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Daesoo Kim, PhD

Professor, Dept. of Cognitive Brain Science, KAIST
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EDUCATION:

1995-1998	**Ph.D.** in Genetics and Neuroscience Pohang University of Science & Technology (POSTECH), Korea
1993-1995	**M.S.** in Genetics and Neuroscience Pohang University of Science & Technology (POSTECH), Korea
1989-1993	**B.S.** in Biology Sogang University, Korea

PROFESSIONAL EXPERIENCES:

2023-Present	**Dean** The College of Life Sciences & Bioengineering KAIST, Korea
2022-Present	**Professor (tenured)** Dept. of Brain Cognitive Science KAIST, Korea
2021-Present	**CEO** NeuroTobe Pharmaceuticals
2021-Present	**Director** KAIST-Wonjin Cell Therapy Center KAIST, Korea
2019-2022	**Director** The Biocore Center KAIST, Korea
2019-2021	**Head** Dept. of Biological Sciences KAIST, Korea
2018-2021	**Professor (tenured)** Dept. of Biological Sciences

KAIST, Korea

2011-2018 **Associate professor**
Dept. of Biological Sciences
KAIST, Korea

2011-2012 **Visiting professor**
The Rockefeller University, New York, NY, USA
(Dr. Paul Greengard's Lab)

2004–2011 **Assistant professor**
Dept. of Biological Sciences
KAIST, Korea

2001-2004 **Senior research scientist**
Center for Neuroscience
KIST, Korea

1999 - 2001 **Postdoctoral researcher**
The National Creative Research Center, POSTECH, Korea
(Dr. Hee-Sup Shin's Lab)

1998-1999 **Postdoctoral associate**,
Dept. of Physiology and Pharmacology
SUNY Downstate Health Science Center at Brooklyn, NY, USA
(Dr. Robert KS Wong's Lab)

AWARDS & HONORS:

1993 **Cum Laude**
Sogang University, Seoul, Korea

1998 **The Best Thesis of 1998 in Korea**
Korea Society of Molecular Biology (KSMB)

2001 **Outstanding Research Award 2001**
Association of Korean Neuroscientists (AKN), San Diego, USA

2003 **Young Scientist Award 2003**
The Behavioral and Neural Genetics Society (IBANGS), USA

2008 **Best Teaching Award 2008,** *KAIST*

2015 **Best Teaching Award 2015**, *KAIST*

2017 **The 10 Outstanding Research 2016**, *KAIST*

2017 **The Samil Prize of Science,** *The Samil Foundation*

2018 **KI-Fusion Research Award,** *KAIST Institute*

2019 **The 10 Outstanding Research 2018**, *KAIST*

2022 **The Social DNA Award (As Actnova founder)**, *the iFORUM 2022*

2023 **Best Teaching Award,** *Dept. Brain & Cognitive Sciences, KAIST*

PROFESSIONAL ACTIVITIES:

2015-2019 **Committee member**, *The Korean Mouse Genetics Society*
2000-present **Member**, *Society for Neuroscience (SFN)*
2010-present **Member**, *The Behavioral and Neural Genetics Society (IBANGS)*
2016-present **Editorial board**, *The Korean Journal of Biological Psychiatry*
2020-present **Editorial board**, *International Journal of Molecular Sciences*
2016-2021 **Editorial board**, *Scientific Reports*
2021-present **Editorial board**, *Frontiers in Behavioural Neuroscience*
2016-present **Editorial board**, *The Korean Journal of Biological Psychiatry*

RESEARCH TOPICS:

Genetic and Circuit based-mechanism of 'Goal-directed behavior' and 'Movement disorders'.

Animals have innate motivation to navigate their environments to get useful resources. For this adaptive behavior, the brain integrates tremendous amounts of information from sensory organs to yield appropriate actions during navigation. By analyzing the relationship between the bait signal input and motor outputs, we are beginning to understand the neural circuit mechanisms that yield the goal-directed navigation. Coupled with exciting optogenetic tools and cutting-edge technologies including 'the brain-machine interface' and 'artificial intelligence (AI)', the near future promises an exciting time for unraveling the mechanism, how the brain helps us adapt to the world and yields neurological disorders.

