

CURRICULUM VITAE

Joseph Jen-Tse Huang (黃人則)



Research Fellow

Institute of Chemistry, Academia Sinica

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Date of Birth: July 28th, 1974

Place of Birth: Taipei, Taiwan

Marital Status: Married

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EDUCATION

2000-2004	National Taiwan University, Taipei, Taiwan Ph. D. Chemistry, <i>Biophysical Chemistry</i>
1996-1998	National Tsing Hua University, Hsin-Chu, Taiwan M. S. Chemistry, <i>Bioorganic Chemistry</i>
1992-1996	National Tsing Hua University, Hsin-Chu, Taiwan B. S. Chemistry

FIELD OF SPECIALTY

- Biophysics
- Protein and Peptide Chemistry
- Protein Misfolding in Neurodegenerative Disease

RESEARCH INTEREST

1. To explore the roles of chaperones in co-translational protein folding process.
2. To characterize the misfolding process of TDP-43 in Amyotrophic Lateral Sclerosis (ALS) and Huntingtin protein in Huntington's disease (HD).
3. To develop diagnostic and therapeutic strategies against neurodegenerative diseases.

EMPLOYMENT

2020-present	Research Fellow Institute of Chemistry, Academia Sinica, Taiwan
2020-present	Professor (joint appointment) Department of Applied Chemistry, National Chiayi University, Taiwan
2013-2020	Associate Research Fellow (with tenure) Institute of Chemistry, Academia Sinica, Taiwan
2015-2020	Associate Professor (joint appointment) Department of Applied Chemistry, National Chiayi University, Taiwan
2007-2013	Assistant Research Fellow

Institute of Chemistry, Academia Sinica, Taiwan

2005-2007

Postdoctoral Research Associate

Department of Chemistry, University of Wisconsin-Madison, USA (Prof. Silvia Cavagnero)

2004-2005

Postdoctoral Fellow

Institute of Chemistry, Academia Sinica, Taiwan (Prof. Sunney I. Chan)

OTHER PROFESSIONAL APPOINTMENT

2012-present

Adjunct Associate Professor

Department of Chemical Engineering, National Taiwan University of Science and Technology, Taiwan

2010-present

Adjunct Associate Professor

Department of Chemistry, National Central University, Taiwan

2008-2012

Adjunct Assistant Professor

Department of Life Science, National Defense University, Taiwan

2010-2013

Adjunct Assistant Professor

Department of Chemistry, Taipei Municipal University of Education, Taiwan

HONORS AND AWARDS

2019

The 2019 Career Development Award (中研院前瞻計畫)

Award received from the Academia Sinica, Taiwan

2018

The 3rd Taiwan Motor Neuron Disease Association Research Award (第三屆漸凍人研究獎)

Award received from the Taiwan Motor Neuron Disease Association, Taiwan

2017

Ministry of Science and Technology Research Project for Excellent Young Scholars (科技部優秀年輕學者研究計畫)

Award received from the Ministry of Science and Technology, Taiwan

2012

Excellent Young Scholar Award

Award received from the Chemical Society Located in Taipei, Taiwan

2005-2007

Taiwan Merit Scholarship

Join program of Taiwan's Ministry of Education, Council for Economic Planning and Development, and National Science Council, Taiwan

2004

Dean's Award of College of Science

Award received from the dean of the Science School, National Taiwan University.

2004

Excellent Paper Award

Award received in Department of Chemistry, National Taiwan University.

2002

Outstanding Research Paper Award

Award received in the 8th Symposium of Biophysical Society in Taiwan.

1997

Li-Ching Graduate Thesis Scholarship

Award received from Li-Ching Foundation, Taiwan.

1994

Taoyuan County Government Scholarship

Award received from Taoyuan County Government, Taiwan.

1993 Mr. Jung Ya Wu Educational Scholarship
Award received from Jung Ya Wu Foundation, Taiwan.

LIST OF RESEARCH PUBLICATIONS:

JOURNAL ARTICLES

- Chien, H. -M., He, R. -Y., Lee, C. -C., Huang, Y. -A., Hung, I. -J., Hou, K. -T., Hsiao, J. -C., Lu, P. -C., Agnihotri, D., Hwang, E., Huang, J. J.-T.* Nanoscopic investigation of *C9orf72* poly-GA oligomers on nuclear membrane disruption by photoinducible platform. *Commun. Chem.* **2021**, *4*, 111. (IF:6.6)
- Chien, H. -M., Lee, C. -C., Huang, J. J.-T.* The Different Faces of the TDP-43 Low-Complexity Domain: The Formation of Liquid Droplets and Amyloid Fibrils. *Int. J. Mol. Sci.* **2021**, *22*, 8213. (IF:5.9)
- He, R. -Y., Lai, X.-M., Sun, C. -S., Kung, T.-S., Hong, J.-Y., Jheng, Y.-S., Liao, W. -N., Chen, J. -K., Liao, Y. -F., Tu, P. -H.*, Huang, J. J.-T.* Nanoscopic insights of amphiphilic peptide against oligomer assembly process to treat Huntington's disease. *Adv. Sci.* **2020**, *7*, 1901165. (IF:16.8)
(Highlighted in Significant Research Achievements of Academia Sinica) (Highlighted in Academia Sinica Special Reports 2020) (Highlighted in Academia Sinica Newsletter 2020)
(Reported by Taiwan Foundation for Rare Disorders, Yahoo News, CNA News, HiNet News, Healthnews, Youth Daily News, Newtalk, Sina News, China Daily News, The Merit Times, 2020)
(Reported by Global Bio and Investment and Asia-Pacific Biotech News in 2020)
- Wahyuningtyas, D.; Chen, W.-H.; Huang, C.-H.; He, Y.-J.; Huang, J.J-T.* Biocompatible Inhibitor Based on Chitosan and Amphiphilic Peptide against Mutant Huntingtin Toxicity. *ChemBioChem* **2019**, *20*, 2133-2140. (IF:3.2, ▲ : 1)
(Cover Story)
- Lee, C.-C.; He, R.-Y.; Huang, J.J-T.* Learning from the TDP-43 amyloidogenic sequences in neurodegenerative diseases. *Amyloid* **2019**, *26*, 154-155. (IF:7.1)
- He, R.-Y.; Chao, S.-H.; Tsai, Y.-J.; Lee, C.-C.; Yu, C.-Y.; Gao, H.-D.; Huang, Y.-A.; Hwang, E.; Lee, H.-M.*; Huang, J.J-T.* Photo-Controllable Probe Spatiotemporally Induces Neurotoxic Fibrillar Aggregates and Impairs Nucleocytoplasmic Trafficking. *ACS Nano* **2017**, *11*(7), 6795–6807. (IF:15.9, ▲ : 5)
(Highlighted in Academia Sinica Special Reports 2017)
(Highlighted in Significant Research Achievements of Academia Sinica 2017)
(Reported by Yahoo News, CNA News, EBC News, Liberty Time Net, Next Digital, and Tech News on August, 2017)
(Reported by PanSci, Global Bio and Investment, and Asia-Pacific Biotech News in

2017)

7. Koubek, J.; Chang, Y.-C.; Yang, S.Y.-C.; Huang, J.J.-T.* Trigger factor-induced nascent chain dynamics changes suggest two different chaperone-nascent chain interactions during translation. *J. Mol. Biol.* **2017**, *429*,1733-1745 (IF:5.469, ▲ : 2)
8. Du, Y.-P.; Chang, H.-H.; Yang, S.-Y.; Huang, S.-J.; Tsai, Y.-J.; Huang, J.J.-T.; Chan, J.-C.* Study of Binding Interaction between Pif80 Protein Fragment and Aragonite. *Sci. Rep.* **2016**, *6*, 30883. (IF: 4.379, ▲ : 14)
9. Chen, C.-H.; Khan, A.; Huang, J. J.-T.; Ulmschneider, M.-B.* Mechanisms of membrane-pore formation by amyloidogenic peptides in ALS. *Chem. Eur. J.* **2016**, *22*, 9958-9961. (IF: 5.317, ▲ : 10)
10. He, R.-Y.; Huang, Y.-C.; Chiang, C.-W.; Tsai, Y.-J.; Ye, T.-J.; Gao, H.-D.; Wu, C.-Y.; Lee, Y.-M.; Huang, J. J.-T.* Characterization and real-time imaging of the FTLD-related protein aggregation induced by amyloidogenic peptides. *Chem. Commun.* **2015**, *51*, 8652-8655. (IF: 6.222, ▲ : 9)
11. Sun, C.-S. ; Lee, C.-C.; Li, Y-N; Yang S. Y.-C.; Lin, C.-H.; Chang, Y.-C.; He, R.-Y.; Liu, P.-F.; Wang ,C.-H.; Chen, W.; Chern, Y.*; Huang J. J.-T.* Conformational switch of polyglutamine expanded huntingtin into benign aggregates leads to neuroprotective effect. *Sci. Rep.* **2015**, *5*, 14992. (IF: 4.379, ▲ : 29)
(Recommended in F1000Prime by F1000 faculty member)
12. Koubek, J.; Chen, Y.-R.; Cheng, R.-P.; Huang, J. J.-T.* Nonorthogonal tRNA^{cys}_{Amber} for protein and nascent chain labeling. *RNA* **2015**, *21*, 1672-1682. (IF: 4.942, ▲ : 2)
13. Sun, C.-S. ; Wang, C. Y.-H. ; Chen, B.-W. ; He, R.-Y. ; Wang, C.-H. ; Chen, W. ; Chern, Y. ; Huang, J. J.-T.* The influence of mutations and proline substitutions in TDP-43 C-terminal peptides on its amyloid properties and cellular toxicity. *PLoS ONE* **2014**, *9*(8), e103644 (IF: 3.240, ▲ : 29)
14. Huang , C.-C. ; Bose J.-K. ; Majumder P. ; Lee K.-H. ; Huang, J. J.-T. ; Huang J. K. ; Shen J. C.-K.* Metabolism and mis-metabolism of the neuropathological signature protein TDP-43. *J. Cell Sci.* **2014**, *127*, 3024-3038 (IF:5.285, ▲ : 71)
15. Liu, G. C.-H. ; Chen, B. P.-W. ; Ye, N. T.-J. ; Wang, C.-H. ; Chen, W. ; Lee, H.-M. ; Chan, S. I. ; Huang, J. J.-T.* Delineating the membrane-disrupting and seeding properties of the TDP-43 amyloidogenic core. *Chem. Commun.* **2013**, *49*,11212-11214. (IF: 6.222, ▲ : 22)
(Highlighted in Significant Research Achievements of Academia Sinica 2013)
16. Koubek, J. ; Lin, K.-F. ; Chen, Y.-R. ; Cheng, R.-P.* ; Huang, J. J.-T.* Strong anion exchange fast performance liquid chromatography as a versatile tool for preparation and purification of RNA produced by *in vitro* transcription. *RNA* **2013**, *19*,1449-1459 (IF: 4.942, ▲ : 37)
17. Huang, Y.-C. ; Lin, K.-F. ; He, R.-Y. ; Tu, P.-H. ; Koubek, J. ; Hsu, Y.-C. ; Huang, J. J.-T.* Inhibition of TDP-43 aggregation by nucleic acid binding. *PLoS One* **2013**, *8*(5), e64002 (IF: 3.240, ▲ : 57)
18. Chang, C.-K. ; Wu, T.-H. ; Wu, C.-Y. ; Chiang, M.-H. ; Toh, E.-K. ; Hsu, Y.-C. ; Lin, K.-F. ;

