



## Chuan Xiao, PhD

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### Education

2005-2008	Postdoc	Department of Biological Sciences, Purdue University, West Lafayette, IN
1998-2005	Ph.D.	Department of Biological Sciences, Purdue University, West Lafayette, IN <u>Program</u> : Biochemistry and Molecular Biology, GPA: 3.9 out of 4.0
1995-1998	M.S.	Department of Biochemistry, Fudan University, Shanghai, China <u>Major</u> : Biochemistry, GPA: 3.6 out of 4.0
1991-1995	B.S.	Department of Biochemistry, Fudan University, Shanghai, China <u>Major</u> : Biochemistry, GPA: 3.5 out of 4.0 <u>Minor</u> : Electronics and Information system, GPA: 3.9 out of 4.0

### Professional Experiences

2021-	Professor; Department of Chemistry and Biochemistry, University of Texas at El Paso, El Paso, TX. Current Major Research Projects: Using structural techniques such as X-ray crystallography and cryo-EM to study (1) Giant marine viruses (CroV and AaV); (2) A virophage integrase; (3) Mammalian circadian core components; (4) GAM1, a viral protein globally inhibits cellular SUMOylation; (5) Enteroviruses assembly; (6) JAK3 structure; and (7) Developing RIVEM2 program for structural analyses. Current funding: PI of one NIH-R01 grant and Welch Foundation Grant; co-investigator of one NIH U54 grant; co-PI of one NSF MRI grant; local PIs for one multiple PI NIH U24 cryo-EM consortium grants. currently supervise research of three Ph.D. and two MS students, one lab technician and 9 undergraduate students, currently serving on committee of 2 M.S. students and 6 Ph.D. students. <u>Accomplishments</u> : 1 publication, finished two multiple PI NIH U24 cryo-EM consortium grants, have supervised 1 MS students, 17 undergraduate students.
2015-2021	Associate Professor; Department of Chemistry and Biochemistry, University of Texas at El Paso, El Paso, TX. <u>Accomplishments</u> : finished one NIH SC3 grant as PI and one NSF-MRI grant as co-PI; PI of one NIH-R01 grant; co-investigator of one NIH U54 grant; co-PI of one NSF MRI grant; local PIs for three multiple PI NIH U24 cryo-EM consortium grants. 16 publications (9 corresponding author, 6 with students including one with many undergraduates); 7 conference proceedings; two cryo-EM reconstruction of giant marine viruses CroV and AaV to EMDB; have supervised one post-doctoral researcher, 8 graduate students, 59 undergraduate students; currently serving or have served on committee of 9 M.S. students and 11 Ph.D. students.
2008-2014	Assistant Professor; Department of Chemistry, University of Texas at El Paso, El Paso, TX. <u>Accomplishments</u> : 12 publications; 1 conference proceeding; PI of one, co-PIs of two,

## **Curriculum Vitae (C. Xiao)**

*and collaborators of two federal grants; PI of four internal grants; graduated one Ph.D. student, two M.S. students; have supervised research of one unfinished Ph.D. student (due to severe sickness of tumor), two M.S. students (non-thesis), 30 undergraduate students, and 9 high-school students; serving or have served on committee of 11 M.S. students and 10 Ph.D. students.*

- 2005-2008 Post-Doctoral Research Associate; Department of Biological Sciences, Purdue University, West Lafayette, IN.  
Projects: “Cryo-EM reconstruction of the giant Mimivirus”, “High resolution cryo-EM reconstruction of Sindbis virus deglycosylation mutants”, and “Structure studies of the interaction between Coxsackievirus A21(CVA21) and its receptor DAF and ICAM-1”.  
Mentor: Michael Rossmann  
Accomplishments: 5 publications; one cryo-EM reconstruction of giant Mimivirus to EMDB; supervised research of two undergraduate students.
- 1998-2005 Graduate Student Researcher for Ph.D. degree; Department of Biological Sciences, Purdue University, West Lafayette, IN.  
Dissertation Title: “Interaction between three picornaviruses and their common receptor ICAM-1”.  
Advisor: Michael G. Rossmann  
Accomplishments: 5 publications; three X-ray structures of common cold virus CVA21 submitted to PDB and three cryo-EM reconstruction of common cold viruses (CVA21, HRV16 and HRV14) with their receptor ICAM-1 to EMDB; One published program RIVEM and about 10 different cryo-EM programs for the group; webmaster of the group.
- 1995-1998 Graduate Student Researcher for M.S. degree; State Satellite Laboratory of Rice Genome Project, Fudan University, Shanghai, China.  
Thesis Title: “A novel calmodulin-like protein gene in rice which has an unusual prolonged C-terminal sequence carrying a putative prenylation site”.  
Mentor: Kaimin Cao  
Accomplishments: 2 publications; 2 complete cDNA sequences (GAPDH and a novel Calmodulin-like protein), 1 complete genomic sequence (a novel Calmodulin-like protein); and 200 ESTs of Rice.
- 1996-1998 Computer and Network System Administrator; State Key Laboratory of Genetic Engineering, Fudan University, Shanghai, China.  
Director: Shunde Wang  
Accomplishments: Technique leader in the construction of campus network of three buildings of the School of Life Sciences; System administrator of computer servers; taught graduate level class about usage of biological software.
- 1992-1995 Undergraduate Research for B.S. Degree; Satellite Laboratory of Rice Genome Project, Fudan University, Shanghai, China.  
Thesis Title: “Sequencing of the cDNA Encoding the 16 kDa Subunit of V-ATPase from Rice and Homology Searching”.  
Mentor: Kaimin Cao  
Accomplishments: help to build the new lab; 1 complete cDNA sequence (16kDa subunit C of V-ATPase) and about 100 ESTs of Rice; established internet submission of EST into GenBank; repair and maintain the lab instruments.

