

Hwan-Ching Tai | Curriculum Vitae

Date of birth: 18 June, 1978

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Education

Ph.D. in Chemistry, California Institute of Technology, Pasadena, CA, USA.	2002.09-2010.06
B.S. in Chemistry. National Taiwan University, Taipei, Taiwan, ROC.	1996.09-2000.07

Professional Experience

Nanqiang Distinguished Professor, Department of Experimental Medicine, Xiamen University, China. 廈門大學南強特聘教授	2021.12-present
Associate Professor, Department of Chemistry, National Taiwan University, Taiwan, ROC.	2017.08-2021.11
Assistant Professor, Department of Chemistry, National Taiwan University, Taiwan, ROC.	2012.07-2017.07
Postdoctoral researcher, Massachusetts General Hospital, Harvard Medical School, USA.	2010.07-2012.05
Postdoctoral researcher, California Institute of Technology, USA.	2010.01-2010.05
Mandatory military service, Taiwan, ROC.	2000.09-2002.03

Career Achievements

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- Over 45 corresponding-author or first-author articles in scholarly journals, including *Cell*, *Nature Plants* (2), *PNAS* (3), *Nature Reviews Neuroscience*, *Journal of the American Chemical Society*, *Angewandte Chemie*, *Current Biology*, *Acta Neuropathologica Communications*, *Chemical Communications*, etc.
 - Discovery of prion-like Tau protein oligomers that damage neuronal synapses in Alzheimer's disease patients (*Am. J. Pathol.* 2012, first author, >450 citations).
 - Development of a clinical immunotherapy (APNmAb005) against Alzheimer's disease, the first Tau-oligomer-targeting therapy to enter phase 1 clinical trial (clinicaltrials.gov NCT05344989), in collaboration with APRINOIA Therapeutics (*bioRxiv* 2022 preprint, first author).
 - Five US patents on glycoprotein detection, licensed to Invitrogen/Thermo and commercialized as Click-iT O-GlcNAc Enzymatic Labeling System.
 - Elucidating the 24-chain core-shell nanostructure of wood cellulose microfibrils, the most abundant biomaterial on earth (*Nature Plants* 2023 & 2024, corresponding author).
 - Uncovering the materials secrets and acoustic properties of world-famous Stradivarius violins (*PNAS* 2014, 2017 & 2018; *Angew. Chem.* 2021, corresponding author). Reported by *The New York*

Times, The Washington Post, The Times, The Guardian, etc. International media interviews by BBC (UK), ABC (Australia), KUT (USA), and NTV (Russia).

Awards and Honors

Xiamen City Double-Hundred Talents Plan, China. 廈門市雙百人才計畫	2023
Fujian Province High-Level Talents Program Category A, China. 福建省高層次人才 A 類	2023
Periodic Table of Younger Chemists—representing the “phosphorus” element. The celebratory award from the International Union of Pure and Applied Chemistry (IUPAC) to identify future leaders in chemical research.	2019
Ta-You Wu Memorial Award 吳大猷先生紀念獎, Ministry of Science and Technology, Taiwan, ROC. The top award for distinguished scholars under the age of 42.	2019
Outstanding Young Investigator Grant, Ministry of Science and Technology, Taiwan, ROC.	2019
Alzheimer's Disease Postdoctoral Fellowship, American Health Assistance Foundation (now BrightFocus Foundation), USA.	2010-2012
California Tobacco-Related Disease Research Program PhD Fellowship, USA.	2004-2007

Research Interests

1. Biochemistry and bioanalytical chemistry: mass spectrometry and multi-omics analyses.
2. Structure and biosynthesis of plant cell wall and lignocellulosic materials.
3. Alzheimer's disease: synaptic pathology and Tau-protein-based therapies.
4. Molecular neurobiology: synaptic composition, function, and plasticity.
5. Materials science of cultural heritage objects including Stradivarius violins.

