

Tao Hong, M.D.

Principal Investigator

Professor of Neurosurgery

Vice President, Xuanwu Hospital, Capital Medical University

Deputy Director, National Center for Neurological Disorders (Xuanwu Hospital, Capital Medical University)

Joint Investigator, Capital Institute of Medical Research (CIMR)



PROFILE

Dr. Hong's research is centered on the mechanisms and treatment of vascular diseases of the brain and spinal cord, particularly CNS vascular malformations and brain hemorrhage. His work integrates clinical cohorts, genetics, vascular biology, multi-omics analyses, to define disease mechanisms, construct disease models and advance targeted treatments. His research has contributed to understanding the natural history and the clinical outcomes of spinal arteriovenous malformation, uncovered genetic and molecular mechanism driven by somatic mutation in brain arteriovenous malformation and cavernous malformation, developed animal models and found candidate therapeutics for these diseases. He has published 22 articles as first/corresponding author in peer-reviewed journals, highlighted by 6 in *Brain*, 2 in *Angiogenesis*, 1 in *JAMA Neurology*, 1 in *Science Bulletin* and 1 in *The American Journal of Human Genetics (AJHG)*.

RESEARCH FOCUS

His current research investigates the molecular and pathological mechanisms of brain bleeding driven by brain and spinal vascular malformations. Utilizing a translational "bedside-bench-bedside" approach, he is dedicated to developing novel pharmacological treatment for these devastating neurological events. In the realm of intracerebral hemorrhage (ICH), his research focuses on elucidating disease mechanisms, improving clinical decision-making and enhancing overall patient outcomes.

GRANT SUPPORT

Noncommunicable Chronic Diseases-National Science and Technology Major Project	2025
Title: Key Technologies and Strategies for Early Identification, Intervention and Functional Remodeling of Intracerebral Hemorrhage	
Role: Principal Investigator	
National Natural Science Foundation	2025
Title: Distinguished Young Scholars Fund	
Role: Principal Investigator	
National Natural Science Foundation	2022
Title: Excellent Young Scientists Fund	
Role: Principal Investigator	
National Natural Science Foundation (Key Program)	2024
Title: Somatic Mutation-Mediated Mural Cell Defects in Hemorrhage of Central Nervous System Vascular Malformations	
Role: Principal Investigator	
National Natural Science Foundation (General Program)	2020
Title: RASAL2 in Regulating the Pathogenesis of Cerebral and Spinal Arteriovenous Malformation	
Role: Principal Investigator	
Beijing Municipal Science and Technology Commission (Capital Clinical Characteristic Program)	2020

Title: Molecular Imaging of Cerebral Vascular Diseases
Role: Principal Investigator

Capital Medical University Excellent Young Scholars Program 2022
Title: Development of New Therapy of Cerebral Vascular Malformation
Role: Principal Investigator

HONORS

The 12th Shulan Medical Young Scientist Award	2025
Beijing Youth Medal	2023
Beijing Outstanding Physician Award	2022
NEUROSURGERY Cerebrovascular paper of the Year	2022

PROFESSIONAL SERVICES

Society & Conference Appointments

2024–present	Standing Committee Member and Secretary-General, Chinese Society of Interventional Neuroradiology, Chinese Medical Doctor Association
2022–present	Secretary-General, Neurosurgery Expert Committee for Capacity Building and Continuing Education, National Health Commission of China
2024–present	Vice President, Neurointerventional Physicians Branch of the Beijing Medical Doctor Association
2018–2023	Youth Committee Member, Chinese Neurosurgical Society, Chinese Medical Association
2019-2023	Vice President of youth committee, Chinese Stroke Association

Journal Editorial Appointments

Associate Editor	<i>Journal of NeuroInterventional Surgery (JNIS)</i>
Associate Editor	<i>Brain Hemorrhages</i>

SELECTED PUBLICATIONS

1. Yu J, et al.; Zhang H, Hong T. Effect of thalidomide on sporadic central nervous system arteriovenous malformations. **Science Bulletin.** 2026

2. Ren J, et al.; Hong T. Angiogenic switching in cerebral cavernous malformations driven by MAP3K3-PIK3CA synergy. **Brain.** 2026.

3. Tu T, et al.; Hong T, Yu J. Inhibition of Angiopoietin-2 rescues sporadic brain arteriovenous malformations by reducing pericyte loss. **Angiogenesis.** 2024.

4. Tu T, Yu J, et al.; Hong T. Somatic Braf^{V600E} mutation in the cerebral endothelium induces brain arteriovenous malformations. **Angiogenesis.** 2024.

5. Ren J, et al.; Hong T. Single-cell sequencing reveals endothelial cells, EndMT cells and mural cells in cavernous malformation pathogenesis. **Experimental Molecular Medicine.** 2023.

6. Ren J, Hong T, Zhang H. Cellular Origin of Sporadic CCMs. **New England Journal of Medicine.** 2022.

7. Feng Y, et al.; Hong T, Zhang H. Natural History and Clinical Outcomes of Paravertebral Arteriovenous Shunts. **Stroke.** 2021.

8. Hong T, Xiao X, Ren J, et al. Somatic MAP3K3 and PIK3CA mutations in sporadic cerebral and spinal cord cavernous malformations. **Brain.** 2021.

9. Ren J, Wei Y, Hong T. Combined cranial intraosseous and cerebral cavernous malformations with pathogenic CCM1 germline sequence variations. **JAMA Neurology.** 2021.

10. Yu JX, Hong T, Krings T, et al. Natural history of spinal cord arteriovenous shunts: an observational study. **Brain.** 2019.

11. Hong T, Yan Y, Li J, et al. High prevalence of KRAS/BRAF somatic mutations in brain and spinal cord arteriovenous malformations. **Brain.** 2019.