### **Professional Affiliation**

- 2021- lifetime member of Society of Chinese Bioscientists in America/Virology Division (ACVA)  
 2020-2023 associate editor, Journal of Medical Virology  
 2017- member, UTEP student chapter advisor, American Society for Biochemistry and Molecular Biology (ASBMB)

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- 2016- member, Society for Research of Biological Rhythms (SRBR)  
2015- review editor in Virology, *Frontiers in Microbiology*  
2010-2013 member of American Chemical Society (ACS)  
2009-2011 member and admission committee of Sigma Xi,  
2002- member of Microscopy Society of America (MSA)  
2008-2012 member of American Association for the Advancement of Science (AAAS)  
2001- associated (to 2008) and then lifetime full member of American Society for Virology (ASV)

### **Honors and Scholarships**

- 2022 Outstanding Contributions to Teaching and Learning at UTEP, UTEP Academy of Distinguished Teachers, El Paso, TX, USA  
2020 Texas Regents' Outstanding Teaching Award, UT System, Austin, TX, USA.  
2019 Mentoring Award for Excellence in Student Research Mentoring, College of Science and BUILDing SCHOLARS, UTEP, El Paso, TX, USA.  
2018 One of the five university level nominees to Texas Regents' Outstanding Teaching Award, UTEP, El Paso, TX, USA.  
2016 May Graduating Undergraduate Student Choice Award for Outstanding Teaching in College of Science, College of Science, UTEP, El Paso, TX, USA.  
2015 December Graduating Undergraduate Student Choice Award for Outstanding Teaching in Department of Chemistry, College of Science, UTEP, El Paso, TX, USA.  
2015 May Graduating Undergraduate Student Choice Award for Outstanding Teaching in Department of Chemistry, College of Science, UTEP, El Paso, TX, USA.  
2008 Postdoctoral travel award, 27<sup>th</sup> Annual Meeting of American Society for Virology, Ithaca, NY, USA.  
2007 One of three selected talks from poster session, Workshop on Advanced Topics in EM Structure Determination, San Diego, CA, USA.  
2006 Committee Appreciation Poster Award, 3rd International Conference on Structural Analysis of Supramolecular Assemblies by Hybrid Methods, Lake Tahoe, CA, USA.  
2002 MSA Presidential Student Award of Microscopy & Microanalysis, Quebec City, Canada.  
2001 Graduate student travel grant award, 20th Annual Meeting of American Society for Virology, Madison, WI, USA.  
2000 Second Place Award, Poster Session of the 6th Biophysics and Cellular Biology Symposium, Purdue University, West Lafayette, IN, USA.  
2000 Highest Score, Doctoral Qualifying Examination, Biochemistry and Molecular Biology Program, Purdue University, West Lafayette, IN, USA.  
1997 The only second year master's degree student earning Dongs' Orient Scholarship, First rank scholarship, Fudan University, Shanghai, China.  
1996 Highest scholarship of first year master's degree student, GuangHua Scholarship, Fudan University, Shanghai, China.  
1995 Selected one of five excellent graduates in a forty-student class, Undergraduate, Fudan University, Shanghai, China  
1990-1995 Third rank scholarship as freshman, Second Rank Scholarship as Sophomore and Senior student, Undergraduate, Fudan University, Shanghai, China.

### **Publications**

(\* = post-doctoral researcher from my group; \* = graduate student from my group; \* = undergraduate student from my group; § = as corresponding or co-corresponding author)

### **My citation sites:**

[ORCID](#), [Research ID](#), [GOOGLE Scholar](#), [My NCBI](#)  
[My Publication on My Webpage](#), [My Animation \(Movies\) Gallery](#)

**Published Manuscripts:**

*Recent Invited book chapter from Total of 2:*

1. Xian, Y.\*, **Xiao, C. §** (2020) "Current capsid assembly models of icosahedral Nucleocytoviricota viruses." *Advances in Virus Research*, 108: 275-313. [PubMed PMID: 33837719](#); [PMCID: PMC8328511](#).

*Recent Invited Review Articles from Total of 6:*

1. **Xiao, C. §** (2021). "In Memory of Michael G. Rossmann: A Wise Man with a Forever Young Heart." *Viruses*, 13(7), 1305. [PubMed PMID: 34372511](#); [PMCID: PMC8309975](#).
2. Xian, Y.\*, **Xiao, C. §** (2020) "The Structure of ASFV Advances the Fight Against the Disease" *Trends in Biochemical Sciences*, 45(4):276-278. [PubMed PMID: 31430698](#); [PMCID: PMC7176047](#).
3. **Xiao, C. §**, Li, X., Liu, S., Sang, Y., Gao, S.J, and F. Gao (2020). "HIV-1 did not contribute to the 2019-nCoV genome." *Emerg Microbes Infect* 9(1): 378-381. [PubMed PMID: 32056509](#); [PMCID: PMC7033698](#).
4. **Xiao, C. §**, Tong, L. (2019) "Michael G. Rossmann (1930-2019) Obituary." *Structure*, 27: 1347-49. [DOI:10.1016/J.str.2019.08.005](#).