Research Experience

Director, Mass Spectrometry and Proteomics Core Facility, Department of Chemistry, National Taiwan University.	2012-2021
Postdoctoral research, Massachusetts General Hospital, Harvard Medical School. Adviser: Bradley Hyman (member of the National Academy of Medicine, USA) . Research topic: Synaptic accumulation of Tau protein oligomers in Alzheimer's disease.	2010-2012
PhD thesis research, California Institute of Technology. Adviser: Erin Schuman (recipient of The Brain Prize in 2023) . Research topic: Synaptic protein degradation by proteasomes.	2004-2010
Graduate research, California Institute of Technology. Adviser: Linda Hsieh-Wilson (member of the National Academy of Sciences, USA) . Research topic: Chemical detection of protein glycosylation.	2002-2004

Undergraduate research, National Taiwan University. Adviser: **Tien-Yau Luh.** 1999-2000
 Research topic: Synthesis of organic polymers with nonlinear optical properties.

Professional Affiliations and Services

Council member, Taiwan Proteomics Society, Taipei, Taiwan, ROC.	2017.11-2021.1
Advisory Board member, <i>STAR Protocols</i> (Cell Press)	2020-present
Advisory Board member, <i>Savart Journal</i> (string instrument research journal)	2012-present
Referee for <i>Proc. Natl. Acad. Sci. U. S. A.</i> ; <i>Nature Communications</i> ; <i>Advanced Materials</i> ; <i>Molecular Neurodegeneration</i> ; <i>Acta Neuropath. Commun.</i> ; <i>Neurobiol. Dis.</i> ; <i>Front. Neurosci.</i> ; <i>Neurochem. Int.</i> ; <i>Brain Res.</i> ; <i>Curr. Pharm. Des.</i> ; <i>Bioorg. Chem.</i> ; <i>J. Chin. Chem. Soc.</i> ; <i>Plos One</i> ; <i>Sci. Rep.</i> ; <i>J. Archaeol. Sci. Rep.</i> ; <i>Thin Wall Struct.</i> ; <i>Appl. Sci.</i> ; <i>Adv. Healthc. Mat.</i> ; <i>Herit. Sci.</i> ; <i>J. Vis. Exp.</i> ; <i>Proteomes</i> ; <i>Medcomm</i> , <i>Int. J. Biol. Macromol.</i> <i>J. Saudi. Chem. Soc.</i> , <i>Int. J. Biol. Macromol.</i> etc.	2012-present

Patents and Licensing

Patent name	Country	Patent #	Inventor	Date
Method and compositions for the detection of protein glycosylation	USA	7332355 B2	Hsieh-Wilson, L., Khidekel, N., Tai, H. C., Arndt, S.	2008/02/19
Method and compositions for the detection of protein glycosylation	USA	7842517 B2	Hsieh-Wilson, L., Khidekel, N., Tai, H. C., Arndt, S.	2010/11/30
Method and compositions for the detection of protein glycosylation	USA	8383425 B2	Hsieh-Wilson, L., Khidekel, N., Tai, H. C., Arndt, S.	2013/02/26
Method and compositions for the detection of protein glycosylation	USA	8927300 B2	Hsieh-Wilson, L., Khidekel, N., Tai, H. C., Arndt, S.	2015/01/06
Method and compositions for the detection of protein glycosylation	USA	9689022 B2	Hsieh-Wilson, L., Khidekel, N., Tai, H. C., Arndt, S.	2017/06/27

These are continuation patents, licensed to Thermo Fisher Scientific for commercialization, available as Click-iT O-GlcNAc Enzymatic Labeling System.

