

Yun-Ru (Ruby) Chen

陳韻如

Current Position:

Principle Investigator



Laboratory for Protein misfolding and neurodegenerative diseases,
Associate Research Fellow,
Division of Chemical Biology,
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Education:

1998-2003 (Ph.D.): Department of Molecular and Structural Biochemistry, North Carolina State University, USA (under Prof. A. Clay Clark's Laboratory)

1992-1996 (B.S.): Department of Agricultural Chemistry, National Taiwan University, Taiwan

Professional Experience:

2014-present: Associate Research Fellow, Genomics Research Center, Academia Sinica, Taiwan

2015-present: Adjunct Associate Professor, Dept. of Biochemical Science & Technology, National Taiwan University, Taiwan

2015-2019: The World Academy of Sciences (TWAS) Young Affiliate

2014-2017: Council Member of Asia Pacific Protein Association (APPA)

2007-2014: Assistant Research Fellow, Genomics Research Center, Academia Sinica, Taiwan

2006-2007: Postdoctoral Fellow, Genomics Research Center, Academia Sinica, Taiwan

2004-2006: Postdoctoral Fellow, Dept. of Molecular Biology & Biochemistry, University of California, Irvine, USA

1998-1999: Teaching Assistant, Dept. of Molecular and Structural Biochemistry, North Carolina State University, USA

1996-1998: Research Assistant, Institute of Botany, Academia Sinica

Research Interests:

Protein Folding/Misfolding, Amyloids, and Neurodegenerative Diseases

My research focuses on understanding the mechanism of protein misfolding diseases, amyloidosis, by various techniques including biochemical, biophysical, molecular, and cellular methods. Our long-term goal is to elucidate the disease mechanisms of amyloidosis in the aspects of protein folding and structure, pathogenic protein interactions, and relate the results to the medical consequences. We further utilize the knowledge to develop novel diagnostic means and therapeutic modalities. Many ageing-related neurodegenerative diseases such as *Alzheimer's disease (AD)* and *Parkinson's disease (PD)* belong to amyloidosis. Among them, AD is the most serious problem in the 21st century. Amyloidosis is caused by aggregation of misfolded proteins to form amyloid

fibrils comprising specific cross- β structures. Amyloid oligomers that exist in several neurodegenerative diseases imply a common toxicity mechanism in different neurodegenerative diseases. Currently, we are working on three amyloid and amyloid-like proteins and their interacting partners in neurodegenerative diseases. They are **amyloid- β** ($A\beta$) peptide and **tau** protein, the major substance in senile plaques and neurofibrillary tangles of AD patients respectively, **α -synuclein**, the component of Lewy bodies in PD, and **TDP-43**, a novel inclusion found in a subtype of *frontotemporal lobar dementia* (FTLD-U), *amyotrophic lateral sclerosis* (ALS), and AD. We start from elucidating the mechanism of such aggregation and further developing the diagnostic method, antibodies, and small molecule inhibitors. Moreover, we study the structure, function, and interactions of the related glycan conjugates, precursor proteins, and modifiers. The major research interests are listed as follows:

- Protein folding and misfolding of amyloids in neurodegenerative diseases.
- Amyloid protein oligomerization and the toxicity mechanisms in neurodegenerative diseases.
- Interactions of proteins, glycans, and lipids with the proteins involved in pathogenesis of the neurodegenerative diseases.
- Drug screening, diagnostic, and therapeutic developments in neurodegenerative diseases.

Honors:

- 2016 年中國化學會傑出青年化學家獎章 2016 Young Chemists Award of the Chemical Society, Taipei
- 104 年度科技部吳大猷先生紀念獎 2015 Ta-You Wu Memorial Award
- **2015 第三世界科學院年輕學者成員 TWAS Young Affiliate, 2015-2019, East & Southeast Asia and Pacific Region (International Award)**
- 第十三屆有庠科技論文獎 The 13th Y. Z. Hsu Scientific Paper Award, Far Eastern Y. Z. Hsu Science and Technology Memorial Foundation, 2015
- 104 年度中研院年輕學者著作學獎 Academia Sinica Research Award for Junior Research Investigators, 2015
- **Junior Faculty Award, the 12th International Conference on Alzheimer's Disease and Parkinson's Disease, 2015 (International Award)**
- 財團法人吳健雄學術基金會 103 年度台灣女科學家新秀獎 Promising Women in Science Award, Wu Chieh Shiung Education Foundation, 2014
- 中華民國生物物理學會 102 年度傑出年輕學者獎 Young Investigator Award, Biophysical Society of R.O.C., 2013
- 台灣臨床失智症學會財團法人立夫醫藥文教基金會學術獎第一名之指導教授 2012 和 2015，第二名之指導教授 2011，佳作指導教授 2014。 Taiwan Dementia Society, LiFu Medical Research Foundation Academic Award, Advisor of the 1st Price in 2012 and 2015, 2nd Price in 2011, excellent work in 2014.
- 台灣生物化學及分子生物學會年輕學者出國研習優秀論文獎助 The Taiwan Society for Biochemistry and Molecular Biology Traveling Fellowship, 2012
2012 FAOBMB Congress

Publications in current position: (Corresponding author papers are highlighted)

1. Tien-Wei Lin, Chi-Fon Chang, Yu-Jen Chang, Yi-Hung Liao, Hui-Ming Yu, and **Yun-Ru Chen***. Alzheimer's Amyloid- β A2T Variant and its N-terminal Peptides Inhibit Amyloid- β

- Fibrillization and Rescue the Induced Cytotoxicity. (2017) **PLoS One**. (accepted)
2. Smethurst, Phillip*; Newcombe, Jia; Troakes, Claire; Simone, Roberto; Wadsworth, John; Hardy, John; **Chen, Yun-Ru**; Patani, Rickie; Sidle, Katie. In vitro prion-like mechanisms of TDP-43 in ALS. (2016) **Neurobiology of Disease**, 96:236-247 (IF=4.856, times cited=0)
 3. Nguyen Quoc Thai, Ning-Hsuan Tseng, Mui Thi Vu, Tin Trung Nguyen, Huynh Quang Linh, Chin-Kun Hu*, **Yun-Ru Chen***, and Mai Suan Li*. Discovery of DNA dyes Hoechst 34580 and 33342 as good candidates for Alzheimer's disease: in silico and in vitro study. (2016) **Journal of Computer-Aided Molecular Design**, Aug;30(8):639-50. (IF=3.199, times cited=0)
 4. Yu-Jen Chang, Nguyen Hoang Linh, Hui-Ming Yu, Mai Suan Li*, and **Yun-Ru Chen***. Alzheimer's Amyloid- β Sequesters Caspase-3 in vitro via its C-terminal Tail. (2016) **ACS Chemical Neuroscience**, 7(8):1097-106 (IF=4.384, times cited=0)
 5. Yu-Jen Chang, U-Ser Jeng, Ya-Ling Chiang, Ing-Shouh Hwang, and **Yun-Ru Chen***. Glycine-Alanine Dipeptide Repeat from C9orf72 Hexanucleotide Expansions Forms Toxic Amyloids Possessing Cell-to-cell Transmission Property. (2016) **J Biol. Chem.**, 291(10):4903-11. (IF=4.258, times cited=7)
 6. Chia-Wei Lee, Lan-Ling Jang, Huei-Jyuan Pan, **Yun-Ru Chen**, Chih-Cheng Chen, and Chau-Hwang Lee. "Membrane roughness as a sensitive parameter reflecting the status of neuronal cells in response to chemical and nanoparticle treatments". (2016) **Journal of Nanobiotechnology**, 14:9. (IF=4.239, times cited=0)
 7. Yi-Hung Liao and **Yun-Ru Chen***. A novel method for expression and purification of authentic amyloid- β with and without 15N labels. (2015) **Protein expression and purification**, 113, 63-71. (IF=1.407, times cited=1)
 8. Patricia F. Kao, **Yun-Ru Chen**, Xiao-Bo Liu, Charles DeCarli, William W. Seeley, and Lee-Way Jin*. Detection of TDP-43 oligomers in frontotemporal lobar degeneration-TDP. (2015) (**Annals of Neurology**, 78(2):211-21). (IF=9.638; times cited=4)
 9. Yu-Sheng Fang, Kuen-Jer Tsai, Yu-Jen Chang, Patricia Kao, Rima Woods, Pan-Hsien Kuo, Cheng-Chun Wu, Jih-Ying Liao, Shih-Chieh Chou, Vinson Lin, Lee-Way Jin, Hanna S. Yuan, Irene H Cheng, Pang-Hsien Tu, and **Yun-Ru Chen***. "Full-Length TDP-43 Forms Toxic Amyloid Oligomers that are Present in Frontotemporal Lobar Dementia-TDP Patients." (*corresponding author) (2014) **Nature Communications**, 5:4824, 1-13. (IF=11.329; times cited=28, R/C=3/63, Multidisciplinary Sciences)