*Recent Peer Reviewed Journal Articles Selected from Total of 38:*

1. Xian, Y.\*, Avila, R., Pant, A., Yang, Z., **Xiao, C. §**, (2020) "The role of tape measure protein in giant virus capsid assembly." *Viral. Immunol.* 34(1): 41-48. [PubMed PMID: 33074779](#); [PMCID: PMC8020550](#).
2. Gann, E.R., Xian, Y.\*, Abraham, P.E., Hettich, R.L., Reynolds, T.B., **Xiao, C. §**, and Steven W. Wilhelm, S.W. (2020) "Structural and proteomic studies of the *Aureococcus anophagefferens* Virus demonstrate a global distribution of virus encoded carbohydrate processing" *Frontiers Microbiology*, 11: 2047. [PubMed PMID: 33013751](#); [PMCID: PMC7507832](#).
3. Li, X., Giorgi, E.E., Marichannegowda, M.H., Foley, B., **Xiao, C.**, Kong, X.-P., Chen, Y., S. Gnanakaran, S., Korber, B., and Gao, F. (2020) "Emergence of SARS-CoV-2 through Recombination and Strong Purifying Selection." *Sci. Adv.*, 6(27): eabb9153. [PubMed PMID: 32937441](#); [PMCID: PMC7458444](#).
4. Xian, Y.\*, Moreno, B.\*, Miranda, V.\*, Vijay, N.\*, Nunez, L.C.\*, Choi, J.\*, Quinones, C.S.\*, Rios, P.\*, Chauhan, N., Moriel, K.V.\*, Ruelas, N.J.\*, Castaneda, A.E.\*, Rodriguez, R.C.\*, Amezcaga, B.N.\*, Azzam, S.Z.\*, **Xiao, C. §** (2020) "Thermal stability analyses of Human PERIOD-2 C-terminal domain using dynamic light scattering and circular dichroism." *PLoS One*, 15(4): e0221180. [PubMed PMID: 32320392](#); [PMCID: PMC7176140](#).
5. Xian, Y.\*, Karki, C.B.; Silva, S.M.; Li, L.; **Xiao, C. §** (2019) "The Roles of Electrostatic Interactions in Capsid Assembly Mechanisms of Giant Viruses." *Int. J. Mol. Sci.*, 20(8):1876. [PMID: 30995716](#); [PMCID: PMC6514965](#); [Cover of the Journal](#).
6. Huang, X., Ding, Y., **Xiao, C.**, Qian, W., and C.Q. Li (2018). "Hybrid algorithm based on radial symmetry and weighted least-square ellipse fitting for three-dimensional nanometer particle localization." *Journal of Biomedical Optics* 23(3). [DOI:10.1117/1.JBO.23.3.036501](#).
7. Martin, R. M., Moniruzzaman, M., Mucci, N. C., Willis, A., Woodhouse, J. N., Xian, Y.\*, **Xiao, C.**, Brussaard, C. P. D., Wilhelm, S. W. (2019). "Cylindrospermopsis raciborskii Virus and host: genomic characterization and ecological relevance", *Environmental Microbiology* 21(6): 1942-56. [PMID: 30251319](#).
8. **Xiao, C. §**, Fischer, M. G., Bolotaulo, D. M.\*, Ulloa-Rondeau, N.\*, Avila, G. A.\*, Suttle, C. A. (2017). "Cryo-EM reconstruction of the Cafeteria roenbergensis virus capsid suggests novel assembly pathway for giant viruses." *Sci Rep* 7(1): 5484. [PMID: 28710447](#); [PMCID: PMC5511168](#); Podcast on [TWiV: This Week in Virology](#).

## *Curriculum Vitae (C. Xiao)*

9. Huang, X., Li, C., **Xiao, C.**, Sun, W., Qian, W. (2017) "A fully automated multiscale kernel graph cuts-based particle localization scheme for temporal focusing two-photon microscopy." *Proc SPIE Int Soc Opt Eng*, 10137. [PubMed PMID: 29276328](#); [PMCID: PMC5737779](#).
10. Liu, Y., Sheng, J., Baggen, J., Meng, G., **Xiao, C.**, Thibaut, H. J., van Kuppeveld, F., Rossmann, M. G. (2015). Sialic acid-dependent cell entry of human enterovirus D68. *Nat Commun*, 6:8865. [PubMed PMID: 26563423](#); [PMCID: PMC4660200](#).
11. **Xiao, C.**, Kuznetsov, Y. G., Sun, S., Hafenstein, S. L., Kostyuchenko, V. A., Chipman, P. R., Suzan-Monti, M., Raoult, D., McPherson, A. and Rossmann, M. G. (2009). "Structural studies of the giant mimivirus." *PLoS Biol* 7(4): e92. [PubMed PMID: 19402750](#); [PMCID: PMC2671561](#).
12. **Xiao, C.** and Rossmann, M. G. (2007). "Interpretation of electron density with stereographic roadmap projections." *J Struct Biol* 158(2): 182-7. [PubMed PMID: 17116403](#); [PMCID: PMC1978246](#).
13. **Xiao, C.**, Chipman, P. R., Battisti, A. J., Bowman, V. D., Renesto, P., Raoult, D. and Rossmann, M. G. (2005). "Cryo-electron microscopy of the giant Mimivirus." *J Mol Biol* 353(3): 493-6. [PubMed PMID: 16185710](#).

### *Conference Proceeding Articles Selected from a Total of 12:*

1. Adame, S.\* , Lopez, O.\* , Madariaga, A.\* , Moreno, B.\* , Xian, Y.\* , **Xiao, C.** (2023). "Optimizing the Co-Expression and Purification of Human Circadian Protein Complex CLOCK/BMAL1." *Journal of Biological Chemistry*, 299(3), S79.
2. Pinal, I.\* , Lopez, O.\* , Madariaga, A.\* , Lazarski, A.\* , **Xiao, C.** (2023). "Express and Purify Human CRY2 for Functional Studies." *Journal of Biological Chemistry*, 299(3), S613.
3. Salazar, W.\* , Noor, L.\* , Sanchez, S.\* , Moreno, B.\* , Xian, Y.\* , Yoo, S. H., Chen, Z., **Xiao, C.** (2023). "Expression of Recombinant hROR $\gamma$  and Purification for Functional and Structural Studies." *Journal of Biological Chemistry*, 299(3), S642.
4. Adame, S.\* , Sanchez, S.\* , Lopez, O.\* , Madariaga, A.\* , Moreno, B.\* , Xian, Y.\* , **Xiao, C.** (2022). "Optimizing Co-Expression of Human Circadian Protein Complex CLOCK/BMAL1" *The FASEB JOURNAL* 36 (S1), R526. [DOI:10.1096/fasebj.2022.36.S1.0R526](#)
5. Sanchez, S. V.\* , Madej, A.\* , Moreno, B.\* , Xian, Y.\* , Yoo, S.H., Zhen, Z., **Xiao, C.** (2020) "Expression and Purification of Human Circadian Protein hROR $\gamma$  for Structural and Functional Studies" *The FASEB Journal* 34 (S1), 1-1 (April 15, 2020) [DOI:10.1096/fasebj.2020.34.s1.00687](#).

