Margolis JW, Schulze DH, Margolis FL. (2007) Sodium/calcium exchanger expression in the mouse and rat olfactory systems. *J Comp Neurol.* 501(6):944-958.
- Bernstein SL, Koo JH, Slater BJ, Guo Y, Margolis FL. (2006) Analysis of optic nerve stroke by retinal Bex expression. *Mol Vis.* 12:147-55.
- Margolis FL, Koo JH. (2006) Olfactory marker protein (OMP) from PAGE band to structure and function: An overview. *Wako Jyunyaku Jiho.* 74:9-12.
- Koo JH, Santasas M, Margolis FL. (2005) Immunolocalization of Bex protein in the mouse brain and olfactory system. *J Comp Neurol.* 487(1):1-14.
- Koo JH, Gill S, Pannell L, Menco BP, Margolis JW, Margolis FL. (2004) The interaction of Bex and OMP reveals a dimer of OMP with a short half-life. *J Neurochem.* 90(1):102-116.
- Baldisseri DM, Margolis JW, Weber DJ, Koo JH, Margolis FL. (2002) Olfactory marker protein (OMP) exhibits a beta-clam fold in solution: implications for target peptide interaction and olfactory signal transduction. *J Mol Biol* 319(3):823-837.
- Koo JH, Margolis JW, Behrens M, Pyrski MM, Margolis FL. (2001) Purification and characterization of Bex, an OMP partner. *FASEB J.* 15(5), A894-A894.
- Koo JH, Cho IH, Kim YS. (2000) The malonate decarboxylase operon of *Acinetobacter calcoaceticus* KCCM 40902 is regulated by malonate and the transcriptional repressor MdcY. *J Bacteriol.* 182(22):6382-6390.
- Koo JH, Kim YS. (1999) Functional evaluation of the genes involved in malonate decarboxylation by *Acinetobacter calcoaceticus*. *Eur J Biochem.* 266(2):683-690.
- Handa S, Koo JH, Kim YS, Floss HG. (1999) Stereochemical course of biotin-independent malonate decarboxylase catalysis. *Arch Biochem Biophys.* 370(1):93-96.
- Koo JH, Kim YS. (1998) Molecular and biochemical characterization of malonate utilization system in *Acinetobacter calcoaceticus*. *FASEB J.* 12(8) A1442-A1442.
- Koo JH, Jung SB, Byun HS, Kim YS. (1997) Cloning and sequencing of genes encoding malonate decarboxylase in *Acinetobacter calcoaceticus*. *Biochim Biophys Acta.* 1354(1):49-54.

*These authors contributed equally.

** indicates a corresponding author

Presentations

Cho TH, Hong YR, Lee NH, Jae YG, Koo JH "Functional Characterization of Astrocytic Odorant Receptor" The 5th Annual Glia Conference of the Korean Society for Brain and Neural Science (KSBNS), Seoul, Korea, Feb. 02, 2018.

Kim DY, Kim H, Kang NN, Lee NH, Jae YG, Koo JH. "Psychiatric effect of MCFA via odorant receptor" The 47th Annual Meeting of the Society for neuroscience (SfN), Washington DC, USA, Nov. 11-16, 2017.

Lee NH, Park BB, Jae YG, Kang NN, Hong YR, Byun Y, Koo JH "Characterization of ectopic odorant receptor for highly potent agonists" The Korean Society for Brain and Neural Science (KSBNS) Annual Meeting, Seoul, Korea, Aug. 30-31, 2017.

Kang NN, Kim H, Kim D, Chon K-W, Lee NH, Kim S, Cho TH, An KH, Kim MS, Koo JH "qPCR Primer Design Tool without Ranking Choice and BLAST-like Search for Homology Tests (MRPrimerW)" KSBMB International Conference 2107, Busan, Korea, May, 17-19, 2017.

Lee NH, Park BB, Jae YG, Ok K, Kang NN, Hong YR, Byun Y, Koo JH "Novel Synthetic Ligand for an Ectopic Odorant Receptor through a Combination of Hydrophilic and Hydrophobic Interactions" KSBMB International Conference 2107, Busan, Korea, May, 17-19, 2017.