Industry Collaborations

APRINOIA Therapeutics (Taipei, Taiwan, ROC). Contact: Chin-Yin Tai. Project: Development of APNmAb005 immunotherapy against Tau protein oligomers in Alzheimer's disease.	2016-present
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Taiwan Hopax Chemicals (Kaohsiung, Taiwan, ROC). Contact: Chiao-Pei Chen. Project: Chemical composition analyses for detergents and glycopeptide polymers.	2013-2014
Life Technologies, now a part of Thermo Fisher Scientific (Waltham, MA). Project: Development of glycoprotein detection reagent kit.	2007-2017

International Media Interviews

KUT (NPR station in Austin, TX) news program. Contact: Matthew Largey. Interview about the secret chemical recipes of Stradivarius violins.	2021/10/13
NTV (Russian TV station) “Wonders of Technology” program. Contact: Ekaterina Glotova. Interview about the secret chemical recipes of Stradivarius violins.	2021/03/16
British Broadcasting Corporation (BBC) radio program. Contact: Oliver Conway. Interview about the tonal secrets of Stradivarius violins.	2018/05/22
ABC Radio National (Australia) “Counterpoint” program. Contact: Amanda Vanstone. Interview about the chemical wood treatment of Stradivarius violins.	2017/08/14

Invited Lectures at International Conferences

19 th International Small-Angle Scattering Conference (SAS2024, Taipei). Title: Shining new light on cellulose microfibril nanostructure—still counting the chains after 100 years.	2024/11/06
2024 International Alzheimer's and Related Diseases Academic Conference (Guangzhou, China). Title: The conformational antibody APNmAb005 targets soluble tau aggregates and rescues neuronal loss in long-term treatments.	2024/07/15
13 th International Symposium on Bioorganic Chemistry (Singapore, hosted by IUPAC). Title: Oligomer-targeting therapies for Alzheimer's disease—breakthroughs and challenges.	2023/12/18
Virtual International Conference for Advances in Therapies and Prevention of Alzheimer's and Related Disorders (hosted by Alzheimer's Disease International-China). Title: Synaptic Tau protein oligomers—from lab discoveries to immunotherapy clinical trials.	2022/08/14
International Union of Biochemistry and Molecular Biology (IUBMB) Focused Meeting on Neurodegenerative Diseases (Taipei). Title: Synaptosome research for Alzheimer's disease—super-resolution imaging, flow cytometry, and RNA-Seq.	2020/04/21
Korea Human Proteome Organization 17 th Annual International Proteome Conference (Seoul, Korea). Title: β -amyloid induces pathology-related patterns of Tau hyperphosphorylation at synaptic terminals.	2017/03/30