### *Recent Database Contributions from a Total of 12:*

1. Cryo-EM map of Aureococcus anophagefferens Virus (AaV) (EMDB, EMD-22339, September, 2020)
2. Protein Circular Dichroism Data Bank at (PCDDb, [CD0006240000 - CD0006242000](#), April, 2020)
3. Cryo-EM reconstruction of the giant marine Cafeteria roenbergensis virus (EMDB, [EMD-8748](#), May, 2017)

## Scientific Presentations

### *Recent Invited Presentations Selected from a Total of 33:*

1. **Xiao, C.**, Texas A&M University, "Capsid assembly models of icosahedral Nucleocytoviricota viruses," Department of Veterinary Pathobiology, College Station, TX. (April 10, 2023).
2. **Xiao, C.**, University of Kansas Medical Center, "Structural studies of giant icosahedral eukaryotic dsDNA viruses," Department of Microbiology, Molecular Genetics & Immunology, Kansas City, KS. (November 10, 2022).
3. **Xiao, C.**, Integrative Structural Biology - X-ray and CryoEM Techniques, "Structural Studies of Giant Icosahedral Eukaryotic dsDNA viruses," NIH Stanford-SLAC cryoEM Center (S2C2), Online Due to COVID Policy. (September 26, 2022).



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4. **Xiao, C.**, Plenary talk presented at: 43rd Senior Technical Meeting, "The Magic of Cryo-EM: from Tiny to Gigantic and from Blobology to Atomic", American Chemical Society (ACS) Puerto Rico Section, Puerto Rico, Online Virtual. (December 1, 2020).
5. **Xiao, C.**, Departmental Promotion Seminar, "[Viruses: Evolution Friend or Foe?](#)", Department of Chemistry and Biochemistry, UTEP, El Paso, TX. (Sept. 18, 2020).
6. **Xiao, C.**, Departmental seminar, "Jelly-roll spiraling all the way", Department of Chemistry and Biochemistry, New Mexico State University, Las Cruces, NM. (Oct. 27, 2017)
7. **Xiao, C.**, Fralin Life Science Institute, Virginia Tech University, "The Magic of Cryo-EM: from Tiny to Gigantic", Department of Biological Science, Virginia Tech University, Blacksburg, VA. (Aug. 28, 2015)
8. **Xiao, C.**, Seminar for Program in Emerging Infectious Diseases "Viruses: Evolution Friend or Foe?" Duke-NUS Graduate Medical School, Singapore (June 16, 2014)

### **Recent International and National Conference Presentations Selected from a Total of 83:**

(\* = post-doctoral researcher from my group; \* = graduate student from my group; \* = undergraduate student from my group)

1. Dong, R. \*, Xian, Y. \*, Madariaga, A. \*, Reza, E. \*, Zhang, C, Joubert, L., Chiu, W., Fischer, M.G., **Xiao, C.** Talk presented at: 11th International Aquatic Virus Workshop, "Imaging marine virus CroV and its host *Cafeteria roenbergensis* with cryogenic Correlative Light and Electron Microscopy," Université Laval, Québec City, Canada (May 23-27, 2023).
2. Pinal, I. \*, Lopez, O. \*, Madariaga, A. \*, Lazarski, A. \*, **Xiao, C.**, Poster presented at: American Society for Biochemistry and Molecular Biology 2023 Annual Meeting, "Express and Purify Human CRY2 for Functional Analyses," American Society of Biochemistry and Molecular Biology, Seattle, WA, USA. (March 25-28, 2023). ASBMB Student Travel Awards.
3. **Xiao, C.**, Xian, Y., Avila, R., Pant, A., Yang, Z., Talk presented at: American Society for Virology 41st Annual Meeting, "Tape Measure Protein in Spiral Assembly of Icosahedral Nucleocytovirus Capsid", American Society for Virology, Madison, WI, USA. (July 16-20, 2022).
4. **Xiao, C.**, Talk presented at: FASEB SRC of Virus Structure and Assembly, "Capsid assembly of giant icosahedral eukaryotic dsDNA viruses", Federation of American Societies for Experimental Biology, Southbridge, MA, USA. (June 26-30, 2022)
5. **Xiao, C.**, Recorded Virtual Talk presented at: M&M (Microscopy and Microanalysis) 2021 Virtual Meeting "Structural Studies of Giant Viruses by Michael Rossmann," Microscopy Society of America, Virtual, USA. (August 1-5, 2021).
6. **Xiao, C.**, Talk presented at: 43rd Senior Technical Meeting, "The Magic of Cryo-EM: from Tiny to Gigantic," American Chemical Society (ACS) Puerto Rico Section, Puerto Rico, Online Virtual. (December 1, 2020).
7. Rios, P. \*, Moreno, B. \*, **Xiao, C.**, Poster presented at: SACNAS 2020: Society for Advancement of Chicanos/Hispanics and Native Americans in Science, "Expression and Purification of human Brain and Muscle ARNT-Like 1 Protein (hBMAL1) for Structural and Functional Studies", SACNAS, Online, USA. (October 19 - 24, 2020). Undergraduate Student Poster Presentation Award.
8. **Xiao, C.**, Talk presented at: 4th International Ringberg Symposium on Giant Virus Biology, "Michael G. Rossmann (1930.07.30 – 2019.05.14): a forever inquisitive boy walking on the beach searching for smoother pebbles or prettier shells," Max Planck Institute for Medical Research, Heidelberg, Germany, Ringberg Castle, Tegernsee, Germany. (November 17-20, 2019)
9. Murillo, J. D. \*, Ren, S. \*, Fresquez, J. \*, Quinones, C. \*, Moreno, B. \*, Ray, S. \*, **Xiao, C.**, Poster presented at: ABRCMS 2019: Annual Biomedical Research Conference for Minority Students, American Society for Microbiology, "The Culture and Purification of *Cafeteria roenbergensis* virus (CroV) for Structural Studies," ABRCMS, Anaheim, CA, USA. (November 13-16, 2019). ABRCMS Student Travel Awards.