Selected publications

Kim, D. et. al. (1997). Phospholipase C isozymes selectively couple to specific neurotransmitter receptors. ***Nature***, 389: 290-293. (IF=50)

Kim, D. et. al. (2001). Lack of the burst firing of thalamocortical relay neurons and resistance to absence seizures in mice lacking alpha(1G) T-type Ca2+ channels. ***Neuron***, 31(1): 35-45. (IF=18.6)

Kim, D. et. al. (2003). Thalamic control of visceral nociception mediated by T-type Ca2+ channels ***Science***, 302: 117-119. (IF=33.6)

Park, Y. et al. (2010) CaV3.1 is a tremor rhythm pacemaker in the inferior olive. ***PNAS***, 8;107(23):10731-6 (IF=9.6)

Kim, J. et. al. (2011). Thalamic T-type Ca2+ channels mediate frontal lobe dysfunctions caused by a hypoxia-like damage in the prefrontal cortex. ***Journal of Neuroscience***, 31:4063-4073 (IF=6.3)

Kim, Y. et. al. (2015). Age-dependent gait abnormalities in mice lacking the Rnf170 gene linked to human autosomal-dominant sensory ataxia. ***Human Molecular Genetics***, 25: 7196-7206 (IF=7.0)

Park, A. H. et. al. (2016). Optogenetic mapping of functional connectivity in freely moving mice via insertable wrapping electrode array beneath the skull. ***ACS Nano***, 10:2791-2802 (IF=14)

Kim, J. et. al. (2017). Inhibitory basal ganglia inputs induce excitatory motor signals in the thalamus. ***Neuron***, 95:1181-1196 (IF=18.6)

Park, S.-G. et. al. (2018) Medial preoptic circuit induces hunting-like actions to target objects and prey. ***Nature Neuroscience***, 26: 364-371 (IF=28.7)

Kim, E. et al (2021) Cerebellar 5HT-2A receptor mediates stress-induced onset of dystonia ***Science Advances*** doi: 10.1126/sciadv.abb5735

PUBLICATIONS:

Lee, Y., Yeo, I. S., Kim, N., Lee, D.-K., Kim, K. T., Yoon, J., Yi, J., Hong, Y. B., Choi, B.-O., Kosodo, Y., Kim, D., Park, J., Song, M.-R. (2023) **Transcriptional control of motor pool formation and motor circuit connectivity by the LIM-HD protein Isl2** *eLife* 12:e84596 https://doi.org/10.7554/eLife.84596

Heo, J.Y., Park A. H., Lee M. J., Ryu M. J., Kim, Y. K., Jang, Y. S., Kim, S. J., Shin, S. Y., Son, H. J., Stein, T. D Huh, Y. H., Chung, S. J., Choi, S. Y., Kim, J. M., Hwang, O., Shong, M., Hyeon, S. J., Lee, J., Ryu, H.*, Kim D* & Kweon, G. R* **Crif1 deficiency in dopamine neurons triggers early-onset parkinsonism,** *Molecular Psychiatry* https://doi.org/10.1038/s41380-023-02234-5

Shin, A.*, Park, S.*, Shin, W.*, Woo, J.,Jeong, M., Kim, J. *, Kim, D. * (2023) **A brainstem-to-mediodorsal thalamic pathway mediates sensory-induced arousal from slow-wave sleep**, *Current Biology* 33, 875–885 https://doi.org/10.1016/j.cub.2023.01.033

Shin, A., Ryoo, J., Shin, K., Lee, J., Bae, S., Kim, D., Park, S., Kim, D.* (2023) **Exploration driven by a medial preoptic circuit facilitates fear extinction in mice** *Communications biology* https://doi.org/10.1038/s42003-023-04442-9.