[1] Articles related to neurobiology and biochemistry

1. **BioRxiv, 2022 preprint (first and co-corresponding, under submission):** Tai, H. C.*; Ma, H. T.; Huang S. C.; Wu, M. F.; Wu, C. L.; Lai, Y. T.; Li, Z. L.; Margolin, R.; Intorcia A. J.; Serrano, G. E.; Beach, T. G.; Nallani, M.; Navia, B.; Jang, M. K.; Tai, C. Y.* **The tau oligomer antibody APNmAb005 detects early-stage pathological tau enriched at synapses and rescues neuronal loss in long-term treatments.** *bioRxiv*, 2022, doi.org/10.1101/2022.06.24.497452. **Preclinical development of the world's first tau oligomer-targeting therapy to enter human clinical trials (clinicaltrials.gov NCT05344989).**
2. **International Journal of Molecular Sciences, 2024 (corresponding):** Zheng, H.[#]; Sun, H.[#]; Cai, Q.; Tai, H.C.* **The enigma of tau protein aggregation: mechanistic insights and future challenges.** *Int. J. Mol. Sci.* 2024, 25, 4969.
3. Cai, Q.; Tai, H.C.* (2024). Super-Resolution Imaging of Tau Proteins in Isolated and Immobilized Brain Synaptosomes. In: Smet-Nocca, C. (eds) *Tau Protein. Methods in Molecular Biology*, vol 2754, pp 445-456. Humana, New York, NY.
4. Wu, X.; Guo L. Z.; Liu, Y. H.; Leung Y. S.; Tai, H. C.; Wang, T. D.; Chuang, Y. H.; Lin, C. H.; Chou, P. T.; Lai I. R.; Liu, T. M.* **Plasma fluorochromics for the diagnosis of acute mesenteric ischemia.** *Proc. SPIE 12822, Photonic Diagnosis, Monitoring, Prevention, and Treatment of Infections and Inflammatory Diseases 2024*, 1282204.
5. Wu, C. Y.; Chen, H. J.; Wu, Y. C.; Tsai, S. W.; Liu, Y. H.; Bhattacharya, U.; Lin, D.; Tai, H. C.; Kong, K. V.* **Highly Efficient Singlet Oxygen Generation by BODIPY–Ruthenium(II) Complexes for Promoting Neurite Outgrowth and Suppressing Tau Protein Aggregation.** *Inorg. Chem.*, 2023, 62, 1102–1112.
6. **Thrombosis Research, 2023 (co-corresponding):** Wu, X.; Guo, L. Z.; Liu, Y. H.; Liu, Y. C.; Yang, P. L.; Leung, Y. S.; Tai, H. C.*; Wang, T. D.; Lin, J. C. W.; Lai, C. L.*; Chuang, Y. H.*; Lin, C. H.; Chou, P. T.*; Lai, I. R.*; Liu, T. M.* **Plasma riboflavin fluorescence as a diagnostic marker of mesenteric ischemia-reperfusion injury in rats.** *Thromb. Res.*, 2023, 223, 146-154.
7. **MedComm Biomaterials and Applications, 2022 (corresponding):** Cheng H.; Tai, H. C.* **A nanovesicle platform to deliver neoantigens and immune checkpoint inhibitors: To ASPIRE for novel cancer vaccines.** *MedComm Biomater. Appl.*, 2022, 1, e4.
8. **Molecules, 2021 (corresponding):** Lkhagva, A.; Tai, H. C.* **Dimethylcysteine (DiCys)/o-Phthalaldehyde Derivatization for Chiral Metabolite Analyses: Cross-Comparison of Six Chiral Thiols.** *Molecules*, 2021, 26, 7416.
9. **Scientific Reports, 2021 (corresponding):** Bhattacharya, U.; Jhou, J. J.; Zou Y. F.; Abrigo, G.; Lin, S. W.; Chen, Y. H.; Chien F. C.; Tai, H. C.* **Surface charge manipulation and electrostatic immobilization of synaptosomes for super-resolution imaging: a study on tau compartmentalization.** *Sci. Rep.* 2021, 11, 18583.
10. **Journal of Chromatography A, 2020 (corresponding):** Lkhagva, A.; Shen, C. C.; Leung, Y. S.; Tai, H. C.* **Comparative study of five different amine-derivatization methods for metabolite analyses by liquid chromatography-tandem mass spectrometry.** *J. Chromatogr. A*, 2020, 1610, 460536.
11. Pei, J. C.; Hung, W. L.; Lin, B. X.; Shih, M. H.; Lu, L. Y.; Luo, D. Z.; Tai, H. C.; Studer, V.; Min, M. Y.; Lai, W. S.* **Therapeutic potential and underlying mechanism of sarcosine (N-**

methylglycine) in N-methyl-D-aspartate (NMDA) receptor hypofunction models of schizophrenia. *J. Psychopharmacol.*, 2019, 33, 1288-1302.