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10. Xian, Y. \*, Karki, C., Silva, S.M., Li, L., **Xiao, C.**, Talk presented at: American Society for Virology 38th Annual Meeting, "Electrostatics-driven capsid assembly and disassembly of giant viruses," American Society for Virology, Minneapolis, MN, USA. (July 20-24, 2019). One of the two ASV David Baltimore Travel Awards.
11. Xian, Y. \*, Karki, C., Silva, S.M., Li, L., **Xiao, C.**, Talk presented at: XXVI Biennial Conference on Phage/Virus Assembly, "The roles of electrostatic interactions in capsid assembly mechanisms of giant viruses," Brainerd, MN, USA. (July 14-19, 2019). PVA Student Travel Awards; PVA Best Oral Presentation.
12. **Xiao, C.**, Xian, Y. \*, Rodriguez, J. E. \*, Gann, E. R., Fischer, M.G., Wilhelm, S. W., Talk presented at: Gordon Research Seminar, Three-Dimensional Electron Microscopy, "Giant Marine Virus Sample Preparation and Data Collection for Cryo-EM," Gordon Research Seminar, Hong Kong, China (June 8, 2019).

### **Recent Regional or Local Symposium Presentations Selected from a Total of 109:**

1. Quinones, E. I. \*, Ivan, A. A. \*, Rivera, D. S. \*, Villalva, K. A. \*, Valtierra, C. A. \*, Talk and Animation presented at: 2023 UTEP Visualization & Interactive Collaboration Competition, "Visualization Giruses and Their Assembly," ORSP, UTEP, El Paso, TX, USA. (April 28, 2023). 1st Place Award for the competition.
2. Arevalo-Jimenez, F., Frost, J., Slade, J. D., Stone, P., Suarez-Almazor, M. E., **Xiao, C.**, Panel discussion presented at: 2021 Sol Conference, "Tell Your Tale: The Human Touch in Teaching Awards," UTEP, El Paso, TX, USA. (April 21-23, 2021).
3. Yang., R. \*, Moreno, B. \*, Moriel, K. \*, Sarabia, A. \*, Chauchan, N., Ray, S. \*, **Xiao, C.**, Poster presented at: 2018 COURI Summer Symposium: Showcasing Undergraduate Researchers and Artists, "Expression and Purification of Human Neuronal PAS Domain Protein 2 (hNPAS2)," COURI, COS, UTEP, El Paso, TX, USA. (August 4, 2018), COURI Best Poster Presentation in Physcial Science.

## **Research Funding**

### **Extramural:**

#### *Ongoing Research Support*

NIH/NIGMS/R01GM129525-01A1                      Xiao (PI)                      06/01/19-04/30/24

#### *Deciphering the Molecular Assembly Mechanism of Giant DNA Viruses*

The goal of this project is to study the capsid assembly mechanism of giant DNA viruses by combining structural tools with classic biochemical, molecular dynamic simulation, mathematical modeling, and computational analyses to evaluate the novel assembly model of giant viruses.

Role: PI

Welch Foundation/AH-2126-20220331                      Xiao (PI)                      06/01/22-05/31/25

#### *Decipher the Biochemistry Folding and Assembly Mysteries of the Most Common Protein Motif Used by Viruses*

The goal of this project is to decipher the hidden biochemistry mysteries of how various amino acid sequences can all fold into Jelly-Roll-Fold and then assemble into viral particles.

Role: PI

NIH/NIMHD/U54MD007592-26                      Kirken (PI)                      08/02/19-02/29/24

#### *Border Medical Research Center*

The University of Texas at El Paso (UTEP), through support from the Research Centers at Minority Institutions (RCMI) has created the Border Biomedical Research Center (BBRC) to address issues of Hispanic Health Disparities unique to the far West Texas region that we call the Borderplex. When combined with our sister city of Ciudad Juarez, Mexico, we represent the largest binational community in the world, with nearly 3 million people. The overall goal for this application is to develop, grow and

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sustain the extant infrastructure and programs of the BBRC, as well as to recruit, train, and develop cancer scientists and health practitioners to promote high quality cancer research and to translate meaningful findings back to the community.

Role: Co-investigator

NIH/NIGMS/U24GM116789

Jiang (PI)

06/01/17-08/31/23

*Midwest Consortium for High Resolution Cryoelectron Microscopy*

The goal is to create a Midwest Consortium for High- Resolution Cryo-electron Microscopy to provide access to high-resolution data collection capability for cryo-EM laboratories without access to such resources.

Role: Local institutional PI

### ***Current Supporting Roles in Other Grants:***

2019-2023 NIH/NIGMS/SC1GM132043 (Role: Collaborator; PI: Li)

2019-2024 NIH/NIGMS/2UL1GM118970 (Role: Collaborator; PI: Echegoyen)

### ***Pending:***

2023-2026 NSF/MRI (Role: coinvestigator; PI: Schuster)

### ***Completed:***

2020-2024 NSF/MRI/MRI2018999 (Role: Co-PI; PI: Gates)

2018-2021 NSF/CHE/MRI1827875 (Role: Collaborator; PI: Fortier)

2017-2021 NIH/NIGMS/5SC1GM095475 (Role: Collaborator; PI: Sun)

2016-2021 NIH/NIGMS/U24GM116792 (Role: Local institutional PI, PI: Zhou)

2016-2021 NIH/NIGMS/U24GM116787 (Role: Local institutional PI, PI: Chu)

2014-2019 NSF/DBI/1429708 (Role: Co-PI; PI: Li)

2014-2018 NIH/NIGMS/SC3GM109870 (Role: PI)

2012-2013 NSF/XSEDE/TACC computer allocation grant (Role: PI)

2011-2012 NSF/TeraGrid/TACC computer allocation grant (Role: PI)