Lee, J. H. *, Lee, S.*, Kim, D. *, Lee, K. J. * (2022). **Implantable Micro-Light-Emitting Diode (μLED)-based optogenetic interfaces toward human applications.** *Advanced Drug Delivery Reviews*, 187, 114399. https://doi.org/10.1016/j.addr.2022.114399

Park, G., Shin, W., Park, Y., Chung, S., Kim D.*, Kim J. * (2022) **Neural correlates of multidimensional motor outputs in an excitatory parafascicular-zona incerta circuit** *Biochemical and biophysical research communications* 591, 102-109 https://doi.org/10.1016/j.bbrc.2021.12.036

Kim, D-G., Kim, Shin, A., Jeong, Y-C. Park, S., D Kim (2022) **AVATAR: AI Vision Analysis for Three-dimensional Action in Real-time.** *BioRxiv* (CVPR conference in press), 2021.12. 31.474634 https://doi.org/10.1101/2021.12.31.474634

Jeong, M., Lee, H., Kim, Y., Wang, E. H. J., Paik, S. B., Lim, B. K. *, & Kim, D. * (2021) **Interhemispheric cortico-cortical pathway for sequential bimanual movements in mice** *eNeuro* 21.2021https://doi.org/10.1523/ENEURO.0200-21.2021

Kim, E., Chae, S., Kim, S., Jung, Y.-J., Kang, M.-G., Heo, W. D., Kim., D* (2021) **Cerebellar 5HT-2A receptor mediates stress-induced onset of dystonia** *Science Advances* http://doi.org/10.1126/sciadv.abb5735

Chae, S*., Hong, J*., Kang, K., Shin, A., Kim, D.-G., Lee, S., Kim, M.-Y., Jung, I*., Kim, D.*(2021). **Molecular laterality encodes stress susceptibility in the medial prefrontal cortex.** *Molecular Brain* https://doi.org/10.1186/s13041-021-00802-w

Ryoo, J., Park, S., & Kim, D. (2021). **An Inhibitory Medial Preoptic Circuit Mediates Innate Exploration.** *Frontiers in Neuroscience* https://doi.org/10.3389/fnins.2021.716147

Kweon H*, Jung WB*, Im GH, Ryoo J, Lee JH, Do H, Choi Y, Song YH, Jung H, Park H, Qiu LR, Ellegood J, Shim HJ, Yang E, Kim H, Lerch JP, Lee SH, Chung WS, Kim D, Kim SG**, and Kim E**. (2021). **Excitatory neuronal CHD8 in the regulation of neocortical development and sensory-motor behaviors.** *Cell Rep* 34:108780 https://doi.org/10.1016/j.celrep.2021.108780

Kim, D*., Jeong, Y.-C.*, Park, C., Shin, A., Min, K.-W., Jo, S.*, Kim., D* (2020) **Interactive virtual objects attract attention and induce exploratory behaviours in rats** *Behavioural Brain Research* http://doi.org/10.1016/j.bbr.2020.112737

Lee, H.-E.*, Park, J. H.*, Jang, D.*, Shin, J. H., Im T. H., Lee, J.H., Hong, S. K., Wang, H.S., Kwak, M.S.,Peddigari M., Jeong, C. K., Min. Y., Park, C. H., CHoi, J. I., Ryu, J., Yoon, W. -H., Kim, D.*, Lee, K.-J*, Hwang G.-T.* (2020) **Optogenetic brain neuromodulation by stray magnetic field via flash-enhanced magneto-mechano-triboelectric nanogenerator.** *Nano Energy* https://doi.org/10.1016/j.nanoen.2020.104951

Jeong, Y.-C., Lee, H. E. Shin, A., Kim, D.-G., Lee, K. J. Kim, D. (2020). **Progress in brain -compatible interfaces with soft nanomaterials**. *Advanced Materials*, https://doi.org/10.1002/adma.201907522

Kang, D. S., Kim, I. S., Baik, J. H., Kim, D., Cocco, L., & Suh, P. G. (2019). **The function of PLCγ1 in developing mouse mDA system. Advances in Biological Regulation**. http://doi.org/10.1016/j.jbior.2019.100654

Kwon, Y., Lee, S. J., Lee, E., Kim, D., & Park, D. (2019). **βPix heterozygous mice have defects in neuronal morphology and social interaction.** *Biochemical and Biophysical Research Communications*, 516(4), 1204-1210, http://doi.org/10.1016/j.bbrc.2019.07.001