Kim JY, Kim D, Kim JH, Kang NN, Koo JH "Odorant Suppressed Stress-induced Hyperglycemia via Pituitary Gland Odorant Receptor" The Korean Society for Brain and Neural Science (KSBNS) Annual Meeting, Ilsan, Korea, Sept. 28-29, 2016.

Kim JH, Kim D, Kim JY, Cho TH, Kang NN, Lee NH, Jae YG, Hong YR, Koo JH "Anti-Stress and Depression Effect of Odorant Receptor in the Pituitary Gland" The Korean Society for Brain and Neural Science (KSBNS) Annual Meeting, Ilsan, Korea, Sept. 28-29, 2016.

Kim D, Kim JH, Kim JY, Kang NN, Lee NH, Jae YG, Koo JH. "Anti-stress effect of medium-chain fatty acid via olfactory receptor expressed in the brain" 17th International Symposium on Olfaction and Taste (ISOT2016), Yokohama, Japan, June 5-9, 2016.

Kim DY, Kim H, Kim JY, Kang NN, Lee NH, Jae YG, Koo JH "Size-Dependent Characteristics of Glomerulus in Mammalian Olfactory Bulb " The 38th Annual Meeting of the Association for Chemoreception Sciences (AchemS), Fort Myers, FL, USA, Apr. 19-23, 2016.

Kim DY, Kim JY, Chung S, Koo JH, Lee J-H, Jahng JW. "Partial aberration of oral sensory relay to brain may affect retrieval of taste-associated memory" Brain Conference 2015, Joint Conference of The Korean Society for Brain and Neural Science (KSBNS) & Neurodegenerative Disease (KSND), Daegu, Korea, Sep., 11-12, 2015.

Kim JH, Kang NN, Kim DY, Lee NH, Jae YG, Koo JH. "Quantitative analysis of olfactory receptor in main olfactory bulb reveals diverse expression patterns divided by zone dependent manner" Brain Conference 2015, Joint Conference of The Korean Society for Brain and Neural Science (KSBNS) & Neurodegenerative Disease (KSND), Daegu, Korea, Sep., 11-12, 2015.

Kang NN, Lee NH, Jae YG, and Koo JH "Olfactory receptor and Metabolic Homeostasis" KSBMB International Conference 2105, Seoul, Korea, May, 12-14, 2015.

Jae YG, Kang NN, Lee NH, and Koo JH "New GPCR in endocrine system-olfactory receptors" KSBMB International Conference 2105, Seoul, Korea, May, 12-14, 2015.

Jae YG, Kang NN, Kim H, Lee NH, Kim MS, Koo JH " Olfactory marker protein expression is an indicator of olfactory receptor-associated events in non-olfactory tissues" The 37th Annual Meeting of the Association for Chemoreception Sciences (AchemS), Fort Myers, FL, USA, Apr. 22-25, 2015.

Lee NH, Jung YS, Bae Y-S, Koo JH. "Functional expression of umami taste receptor T1R1/T1R3 in neutrophil" The 37th Annual Meeting of the Association for Chemoreception Sciences (AchemS), Fort Myers, FL, USA, Apr. 22-25, 2015.

Kang NN, Lee NH, Jae YG, Koo JH. "Olfactory receptor regulates glucagon secretion in mouse pancreatic islets" Biophysical Society 59th Annual Meeting (BPS), Baltimore, USA, Feb. 7-11, 2015.

Jahng JW, Kim JY, Koo JH, Lee J-H. "Free access to highly palatable food during adolescence improves the psycho-emotional disorders of female rats that experienced neonatal maternal separation" The 44th Annual Meeting of the Society for neuroscience (SfN), Washington DC, USA, Nov. 15-19, 2014.

Lee NH, Jung YS, Bae Y-S, Koo JH. "Functional expression of Umami taste receptor T1R1/T1R3 in neutrophil" The Korean Society for Brain and Neural Science (KSBNS) Annual Meeting, Seoul, Korea, Nov., 6-8, 2014.