2009-2012 NSF/MRI/0923437 (Role: Co-PI; PI: Bernal)

2009-2012 Texas/STAR (Role: PI)

### ***Completed Supporting Roles in Other Grants:***

2016-2018 Lung Cancer Foundation (Role: Collaborator; PI: Skouta)

2014-2019 NIH/NIMHD/1RL5MD009592-01 (Role: Collaborator; PI: Echegoyen)

2014-2019 NIH/NIMHD/2G12MD007592-21 (Role: Collaborator; PI: Kirken)

2014-2017 NIH/NIAID/1R15AI105823-01A1 (Role: Collaborator; PI: Johnson)

2013-2014 NSF/DRL/1322600 (Role: Collaborator; PI: Hsu)

2011-2016 NIH/NIAIDS/ 5SC1GM095475-03 (Role: Collaborator; PI: Sun)

### **Intramural:**

### ***Completed:***

2014-2015 UTEP COS Interdisciplinary Research Pilot Program (Role: PI)

2014-2015 UTEP COS Interdisciplinary Research Pilot Program (Role: co-PI; PI: Spencer)

2013-2014 UTEP Interdisciplinary Reserch (IDR) program (Role: Co-PI; PI: Li)

2013-2014 UTEP COS Interdisciplinary Research Pilot Program (Role: Co-PI, PI: Li)

2012-2013 UTEP Interdisciplinary Reserch (IDR) program (Role: PI)

2011-2012 UTEP University Research Institute Grant (Role: PI)

2008-2009 UTEP University Research Institute Grant (Role: PI)



## Curriculum Vitae (C. Xiao)

### Teaching

#### Teaching Experiences

- 2021- Professor, Chemistry – Biochemistry;  
Department of Chemistry and Biochemistry, UTEP, El Paso, TX  
*Courses: Undergraduate – Biochemistry I (CHEM 3330) and II (CHEM 3332);  
Research Driven Courses of General Chemistry Lab (CHEM 1105/1106);  
Graduate – Graduate Seminar (CHEM5195/6195); Analysis and Modeling of Biological Structures (CHEM6341/CHEM5341/BINF5341); Chemistry Seminar for Bioinformatics (BINF5111).*
- 2015-2021 Associate Professor, Chemistry – Biochemistry;  
Department of Chemistry\*, University of Texas at El Paso, El Paso, Texas  
*Courses: Undergraduate – Biochemistry I (CHEM 3330) and II (CHEM 3332);  
Research Driven Courses of General Chemistry Lab (CHEM 1105/1106);  
Graduate – Graduate Seminar (CHEM5195/6195); Analysis and Modeling of Biological Structures (CHEM6341/CHEM5341/BINF5341); Chemistry Seminar for Bioinformatics (BINF5111).*
- 2008-2015 Assistant Professor; Chemistry – Biochemistry;  
Department of Chemistry, University of Texas at El Paso, El Paso, Texas  
*Courses: Undergraduate – Biochemistry I (CHEM 3330) and II (CHEM 3332)  
Graduate – Graduate Seminar (CHEM5195/6195); Advanced Biochemistry (CHEM 5331/6331); Analysis and Modeling of Biological Structures (CHEM5341/BINF5341); Chemistry Seminar for Bioinformatics (BINF5111).*
- 2002 Teaching assistant – Biochemistry  
Department of Biochemistry, Purdue University, West Lafayette, Indiana  
*Course: Undergraduate – Biochemistry laboratory (BCHM 309).*
- 1998 Teaching assistant – Bioinformatics  
Institute of Genetics, Fudan University, Shanghai, China  
*Course: Graduate – Software used in Bioinformatics (one lecture).*
- 1997 Teaching assistant – Biochemistry  
*Course: Undergraduate – Advanced Biochemistry laboratory.*

#### Overview of Teaching Load since Arrival at UTEP in Fall 2008\*

Semester	Years	Course	Title	Format	Total Enrollment	Credit
Fall	2016-	CHEM 1105F	Gen CHEM Lab I (FYRIS)	Lab	66	1
	2022-	CHEM 1105	Gen CHEM Lab I (Non-FYRIS)	Lab	62	1
	2009-	CHEM 3330**	Biochem I: Struc & Function	Lecture	1994	3
	2012	CHEM 5369	Contemp Topics Inorganic Chem	Lecture	7	3
	2012	CHEM 6331	Advanced Biochemistry	Lecture	11	3
Spring	2016-	CHEM 1106F	Gen CHEM Lab II (FYRIS)	Lab	42	1
	2023-	CHEM 1106	Gen CHEM Lab II (Non-FYRIS)	Lab	75	1
	2009-	CHEM 3332**†	Biochem II: Dynam & Bioenerg	Lecture	694	3

## ***Curriculum Vitae (C. Xiao)***

	2013-19	BINF 5111***	Chem. Sem. for Bioinformatics	Seminar	42	1
	2023-	CHEM 5339/6339	Comtemp Topic in Biochem	Lecture	9	3
	2013-	BINF/CHEM 5341/6341***	Anal./Model of Bio Structures	Lecture- Lab	60	3
Fa/Su /Sp	2014-	RSRC 4033	Introduction to Research	Indep. Study	135	0
Fa/Sp	2008,10 -11	CHEM 5195/6195	Graduate Seminar	Seminar	21	1
Fa/Su /Sp	2009-	CHEM 4176/4376	Introduction to Research	Indep. Study	76	1 or 3
Fa/Su /Sp	2009-	CHEM 5196/5396; 6196/6396	Graduate Research in Chemistry	Indep. Study	134	1 or 3
Fa/Su /Sp	2012-	CHEM 5398/5399; 6398/6399	Thesis/Dissertation	Indep. Study	18	3
Total	2008-	CHEM/BINF	All	All	3446	9107

\* A complete list is [available on-line](#). \*\* Before 2010, the courses were listed as CHEM 4330 or CHEM 4332, respectively. \*\*\* Taught every other year. ¥ During 2020-2021 COVID-19 Pandemic online teaching, I taught CHEM 3332 both in spring and fall semester and did not each CHEM 3330 in spring 2020.