Jung, D., Kim, S., Sariev, A., Sharif, F., Kim, D., & Royer, S. (2019). **Dentate granule and mossy cells exhibit distinct spatiotemporal responses to local change in a one-dimensional landscape of visual-tactile cues.** *Scientific reports*, 9:9545, http://doi.org/10.1038/s41598-019-45983-6

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Featured in:

-‘An innate circuit for object craving’ by Dayu Lin (2018), *Nature Neuroscience*, doi:10.1038/s41593-018-0087-3

-‘In hunt mode’ by Natacha Bray (2018), *Nature Review Neuroscience*, 19:119, doi:10.1038/nrn.2018.18

- ‘Must read neural circuit papers’ by Jami Milton (2018), Inscopix

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Lee, H.-E., Choi, JH., Lee, S.-H., Jeong, M., Shin, J.-H., Joe, D.J., Kim, D.H., Kim, C.-W., Park, J.-H., Lee, J.-H., Kim, D., Shin, C.-S., Lee, K.-J. (2018) **Monolithic Flexible Vertical GaN Light-Emitting Diodes for a Transparent Wireless Brain Optical Stimulator.** *Advanced Materials*, https://doi.org/10.1002/adma.201800649

Lee, S.-H.*, Kim, J.*, Shin, J.-H.*, Lee, H.-E., Kang, I-S., Gwak, K., Kim, D.-S., Kim, D.*, Lee, K.-J.* (2018) **Optogenetic control of body movements via flexible vertical light-emitting diodes on brain surface.** *Nano Energy*, 44:447-455, https://doi.org/10.1016/j.nanoen.2017.12.011

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Lee, S. H. *, Kim, J. *, Shin, J. H. *, Lee, H. E., Kang, I.-S., Gwake, K., Kim, D.-S., Kim, D.*, Lee, K. J.* (2017) **Optogenetic control of body movements via flexible vertical light-emitting diodes on brain surface.** *Nano Energy*, 44:447-455. doi:10.1016/j.nanoen.2017.12.011

Le, H., Ahn, B. J., Lee, H. S., Shin, A., Chae, S. J., Lee, S.Y., Shin, M. W., Lee, E. J., Cha, J. H., Son, T., Seo, J. H., Wee, H. J., Lee, H. J., Jang, Y., Lo, E., Jeon, S., Oh, G.T., Kim, D., Kim, K. W. (2017) **Disruption of ninjurin1 leads to repetitive and anxiety-like behaviors in mice.** *Molecular Neurobiology*, 54:7353-7368, doi:10.1007/s12035-016-0207-6

Hong, J., Kim, D. (2017) **Freezing response-independent facilitation of fear extinction memory in the prefrontal cortex.** *Scientific Reports*, 7:5363, doi:10.1038/s41598-017-04335-y

Park, A. H.*, Lee, S. H.*, Lee, C., Kim, J., Lee, H. E., Paik, S.-B., Lee, K. J.*, Kim, D.* (2016). **Optogenetic mapping of functional connectivity in freely moving mice via insertable wrapping electrode array beneath the skull**. *ACS Nano*, 10:2791-2802, doi: 10.1021/acsnano.5b07889

Jeong, M.*, Kim, Y.*, Kim, J., Ferrante, D. D., Mitra, P. P., Osten, P., Kim, D. (2016). **Comparative three-dimensional connectome map of motor cortical projections in the mouse brain**. *Scientific Reports*, 6:20072, doi: 10.1038/srep20072

Hwang, G.-T.*, Kim, Y.*, Lee, J.-H., Oh, S.K., Jeong, C. K., Park, D. Y., Ryu, J., Kwon, H.S., Lee, S.-G., Joung, B., Kim, D.*, Lee, K. J.* (2015). **Self-powered deep brain stimulation via a flexible PIMNT energy harvester**. *Energy & Environmental Science*, 8:2677-2684, doi: 10.1039/C5EE01593F

Kyung, T.*, Lee, S.*, Kim, J. E., Cho, T., Park, H., Jeong, Y.-M., Kim, D., Shin, A., Kim, S., Baek, J., Kim, J., Kim, N. Y., Woo, D., Chae, S., Kim, C.-H., Shin, H.-S., Han, Y.-M.*, Kim, D.*, Heo, W. D.*(2015).**Optogenetic control of endogenous Ca2+ channels *in vivo***. *Nature Biotechnology*, 33:1092-1096,doi:10.1038/s41593-018-0072-x

