Jianfeng (Jay) XU

Professor of Biochemical Engineering
Arkansas Biosciences Institute
(Tenured at College of Agriculture, Arkansas State University)
Jonesboro, AR 72401, USA
Tel: (870)680-4812; **Fax**: (870)680-4348; **E-mail:** jxu@astate.edu

EMPLOYMENTS

July 2020 — Present	Professor of Biochemical Engineering, Arkansas Biosciences Institute and College of Agriculture, Arkansas State University, Jonesboro, AR
July 2013 — June 2020	Associate Professor, Arkansas Biosciences Institute and College of Agriculture, Arkansas State University, Jonesboro, AR
August 2008 —June 2013	Assistant Professor, Arkansas Biosciences Institute and College of Agriculture, Arkansas State University, Jonesboro, AR
August 2006 — August 200	Senior Research Associate, Cornell University, Ithaca, NY (Mentor: Dr. Dan Luo)
July 2001—August 2006	Research Associate/Research Scientist, Department of Chemistry and Biochemistry/Edison Biotechnology Institute, Ohio University-Athens (Mentor: Dr. Marcia Kieliszewski)
August 1998 — June 2001	Postdoc, Department of Chemical Engineering, Ohio University-Athens (Mentor: Dr. Murray Moo-Young, visiting professor from University of Waterloo, Canada)
March 1997 — July 1998	Postdoc, Institute of Process Engineering, Chinese Academy of Sciences-Beijing (Mentor: Dr. Zhiguo Su)
January 1998 — June 1998	Engineer, Kai Zheng Biotechnology Company, Beijing, China

EDUCATION

Ph.D —1997 Biochemical Engineering
Dalian University of Technology, Dalian, 116023, China
Dissertation: *Process regulation and control of large-scale culture of Rhodiola sachalinensis cells for the production of salidroside*

BS —1991 Environmental Engineering
Dalian University of Technology, Dalian, 116023, China
Thesis: *Determination of prior order and classification of pollutants with fuzzy mixed method*

RESEARCH INTERESTS

- Biomolecular engineering
- Plant cell wall chemistry and structure
- Recombinant protein expression
- Renewable energy (Biofuels)
- Nano(bio)technology
- Bioprocess engineering and bioreactor

TEACHING

1) Advanced Cell Biology (MBS 6213/BIO 6113) (current)
2) Laboratory in Biotechniques II (BIO 4163) (current)
3) Applied Modern Biotechnology (AGRI 4523/AGRI 5523) (current)
4) Technique-Flow Cytometry and Cell Sorting (MBS 6251) (offered upon request now)
5) Graduate Seminar-Research Orientation (AGRI 6351)
6) Technique-Recombinant Protein Expression (MBS 6251)

HONORS/AWARDS

- Recipient of the Chancellor's Medal for Research and Creative Activities at A-State, April 2025
- Outstanding Research – Award of Excellence, College of Agriculture, February 2024
- Fellow of the Arkansas Research Alliance Academy (ARA) (selected March 2023)
- Best oral presenter, *4th International Conference on Agricultural and Biological Sciences*, June 2017
- Member of American Institute of Chemical Engineer, Society for *In Vitro* Biology, American Society for Biochemistry and Molecular Biology
- British Petroleum (BP) Young Scientist Award, *13th International Biotechnology Symposium & Exhibition,* July 2008
- China National Postdoctoral Research Funding granted, December 1997
- Xiang Fanglong Fellowship, Dalian University of Technology, October 1995
- An-Gang Fellowship, Dalian University of Technology, June 1994
- Excellent Graduate Student of Dalian University of Technology, July 1991

RESEARCH GRANTS (Total ~$4.7 million)