Jung YS, Lee NH, Koo JH, Bae Y-S. "Functional expression of umami taste receptor T1R1/T1R3 in mouse neutrophils" The 2nd Annual Meeting of the International Cytokine and Interferon Society (ICIS) Cytokines Down Under 2014: From bench to beyond, Melbourne, Australia, October, 26-29, 2014.

Kang NN, Kim H, Kim M-S, Koo JH. "New primer design tool: Genome-scale method for complete design of primers of all coverages with validation" The 26th International Conference of the Korean Society for Molecular and Cellular Biology (KSMCB), Seoul, Korea, October, 21-23, 2014.

Jung YS, Lee NH, Lee HY, Kang NN, Park YJ, Hwang JS, Bahk YY, Koo JH, and Bae YS. "Functional expression of Umami taste receptor T1R1/T1R3 in neutrophil" The 26th International Conference of the Korean Society for Molecular and Cellular Biology (KSMCB), Seoul, Korea, October, 21-23, 2014.

Moon DW, Lee SY, Kim HM, Kim KH, Koo JH. "Multimodal SIMS and CARS imaging for Cardiovascular and Neuronal Systems" The 20th International Mass Spectrometry Conference (IMSC), Geneva, Switzerland, Aug. 24-29, 2014.

Kim DY, Kim JY, Lee SH, Koo JH, Lee J-H, Jahng JW. "Reduced sweet perception may be associated with stress-induced anhedonia" The 22nd Annual Meeting of the Society for the Study of Ingestive Behavior (SSIB), Seattle, WA, USA, July 29-Aug. 2, 2014.

Lee NH, Choi S, Kang NN, Kim Y, Byun Y, and Koo JH "Ectopic olfactory receptor-novel synthetic ligand kinetics" KSBMB (Korean Society for Biochemistry and Molecular Biology) Annual Meeting, Seoul, Korea, May, 14-16, 2014.

Lee NH, Choi SH, Kang NN, Ku CR, Cho YH, Kim YH, Lee EJ, Byun YJ, Koo JH. "Screening and identification of novel ligands for ectopic olfactory receptor expressed in non-olfactory tissues" The 36th Annual Meeting of the Association for Chemoreception Sciences (AchemS), Fort Myers, FL, USA, Apr. 9-12, 2014.

Kim DY, Kim JY, Lee SH, Lee J-H, Koo JH, Jahng JW. "Reduced sweet perception may contribute to anhedonia, but not anorexia" The 36th Annual Meeting of the Association for Chemoreception Sciences (AchemS), Fort Myers, FL, USA, Apr. 9-12, 2014.

Kim DY, Lee SH, Kim JY, Lee JY, Lee J-H, Koo JH, Jahng JW "Dexamethasone-induced anorexia comprises decreased sweet preference" The 11th International Symposium on Molecular and Neural Mechanisms of Taste and Olfactory Perception (ISMNTOP), Fukuoka, JAPAN, Oct. 31- Nov. 2, 2013.

Kang NN, Kim HS, Lee NH, Margolis FL, Koo JH. "Olfactory receptors and olfactory transduction components in non-olfactory tissues" The 35th Annual Meeting of the Association for Chemoreception Sciences (AchemS), Huntington Beach, CA, USA, Apr. 17-20, 2013.

Kim HS, Kang NN, Koo JH. "Expression of olfactory signaling molecules in the non-olfactory tissues" The KSBNS (Korean Society for Brain and Neural Science) Annual Meeting, Seoul, Korea, Sept. 25-26, 2012.

Park JP, Kim DY, Koo JH. "Analysis of MOR23 single olfactory sensory neuron (OSN)" The KSBNS (Korean Society for Brain and Neural Science) Annual Meeting, Seoul, Korea, Sept. 25-26, 2012.