Research Highlights in Press:

- Alzforum News:
(<http://www.alzforum.org/news/research-news/does-tdp-43-oligomerize-and-coax-av-do-same>)
- PTS News Network 公視新聞
(<https://www.youtube.com/watch?v=N1QNiBg4uFw#action=share>)
- CTS News Magazine 華視新聞雜誌專訪
(<https://www.youtube.com/watch?v=aVIVrimF4J0&feature=youtu.be>)
- UDN 聯合新聞網專訪(<https://video.udn.com/news/254960>)
- United Daily News 聯合報
- China Times 中國時報

10. Yu-Jen Chang and **Yun-Ru Chen***. The Co-existence of an Equal Amount of Alzheimer's Amyloid- β 40 and 42 forms Structurally Stable and Toxic Oligomers through a Distinct Pathway. (*corresponding author) (2014), **FEBS Journal**, 281, 2674-2687. (IF=4.237, times cited=14, R/C=72/289, Biochemistry & Molecular Biology)

11. Hwei-Jyuan Pan, Ruei-Lin Wang, Jian-Long Xiao, Yu-Jen Chang, Ji-Yen Cheng, **Yun-Ru Chen**, and Chau-Hwang Lee*. Using optical profilometry to characterize cell membrane roughness influenced by Amyloid-beta peptide and electric fields. (Jan, 2014) **Journal of Biomedical Optics**, 19 (1):011009. (IF=2.556, times cited=4)
12. Man Hoang Viet, Chun-Yu Chen, Chin-Kun Hu, **Yun-Ru Chen***, and Mai Suan Li*. Discovery of Dihydrochalcone as a potential lead for Alzheimer's disease: in silico and in vitro study. (*co-corresponding author) (Nov., 2013) **PLoS One**, 8(11):e79151. (IF=3.057, times cited=12)
13. Wei-Chieh Cheng*, Chen-Yi Weng, Wen-Yi Yun, Shang-Yu Chang, Yu-Chun Lin, Fuu-Jen Tsai, Fu Yung Huang, **Yun-Ru Chen**. Rapid modifications of *N*-substitution in iminosugars: Development of new β -glucocerebrosidase inhibitors and pharmacological chaperones for Gaucher disease. (2013) **Bioorganic & Medicinal Chemistry**, 21(17) 5021-5028. (IF=2.923, times cited=11)
14. Rong-Jie Chen, Wei-Wei Chang, Yu-Chun Lin, Pei-Lin Cheng, and **Yun-Ru Chen***. Alzheimer's Amyloid- β Oligomers Rescue Cellular Prion Protein Induced Tau Reduction via Fyn pathways. (*corresponding author). (2013) **ACS Chemical Neuroscience**, 4(9):1287-96. (IF=4.384, times cited=13, R/C=60/256, Neuroscience)
15. Yi-Ting Wang, Pan-Hsien Kuo, Chien-Hao Chiang, Jhe-Ruei Liang, **Yun-Ru Chen**, Shuying Wang, James C. K. Shen, and Hanna S. Yuan. The truncated C-terminal RRM domain of TDP-43 plays a key role in forming proteinaceous aggregates. (2013) **J Biol. Chem.**, 288 (13), 9049-57. (IF=4.258, times cited=24)
16. Winny Ariesandi, Chi-Fon Chang, Tseng-Erh Chen, and **Yun-Ru Chen***. Temperature-dependent structural changes of Parkinson's alpha-synuclein reveal the role of pre-existing oligomers in alpha-synuclein fibrillization. (*corresponding author). (2013) **PLoS One**, 8(1):e53487. (IF=3.057, times cited=8)
17. Yi-Hung Liao, Yu-Jen Chang, Yuji Yoshiike, Yu-Chorng Chang*, and **Yun-Ru Chen***. Negatively charged gold nanoparticles inhibit Alzheimer's amyloid- β fibrillization, induce fibril dissociation, and mitigate neurotoxicity. (*co-corresponding author). (Aug, 2012) **Small**, 8, 23, 3631-3639. (IF=8.315, times cited=70, R/C=8/69, Nanoscience & Nanotechnology).
18. Wei-Ting Chen, Chen-Jee Hong, Ya-Tzu Lin, Wen-Han Chang, He-Ting Huang, Jih-Ying Liao, Yu-Jen Chang, Yi-Fang Hsieh, Chih-Ya Cheng, Hsiu-Chih Liu, **Yun-Ru Chen***, and Irene H Cheng *. Amyloid-beta (A β) D7H mutation increases oligomeric A β 42 and alters properties of A β -zinc/copper assemblies. (*co-corresponding author) (Apr., 2012) **PLoS One**, 7(4): e35807. (IF=3.057, times cited=37, R/C=7/56, Multidisciplinary Sciences).
19. Chun-Lun Ni, Hoi-Ping Shi, Hui-Ming Yu, Yun-Chorng Chang, and **Yun-Ru Chen***. Folding Stability of Amyloid- β 40 Monomer is an Important Determinant of the Nucleation Kinetics in Fibrillization. (*corresponding author) (Apr., 2011) **FASEB J.**, 25(4), 1390-401. (featured as a key scientific article in **Global Medical Discovery**) (IF=5.299, times cited=27, R/C=45/289, Biochemistry & Molecular Biology)