1. National Science Foundation (NSF)-Cellular and Biochemical Engineering (CBE) Program (standard grant) — $394,063. Title: Engineering GPI-anchored proteins in plant cells for enhanced protein production and applications. July 1, 2024—Jun 30, 2027. **Role: PI**
2. National Science Foundation (NSF)- Major Research Instrumentation (MRI) Program — $614,411. Title: MRI: Acquisition of an X-Ray diffractometer to enhance materials and biomaterials research and education at Arkansas State University. September 1, 2024—August 31, 2027. **Role: Co-PI**
3. Arkansas Research Alliance Fellow grant — $75,000. January 1, 2023—December 31, 2025. **Role: PI**
4. National Institutes of Health (NIH)-R15 grant —$395,242. Title: *Engineering novel designer biologics in plant cells for oral treatment of ulcerative colitis*. September 17, 2021—June 30, 2024. **Role: PI**
5. Department of Energy (DOE)-SBIR grant — $249,990 (A-State subaward $82,181). Title: *An innovative technology for cost-effective enzymatic lignocellulose deconstruction using in-planta enzyme engineering*. February 16, 2022—February 15, 2024. **Role: A-State PI**
6. Arkansas Biosciences Institute grant—$69,918. Title: *Plant cell-produced designer biomolecules as edible vaccines for poultry*. July 1, 2021—June 30, 2023. **Role: PI**
7. NIH-INBRE Research Development Grant—$351,281. Title: *Oral delivery of plant cell-encapsulated biopharmaceuticals for treatment of IBD.* May 1, 2020—Dec 31, 2022. **Role: PI**
8. AWS PRODUCTS Inc (Conway, AR) —$23,475. Title: *Evaluate the effects of AWS products on plant growth and production*. Nov 1, 2019—Oct 31, 2020. **Role: PI**
9. NIH-NIGMS—$157,321. Title: *Partnerships for biomedical research in Arkansas*. Oct 1, 2019—Sep 31, 2020. **Role: Co-PI from A-State)** ($84,174 subaward to A-State)
10. Arkansas Biosciences Institute—$99,941. Title: *Engineering cell wall-deficient plant cells for enhanced therapeutic protein production*. Jan 1, 2019—Dec 31, 2020. **Role: PI**
11. NIH-INBRE Research Development Grant—$328,366. Title: *Plant cell-derived growth factors for ex vivo mass production of red blood cells.* Jan 1, 2018—Apr 30, 2020. **Role: PI**
12. Arkansas Biosciences Institute grant —$69,901. Title: *Genome engineering of tobacco BY-2 cell towards high-yield production of therapeutic proteins*. Jul 1, 2017—Jun 30, 2018. **Role: PI**
13. National Science Foundation (NSF)-Biotechnology and Biochemical Engineering (BBE) program — $443, 154. Title: *Engineering novel designer glycopeptides as molecular carriers for boosting protein secretion in plant cell culture.* July 1, 2016—Jun 30, 2019. **Role: PI**
14. NIH-INBRE Pilot Project grant—$54,294. Title: *Plant Cell-Secreted Cytokines Tailored to Hematopoietic Stem Cell Applications*. September 1, 2016— April 30, 2017. **Role: PI**
15. Arkansas Biosciences Institute—$99,774. Title: *Engineering novel designer molecular carriers for high-yield secretion of therapeutic proteins from plant cell culture*. Jul 1, 2015—Jun 30, 2017. **Role: PI**
16. United State Department of Agriculture (USDA)-AFRI—$150,000. Title: *Engineering designer biopolymers for reconstructing plant cell walls to improve biomass processability*. January 1, 2015—December 31, 2018. **Role: PI**
17. Arkansas Science and Technology Authority $82,961. Title: *Novel glycopeptides as molecular carriers for engineering plant cell wall*. September 19, 2014—December 18, 2016. **Role: PI**

18. A-State Provost's Scholar Award Faculty Seed Grant—$5,500. Title: *Synthetic gene technology for dissecting the roles of plant cell wall glycoproteins in plant defense to stresses*. November 1, 2014—June 30, 2015. **Role: PI**
19. NSF-EPSCoR Development Grant—$83,980. Title: *Development of separations chemistry to isolate and identify bioactive components in rice bran fractions for characterizing their colon-promoting benefits*. August 1, 2014—July 31, 2015. **Role: Co-PI**
20. United State Department of Agriculture (USDA)-AFRI—$149,977. Title: *Establishing the function and availability of bioactive components from whole-grain rice varieties for colon-specific health benefits*. February 1, 2014—January 31, 2016. Role: **Co-PI**
21. Beet Sugar Development Foundation—$5,500. Title: *Development of enzyme technologies for reducing energy in pulp processing.* July 1, 2012—June 30, 2014. Role: **Co-PI**
22. NIH-SBIR I (1 R43 GM 093621-01)—$151,190. Title: *A novel plant cell bio-production platform for therapeutic proteins*. June 15, 2010—December 31, 2013. Role: **PI of A-State** (grant is awarded to BioStrategy; I wrote the proposal).
23. DOE-MidSouth/Southeast Bioenergy Consortium —$241,580. Title: *Algal oil and biofuels production from Arkansas agriculture biomass.* September 2010—August 31, 2012. Role: PI of ASU subproject.
24. NIH-INBRE Summer Program—$29,717. Title: *Rapid synthesis of complex therapeutic proteins with cell-free system.* May 15, 2012-July 30, 2012. **Role: PI**
25. Arkansas NSF EPSCoR P3 Next Generation Sequencing Fund—$5,088. Title: *Using transcriptomes to understand mechanism of self-flocculation of microalgae in culture*. May 1, 2011—December 31, 2011. **Role: PI**
26. A-State Faculty Research Fund—$3,860. Title: *Growing duckweed in agriculture wastewater for producing fuel ethanol*. July 1, 2010—June 30, 2011. **Role: PI**
27. DOE-MidSouth/Southeast Bioenergy Consortium —$158,580. Title: *Proposal to develop algal biofuels*. September 2008—August 31, 2010. **Role: Co-PI of ASU subproject**
28. NSF Arkansas EPSCoR—$200,000. Title: *Bioprocess engineering for enhanced production of secreted recombinants proteins from plant cell cultures.* August 2008—June 2011. **Role: PI**
29. Cornell CAT funding—$50,000. Title: *Large-scale and low-cost protein productions without any living cell*. July 1, 2008—June 30, 2009. **Role: Co-PI** (I wrote the proposal).
30. Arkansas Department of Higher Education - SURF program—$8,000 (twice, 2×$4,000). January 1, 2013—July 31, 2013; and January 1, 2014—July 31, 2014. **Role: Faculty mentor**.