### **Postdoctoral Research Supervised**

2015-2019                      Supriyo Ray, Ph.D.

### **Master's Thesis and Doctoral Dissertations Directed**

2024-                      Cecilia G Trujillo Melendez, Ph.D. student of Chemistry  
2022-                      Raymundo Aragon, M.S. student of Chemistry  
2021-2023                Yifan Wang, Ph.D. student of Data Science  
2021-2023                Laila Noor, M.S. student of Chemistry  
2021-                      Esther Alarcon, Ph.D. student of Chemistry  
2020-                      Rui Dong, Ph.D. student of Chemistry  
2019-2021                Zhaobo Li, Ph.D. student of Chemistry (left to different research group)  
2018-2020                Brenda Moreno, M.S. student of Chemistry  
2015-2020                Yuejiao Xian, Ph.D. student of Chemistry  
2016-2018                Martin C. Chacon, Ph.D. (left due to health issues)  
2014-2016                Martin C. Chacon, M.S. student of Chemistry, graduated in 2016.  
                                 *Thesis title: "The characterization of a recombinant virophage integrase"*  
2013-2014                Joe Knapka, non-thesis M.S student of Bioinformatics program, graduated  
2012-2013                Adrian Enriquez, Ph.D. student of Chemistry (left to different research group)  
2011-2013                Sayan Chakraborty, complete M.S. in Chemistry (Dec. 2013)  
                                 *Thesis title: "Expression and Characterization of the Major Capsid Proteion (MCP) of a Giant Marine Virus: Cafeteria roenbergensis virus (Crov)"*  
2011-2013                Rishabh Jain, non-thesis M.S student of Bioinformatics program, graduated  
2009-2010                Nancy U. Rondeau, Ph.D. student of Chemistry (left due to health issues)  
2009-2014                Gustavo A. Avila, complete Ph.D. in Chemistry (Aug. 2014)  
                                 *Dissertation title: "Biochemical Characterization of Four Distinct Proteins"*

### **Other Graduate Students Served as Their Thesis or Dissertation Committee Members**

*Recent Master Students from a total of 22*

2021-                      Armando Garcia, UTEP Physics  
2019-                      Elsa Rodriguez, UTEP Biology

## ***Curriculum Vitae (C. Xiao)***

2019-2021 Yifan Wang, UTEP Bioinformatics  
2019-2020 Angela Encerrado Manriquez, UTEP Chemistry  
2018-2019 Patricia Iozano, UTEP Biology (Graduated)  
2017- Paulina Villanueva, UTEP Biology  
2017 Myriah Acuna, UTEP Biology (Graduated)  
2017 Syeed Ahmed, UTEP Physics (Graduated)  
2016-2018 Sara Garcia, UTEP Biology  
2016- Nadia Rocha, UTEP Biology  
2016-2017 Javier Aguilera, UTEP Biology (Graduated)  
2015-2016 Faisal Abedin, UTEP Physics (Graduated)  
2015 Arifur Rahaman, UTEP Physics (Graduated)  
2017- Salvador Vazquez Reyes, UTEP Biology  
2016-2019 Xia Huang, UTEP Biomedical Engineering (Graduated)  
2016-2019 Lei Ma, UTEP Chemistry

### *Recent Ph.D. students selected from total of 23:*

2023- Andrea Garcia, UTEP Biology  
2022- Omar J Rodriguez Moncivals, UTEP Biology  
2021- Cameron Torres, UTEP Biology  
2020- Elizabeth Noriega Landa, UTEP Chemistry  
2020-2023 Kiana Holbrook, UTEP Chemistry  
2020-2021 Myriah Acuna, UTEP Biology (Graduated)  
2019-2021 Paulina Villanueva, UTEP Biology (Graduated)  
2017-2022 Salvador Vazquez Reyes, UTEP Biology (Graduated)  
2016-2019 Xia Huang, UTEP Biomedical Engineering (Graduated)  
2016-2020 Nasim Karimi Hosseini, UTEP Biology (Graduated)  
2015-2020 Chenoa Arico, UTEP Biology  
2014-2018 Jonathan S Abou-Fadel, UTEP Biology (Graduated)  
2013-2016 Angelica Lopez, UTEP Biology (Graduated)

### **Undergraduate Research Projects Directed/Selected from a Total of 101**

2023- Sasha Gabriela Soto, UACJ, SURE CHEM fellowship  
2023- Annette Murillo, EPCC, NIH BRIDGE fellowship  
2022- Christina A Valtierra, UTEP Computer Sciences,  
2022- Katia A Villalva, UTEP Biological Science, NIH RISE fellowship  
2022- David S Rivera, UTEP Computer Science  
2022- Luz Martinez Marquez, EPCC, NIH BRIDGE fellowship  
2022- Ivan Acedo Aguilar, UTEP Computer Science  
2022- Roberto A Garza Chaparro, UTEP Biological Science, UTEP MERITUS fellow  
2022-2023 Emiliano Islas Quinones, UTEP Computer Science  
2020-2022 Kristilyn Silva, UTEP Biology, NIH RISE fellowship  
2020- Sophia Adame, UTEP Biology, NIH BUILD SCHOLARs summer fellowship  
2020-2022 Raymundo Aragon, UTEP Biology, NIH BUILD SCHOLARs fellowship  
2020-2023 Wendy Salazar, UTEP Biology, NIH RISE fellowship  
2019-2022 Paulina Rios, EPCC Biology, NIH BRIDGE and RISE fellowship  
2019-2020 Obed Lopez, UTEP Biology, UTEP SURPASS summer fellowship  
2018-2021 Sebastian Sanchez, UTEP Biology, NIH BRIDGE, RISE, and MARC fellowship  
2017-2020 Alberto Madariaga, UTEP Chemistry, UTEP SURPASS, NIH RISE fellowship  
2019-2020 Shawan Chen, UTEP Biology, UTEP SURPASS and MERITUS fellowship  
2019-2020 Christian Quinones, UTEP Biology, UTEP MERITUS fellowship