12. **Journal of Neuropathology and Experimental Neurology, 2018 (corresponding):** Wu, H. Y.; Kuo, P. C.; Wang, Y. T.; Lin, H. T.; Roe, A. D.; Wang, B. Y.; Han, C. L.; Hyman, B. T.; Chen, Y. J.; Tai, H. C.* **β -amyloid induces pathology-related patterns of tau hyperphosphorylation at synaptic terminals.** *J. Neuropathol. Exp. Neurol.*, 2018, 77, 814-826.
13. **Chemistry A European Journal, 2018 (co-corresponding):** Guo, Z. H.[#]; Yang, C. I.[#]; Ho, C. I.; Huang, S. J.; Chen, Y. C.; Tai, H. C.*; Chan, J. C. C.* **Fibrillization of Beta-Amyloid Peptides via Chemically Modulated Pathway.** *Chem. Eur. J.*, 2018, 24, 4939-4943.
14. **Neurology and Therapy, 2017 (corresponding):** Jhou, J. F.; Tai, H. C.* **The Study of Postmortem Human Synaptosomes for Understanding Alzheimer's Disease and Other Neurological Disorders: A Review.** *Neurol. Ther.*, 2017, 6, 57-68.
15. **Molecular and Cellular Proteomics, 2015 (co-corresponding):** Lin, J. M.; Tsai, Y. T.; Liu, Y. H.; Lin Y.; Tai, H. C.*; Chen, C. S.* **Identification of 2-oxohistidine interacting proteins using E. coli proteome chips.** *Mol. Cell. Proteomics*, 2016, 15, 3581-3593.
16. Chen, Y. H.; Hsu, H. Y.; Yeh, M. T.; Chen, C. C.; Huang, C. Y.; Chung, Y. H.; Chang, Z. F.; Kuo, W. C.; Chan, N. L.; Weng, J. H.; Chung, B. C.; Chen, Y. J.; Jian, C. B.; Shen, C. C.; Tai, H. C.; Sheu, S. Y.; Fang, J. M.* **Chemical Inhibition of Human Thymidylate Kinase and Structural Insights into the Phosphate Binding Loop and Ligand-induced Degradation.** *J. Med. Chem.*, 2016, 59, 9906-9918.
17. **Chemistry An Asian Journal, 2015 (co-corresponding):** Yang, C. I.; Tsai, B. N.; Huang, S. J.; Wang, T. Y.; Tai, H. C.*; Chan, J. C. C.* **Aggregation of Beta-Amyloid Peptides Proximal to Zwitterionic Lipid Bilayers.** *Chem. Asian. J.*, 2015, 10, 1967-1971.
18. **Journal of Peptide Science, 2015 (corresponding):** Huang, C. F.; Liu, Y. H.; Tai, H. C.* **Synthesis of peptides containing 2-oxohistidine residues and their characterization by liquid chromatography-tandem mass spectrometry.** *J. Pept. Sci.*, 2015, 21, 114-119.
19. **Acta Neuropathologica Communications, 2014 (first and co-corresponding):** Tai, H. C.*; Wang, B. Y.; Serrano-Pozo, A.; Frosch, M. P.; Spires-Jones, T. L.; Hyman, B. T.* **Frequent and symmetric deposition of misfolded tau oligomers within presynaptic and postsynaptic terminals in Alzheimer's disease.** *Acta Neuropath. Commun.*, 2014, 2, 146. [First imaging study of synaptic tau oligomers in Alzheimer brain tissues.](#)
20. **Analyst, 2014 (co-corresponding):** Chen C. C.; Su, W. C.; Huang, B. Y.; Chen, Y. J.; Tai, H. C.*; Obena, R. P.* **Interaction modes and approaches to glycopeptide and glycoprotein enrichment.** *Analyst*, 2014, 139, 688-704.
21. Perez-Nievas, B. G.; Stein, T.; Tai, H. C.; Dols-Icardo, O.; Scotton, T. C.; Barroeta-Espar, I.; Fernandez-Carballo, L.; de Munain. E. L.; Perez, J.; Serrano-Pozo, A.; Frosch, M. P.; Lowe, V.; Parisi, J. E.; Petersen, R. C.; Ikonomic, M. D.; Lopez. O. L.; Klunk, W.; Hyman, B. T.; Gomez-Isla, T.* **Dissecting phenotypic traits linked to human resilience to Alzheimer's pathology.** *Brain*, 2013, 136, 2510-2526.
22. Kopeikina, K. J.; Polydoro, M.; Tai, H. C.; Yaeger, E.; Carlson, G. A.; Pitstick, R.; Hyman, B. T.; Spires-Jones, T. L.* **Synaptic alteration in the rTg4510 mouse model of tauopathy.** *J. Comp. Neurol.*, 2013, 521, 1334-1353.
23. Taylor, A. M.*; Wu, J.; Tai, H. C.; Schuman, E. M.* **Axonal translation of β -catenin regulates synaptic vesicle dynamics.** *J. Neurosci.*, 2013, 33, 5584-5589.