Lim, J. S.*, Kim, W.-I.*, Kang, H.-C., Kim, S. H., Park, A. H., Park, E. K., Cho, Y.-W., Kim, S., Kim, H. M., Kim, J. A, Kim, J., Rhee, H., Kang, S.-G., Kim, H. D., Kim, D., Kim, D.-S.*, Lee, J. H.* (2015). **Brain somatic mutations in *MTOR* cause focal cortical dysplasia type II leading to intractable epilepsy**. *Nature Medicine*, 21:395-400. doi: 10.1038/nm.3824, doi:10.1038/s41593-018-0072-x

Kim, Y., Kim, S. H., Kim, K., H., Chae, S., Kim, C., Kim, J., Shin, H.-S., Lee, M.-S.*, Kim, D.* (2015). **Age-dependent gait abnormalities in mice lacking the *Rnf170* gene linked to human autosomal-dominant sensory ataxia**. *Human Molecular Genetics*, 25: 7196-7206, doi:10.1093/hmg/ddv417

Lee, E.*, Hong, J.*, Park, Y.-G., Chae, S., Kim, Y., Kim, D. (2015). **Left brain cortical activity modulates stress effects on social behavior**. *Scientific Reports*, 5:13342, doi:10.1038/srep13342

Jeong, K., Lee, S., Seo, H., Oh, Y., Jang, D., Choe, J., Kim, D., Lee, J.-H.*, Jones, W. D.* (2015). **Ca-α1T, a fly T-type Ca2+ channel, negatively modulates sleep**. *Scientific Reports*, 5:17893, doi: 10.1038/srep17893

Kim, M.-Y., Kim, H.-Y., Hong, J., Kim, D., Lee, H., Cheong, E., Lee, Y., Roth, J., Kim, D. G., Min, D. S., Choi, K.-Y. (2015). **CXXC5 plays a role as a transcription activator for myelin genes on oligodendrocyte differentiation**. *GLIA*, 64: 350-362, doi:10.1002/glia.22932

Lee, K.-W., Westin, L., Kim, J., Chang, J.C., Oh, Y.-S., Amreen, B., Gresack, J., Flajolet, M., Kim, D., Aperia, A., Kim, Y., Greengard, P. (2015). **Alteration by p11 of mGluR5 localization regulates depression-like behaviors**. *Molecular Psychiatry*, 20:1546-1556, doi:10.1038/mp.2015.132

Chung, W.*, Park, S.*, Hong, J., Park, S., Lee, S., Heo, J., Kim, D., Ko, Y. (2015). **Sevoflurane exposure during the neonatal period induces long-term memory impairment but not autism-like behaviors.** *Pediatric Anesthesia*, doi: 10.1111/pan.12694

Park, Y.-G., Choi, J. H., Lee, C., Kim, S., Kim, Y., Chang, K.-Y., Paek, S. H., Kim, D. (2015). **Heterogeneity of tremor mechanisms assessed by tremor-related cortical potential in mice.** *Molecular Brain*, 8:3, doi:10.1186/s13041-015-0093-2

Chung, W., Choi, S. Y., Lee, E., Park, H., Kang, J., Park, H., Choi, Y., Lee, D., Park, S.-G, Kim, R., Cho, Y. S., Choi, J., Kim, YH., Lee, J. W., Lee, S., Rhim, I., Jung, M. W., Kim, D., Bae, Y. C., Kim, E. (2015). **Social deficits in *IRSp53* mutant mice improved by NMDAR and mGluR5 suppression.** *Nature Neuroscience*, 18:435-443, doi:10.1038/nn.3927