COLLABORATORS

Dr. Marcia Kieliszewski — Ohio University
Dr. Wei Hui — National Renewable Energy Laboratory (Golden, CO)
Drs. Pamela J. Weathers, Jeannine M. Coburn, Glenn Gaudette —Worcester Polytechnic Institute (WPI)
Dr. Murray Moo-Young —University of Waterloo (Canada)
Dr. Dan Luo — Cornell University
Dr. Yongjian Qiu — University of Mississippi
Dr. Qingfang He —University of Arkansas at Little Rock
Dr. Milen Georgiev — Leiden University (The Netherlands)
Dr. Julie Carrier — University of Tennessee at Knoxville
Dr. Li Tan — Complex Carbohydrate Research Center, University of Georgia
Drs. Vibha Srivastava, Joshua Sakon, Ralph Henry— University of Arkansas at Fayetteville
Dr. Xumeng Ge — Quasar Energy Group
Drs. Steven Green, Carole Cramer, Brett Savary, Maureen Dolan, Greg Phillips—Arkansas State University

EDITORIAL BOARD MEMBER

1) *Frontier in Plant Science* – Associate Editor
2) *Life (Plant Science section) – Editorial board, guest editor*

SCIENTIFC JOURNAL/GRANT PROPOSAL REVIEW

Journal manuscript review

1) *ACS Sustainable Chemistry & Engineering,*
2) *Acta Physiologiae Plantarum*

3) *Applied Biochemistry and Biotechnology*
4) *Annals of Botany*
5) *BioEnergy Research*
6) *Biomass & Bioenergy*
7) *Biotechnology Advances*
8) *Biotechnology and Bioengineering*
9) *Biotechnology Journal*
10) *Biotechnology Letters*
11) *Biotechnology Progress*
12) *Biotechnology and Bioprocess Engineering*
13) *Bioprocess and Biosystems Engineering*
14) *BMC Journal of Biotechnology*
15) *Cell Biology and Toxicology*
16) *Chemical Engineering Journal*
17) *Energy*
18) *Fuel*
19) *Heliyon*
20) *International Journal of Environmental Science and Technology*
21) *International Journal of Plant Physiology and Biochemistry (IJPPB)*
22) *International Journal of Phytoremediation*
23) *In Vitro Cellular & Developmental Biology - Plant*
24) *Journal of Biological Chemistry*
25) *Journal of Biotechnology*
26) *Journal of Bioprocessing & Biotechniques*
27) *Life*
28) *Plants*
29) *Plant Cell Reports*
30) *Plant Cell, Tissue and Organ Culture*
31) *Plant Biotechnology Journal*
32) *PLoS One*
33) *Process*
34) *Process Biochemistry*
35) *Scientific Reports*
36) *Small*
37) *Trends in Biotechnology*
38) *Waste and Biomass Valorization*
39) *Transgenic Research*

Grant proposal review

1) *Ad hock review for European Science Foundation - Research Foundation Flanders (FWO), 2025*
2) *Ad Hoc review for National Institute of Standards and Technology (NIST) and the U.S.-Israel Binational Industrial Research & Development (BIRD) Foundation, 2024*
3) *Ad Hoc review for Ohio program - Baker Fund Awards, 2018*
4) *Ad Hoc review for FONDECYT program-CHILE, 2017*
5) *Peer-review panel (Study Section) for NIH-SBIR, San Francisco, 2015*
6) *Peer-review panel for USDA-NIFA, Washington DC., 2012*
7) *Peer-review panel for USDA-NIFA, Washington DC., 2010*
8) *Ad Hoc review for Science Foundation Ireland, 2016*
9) *Ad Hoc reviewer for the Ohio State University, Ohio Agricultural Research and Development Center (OARDC) Research Enhancement Competitive Grants Program, 2013*
10) *Ad Hoc review for NIH-SBIR/STTR, 2012*
11) *Ad Hoc review for USDA-NIFA, 2011*
12) *Ad Hoc review for NIH-SBIR, 2011*
13) *Ad Hoc review for European PLANT-KBBE (Knowledge-Based Bio-Economy)*, 2009.