24. **American Journal of Pathology, 2012 (first):** Tai, H. C.; Serrano-Pozo, A.; Hashimoto, T.; Frosch, M. P.; Spires-Jones, T. L.; Hyman, B. T.* **The synaptic accumulation of hyperphosphorylated tau oligomers in Alzheimer disease is associated with dysfunction of the ubiquitin-proteasome system.** *Am. J. Pathol.*, 2012, 181, 1426-1435. [Discovery of tau oligomers that damage human neuronal synapses](#), “Highly Cited Paper” in the ESI clinical medicine category in 2019-2022, >450 citations.
25. Koffie, R. M.; Hashimoto, T.; Tai, H. C.; Serrano-Pozo, A.; Joyner, D.; Hou, S.; Kopeikina, K. J.; Frosch, M. P.; Lee, V. M.; Holtzman, D. M.; Hyman, B. T.; Spires-Jones, T. L.* Apolipoprotein E4 effects in Alzheimer's disease are mediated by synaptotoxic oligomeric amyloid-beta. *Brain*, 2012, 135, 2155-68.
26. **Frontiers in Molecular Neuroscience, 2010 (first):** Tai, H. C.; Besche, H.; Goldberg, A. L.; Schuman, E. M.* **Characterization of the brain 26S proteasome and its interacting proteins.** *Front. Mol. Neurosci.*, 2010, 3, 12.
27. **Cell, 2010 (first):** Tai, H. C.; Schuman, E. M.* **Angelman syndrome: Finding the lost Arc.** *Cell*, 2010, 140, 608-610.
28. **Nature Reviews Neuroscience, 2008 (first):** Tai, H. C.; Schuman, E. M.* **Ubiquitin, the proteasome and protein degradation in neuronal function and dysfunction.** *Nat. Rev. Neurosci.*, 2008, 9, 826-838. [Over 550 citations.](#)
29. **Current Biology, 2006 (first):** Tai, H. C.; Schuman, E. M.* **MicroRNA: MicroRNAs reach out into dendrites.** *Curr. Biol.*, 2006, 16, R121-123.
30. Lin, W. Y.; Muruges, M. G.; Sudhakar, S.; Yang, H. C.; Tai, H. C.; Chang, C. S.; Liu, Y. H.; Wang, Y.; Chen, I. W.; Chen, C. H.; Luh, T. Y.* On the rigidity of polynorbornenes with dipolar pendant groups. *Chem. Eur. J.*, 2005, 12, 324-330.
31. **Journal of the American Chemical Society, 2004 (first):** Tai, H. C.; Khidekel, N.; Ficarro, S. B.; Peters, E.C.; Hsieh-Wilson, L. C.* **Parallel identification of O-GlcNAc modified proteins from cell lysates.** *J. Am. Chem. Soc.*, 2004, 126, 10500-10501.