Lee NH, Kang NN, Kim DY, Kim HS, Koo JH. "Characterization of ectopically expressed olfactory receptors (ORs)" The KSBNS (Korean Society for Brain and Neural Science) Annual Meeting, Seoul, Korea, Sept. 25-26, 2012.

Lee YM, Kang NN, Kim HS, Koo JH. "The olfactory receptor mediated Ca²⁺ dynamics in the non-chemosensory system" The KSBNS (Korean Society for Brain and Neural Science) Annual Meeting, Seoul, Korea, Sept. 25-26, 2012.

Kang NN, Kim DY, Kim HS, Koo JH. "Biochemical and immunocytochemical characterization of olfactory signaling molecules in the non-olfactory system" XVI International Symposium on Olfaction and Taste (ISOT), Stockholm, Sweden, June 23-27, 2012.

Kim DY, Park JS, Kang NN, Kim HS, Lee YM, Lee NH, Koo JH. "Studies of olfactory signaling molecules during olfactory epithelial regeneration of anosmic animals" KSBMB (Korean Society for Biochemistry and Molecular Biology) Annual Meeting, Seoul, Korea, May 30-June 1, 2012.

Kang NN, Kim HS, Kim DY, Koo JH. "Ectopic expression of olfactory signaling molecules" The KSBNS (Korean Society for Brain and Neural Science) and MCCS (Molecular & Cellular Cognition Society)-Asia joint meeting, Seoul, Korea, Sept. 19-20, 2011.

Kang NN, Kim DY, Koo JH. "Bex1/CaM interaction controls the balance between proliferation and differentiation of myogenic/satellite cells" The KALAS International Symposium, Jeonbuk, Korea, Aug. 25-27, 2011.

Kang NN, Koo JH. "Olfaction in other tissues" The 33rd Annual Meeting of the Association for Chemoreception Sciences (AchemS), St. Pete Beach, FL, USA, Apr. 13-17, 2011.

Koo JH, Margolis FL. "Bex1 participates in muscle regeneration by regulating myogenic satellite cell differentiation" The 10th Biennial meeting of the Asia-pacific society for Neurochemistry, Phuket, Thailand, Oct. 17-20, 2010.

Kwon HJ, Koo JH, Margolis JW, Margolis FL. "Molecular mechanism of NCX regulation via dynamic interactions of CaM, OMP and Bex in olfactory sensory neurons" The 15th International Symposium on Olfaction and Taste (ISOT) and the 30th Annual Meeting of the Association for Chemoreception Sciences (AchemS), San Francisco, CA, USA, Jul. 21-26, 2008.

Margolis FL, Youngentob S, Margolis JW, Kent P, Koo JH. "OMP mechanism of action: A model" The 29th Annual Meeting of the Association for Chemoreception Sciences (AchemS), Saratoga, FL, USA, Apr. 25-29, 2007.

Kwon HJ, Koo JH, Leinders-Zufall T, Margolis FL. "The absence of OMP causes compromised NCX activity in the mouse olfactory receptor neurons" The 35th Annual Meeting of the Society for Neuroscience (SfN), Washington, D.C., USA, Nov. 12-16, 2005.

Koo JH, Manda S, Margolis FL. "Immunolocalization of Bex Proteins in the Mouse Brain: Colocalization with OMP" The 26th Annual Meeting of the Association for Chemoreception Sciences (AchemS), Saratoga, FL, USA, Apr. 21-25, 2004.

Koo JH, Margolis FL. "The OMP dimer is a metabolically active form" The 19th International Union of Biochemistry and Molecular Biology Conference, Montreal, Canada, Oct. 8-11, 2003.

Koo JH, Margolis FL. "The interaction of OMP and Bex reveals an OMP dimer" The 25th Annual Meeting of the Association for Chemoreception Sciences (AchemS), Saratoga, FL, USA, Apr. 9-13, 2003.

Koo JH, Berens M, Margolis JW, Margolis FL. "Bex-OMP Interaction" The 24th Annual Meeting of the Association for Chemoreception Sciences (AchemS), Saratoga, FL, USA, Apr. 24-28, 2002.