20. Wei-Ting Chen, Yi-Hung Liao, Hui-Ming Yu, Irene Cheng, and **Yun-Ru Chen***. Distinct Effects of Zn²⁺, Cu²⁺, Fe³⁺, and Al³⁺ on Amyloid-β Stability, Oligomerization, and Aggregation: Amyloid-β Destabilization Promotes Annular Protofibril Formation. (*corresponding author) (Mar., 2011) **J Biol. Chem.**, 286 (11), 9646-56. (IF=4.258; times cited=102, R/C=66/290, Biochemistry & Molecular Biology)
21. Ni-Shian Lin, John Ching-Hao Chao, Fang-Chieh Chou, Chi-Fon Chang, **Yun-Ru Chen**, Yu-Jen Chang, Shing-Jong Huang, Wei-Hsiang Tseng, and Jerry C. C. Chan. Molecular Structure of Amyloid Fibrils Formed by Residues 127 to 147 of the Human Prion Protein. (May, 2010) **Chemistry - A European Journal**, 16(18), 5492-9 (IF=5.771, times cited=15, R/C=18/147, Chemistry- Multidisciplinary)
22. Yuji Yoshiike, Ryoichi Minai, Yo Matsuo, **Yun-Ru Chen**, Tetsuya Kimura, Akihiko Takashima. Amyloid Oligomer Conformation in a Group of Natively Folded Proteins. (Sep., 2008) **PLoS One**, 3(9), e3235 (IF=3.057, times cited=57)

Publications prior to current position:

23. **Yun-Ru Chen**, Charles G. Glabe*. Distinct Early Folding and Aggregation Properties of Alzheimer Amyloid-β Peptide Aβ40 and Aβ42: Stable Trimer or Tetramer Formation by Aβ42. (Aug., 2006) **J Biol. Chem.**, Aug 25;281(34):24414-22. (IF=5.808; times cited=172, R/C=39/262, Biochemistry & Molecular Biology)
24. **Yun-Ru Chen**, A. Clay Clark*. Substitutions of prolines examine their role in kinetic trap formation of the caspase recruitment domain (CARD) of RICK. (May, 2006) **Protein Science**. Mar;15(3):395-409 (IF=3.462, times cited=6, R/C=88/262, Biochemistry & Molecular Biology)
25. **Yun-Ru Chen**, A. Clay Clark*. Kinetic traps in the folding/unfolding of procaspase-1 CARD Domain. (May, 2004) **Protein Science**. Aug;13(8):2196-206. (IF=4.116, times cited = 18, R/C=61/261, Biochemistry & Molecular Biology)
26. **Yun-Ru Chen**, A. Clay Clark*. Equilibrium and Kinetic Folding of the α-Helical Greek Key Protein Domain: Caspase Recruitment Domain (CARD) of RICK. (May, 2003) **Biochemistry**, 42(20); 6310-6320. (IF=3.922, times cited = 19, R/C=59/261, Biochemistry & Molecular Biology)
27. Pop C, **Chen YR**, Smith B, Bose K, Bobay B, Tripathy A, Franzen S, Clark AC*. Removal of the pro-domain does not affect the conformation of the procaspase-3 dimer. (Aug., 2001) **Biochemistry**. Nov 27; 40(47);14224-14235. (IF=4.114, times cited = 61, R/C=66/308, Biochemistry & Molecular Biology)
28. Y. Y. Charng, C. W. Sun, S. L. Yan, S. J. Chou, **Y. R. Chen** and S. F. Yang*. cDNA sequence of a putative ethylene receptor from carnation petals. (1997) **Plant Physiol.** 115. 863. (IF=3.618)

Book Chapter

1. Chang, Y.J. and **Chen, Y.R.*** (2017). "Folding and Misfolding of Amyloid- β 40 and 42 in Alzheimer's Disease" in Yuan, J.M and Zhou, H.X. (Ed.), "Biophysics and biochemistry of protein aggregation". Singapore, World Scientific.

Conference Publication:

1. **Yun-Ru Chen***. Recombinant TDP-43 Forms Toxic and Stable Amyloid-like Oligomers. **Alzheimer's and Dementia**, ISSN: 1552-5260, Vol: 6, Issue: 4, e44 (2010)

Patent

1. PCT/US2015/50114. ANTIBODIES AGAINST PATHOLOGICAL FORMS OF TDP-43 AND USES THEREOF. **Yun-Ru Chen.**

Selected Presentations:

Invited Oral Presentations since 2006 (Talk abroad) (Invited Talk in Major Scientific Conferences)

1. Apr. 1, 2017. **The 13th International conference on Alzheimer's and Parkinson's diseases AD/PD 2017, Vienna, Austria.** "Understanding TDP-43 Oligomers and Dipeptide Repeats in Frontotemporal Dementia and Amyotrophic Lateral Sclerosis"
2. Jan. 27, 2017. **IPR Seminar / RIKEN Symposium / MEXT Kakenhi "Nascent Chain Biology: New Frontiers in Protein Misfolding and Aggregation, Osaka University, Osaka, Japan.** "Understanding TDP-43 Oligomers and Dipeptide Repeats in Frontotemporal Dementia and Amyotrophic Lateral Sclerosis"
3. Jan. 12, 2017. **Inst. of Medical Sciences, Tzu Chi University, Hualien, Taiwan.** "Understanding Amyloid Oligomers and Finding Opportunities toward Combating Neurodegenerative Diseases: Stories of Amyloid- β and TDP-43"
4. Nov. 2, 2016. **Dept. of Biomedical Engineering and Environmental Sciences, National Tsing Hua University, Hsinchu, Taiwan.** "Understanding Amyloid Oligomers and Finding Opportunities toward Combating Neurodegenerative Diseases"
5. Oct. 17, 2016. **The 23rd East Asia Joint Symposium, the 15th Cross-Strait Symposium on Biomedical Research and the 13th Symposium of the Frontiers of Biomedical Sciences, Taipei, Taiwan.** "Full-length TDP-43 Forms Toxic Amyloid Oligomers in Frontotemporal Lobar Dementia-TDP Patients and Disturbs Amyloid- β Fibrillization"
6. Oct. 7, 2016. **Sunney Chan Symposium: Membrane Proteins: Biochemistry, Diseases, and Energy. Academia Sinica, Taipei, Taiwan.** "Investigation of Pathogenic Proteins in Amyotrophic Lateral Sclerosis: TDP-43 and Dipeptide Repeats"
7. Aug. 8, 2016. **Gordon Conference: Neurobiology of Brain Disorder, Girona, Spain.** "The Discovery of Toxic TDP-43 Oligomers in TDP-43 Proteinopathies" (The only speaker from Asia)
8. Jul. 23, 2016. **生技展 BioTaiwan Exhibition, Taipei, Taiwan.** "A novel antibody for neurodegenerative diseases"
9. May 9, 2016. **Dept. of Life Science, National Taiwan University, Taipei, Taiwan.** "Understanding Amyloid Oligomers and Finding Opportunities toward Combating Neurodegenerative Diseases"
10. Apr. 20, 2016. **Taipei Medical University, Taipei, Taiwan.** "Understanding Amyloid Oligomers and Finding Opportunities toward Combating Neurodegenerative Diseases"