[2] Articles related to cellulose and wood materials

32. **Nature Plants, 2024 (corresponding):** Tai, H. C.*; Tsao, C. S.; Lin, J. H. **Reply to: Critical comment on the assumptions leading to 24-chain microfibrils in wood.** *Nat. Plants*, 2024, published online, <https://doi.org/10.1038/s41477-024-01727-7>. [A new model to explain the small-angle X-ray scattering of wood fibers under ultrabright synchrotron radiation.](#)
33. **Nature Plants, 2023 (first and lead corresponding):** Tai, H. C.*; Chang, C. H.; Cai, W.; Lin, J. H.; Huang, S. J.; Lin, Q. Y.; Yuan, E. C. Y.; Li, S. L.; Lin, Y. C. J.; Chan, J. C. C.*; Tsao, C. S.* **Wood cellulose microfibrils have a 24-chain core-shell nanostructure in seed plants.** *Nat. Plants*, 2023, 9, 1154–1168. [Resolving the nanostructure of wood cellulose microfibrils, the most abundant organic material on earth.](#)
34. **Archives for Organic Chemistry, 2023 (corresponding):** Cai, W.; Tai, H. C.* The Materials Chemistry of Chinese Guqin Zithers—Decoding the Mysteries of an Intangible Cultural Heritage. *Arkivoc*, 2023, (ii), 202312008.
35. **Journal of Cultural Heritage (co-corresponding):** Cai, W.; Cheng, Y. K.; Tseng, H. H.; Tai, H. C.*, Lo, S. F.* Identification and characterization of wood from antique Chinese guqin zithers. *J. Cult. Herit.*, 2022, 53, 72-79.
36. Cai, W.*; Tai, H. C. The Price is right. *Strad*, 2022, 133(1582), 70-71.

37. **Angewandte Chemie, 2021 (corresponding):** Su, C. K.[#]; Chen, S. Y.[#]; Chung, J. H.; Li, G. C.; Brandmair, B.; Huthwelker, T.; Fulton J. L.; Borca, C. N.; Huang, S. J.; Nagyvary, J.; Tseng, H. H.; Chang, C. H.; Chung, D. T.; Vescovi, R.; Tsai, Y. S.; Cai, W.; Lu, B. J.; Xu, J. W.; Hsu, C. S.; Wu, J. J.; Li, H. Z.; Jheng, Y. K.; Lo, S. F.; Chen, H. M.; Hsieh, Y. T.; Chung, P. W.; Chen, C. S.; Sun, Y. C.; Chan, J. C. C.; Tai, H. C.* **Materials engineering of violin soundboards by Stradivari and Guarneri.** *Angew. Chem. Int. Ed.*, 2021, 60, 19144-19154. [Reported by The Times, The Daily Telegraph, and dozens of international media outlets.](#)
38. **Chemical Communications, 2021 (co-corresponding):** Yuan, E. C. Y.; Huang, S. J.; Huang, H. C.; Sinkkonen, J.; Oss, A.; Org, M. L., Samoson*; A.; Tai, H. C.*; Chan, J. C. C.* **Faster magic angle spinning reveals cellulose conformations in woods.** *ChemComm.* 2021, 57, 4110-4113. [Cover article.](#)
39. **Strad, 2021 (corresponding):** Cai, W.; Tai, H. C.* Wood Treatment: The Magic Touch. *Strad*, 2021, 132(1580), 48-51.
40. **Optics Express, 2020 (first):** Tai, H. C.; Chen, P. L.; Xu, J. W.; Chen, S. Y.* Two-photon fluorescence and second harmonic generation hyperspectral imaging of old and modern spruce woods. *Opt. Express*, 2020, 28, 38831-38841.
41. **AsiaChem, 2020 (corresponding):** Cai, W.; Tai, H. C.* String Theories: Chemical Secrets of Italian Violins and Chinese Guqins. *AsiaChem*, 2020, 1(1), 10-17. [Cover article of the inaugural issue.](#)
42. Lu, B. J.; Li J. R.; Tai, H. C.; Cai, W.; Tseng, H. H.; Hsieh, Y. T.* A facile ionic-liquid pretreatment method for the examination of archaeological wood by scanning electron microscopy. *Sci. Rep.*, 2019, 9, 13253.
43. **Savart Journal, 2018 (corresponding):** Cai, W.; Tai, H. C.* Three millennia of tonewood knowledge in Chinese guqin tradition: science, culture, value, and relevance for Western lutherie. *Savart J.*, 2018, 1 (7), 1-24.
44. **PNAS, 2018 (corresponding):** Tai, H. C.*; Shen, Y. P.; Lin, J. H.; Chung D. T. **Acoustic evolution of old Italian violins from Amati to Stradivari.** *Proc. Natl. Acad. Sci. U. S. A.*, 2018, 115, 5926-5931. [Reported by The Times, The Guardian, BBC, and dozens of international media outlets.](#)
45. **PNAS, 2017 (corresponding):** Tai, H. C.*; Li, G. C.; Huang, S. J.; Jhu, C. R.; Chung, J. H.; Wang, B. Y.; Hsu, C. S.; Brandmair, B.; Chung, D. T.; Chen, H. M.; Chan, J. C. C. **Chemical distinctions between Stradivari's maple and modern tonewood.** *Proc. Natl. Acad. Sci. U. S. A.*, 2017, 114, 27-32. [Reported by The New York Times, The Washington Post, The Times, and >100 international media outlets.](#)
46. **Strad, 2017 (corresponding):** Tai, H. C.* Secrets in the Wood. *Strad*, 2017, 128 (1528), 48-53.
47. **PNAS, 2014 (corresponding):** Tai, H. C.* **Role of timbre memory in evaluating Stradivari violins.** *Proc. Natl. Acad. Sci. U. S. A.*, 2014, 111, E2779.
48. **Savart Journal, 2012 (corresponding):** Tai, H. C.*; Chung, D. T. Stradivari Violins Exhibit Formant Frequencies Resembling Vowels Produced by Females. *Savart J.*, 2012, 1 (2), 1-13.
49. **Journal of the Violin Society of America, 2009 (corresponding):** Tai, H. C.* Stradivari's varnish: A review of scientific findings, Part 2. *Journal of the Violin Society of America: VSA Papers*, 2009, 22 (1) 60-90.