Jo, S.*, Yarishkin, O.*, Hwang, Y. J., Chun, Y. E., Park, M., Woo, D. H., Bae, J. Y., Kim, T., Lee, J., Chun, H., Park, H. J., Lee, D. Y., Hong, J., Kim, H. Y., Oh, S. J., Park, S. J., Lee, H., Yoon, B. E., Kim, Y., Jeong, Y., Shim, I., Bae, Y. C., Cho, J., Kowall, N. W., Ryu, H., Hwang, E., Kim, D.*, Lee, C. J.* (2014). **GABA from reactive astrocytes impairs memory in mouse models of Alzheimer's disease.** *Nature Medicine*, 20:886-896, doi: 10.1038/nm.3639

Chang, K.-Y., Woo, D., Jung, H., Lee, S., Kim, S., Won, J., Kyung, T., Park, H., Kim, N., Yang, H. W., Park, J.-Y., Hwang, E. M., Kim, D., Heo, W. D. (2014). **Light-**

inducible receptor tyrosine kinases that regulate neurotrophin signalling. *Nature Communications*, 5:4057, doi: 10.1038/ncomms5057

Jang, J. Y., Koh, Y. J., Lee, S.-H., Lee, J., Kim, K. H., Kim, D., Koh, G. Y., Yoo, O. J. (2013). **Conditional ablation of LYVE-1+ cells unveils defensive roles of lymphatic vessels in intestine and lymph nodes.** *Blood*, 122, 2151–61, doi: 10.1182/blood-2013-01-478941

Park, Y.-G., Kim, J., Kim, D. (2013). **The potential roles of T-type Ca2+ channels in motor coordination.** *Front. Neural Circuits*, doi: 10.3389/fncir.2013.00172

Kwak, S. S., Jeong, M., Choi J. H., Kim D., Min, H., Yoon, Y., Hwang, O., Meadows G. G., Jeo, C. O., (2013). **Amelioration of Behavioral Abnormalities in BH4-deficient Mice by Dietary Supplementation of Tyrosine.** *Plos One*, doi: 10.1371/journal.pone.0060803

Lee, J.-S., Park, A. H., Lee, S.-H., Lee, S.-H., Kim, J.-H., Yang, S.-J., Yeom, Y. I., Kwak, T. H., Lee, D., Lee, S.-J., Lee, C.-H., Kim, J. M., Kim, D. (2012) . **Beta-lapachone, a modulator of NAD metabolism prevents health declines in aged mice.** *Plos One*, 8: e60803 doi: 10.1371/journal.pone.0047122

Won, H.*, Lee, H.-R.*, Gee, H. Y.*, Mah, W.*, Kim, J.-I., Lee, J. M, Ha, S., Chung, C., Jung, E. S., Cho, Y. S., Park, S.-G., Lee, J-S., Lee, K., Kim D., Bae, YC., Kaang, B-K., Lee, M. G., Kim, E. (2012). **Autistic-like social behaviour in Shank2-mutant mice improved by restoring NMDA receptor function.** *Nature*, 486:261-5, doi: 10.1038/nature11208

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Won, H., Mah, W., Kim, E., Kim, J.-W., Hahm, E.-K., Kim, M.-H., Cho, S., Kim, J., Jang, H., Cho, S.-C., Kim, B.-N., Shin, M.-S., Seo, J., Jeong, J., Choi, S.-Y., Kim, D., Kang, C., Kim, E. (2011). **GIT1 is associated with attention deficit/hyperactivity disorder (ADHD) and ADHD-like behaviors in mice.** *Nature Medicine*, 17:566–572, doi: 10.1038/nm.2330

J. Kim, Woo, J., Park, Y.-G., Chae, S., Jo, S., Choi, J. W., Jun, H. Y., Yeom, Y. I., Park, S. H., Kim, K. H., Shin, H. S., Kim, D. (2011). **Thalamic T-Type Ca2+ Channels Mediate Frontal Lobe Dysfunctions Caused by a Hypoxia-Like Damage in the Prefrontal Cortex.** *Journal of Neuroscience*, 16:4063-4073, doi: 10.1523/JNEUROSCI.4493-10.2011

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hippocampus through PLC beta 1 signaling. *Journal of Neuroscience,* 21(16): 6387-6394.