Koo JH, Margolis JW, Berens M, Pyrsky MM, Margolis FL. "Purification and Characterization of Bex, an OMP partner" Annual Meeting of the American Society for Biochemistry and Molecular Biology (held jointly with Experimental Biology 2001), Orlando, FL, USA, Mar. 30-Apr. 4, 2001.

Cho IH, Koo JH, Kim YS. "Mutational analysis of transcriptional repressor, MdcY, in *Acinetobacter calcoaceticus*" Annual Meeting of the Biochemical society of the Republic of Korea, Daejeon, Korea, Oct. 6-7, 2000

Koo JH, Kim YS. "A regulatory gene MdcY for mdc operon in *Acinetobacter calcoaceticus*" The 6th International Union of Biochemistry and Molecular Biology Conference, Seoul, Korea, Oct. 10-13, 1999.

Koo JH, Kim YS. "Studies on the mdc operon in *Acinetobacter calcoaceticus*" The 10th Annual Meeting of the Korean Society for Molecular Biology, Seoul, Korea, Oct.16-18, 1998.

Koo JH, Kim YS. "Molecular and Biochemical Characterization of Malonate Decarboxylase of Malonate Utilization system in *Acinetobacter calcoaceticus*" The 18th Annual Meeting of the American Society for Biochemistry and Molecular Biology, Washington, D.C., USA, May, 16-20, 1998.

Koo JH, Kim YS. "Cloning and Sequencing of Genes encoding Malonate Decarboxylase in *Acinetobacter calcoaceticus*" The 8th Annual Meeting of the Korean Society for Molecular Biology, Seoul, Korea, Oct.16-18, 1997.

Koo JH, Kim YS. "Genomic Structure of *Acinetobacter calcoaceticus* Malonate Decarboxylase" The 6th Annual Meeting of the Korean Society for Molecular Biology, Seoul, Korea, Oct. 24-26, 1996.

C. Patent

Odorant receptor as a microglial marker and uses thereof.

Koo JH, Lee NH, Jae YG (Filing Data: 2019.06.27).

Application number: 10-2019-0077256

A composition for preventing or treating neurodegenerative diseases comprising 2-pentylfuran as an active ingredient.

Koo JH, Lee NH, Jae YG (Filing Data: 2019.06.27).

Application number: 10-2019-0077256

Prevention or Therapeutic agents of Diabetic through Glucagon Regulation based on Olfactory Receptor expressed in Pancreas or Pancreatic islet.

Koo JH, Kang NN, Bahk YY, Lee EJ (Filing Data: 2015.11.04).

Application number: PCT/KR2015/011785

METHOD FOR THOROUGHLY DESIGNING VALID AND RANKED PRIMERS FOR GENOME-SCALE DNA SEQUENCE DATABASE.

Kim M-S, Koo JH, Kim, H, Kang, NN, Chon K, Kim S. (Filing Data: 2015.08.20).

Application number: UK, 1514871.1

Agonist Compound for Olfactory Receptors in Non-Olfactory Tissues and Method for Preparing the same.

Byun Y, Koo JH (Filing Data: 2016.04.14).

Application number: KOR1020160045549A; Registration Date:2017.10.24; **Patent number:**KB20170117754A)

Method for rapid design of valid high-quality primers and probes for multiple target genes in qPCR experiments.

Kim M.-S., Kim H, Koo JH., Kang NN, An KH, (Filing Data: 2016.06.28).

Application number: KOR1020160080872A; Registration Date: 2018.08.17; **Patent number:** KB101889146B1)

Method for rapid design of valid high-quality primers and probes for multiple target genes in qPCR experiments.

Kim M.-S., Kim H, Koo JH., Kang NN, An KH, (Filing Data: 2017.04.26).

(Application number: **US**, 15/497,244; Registration Date: 2017.12.28; **Patent number:** US20170369934A1)

Olfactory Receptor expressed in pancreatic islets and Prevention or Therapeutic agents of Diabetes Using Modulation of Olfactory Receptor in Pancreatic Islets.