- Liao, Y.-H. ; Huang, T.-H.* ; Huang, J. J.-T.* The N-terminus of TDP-43 promotes its oligomerization and enhances DNA binding affinity. *Biochem. Biophys. Res. Commun.* **2012**, *425*, 219-224 (IF: 3.575, ▲: 66)
19. Lin, K.-F. ; Sun, C.-S. ; Huang, Y.-C. ; Chan, S.-I. ; Koubek, J. ; Wu, T.-H. ; Huang, J. J.-T.* Cotranslational Protein Folding within the Ribosome Tunnel Influences Trigger-Factor Recruitment. *Biophys. J.* **2012**, *102*, 2818-2827. (IF: 4.033, ▲:27)
20. Huang, J. J.-T.; Larsen, R.-W.; Chan, S.-I.* The Interplay of Turn Formation and Hydrophobic Interactions on the Early Kinetic Events in Protein Folding. *Chem. Commun.* **2012**, *48*, 487-497. (IF: 6.222, ▲:13)
(Feature Article)
21. Chen, K.-H.; Lin, Y.-Y.; Xie, Z.-J.; Tu, P.-H.; Chen, P.-Y.; Liao, T.-Y.; Chen, W.; Wang, C.-H.; Huang, J. J.-T.* Induction of Amyloid Fibrils by the C-Terminal Fragments of TDP-43 in Amyotrophic Lateral Sclerosis. *J. Am. Chem. Soc.* **2010**, *132*, 1186-1187. (IF: 15.419, ▲:127)
(Highlighted in Significant Research Achievements of Academia Sinica 2010)
(Selected in 2010 Science and Technology Yearbook of Republic of China)
22. Hwu, J. R.*; Huang, J. J.-T.; Tsai, F.-Y.; Tsay, S.-C.; Hsu, M.-H.; Hwang, K. C.; Horng, J.-C.; Ho, J. A.; Lin, C.-C. Photochemical activities of N-nitroso carboxamides and sulfoximides as well as their application to DNA cleavage. *Chem. Eur. J.* **2009**, *15*, 8742-8750. (IF: 5.236, ▲:10)
(Cover Article)
23. Huang, J. J.-T.*; Jhan, J.-W. Ultra-fast and Cotranslational Protein Folding. *Natural Sciences Newsletter.* **2008**, *20*, 50-53.
24. Kirchoerfer, R. N.; Huang, J. J.-T.; Isola, M. K.; Cavagnero, Silvia.* Fluorescence-Based Analysis of Aminoacyl- and Petidyl-tRNA by Low-pH SDS PAGE. *Anal. Biochem.* **2007**, *364*, 92-94. (IF: 3.365, ▲:18)
25. Kuo, N. N.-W.; Huang, J. J.-T.; Miksovska, J.; Chen, P.-Y.; Larsen, R.; Chan, S.I.* Effects of turn stability on the kinetics of refolding of a hairpin in β -sheet. *J. Am. Chem. Soc.* **2005**, *127*, 48, 16945-16954. (IF: 15.419, ▲:18)
26. Chen, R. P. Y.; Huang, J. J.-T.; Chen, H. L.; Jan, H.; Velusamy, M.; Lee, C. T.; Fann, W. S.; Larsen, R. W.; Chan, S. I.* Measuring the refolding of beta-sheets with different turn sequences on a nanosecond time scale. *Proc. Natl. Acad. Sci. U. S. A.* **2004**, *101*, 7305-7310. (IF: 11.205, ▲:54)