RESEARCH PUBLICATIONS (85 total, 53 listed from A-State)

*Peer-reviewed journal publications (*Corresponding author)*

1. **Jianfeng Xu***, Paula PerezSanchezc, Shekoofeh Sadravia. Unlocking the full potential of plant cell-based bioproduction for valuable recombinant proteins. ***Biotechnology Advances***, 2025, 79: 108526.
2. Hong Fang, Berry Dickey, Daniela PerezLaguna, Jacqueline Vargas Ulloa, Paula PerezSanchez, **Jianfeng Xu***. *Acidothermus cellulolyticus* E1 endoglucanase expressed in planta undergoes extensive hydroxyproline-*O*-glycosylation and exhibits enhanced impact on biomass digestibility. ***Plant Cell Reports***, 2024, 43(8):202.
3. **Jianfeng Xu***. Harnessing the Power of Plants: A Green Factory for Bioactive Compounds. ***Life***, 2023, 13(10), 2041.
4. Uddhab Karki, Paula Perez-Sanchez, Sankalpa Chakraborty, Berry Dickey, Jacqueline Vargas Ulloa, Ningning Zhang, **Jianfeng Xu***. Intracellular trafficking and glycosylation of hydroxyproline-*O*-glycosylation module in tobacco BY-2 cells is dependent on medium composition and transcriptome analysis. ***Scientific Reports***, 2023, 13(1),13506.
5. Li Tan*, **Jianfeng Xu**, Michael Held, Derek T.A. Lamport, Marcia J Kieliszewski. Arabinogalactan structures of repetitive serine-hydroxyproline glycomodule expressed by arabidopsis cell suspension cultures. ***Plants,*** 2023, 12(5), 1036.
6. Corbin England, Jonathan TrejoMartinez, Paula PerezSanchez, Uddhab, Karki, **Jianfeng Xu***. Plants as biofactories for therapeutic proteins and antiviral compounds to combat COVID-19. ***Life***, 2023, 13(3), 617.
7. Ramsey, A.; Akana, L.; Miyajima, E.; Douglas, S.; Gray, J.; Rowland, A.; Sharma, K. D.; **Xu, J**.; Xie, J. Y.; Zhou, G. L.*, CAP1 (cyclase-associated protein 1) mediates the cyclic AMP signals that activate Rap1 in stimulating matrix adhesion of colon cancer cells. ***Cellular Signaling,*** 2023, 104, 110589.
8. Uddhab Karki, Tristen Wright, **Jianfeng Xu***. High yield secretion of human erythropoietin from tobacco cells for ex vivo differentiation of hematopoietic stem cells towards red blood cells. ***Journal of Biotechnology***, 2022, 355:10-20.
9. Sepideh Mohammadhosseinpour, Linh-Chi Ho, Lingling Fang, **Jianfeng Xu**, Fabricio Medina-Bolivar*. Arachidin-1, a prenylated stilbenoid from peanut, induces apoptosis in triple-negative breast cancer cells. ***International Journal of Molecular Sciences***, 2022, 23(3): 1139.
10. **Jianfeng Xu***, Wenzheng Guo, Jonathan TrejoMartinez, Carmela Unnold. Engineering designer biologics in plant cells for oral treatment of inflammatory bowel disease (IBD). ***FASEB Journal,*** *2022, 36(S1), R2237.*
11. Uddhab Karki, Hong Fang, Wenzheng Guo, Carmela Unnold-Cofre, **Jianfeng Xu***. Cellular engineering of plant cells for improved therapeutic protein production. ***Plant Cell Reports***, 2021, 40:1087–1099.
12. Xiaoting Wang, Uddhab Karki, Hasara Abeygunaratne, Carmela UnnoldCofre, **Jianfeng Xu***. Plant cell-secreted stem cell factor stimulates expansion and differentiation of hematopoietic stem cells. ***Process Biochemistry***. 2021, 100: 39-48.
13. Nhi V Phan, Tristen Wright, M. Masrur Rahman, **Jianfeng Xu**, Jeannine M. Coburn*. In Vitro Biocompatibility of Decellularized Cultured Plant Cell-Derived Matrices. ***ACS Biomaterials Science & Engineering***, 2020, 6(2): 822-832.
14. Hong Fang, Tristen Wright, Jia-Rong Jinn, Wenzheng Guo, Ningning Zhang, Xiaoting Wang, Ya-Jane Wang, **Jianfeng Xu***. Engineering Hydroxyproline-O-Glycosylated Biopolymers to Reconstruct the Plant Cell Wall for Improved Biomass Processability. ***Biotechnology and Bioengineering***, 2020, 117(4): 945-958. doi: 10.1002/bit.27266
15. Haitao Zhang, Auburn Ramsey, Yitong Xiao, Uddhab Karki, Jennifer Xie, **Jianfeng Xu**, Thomas Kelly, Soichiro Ono, Guolei Zhou*. Dynamic phosphorylation and dephosphorylation of CAP1 (Cyclase-Associated Protein 1) by antagonistic signaling through CDK5 and cAMP are critical for the protein functions in actin filament disassembly and cell adhesion. ***Molecular and Cellular Biology***, 2020, 40: e00282-19.
16. Ningning Zhang, Tristen Wright, Xiaoting Wang, Brett Savary, **Jianfeng Xu***. Production of a thermostable endo-1,5-α-L-arabinanase in *Pichia pastoris* for enzymatically releasing functional oligosaccharides from sugar beet pulp. ***Applied Microbiology and Biotechnology,*** 2020, 104:1595–1607.
17. Xumeng Ge, **Jianfeng Xu***. Macromolecular crowding effects on transcription and translation are regulated by free magnesium ion. ***Biotechnology and Applied Biochemistry***. 2020, 67: 117-122 doi:

10.1002/bab.1827.

18. Ningning Zhang, Tristen Wright, Paige Caraway, **Jianfeng Xu***. Enhanced secretion of human α1-antitrypsin expressed with a glycosylation module in tobacco BY-2 cell culture. ***Bioengineered***, 2019, 10(1):87-97
19. Ningning Zhang, Tristen Wright, Xiaoting Wang, Brett Savary, **Jianfeng Xu***. Engineering designer glycomodules for boosting secretion of recombinant proteins in tobacco hairy root culture and studying hydroxyproline-*O*-glycosylation process in plants. ***Plant Biotechnology Journal***. 2019, 17(6):1130-1141
20. Ningning Zhang, Maureen Dolan, Di Wu, Gregory C. Phillips, **Jianfeng Xu***. Dramatic secretion of recombinant protein expressed in tobacco cells with a designer glycopeptide tag is highly impacted by medium composition. ***Plant Cell Reports***, 2016, 35(12): 2513-2522.
21. Zhang, N., M. Gonzalez, B.J. Savary, **J. Xu***. High-yield secretion of recombinant proteins expressed in tobacco cell culture with a designer glycopeptide tag: Process development. ***Biotechnology Journal***. 2016, 11:497-506.
22. Xuping Shentu, Nannan Liu, Gu Tang, Yukinori Tanaka, Kozo Ochi, **Jianfeng Xu**, and Xiaoping Yu. Improved antibiotic production and silent gene activation in *Streptomyces diastatochromogenes* by ribosome engineering. ***The Journal of Antibiotics***. 2016, 69:406-410.
23. Xu-Ping Shentua, Dan-Ting Lia, **JianFeng Xu**, Liang Shea, Xiao-Ping Yu. Effects of fungicides on the yeast-like symbiotes and their host, *Nilaparvata lugens* Stål (Hemiptera: Delphacidae). ***Pesticide Biochemistry and Physiology***. 2016, 128: 16-21.
24. Xu-Ping Shentu, Xiao-Feng Yuan, Wei-Ping Liu, **JianFeng Xu** and Xiao-Ping Yu. Cloning and Functional Analysis of tri14 in *Trichoderma brevicompactum*. ***American Journal of Biochemistry and Biotechnology***. 2015, 11(3):169-175.
25. **Jianfeng Xu*,** Ningning Zhang. On the way to commercializing plant cell culture platform for biopharmaceuticals: Present status and prospect. ***Pharmaceutical Bioprocessing***, 2014, 2 (6): 499-518.
26. Noaa Frederick, Ningning Zhang, Xumeng Ge, **Jianfeng Xu,** Mathew Pelkki, Elizabeth Martin, Julie Danielle Carrier*. Poplar (*Populus deltoides* L.): The effect of washing pretreated biomass on enzymatic hydrolysis and fermentation of ethanol. ***ACS Sustainable Chemistry & Engineering,*** 2014, 2(7): 1835–1842.
27. Xuping Shentu, Weiping Liu, Xiaohuan Zhan, Yipeng Xu, **Jianfeng Xu**, Xiaoping Yu, Chuanxi Zhang. Transcriptome sequencing and gene expression analysis of *Trichoderma brevicompactum* under different culture conditions. ***PLoS One,*** 2014, 9(4): e94203.
28. Ningning Zhang, Steven Green, Xumeng Ge, Brett Savary and **Jianfeng Xu***. Ethanol fermentation of energy beets by self-flocculating and non-flocculating yeasts. ***Bioresource Technology***. 2014, 155:189-197.
29. Maureen C. Dolan, Di Wu, Carole L. Cramer, **Jianfeng Xu***. Hydroxyproline-*O*-glycosylated peptide tags enhance recombinant protein yields in tobacco transient expression. ***Process Biochemistry***, 2014, 29(3): 490-495.
30. Ning Zhao, Yun Bai, Chenguang Liu, Xinqing Zhao, **Jianfeng Xu**, Fengwu Bai*. Flocculating *Zymomonas mobilis* is a promising host to be engineered for fuel ethanol production from lignocellulosic biomass. ***Biotechnology Journal,*** 2014, 9(3): 362-371.
31. Xuejin Zhang, Xiaofeng Xu, Ruilan Gao, Jianfeng Xu. *Rubus Parvifolius* L. Inhibited the Growth of Leukemia K562 Cells *In Vitro* and *In Vivo*. ***Chinese Journal of Integrative Medicine,*** 2014, 20(1):36-42.
32. Milen Georgiev, Elizabeth Agostini, Jutta Ludwig-Müller and **Jianfeng Xu**. Genetically transformed roots: from plant disease to biotechnology. ***Trends in Biotechnology***. 2012, 30(10): 528-537. (*: All authors contributed equally to this paper)
33. Xumeng Ge, Ningning Zhang, Greg Phillips and **Jianfeng Xu***. Growing *lemna minor* in agricultural wastewater and converting the duckweed biomass to ethanol. ***Bioresource Technology***, 2012, 124:485-488.
34. **Jianfeng Xu***, Maureen Dolan, Giuliana Medrano, Carole L. Cramer, Pamela J. Weathers. Green factory: Plants as bioproduction platforms for recombinant proteins. ***Biotechnology Advances***, 2012, 30(5):1171-1184.
35. Ganapathy Sivakumar, **Jianfeng Xu**, Robert W Thompson, Ying Yang, Paula Randol-Smith, Pamela J Weathers. Integrated green algal technology for bioremediation and biofuel. ***Bioresource Technology***, 2012, 107:1-9.