11. Dec. 17, 2015. **神經疾病產學交流研討會, Academia Sinica, Taipei, Taiwan.** “Discovery of Amyloid Oligomers in Neurodegenerative Diseases”
12. Nov. 27, 2015. **Dept. of Life Science, National Normal University, Taipei, Taiwan.** “Understanding amyloid oligomers and finding opportunities toward combating neurodegenerative diseases”
13. Yun-Ru Chen. (Nov. 16, 2015). **Protein Structure and Function-Joint Symposium between the Institute for Protein Research (Osaka University) and the Research School of Chemistry (Australian National University), Australia National University, Canberra, Australia.** “Discovery of Amyloid Oligomers of TDP-43 in Neurodegenerative Diseases”
14. Yun-Ru Chen. (Oct. 16, 2015). **RIKEN-Academia Sinica Joint Conference on Chemical Biology, Academia Sinica, Taipei, Taiwan.** “Understanding the Mechanism of Amyloid Formation: Stories of Amyloid- β and TDP-43”
15. Yun-Ru Chen. (Jun. 14, 2015). **Symposium of Taiwan Dementia Society, Taipei General Veteran Hospital, Taipei, Taiwan.** “An emerging new player in frontotemporal lobar dementia, amyotrophic lateral sclerosis, and Alzheimer’s disease”
16. Yun-Ru Chen. (Apr. 23, 2015). **Dept. of Biochemical Science & Technology, National Taiwan University, Taipei, Taiwan.** “Understanding structure and function of amyloid- β and TDP-43 oligomers and the opportunities toward combating neurodegenerative diseases”
17. Yun-Ru Chen. (Mar. 21, 2015) **The 12th International conference on Alzheimer’s and Parkinson’s diseases AD/PD 2015, Nice, France.** “Full-length TDP-43 Forms Toxic Amyloid Oligomers that are Present in Frontotemporal Lobar Dementia-TDP Patients”
18. Yun-Ru Chen. (Nov. 21, 2014) **The 2nd Korea-Taiwan International Biophysics Workshop, Pusan, Korea.** “Understanding the mechanism of amyloid Formation: Stories of Amyloid- β and TDP-43”
19. Yun-Ru Chen. (Nov. 7, 2014) **The 2nd Proteostasis & Disease Symposium, Wollongong, Australia.** “Full-length TDP-43 Forms Toxic Amyloid Oligomers that are Present in Frontotemporal Lobar Dementia-TDP Patients”
20. Yun-Ru Chen. (Oct. 9, 2014) **National Tsing-Hua University Life Science Seminar Series, Taipei, Taiwan.** “Understanding the mechanism of amyloid Formation: Stories of Amyloid- β and TDP-43.”
21. Yun-Ru Chen. (Oct. 6, 2014) **Taipei General Veteran Hospital, Dept. of Neurology Seminar, Taipei, Taiwan.** “Understanding Amyloid- β and TDP-43 Oligomers and the Opportunities toward Combating the Neurodegenerative Diseases.”
22. Yun-Ru Chen. (March 21, 2014) **National Yang-Ming University Biomedical Seminar Series, Taipei, Taiwan.** “Understanding the Formation and Function of Amyloid Oligomers in Neurodegenerative Diseases: Alzheimer’s A β , Parkinson’s alpha-synuclein, and FTLN-U/ALS’s TDP-43.”
23. Yun-Ru Chen. (May 15, 2013) **National Taiwan University Hospital Seminar Series, Taipei, Taiwan.** “Pathogenic Amyloid Proteins in Neurodegenerative Diseases.”
24. Yun-Ru Chen. (Jun. 2013) **The 18th Biophysics Conference, Taipei, Taiwan. Young Investigator Award Lecture** “The Role of Amyloid Oligomers in Amyloid Fibrillization: Amyloid- β in Alzheimer’s Disease and α -Synuclein in Parkinson’s Disease.”
25. Yun-Ru Chen. (May. 2013) **Frontier in Neurodegenerative Diseases and Beyond-From Basic to Translational, Taipei, Taiwan.** “Distinct, Toxic Oligomer Formation during Co-existence of Alzheimer’s amyloid- β 40 and 42”