Koo JH, Kang NN, Bahk YY, Lee EJ. (Filing Data: 2015.03.27).

(Application number: KOR1020150043523A; Registration Date: 2017.03.03; **Patent number:**KB101710706B1)

Method for thoroughly designing valid and ranking primer for genome-scale DNA sequence database.

Kim M.-S., Koo JH., Kim H, Kang NN, Chon KW, Kim SH, (Filing Data: 2015.08.12).

(Application number:**US**14/824,678; Registration Date:2016.10.20; **Patent number:**US20160306915A1)

A method for the through design of valid and target-specific primers for large-scale DNA sequence database.

Kim M-S, Koo JH, Kim H, Kang NN, Chon K, Kim S. (Filing Data: 2015.04.15).

(Application number:KOR1020150052999A; Registration Date:2016.10.14; **Patent number:**KR101666506B1)

Screening method for selection of ectopic olfactory receptor in non-olfactory cells.

Kang NN, Kim HS, Lee NH, Jae YG, Koo JH. (Filing Data: 2014.04.01).

(Application number: KOR,1020140038883A; Registration Date:2016.06.10; **Patent number:** KB101629208B1)

Ectopic olfactory receptors detecting composition in non-olfactory cells containing the marker and a kit containing the same.

Kang NN, Kim HS, Lee NH, Jae YG, Koo JH. (Filing Data: 2014.04.01).

(Application number: KOR,1020140038890A; Registration Date:2016.03.07; **Patent number:**KB101600680B1).

Invited Talks

- BOMUN Excellent Science & Technology (Aug 31st – November 1st 2019): Neuroglial odorant GPCRs.
- 2019 KSBMB Chemical Biology Symposium (Aug. 22-23rd 2019): Ligand/odorant receptor-induced glia function.
- 7th KSBMB Drug Development Consortium (DDC) Jeju workshop (July 25-27th 2019): Therapeutics Potential of Ectopic Odorant Receptors for CNS diseases.
- The 7th Glia symposium, KSBNS (June 28-29th 2019): Glia odorant receptor.
- The 27th Federation Meeting of Korean Basic Medical Scientists 2019 (June 28th 2019): Pathogenic metabolite shapes the pathogen-brain axis through the microglial odorant receptors.
- The 5th Energy and Metabolism symposium, KSBMB (June 27th 2019): Metabolite-mediated Brain Function via Odorant Receptor.
- KSBMB International Conference 2109, ICC Jeju, Korea (June, 2-5th, 2019): Can you smell through your body?
- Integrated Institute of Technology (IIT)/ Department of Biomedical Science and Engineering (BMSE), GIST (April 10th March 2019): Pathogen metabolite-odorant receptor interactions shape the pathogen-brain axis.
- Center for Neuroscience Imaging (IBS) (March 12th 2019): Microglial odorant receptors smell the pathogen-derived metabolite.
- 1st ChemBiol Workshop, Sapporo, Japan (Feb. 28th 2019): Pathogen metabolite-odorant receptor interaction shape the pathogen-brain axis.
- AP-CNS (Jan. 16th 2019): Potential therapeutics of ectopic odorant receptors for CNS diseases.
- Center for Cognition and Sociality Institute for Basic Science (IBS) (Jan. 9th 2019): Metabolite-mediated pathogen-brain axis: An alternative sensing strategy of microglia for pathogen infection.
- 2019 Korean Association for Laboratory Animal Science (KALAS) Winter symposium (Jan. 23th 2019): Pathogen metabolite-odorant receptor interaction shape the pathogen-brain axis

Center for Glia-Neuron Interaction, KIST (June, 2018)

Sookmyung Women's Univ. (May, 2018)

Gyeongsang Nat. Univ. Sch. of Med. (April, 2018)

Cha Univ., Dept. of Biomedical Science (Feb. 2018)

Pusan National Univ., Healthy Aging Korean Medical Research Center (MRC) (Sept. 2017)

Chonbuk Nat. Univ. Sch. of Med. MRC (July, 2017)