36. Xumeng Ge, Steven Green, Ningning Zhang, Ganapathy Sivakumar and **Jianfeng Xu***. Eastern gamagrass as a promising cellulosic feedstock for bioethanol production. ***Process Biochemistry***, 2012, 47:335-339.
37. **Jianfeng Xu*** and Marcia Kieliszewski. A novel plant cell bioproduction platform for high-yield secretion of recombinant proteins. ***Methods in Molecular Biology***, 2012, 824:483-500.
38. Xumeng Ge and **Jianfeng Xu*.** Cell-free protein synthesis as a promising expression system for recombinant proteins. ***Methods in Molecular Biology***, 2012, 824:565-578.
39. Xumeng Ge, Dan Luo and **Jianfeng Xu***. Cell free protein expression under macromolecular crowding environments. ***PLoS One***, 2011, 6(12): e28707.
40. **Jianfeng Xu*** and Marcia Kieliszewski. Enhanced accumulation of secreted human growth hormone by transgenic tobacco cells correlates with the introduction of an N-glycosylation site. ***Journal of Biotechnology***, 2011, 154: 54-59.
41. Ying Yang, **Jianfeng Xu,** Daniel Vail and Pamela Weathers. *Ettlia oleoabundans* growth and oil production on agricultural anaerobic waste effluents. ***Bioresource Technology***, 2011, 102(8): 5076-5082.
42. **Jianfeng Xu***, Xumeng Ge and Maureen Dolan. Towards High-Yield Production of Therapeutic Proteins with Plant Cell Suspension Culture. ***Biotechnology Advances***, 2011, 29(3):278-299.
43. Ge, X., Burner, D. M., **Xu, J,** Phillips, G., Sivakumar, G. Bioethanol Production from Dedicated Energy Crops and Residues in Arkansas. ***Biotechnology Journal***, 2011, 6:66-73
44. Zhang, Liangmin, Thomas, Jacquelyn, **Xu, Jianfeng**, Rougeau, Ben, Sullivan, Michael, Reeve, Scott, Allen, Susan, Watanabe, Fumiya, Biris, Alexandru, Zhao, Wei. Controllable Third-Order Optical Nonlinearity of DNA Decorated Carbon Nanotube Hybrids. ***Journal of Physical Chemistry***, 2010, 114: 22697–22702.
45. Tan, L., Varnai, P., Lamport, D. T., Yuan, C., **Xu, J.**, Qiu, F., Cottrell, C., Kieliszewski, M. O-Hyp arabinogalactans of arabinogalactan proteins are *beta*-(1-6) linked repeats of *beta*-(1-3) trigalactosyl subunits with short bifurcated sidechains. ***Journal of Biological Chemistry***, 2010, 285(32): 24575-24583.
46. **Jianfeng Xu**, Shigeru Okada, Li Tan, John J. Kopchick and Marcia J. Kieliszewski. Human growth hormone expressed in tobacco cells as a hydroxyproline glycoside fusion significantly secret into medium and has a prolonged circulating half-life. ***Transgenic Research.*** 2010, 19(5): 849-867.
47. Michael Campolongo, Shawn Tan, **Jianfeng Xu** and Dan Luo. DNA Nanomedicine: Engineering DNA as a Polymer for Therapeutic and Diagnostic Applications. ***Advanced Drug Delivery Reviews***. 2010, 62(6): 606-616
48. Fernandes, E., Soans, E, **Xu, J**., Kieliszewski, M. J., Evans, S., Novel fusion proteins of Interferon alpha 2b cause growth inhibition and induce JAK-STAT signaling in melanoma. ***Journal of Immunotherapy.*** 2010, 33(5):461-466
49. Sivakumar, G., D.R. Vail, **J. Xu**, D. M. Burner, J. O. Lay, X. Ge, and P.J. Weathers. Bioethanol and biodiesel: Clean energy for future generations. ***Engineering in Life Sciences.*** 2010, 10(1):8-18.
50. Weathers, P.J., Towler, M.J. and **Xu, J*.** Bench to batch: Advances in plant cell cultures for producing useful products. ***Applied Microbiology and Biotechnology***. 2010, 85(5):1339-1351.
51. Park N, Kahn JS, Rice EJ, Hartman MR, Funabashi H, **Xu J**, Um SH and Luo D. (2009) High-yield cell-free protein production from P-gel". ***Nature Protocols*** 2009, 4, 1759–1770.
52. Nokyoung Park, Soong Ho Um, Hisakage Funabashi, **Jianfeng Xu**, Dan Luo. A Cell-free Protein Producing Gel (Article). ***Nature Materials***. 2009, **8**: 432-437.
53. **Jianfeng Xu**, Li Tan, Derek T. A. Lamport, Allan Showalter and Marcia J. Kieliszewski. The *O*-Hyp glycosylation code in tobacco and Arabidopsis and a proposed role of Hyp-glycans in secretion. ***Phytochemistry***. 2008, 69 (8): 1631-1640.
54. **Jianfeng Xu,** Li Tan, Kenneth Goodrum and Marcia Kieliszewski. High-yields and extended serum half-life of human interferon α2 expressed in tobacco cells as arabinogalactan-protein fusions. ***Biotechnology and Bioengineering***. 2007, 97: 997-1008.
55. Marcia J. Kieliszewski and **Jianfeng Xu**, Synthetic genes for the production of novel arabinogalactan-proteins and plant Gums. ***Foods and Food Ingredients Journal of Japan***. 2006, 211: 32-37.
56. **Jianfeng Xu***, Elena Shpak, Tingyue Gu, Murray Moo-Young and Marcia Kieliszewski. Production of recombinant plant gum with tobacco cell culture in bioreactor and gum characterization. ***Biotechnology and Bioengineering***. 2005, 90(5):578-588.