26. Yun-Ru Chen. (Oct. 2012) **Annual Meeting of Society of Neuroscience (SfN), New Orleans, Louisiana, USA.** “Distinct, Toxic Oligomer Formation during Co-existence of Alzheimer’s amyloid β 40 and 42”
27. Yun-Ru Chen. (Nov. 2011) **Annual Meeting of Taiwan Society of Biochemistry and Molecular Biology, Taiwan.** “Oligomerization and its Associated Toxicity in Amyloid- β in Alzheimer’s Disease”.
28. Yun-Ru Chen. (June 14, 2010) **IPR Seminar: Cooperation in Protein Science between Asian and Pacific Countries, Osaka University, Osaka, Japan.** “Folding Stability and Native Conformation of Amyloid- β Monomer are Important Determinants of the Nucleation Kinetics and Fibril Formation.”
29. Yun-Ru Chen. (Jan. 28-29, 2010) **NCTS January Workshop on Critical Phenomena and Complex Systems, National Center for Theoretical Sciences and Inst. of Physics, Academia Sinica.** “The Conformation Stability and Aggregation Mechanism of Amyloid- β ”.
30. Yun-Ru Chen. (May 19-21, 2010) **15th Joint Biophysics Conference, Taipei, Taiwan.** “Folding Stability and Native Conformation of Amyloid- β Monomer are Important Determinants of the Nucleation Kinetics and Fibril Formation”.
31. Yun-Ru Chen. (April, 2009) **PepCon-2009, Seoul, Korea.** “The conformational Stability and Aggregation Mechanisms of Amyloid β in Alzheimer Disease”.
32. Yun-Ru Chen. (Jun. 4-5, 2009) **Frontier of Protein Aggregation and Neurodegenerative Diseases, Taipei, Academia Sinica.** “The Conformation Stability and Aggregation Mechanism of Amyloid- β ”.
33. Yun-Ru Chen. (Jul. 27-28, 2009) **NCTS July Workshop on Critical Phenomena and Complex Systems.** “Conformational Stability of Amyloid- β Predominantly Determines the Nucleation Phase of Fibrillization”.
34. Yun-Ru Chen. (Oct. 12-13, 2007) **NCTS July Workshop on Critical Phenomena and Complex Systems.** “Equilibrium Folding and Aggregation of Wild Type and Familial Mutants of Amyloid- β in Alzheimer’s Disease”.
35. Yun-Ru Chen. (August, 2007) **Neuroscience Society of Taiwan, Hua Lien, Taiwan.** “Equilibrium Folding and Aggregation Properties of Wild Type and Familial Mutants of Amyloid β in Alzheimer Disease”.
36. Yun-Ru Chen. (Oct. 2006) **IBC conferences: Structural and Biochemical Properties of Prions and Amyloids, Academia Sinica.** “Distinct Equilibrium Folding Properties of Amyloid β peptide 40 and 42 prior aggregation: Stable Trimer or Tetramer Formation of A β 42”.