50. [Journal of the Violin Society of America, 2007 \(corresponding\): Tai, H. C.*](#) Stradivari's varnish: A review of scientific findings, Part 1. *Journal of the Violin Society of America: VSA Papers*, 2007, 21 (1), 119-144.

[3] Articles in Chinese

51. [Tai, H. C.*](#) Tonewood Knowledge in Ancient Chinese Guqin Literature: Cross Comparisons with Italian Violin Research. In *琴學論衡：2016、2017 古琴國際研討會論文集*(重慶：重慶出版集團, 2019). pp. 392-403.
52. Cai, W.; [Tai, H. C.*](#) (2019). "Tang roundness and Song flatness—Using wood dating to reexamine the tradition and collection of ancient musical instruments." *Science Monthly (Taiwan)*, 2019, 50(593), 28-31. Article in Chinese (唐圓宋扁—從木材科學定年看古代樂器的傳承與收藏).
53. Cai, W.; [Tai, H. C.*](#) (2018). The economics of alchemy—the birth of modern chemistry from a business perspective." *Taiwan Chemistry Education*, 2019, 1(29), 1-4. Journal article in Chinese (煉金術經濟學—從商業活動來看現代化學的誕生).
54. [Tai, H. C.](#) The science of musical instruments from the perspective of materials knowledge in ancient books. *Science Monthly (Taiwan)*, 2017, 48(574), 746-749. Article in Chinese. (從古籍中的材料知識探究琴中科學)
55. [Tai, H. C.](#) The tone secret—Materials chemistry of violins and guqins. *Science Monthly (Taiwan)*, 2017, 48(573), 670-673. Article in Chinese. (音色的祕密—小提琴與古琴的材料科學)
56. [Tai, H. C.](#) The curious journey—an analytical chemist and his violin dream. *Science Monthly (Taiwan)*, 2010, 41(488), 599-603. Article in Chinese. (從好奇心開始—一個化學家的提琴夢)
57. [Tai, H. C.](#) The million-dollar secret—Analytical chemistry of old Italian violin varnishes. *Science Monthly (Taiwan)*, 2010, 41(488), 584-595. Article in Chinese. (價值兩千萬美金的祕密—從分析化學看義大利名琴塗漆)