BOOK CHAPTER

- Chan, S. I. *; Huang, J. J.-T.; Larsen, R. W.; Rock, R. S.; Hansen, K. C. *Early kinetic events in protein folding: The development and applications of caged peptides in Dynamic Studies in Biology*; Goeldner, M. and Givens. R. (eds), Wiley-VCH GmbH & Co. Germany, **2005**, pp 479-494.

POPULAR SCIENCE

- Protein Folding: The journey from ribosome to cellular function (*Academia Sinica Newsletter* **2012**, 1364, 5-8)
- Unfreeze Amyotrophic Lateral Sclerosis, Special topics from Neuroscience Program in Academia Sinica (NPAS) (*Scientific American-Chinese version* **2012**, 107, 7-10)

PATENT AND TECHNOLOGY TRANSFER

1. “Bipartite Molecules and Uses Thereof in Treating Diseases Associated with Abnormal Protein Aggregates” US patent (US10,882,890 B2)
2. “Bipartite Molecules and Uses Thereof in Treating Diseases Associated with Abnormal Protein Aggregates” Taiwan patent (I587868)
3. “Probes and Methods for Detecting Amyloidogenic Proteins”, US pending patent (US2018021460)
4. “Probes and Methods for Detecting Amyloidogenic Proteins”, Taiwan pending patent (TW201803585)

GRANT REVIEW:

- Medical Research Council (United Kingdom)
- National Science Council Grants, Taiwan

JOURNAL REFEREE:

Acta Biomaterialia

ACS Nano

BBA - Molecular Basis of Disease

Biotechniques

Biochemistry

International Journal of Immunopathology and Pharmacology

Journal of the American Chemical Society

Journal of Neurochemistry

Journal of Biological Chemistry

Journal of Molecular Biology

Journal of the Chinese Chemical Society

Journal of Suda Chemical Society

Scientific Reports

The Journal of Chemical Physics

SERVICE AND TEACHING*Service*

1. Council member of Biophysical Society of R.O.C. (2019-now)
2. Committee member in the Society for Neurological Rare Disorders, Taiwan (2016-now)
3. Committee chair of Taiwan International Graduate Program in Sustainable Chemical Science & Technology in Academia Sinica (TIGP-SCST). (2021-now)

Joseph J.-T Huang

4. Core members in Neuron Science Program in Academia Sinica (NPAS)(2008-now)
5. Academic committee member in Institute of Chemistry, Academia Sinica (2007-now)
6. Biophysics instrumentation user committee member in Academia Sinica (2011-now)
7. Instrumentation committee member in Academia Sinica (2014-2016)
8. Qualify exam committee member in TIGP-CBMB program, Academia Sinica (2011-2014)
9. Dormitory committee member in Academia Sinica (2008-2010)
10. Instrumentation committee member in Institute of Chemistry, Academia Sinica (2011-2016)
11. Library committee member in Institute of Chemistry, Academia Sinica (2007-2010)

Teaching

1. Experimental Molecular Biophysics, TIGP-CBMB program, Academia Sinica (2014)
2. Biochemistry, National Central University (2008-2009)
3. Seminar coordinator, National Central University (2008)
4. Fundamental Chemical Biology and Molecular Biophysics, TIGP-CBMB program, Academia Sinica (2009-2010)
5. The Chemical Biology of Protein Science, National Taiwan University (2010)
6. Application of Protein Engineering and Evolution to Bio-Industry, TIGP-MBAS program, Academia Sinica (2010-2011)
7. Special Topics in Chemical Biology, National Central University (2011)
8. Seminar, TIGP-CBMB program, Academia Sinica (2013)
9. Modern Spectroscopy in Chemistry, Institute of Chemistry, Academia Sinica (2013)
10. Advances in Chemical Biology, National Central University (2013)
11. Special Topics in Chemical Biology, National Central University (2013)
12. Biomolecular Analysis and Engineering, TIGP-MBAS program, Academia Sinica (2013)