57. Wenxian Sun, **Jianfeng Xu**, Jie Yang, Marcia J. Kieliszewski and Allan Showalter. Expression and characterization of arabinogalactan proteins with a basic lysine-rich subdomain in *Arabidopsis*. ***Plant and Cell Physiology***. 2005, 46(6)-975-984.
58. Fengwu Bai, Liping Wang, **Jianfeng Xu**, Jim Caesar, Darin Ridgway, Tingyue Gu, and Murray Moo-Young, Oxygen mass-transfer performance of low viscosity gas-liquid-solid system in a split-cylinder airlift bioreactor. ***Biotechnology Letter***. 2001, 23:1109-1113.
59. Dara O'Donnell, Liping Wang, **Jianfeng Xu**, Darin Ridgway, Tingyue Gu, and Murray Moo-Young, Enhanced heterologous protein production in *Aspergillus niger* through pH control of extracellular protease activity. ***Biochemical Engineering Journal***. 2001, 8 (3): 187-193
60. **Jianfeng Xu**, Liping Wang, Darin Ridgway, Tingyue Gu and Murray Moo-Young. Increased heterologous protein production in *Aspergillus niger* fermentation through extracellular proteases inhibition by pelleted growth. ***Biotechnology Progress.*** 2000, 16(2): 222-227
61. **Xu Jianfeng**, Ying Peiqing, Han Aiming, Su Zhiguo, Enhanced salidroside production by suspension culture of compact callus aggregates of *Rhodiola sachalinensis*: manipulation of plant growth regulators and sucrose. ***Plant Cell, Tissue and Organ Culture.*** 1999, 55(1): 53-58
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Book

1. Plants as a Promising Biofactory for Bioactive Compounds, **Jianfeng Xu (editor)**, MDPI, Basel, Switzerland. November 2023, Pages: 1 - 296. ISBN 978-3-0365-9465-1.