Gyeongsang Girls' High School (Career mentoring lecture) (June, 2017)

KyungPook Nat. Univ. Brain Science and Engineering Institute (April, 2017)

Dongguk Univ., College of Natural Science (April, 2017)

Science Touch on Friday, National Research Foundation (Feb. 2017)

Pusan National Univ., BK21 PLUS Graduate School of Bio-medicine (Dec. 2016)
Korea Mouse Phenotyping Center, Seoul National Univ., College of Veterinary Medicine (Nov. 2016)
KMPC-GIST SRC mini symposium (Nov. 2016)
Hallym University, College of Medicine (Aug. 2016)
Korea Univ. BK21 PLUS Graduate School of Biotechnology, (May, 2016)
KSBMB International Conference 2106, Seoul, Korea (May, 2016)
Korean Society for the Study of Obesity (March, 2016)
Yonsei Univ. Sch. of Med. The 25th Yonsei Nose & Sinus Symposium (Feb. 2016)
Kyungpook Nat. Univ. Sch. of Med. BK21 PLUS (Dec. 2015)
Kyung Hee Univ. Graduate School of Biotechnology (Nov. 2015)
Yonsei Univ. Sch. of Med. Research Center for Human National Defense System (SRC) (Oct. 2015)
Yonsei Univ. Department of Biochemistry (August, 2015)
National Institute of Crop Science (NICS) (June, 2015)
Sahmyook Univ. Chronic Disease Research Institute (May 2015)
Hanyang Univ. Dept. of Pharmacy (April, 2015)
Kyungpook Nat. Univ. Sch. of Med. Tumor Heterogeneity and Network (THEN) Center (March. 2015)
Yonsei Univ. Sch. of Med. The 24th Yonsei Nose & Sinus Symposium (March. 2015)
Kyungpook Nat. Univ. Leading-edge Research Center for Drug Discovery and Development for Diabetes and Metabolic Disease (Feb. 2015)
Daegu Haang University Dept. of Aroma Applied Industry (Dec. 2014)
Korea Univ. BK21 PLUS Graduate School of Biotechnology, (Nov. 2014)
Korea Univ. Dept. of Life Science (July 2014)
DaeGu Univ. Dept. of Molecular Biology (Nov. 2013)
YTN Science Public Broadcast “Science Open the Future” program (Oct. 2013)
SungKyunKwan Univ. 60th Anniversary of Biological Science (May 2013)
Green Cross Corp. R&D Research Institute (May 2013)
Sahm Yook Univ. College of Pharmacy (May 2013)
Korea Food Research Institute (Dec. 2012)
Ewha Womans Univ. Dept. of Life Science (Dec. 2012)
Korea Univ. Dept. of Life Science (Nov. 2012)
2012 Zebrafish “ZEN consortium” workshop (Nov. 2012)
Gachon Univ. Dept. of Life Science (Oct. 2012)
Sogang Univ. Dept. of Life Science (Sept. 2012)
Research Institute of Oral Science, Gangneung-Wonju National Univ., Dept. of Dentistry (Jun. 2012)
KonKuk Univ. Dept. of Applied Biochemistry (Apr. 2012)
Institute of Oriental Medicine, Kyung Hee Univ. (Mar. 2012)

World Brain Awareness Week, Korean Brain Society (Mar. 2012)

Brain Science & Engineering Institute (BSEI)/KNU-BS/DGIST Joint Workshop Jeju island (Feb. 2012)

Seoul National Univ., School of Medicine (Dec. 2011).

DaeJin HS (Dec. 2011)

Oriental Medicine Industrial Support Center, Daegu Haany Univ. (Oct. 2011).

Interdisciplinary Program in Neuroscience, Seoul National Univ. (Oct. 2011).

The 45th Annual Meeting of the Japanese Association for the Study of Taste and Smell (JASTS), Japan (Oct. 2011).

Convergence seminar, Daegu DGIST (Apr. 2011)

International symposium of Taste and Olfaction, Seoul, Korea (Mar. 2011).
