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Education

1997-2004	**M.D.** National Taiwan University College of Medicine, Taipei, Taiwan
2009-2014	**Ph.D.** Institute of Physiology, National Taiwan University College of Medicine, Taipei, Taiwan

Research and Professional Positions Held in Chronological Sequence

2004~ 2008	**Residency,** Department of Neurology, National Taiwan University Hospital, Taipei, Taiwan
2008~ 2010	**Clinical electrophysiology fellowship,** Department of Neurology, National Taiwan University Hospital, Taipei, Taiwan.
2008~ 2010	**Electrophysiology fellowship,** Human motor control section, NINDS, NIH. Advisor: Mark Hallett M.D. (2008: intramural; 2009~2010: extramural)
2011~ 2015	**Attending Physician,** Department of Neurology, National Taiwan University Hospital, Taipei, Taiwan
2013~ 2015	**Department Chief,** Department of Neurology, National Taiwan University Hospital Yin-Lin Branch
2015~	**Attending Physician,** National Taiwan University Hospital, Taipei, Taiwan Department of Medical Research: 2015～2019, 2021~
2019~ 2022	**Assistant Professor,** Institute of Pharmacology, College of Medicine, National Taiwan University, Taipei, Taiwan
2021~	**Joint Faculty,** Institute of Biomedical Sciences, Academia Sinica, Taipei 115, Taiwan
2022~	**Associate Professor,** Institute of Pharmacology, College of Medicine, National Taiwan University, Taipei, Taiwan
2024~	**Deputy Director,** Molecular Imaging Center, National Taiwan University

Research Interests

Dr. Ming-Kai Pan is an Associate Professor at the Institute of Pharmacology, College of Medicine, National Taiwan University, Taipei, Taiwan. He is currently running the Cerebellar Research Center at National Taiwan University Hospital, the deputy director of the Molecular Imaging Center at National Taiwan University.

He is a movement disorder specialist with a dual focus on cerebellar motor and cognitive control and their related disorders. His work has significantly advanced our understanding of the pathophysiology of essential tremor, the most common movement disorder, and has unraveled how

the cerebellum controls the detailed motor kinematics via frequency coding, and provided a unifying theory explaining normal motor control, tremors and ataxias.

In his lab, Dr. Pan drives innovation by employing cutting-edge neural dynamic technologies, bridging clinical neurology with basic neuroscience. His expertise spans cerebellar electroencephalography with dynamic spatial mapping, intraoperative cerebellar recordings, and advanced mouse-based methodologies, including tissue clearing, optogenetics, fiber photometry, calcium imaging, optical coherence tomography, and electrophysiology.

Additionally, he has made significant contributions to bioengineering, particularly in the development of novel motion-tracking technologies and volumetric super-speed microscopy.
Dr. Pan's research has been published in leading journals, including *Nature Biomedical Engineering, Science Translational Medicine*, *Journal of Clinical Investigation*, *Bioengineering & Translational Medicine*, *Science Advances*, *Advanced Science*, *PNAS*, and *Acta Neuropathologica*, reflecting his impact on both medical and neural dynamic advancements.

Major Honors and Awards

2024	**Wu Ho-Su TBF Medical Award,** Taiwan Bio-developmental Foundation
2024	**Outstanding Research Award,** National Science and Technology Council
2024	**Medical Research Award,** The New Century Health Care Promotion Foundation
2022	**Chen-Yuan Lee Medical Memorial Award**
2022	**National Innovation Award**
2020	**Young Scholar Innovation Award,** Foundation of the Advancement of Outstanding Scholarship
2020	**Young Scholar Innovation Award,** Tien Te Lee Biomedical Foundation
2018	**Junior Faculty Award,** MDS-AOS SYNERGIES 2018
2018	**Awardee, 13 Health Tech Innovators Changing the World,** APEC ASPIRE.
2018	**Future Tech Breakthrough Award,** Future Tech 2018
2018	**Best Media Notification Award,** Future Tech 2018
2018	**Ta-You Wu Memorial Award,** Ministry of Science and Technology, Taiwan
2015	**Young Star Developmental Tract Award,** Taiwan Bio-Development Foundation