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Kim, D., Jun, K. S., Lee, S. B., Kang, N. G., Min, D. S., Kim, Y. H., Ryu, S. H., Suh, P. G., Shin, H. S. (1997). **Phospholipase C isozymes selectively couple to specific neurotransmitter receptors.** *Nature,* 389: 290-293, doi: 10.1038/38508

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PATENTS:

KR 10-2007-0116655, US 12/120,163, **Daesoo Kim**, Hyeyeon Park, Hee-Sup Shin "Method for the suppression of essential tremor by regulating a1G T-type calcium channel or by T-type calcium channel blockers"

KR 10-2009-0008854, **Daesoo Kim**, Jae Hoon Chung, Seungkyoung Yang "Sepiapterin reductase-deficient mouse as a model for parkinson disease"

KR 10-2009-0031857, US 12/755,851, EP 10159618.7, JP 2010-86628, **Daesoo Kim**, Ki Young Chang, Hyeyeon Park, Young Gyun Park "a1/a1G-deficient mouse as a research and therapeutic validation model for essential tremor"

KR 10-2010-0078159,PCT 2011-433,**Daesoo Kim**, Jeongjin Kim, “Attention deficit hyperactivity disorder model animal, method for evaluating prevention and alleviation of attention deficit disease and method for prevention and treatment of attention deficit disease by inhibiting T-type calcium channel”

p-15796 KR 10-2036909 (2019.10.21.) 신규 디스토니아 치료용 약학적 조성물

p-15796-분할 KR 10-2019-0124160 (2019.10.07.) 디스토니아 치료 후보 약물의 신규 스크리닝 방법

P-15796-AU AU 2018376605(2018.11.01) Novel pharmaceutical composition fortreatment of dystonia

p-15796-US US 16/885,467 (2020.05.28.) Novel method of treating dystonia

p-15796-CA CA 3,083,932(2018.11.01.) Novel pharmaceutical composition fortreating dystonia

p-15796 JP 100079049 (2018.11.01.) 新規ジストニア治療用薬学的組成物

p-15796-EP EP 18883309.9 (2018.11.01) Novel pharmaceutical composition for treating dystonia

p-15796-CN CN 201880087940.5 (2018.11.01.) Novel pharmaceutical composition fortreating dystonia

p-16410-US US 15/962.894(2018.04.25.) 10,849,990B2 (2020.12.01.) Method for treating Parkinson's disease p-16410-US분할 US 17/078.627 (2020.10.23) Method for treating Parkinson's disease

p-20500 KR 10-2021-0108274 (2021.08.17.) ASO기반 뇌질환 치료제 CAV3.1 유전자를 표적으로 하는 안티센스 올리고뉴클레오타이드 및 그의 용도

BOOKS:

-1.4kg 의 우주, 뇌 The Brain of 1.4 kg, the Small Universe, Science books (2015)
-사랑에 빠진 뇌 The Brain Falling in Love, Dong-Asia (2017)
-뇌과학이 인생에 필요한 순간 When neuroscience is demanding in life, Dasan books (2021)

INVITED TALKS

13th Nov., 2001,
'T-type calcium channels in the genesis of absence seizures', Memorial talk as a winner of AKN award for 2001, The Association of Korean American Neuroscientists (AKN) Annual Symposium for 2004, San Diego convention center,
San Diego, USA.

29th Sep, 2002,
'Role of T-type calcium channels in thalamocortical relay of sensory information'
The 3rd Federation of Asian-Ocean Neuroscience Societies (FAONS) Congress, Olympia Hotel, Seoul.

26th Sep, 2003,
'Sensory gating in the thalamus mediated by T-type calcium channels'
The First Asan-Kist Symposium, Seoul Asan Hospital, Seoul.

17th Nov, 2003,
'Novelty-seeking and alcohol preference in mice lacking alpha1G T-type calcium channels', 6th Annual Meeting of the International Behavioral and Neural Genetics (IBANGS) Society, Hyatt Regency Hotel, New Orleans, USA.

1st April, 2004
'The role of T-type Ca^{2+} Channels in the thalamic sensory gating, novelty-seeking, and alcohol preference'
The 1st Korean-Swiss Biomedical symposium, Hotel Shilla, Seoul, Korea

21st May, 2004
'Animal Models of Schizophrenia: Phospholipase C (PLC) beta1 mutant mouse.'
The First International Symposium of Busan Division of KNPA : Schizophrenia and Alzheimer's Disease, Busan national university hospital, Busan, Korea.