Selected Poster Presentations

37. Yun-Ru Chen. (Jun. 5-9, 2016) The 16th Annual Meeting of the Protein Science Society of Japan, Fukuoka, Japan. “Glycine-Alanine Dipeptide Repeat from C9orf72 Hexanucleotide Expansions Forms Toxic Amyloids Possessing Cell-to-cell Transmission Property”.
38. Yun-Ru Chen. (June 17-22, 2012) **Gordon Research Conferences: Molecular & Cellular Neurobiology**, Hong Kong Univ. of Science and Technology, Hong-Kong, China. “Full-length human TDP-43 forms stable and toxic amyloid-like oligomers in vitro and in vivo”.
39. Yun-Ru Chen. (Nov. 25-29, 2012) **The 13th FAOBMB Congress**, Bangkok, Thailand. “Spherical Gold Nanoparticles Retard A β 40 Fibrillation and Induce Fibril Fragmentation”
40. Yun-Ru Chen. (June 12-17, 2011) **FASEB Summer Research Conferences: The Basic Origins and Medical Consequences of Protein Aggregation**, Snowmass Village, CO, USA. “Folding

Stability of Amyloid- β Predominantly Determines Nucleation Kinetics in Fibrillization where Destabilization upon Zn^{2+} and Al^{3+} Binding Promotes Annular Protofibril Formation”.

41. Chun-Lun Ni, Hoi-Ping Shi, Yu-Jen Chang, Kuo-Ging Lin, Hui-Mei Yu, and **Yun-Ru Chen***. (June 28-July 3, 2009) **FASEB Summer Research Conferences: Amyloid Fibril Formation and Protein Misfolding-Molecular Mechanisms and Cellular Effects**, Snowmass Village, CO, USA. Conformational Stability and aggregation mechanism of amyloid β in Alzheimer’s disease.
42. Yun-Ru Chen. (June, 2007) **Gordon Conference: Proteins**, New Hampshire, USA. Equilibrium Folding and Aggregation Properties of Wild Type and Familial Mutants of Amyloid β in Alzheimer Disease.

Serving as Conference Chairs:

1. The 20th Biophysics Conference, R.O.C., May 7-10, 2016, Hsin-Chu., Taiwan. Chairing at section: Frontiers of Protein Folding and Misfolding.
2. The 19th Biophysics Conference, R.O.C., May 7-10, 2014, Tainan, Taiwan. Chairing at section : Protein Folding and Misfolding.
3. The 3rd APPA (Asian-Pacific Protein Association) Conference, May 6-9, 2011, Shanghai Univ., Shanghai, China. Co-chairing at section 3: Protein Folding, Structure, and Dynamics.
4. PepCon-2009, Seoul, Korea. April 2-4, 2009. Co-chairing at section 3-3: Promising Protein Therapeutics for CNS Disorders/ Neurodegenerations.

Memberships:

- Protein Society
- ISTAART (International Society to Advance Alzheimer’s Research and Treatment)
- Society of Neuroscience
- APPA (Asian-Pacific Protein Association)
- Taiwan Society for Biochemistry and Molecular Biology 台灣生物化學及分子生物學會
- The Biophysics Society of Taiwan 中華民國生物物理學會
- The Neuroscience Society of Taiwan 中華民國基礎神經科學會

Council member and Conference Organizing Committee

- Council member, The Biophysical Society of R.O.C. 中華民國生物物理學會 (2016-present)
- Council member, The Taiwan Society for Biochemistry and Molecular Biology 台灣生物化學及分子生物學會理事 (2015-present)
- Council member, APPA (Asian-Pacific Protein Association) Representative of Taiwan. (2014.5-present)
- Council member, APPA (Asian-Pacific Protein Association) Backup Representative of Taiwan. (2009-2014.5)
- Organizing Committee member, (Jun. 4-5, 2009) Frontier of Protein Aggregation and Neurodegenerative Diseases, Taipei, Academia Sinica

Grant Review

- Ministry of Science and Technology grant proposals, Taiwan

- MRC grant proposals (Medical Research Council, UK)
- Univ. of California, Davis, Pilot project grant proposal (USA)

Journal Referee

- ACS Chemical Neuroscience
- ACS Nano
- Biochemistry
- BBA-Proteins and Proteomics
- JACS
- International Journal of Biological Macromolecules
- Journal of Inorganic Chemistry
- Journal of Physical Chemistry
- Neurochemistry International
- Small
- Scientific Reports