## ***Curriculum Vitae (C. Xiao)***

### **High School Student Research Projects Directed (Activities in NSF Educational Grant DRL/1322600 to Dr. Hsu)**

- 2014 Mario Rodriguez, Carol Endicott, Alexandra Garcia, Loretta Vazquez, Nataly De Los Santos, Isai Retana, Arturo Mendoza, David Rojorquez, Brandon Chacon, Irvin High School, El Paso

### **Professional Development Activities in Last Three Years**

- 2023 "PDBx Workshop" PDB (May 3)  
2022 "MicroED Workshop" UCLA (December 11-14)  
2022 "AZ-900 Microsoft Azure Fundamentals" NIH STRIDES Training Team. (July 15)  
2022 "Vitrojet Tutorial", CryoSol World (March 4)  
2022 "Containers @ TACC," TACC. (February 9)  
2021 "Cloud Computing Series," NIH STRIDES Training Team. (August 9 – September 21)  
2021 "NIH National Network for Cryo-ET Webinar Series," NIH. (July 22 - August 12)  
2021 "XXVII online PVA (Phage and Virus Assembly) 2021," PVA. (July 27 - July 30)  
2021 "Student Travel Training for Faculty/Staff," UTEP Student Travel office (July 14)  
2021 "Real-time cryo-EM analysis for all: cryoSPARC Live," Structura Biotechnology Inc. (June 8)  
2021 "TACC: HPC on Frontera," TACC (Texas Advanced Computing Center). (May 20, 2021 - May 21)  
2021 "PDB50: A Special Symposium Celebrating the 50th Anniversary of the Protein Data Bank," ASBMB. (May 4 - May 5)  
2021 "2021 BioXFEL Crystallization Workshop", BioXFEL: a National Science Foundation Science and Technology Center. (April 2)

### **Professional Service Activities**

#### **External Service**

- 2023 One of the two co-organizers, XXVIII Biennial Conference on Phage/Virus Assembly.  
2020 Panelist, The 3rd Symposium of ACVA/SCBA-Virology.  
2020 Session Convener, FASEB SRC of Virus Structure and Assembly, Federation of American Societies for Experimental Biology, Steamboat Springs, CO, USA. (June 28-July 3, 2020, cancelled due to COVID-19).  
2020- Associate Editor for 11 papers, Journal of Medical Virology  
2011-2021 Paper reviewer of 21 papers from Emerging Microbes and Infections, Journal of Medical Virology, Diversity, Viruses, Journal of Biological Chemistry, Acta Crystallographica Section F, Journal of Structural Biology, Virology, Nature/Methods, PNAS, Frontiers in Microbiology, Scientific Report, Structure, etc  
2019 Tenure Package Review for a Faculty from a foreign university  
2019 Session Chair, XXVI Biennial Conference on Phage/Virus Assembly, Brainerd, MN, USA. (July 14-19, 2019).  
2018 Tenure Package Review for a Faculty from another US university  
2015 Textbook Reviewer, Lehninger Principles of Biochemistry, 7e by Nelson and Cox, W.H. Freeman & Company  
2015 Session Convener, American Society for Virology 34th Annual Meeting, London, Ontario, Canada. (July 11-15, 2015).  
2012 Ad hoc Reviewer, NSF-OCE, NSF  
2011 Textbook Reviewer, *Lehninger Principles of Biochemistry*, 6e by Nelson and Cox, W.H. Freeman & Company  
2011 Textbook Reviewer, *Fundamentals of Biochemistry*, 4e by Voet, Voet, and Pratt, John Wiley & Sons, Inc.  
2010 Reviewer, NSF-MRI Review Panel One, NSF, Washington DC

## ***Curriculum Vitae (C. Xiao)***

### **University-level Service**

- 2019- Substitutute Vice Chair when the chair cannot make to the meeting, Institutional Biosafety/recombinant DNA Committee, UTEP
- 2019- member, Faculty Senate Committee for Infrastructure
- 2016-2019 Department Representative, Faculty Senate, UTEP
- 2016-2019 Substitutute Chair when the chair cannot make to the meeting, Institutional Biosafety/recombinant DNA Committee, UTEP
- 2014-2016 Vice-chair, Institutional Biosafety/recombinant DNA Committee, UTEP
- 2009-2014 Member; Institutional Biosafety/recombinant DNA Committee, UTEP

### **College-level Service**

- 2019-2020 Member, Search committee for Chemistry Department Chair
- 2019 external member, Biological Sciences Department search committee for evolutionary biologist at assistant professor level
- 2019 external member, Math Department search committee for Biostatistics Assistant Professor
- 2018 external member, Math Department search committee for Bioinformatic Assistant Professor
- 2008-2020 Judge, COURI Summer Symposium
- 2012- Chair, Bioinformatics Colloquium Committee, Bioinformatics Program, UTEP
- 2011 Member, Best Thesis and Dissertation Committee, College of Science, UTEP
- 2008 Judge, SACNAS Symposium at UTEP

### **Department-level Service**

- 2022-2023 Member/Chair, Department Tenure and Merit Committee
- 2020 Member, Search committee for Faculty Position in Health, Human Disease, and Diagnostics
- 2018- Member, Department Bylaws Committee
- 2018- Member, Department Core Facility Committee
- 2016-2019 Member, Graduate Admission Committee
- 2014 Member, Student Action Plan Committee after Department Retreat, Department of Chemistry, UTEP
- 2013 Member, Cryo-electron Microscope Steering Committee
- 2012-2015 Member, Student Award Committee

### **Community / Public Service**

- 2019 Judge of El Paso 7<sup>th</sup> STEM Expo (April 27, 2019)
- 2017- Serve as advisor for ASBMB student chapter at UTEP
- 1999-2000 Vice president, Purdue University Chinese Student and Scholar Association, Purdue, IN