May, Sep. 2006
International Pain Society, Visceral Pain meeting, invited speaker, Adelaide, Australia.

Jun, Sep. 2008
Annual Meeting of the International Behavioral and Neural Genetics (IBANGS) Society, (Genes, Brain, Behavior), invited speaker, Portland, USA

May, Sep. 2010
Behavioral Genetics Association symposium 'Mouse genetic approach to higher cognitive functions' symposium organizer, Seoul, Korea

27th Oct. 2010
2011 2nd World Congress on Computer Science and Information Engineering (CSIE 2011) Keynote speaker, Chengdu, China

11th Dec. 2010
13th Congress of Korea Society for Brain and Neuroscience, invited speaker in Symposium entitled 'Cognitive dysfunctions of the brain, mouse and human', Seoul, Korea

10th Aug. 2011
US-Korean Conference on Science and Engineering 2011 'Thalamic T-type Ca^{2+} channels mediate frontal lobe-specific seizures and abnormal hyperactivity in a mouse model of prefrontal damage', Park City, UT, USA

25th Sep. 2011
Invited talk (Dr. Paul Greengard), 'Optogenetics workshop', Rockefeller University, USA

10th Feb. 2012
Invited talk in Optogenetics Workshop courses (Dr. Karl Deisseroth), 'Optogenetic control of cerebellar circuit', Stanford university, USA

12nd May 2012
4th NYKB (New York Korean Biologists) Annual conference, "Physiological and

Pathophysiological Role of T-type Calcium Channels in the Brain", Columbia university, NY, USA

23th Sep. 2012
DASAN 2012 conference for mouse phenogenomics 'Preventing age-dependent motor declines by enhancing NQO1 activity in mice, Jeju, Korea

28th Jan. 2013,
Invited talk in the dept. of Neuroscience (Dr. Joe Takahashi), 'From T-type Ca2+ channels to motor coordination' University of Texas South Western Medical School, USA,
26th Sep. 2013
KSBNS (Korea Society of Brain & Neuroscience) 'From T-type Ca2+ channels to motor coordination', Seoul, Korea

28th May, 2013
8th Asian Biophysics Association Symposium (ABA) Neuroscience session chair
11 June. 2014
Movement disorder-KI symposium, T-type Ca2+ channels mediates essential and Parkinsonian tremor in mice, Karolinska Institute, Sweden

21-22 Oct. 2014
7th Korea-UK Neuroscience Symposium, 'Pathological role of T-type Ca2+ channels in Parkinson disease', KAIST, Korea

10th April, 2015
New Drug Development against Neurodevelopmental Disorders
The Korean Society of Applied Pharmacology, New Millennium Hall, Konkuk University, Seoul, Korea

21st, 23rd Jan. 2016
DOVOS FORUM, Idea lab
'Biotechnology solutions for ageing populations' Session 4: A neural switch for being happy with less on crowded planet, Davos, Swiss

17- 22 July. 2016

Gordon Research Conferences - Optogenetic Approaches to Understanding Neural Circuits & Behavior. ‘Steering Behavior by Photoactivation of an Object-Craving Circuit in Mice, Maryland, USA

24- 26 Aug. 2016
The Korean Association for Laboratory Animal Science, Seoul, Korea
‘The value of animal models in changing’

15- 18 May. 2017
The International Behavioural and Neural Genetics Society (IBANGS), ‘Object-brain interface for learning-free steering of behavior in mice’. Madrid, Spain

21- 22 Aug. 2017
The 10th UK-Korea Neuroscience Symposium, London, UK/‘Object-brain interface for learning-free steering of mice’, Royal Society of London, UK (Invited talk)

1-3 July. 2019
The World Economic Forum (WEF), Idea lab, ‘The neural origins of craving and obsession’, Dalian, China (Invited talk)
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4-6 Feb. 2022
AVATAR: AI-vision analysis of action translation and reconstruction. CES, Las Vegas, USA. Invited as a CES innovation awardee