Book chapters

1. **Xu, J**., Melissa, T., & Weathers, P. Platforms for Plant-Based Protein Production. In: Reference Series in Phytochemistry, Bioprocessing of Plant *In Vitro* Systems. Pavlov A, Bley T. (Eds.) Springer International Publishing AG. 2017, pp 1–40
2. Ge, X., Yang, L. and **Xu, J**. Cell immobilization: Fundamentals, Strategies and Applications (Invited review). Industrial Biotechnology: Products and Processes. Wiley-Blackwell Biotechnology Series. Christoph Wittmann, James C. Liao (Eds). 2016. p205-235
3. Ludwig-Müller J, **Xu J**, Agostini E, Georgiev M. Advances in Transformed Root Cultures for Root Biofactory. In: Root Engineering: Basic and Applied Concepts (Soil Biology). Morte A, Varma, A. (Eds.) Springer, 2014, p387-405.
4. Frederick, N., Zhang, N., Djioleu, A., Ge, X., **Xu, J.** and Carrier, D.J. "The effect of washing dilute acid pretreated poplar biomass on ethanol yields". In: *Sustainable Degradation of Lignocellulosic Biomass - Techniques, Applications and Commercialization*. A. K. Chandel and S. S. da Silva (Eds), InTech Publishing. 2013. p105-118.
5. Hood, E., Cramer, C., Medrano, G. and **Xu, J**. "Protein Targeting: Strategic planning for Optimizing Protein Products through Plant Biotechnology". In: *Plant biotechnology and agriculture: Prospects for the 21st century.* A. Altman and P.M (Eds), Hasegawa, Elsevier. 2011. p35-54
6. Bai, F., Zhao, Q. and **Xu, J**. "Immobilization Technology: Cells". In: C. Webb (Ed.), *Engineering Fundamentals in Biotechnology*. Elsevier. 2011. p477-489.
7. Cheng, W., Ding, L., Funabashi, H., Park, N., Um, S.H., **Xu, J**. and Luo, D. *Nucleic Acid Engineering.* In: *Systems biology and synthetic biology*. P. Fu and S. Panke (eds.), J.W. Wiley and Sons, Hoboken, NJ. March 2009. p 549-575.

Patents and patent applications

1. Marcia Kieliszewski, **Jianfeng Xu**, John J, Kopchick, Shigeru Okada, Gary Meyer. *Growth hormone and interferon-alpha 2 glycoproteins produced in plants*. **U.S. Patent, No. 8,962,811**.

2. Marcia Kieliszewski, **Jianfeng Xu** and Gary Meyer. *Nucleic acid for plant expression of a fusion protein comprising hydroxyproline O-glycosylation glycomodule*. **U.S. Patent, No. 9,006,410**.
3. Marcia Kieliszewski, **Jianfeng Xu** and Gary Meyer. *Methods of producing peptides/proteins and peptides/proteins produced thereby*. **U.S. Utility Patent.** Publication No. **US-20060026719; European Patent.** Publication No. **EP1711533; International Patent.** Publication No. **WO/2005/069845.**
4. Marcia Kieliszewski, **Jianfeng Xu**, John J, Kopchick and Shigeru Okada. *Glycoproteins produced in plants and methods of their use.* **U.S. Utility Patent.** Publication No**. US-20060148680.**
5. Marcia Kieliszewski, **Jianfeng Xu,** Stevens Timothy, and Dupree Paul. *Method of predicting Hyp-glycosylation sites for protein expressed and secreted in plant cells, and related methods and products.* ***International Patent.*** *Publication No.* ***WO/2007/008708.; U.S. Utility Patent Pending.*** *Application* No. **11/995, 063.**
6. Marcia Kieliszewski, **Jianfeng Xu** and Iver Cooper. *Co-expression of proline hydroxylases to facilitate Hyp-glycosylation of proteins expressed and secreted in plant cells*. **International Patent.** Publication No. **WO/2008/008766**; **U.S. PCT Patent Applications.** Application No. **60/746,141.**
7. Marcia Kieliszewski, **Jianfeng Xu**. *Enhanced secretion of human growth hormone from transgenic tobacco cells by introduction of an N-Glycosylation site***. U.S. PCT Patent Applications.** Application No. **60/819, 557.**
8. Marcia Kieliszewski, **Jianfeng Xu**, Gary Meyer, Shigeru Okada, and John J, Kopchick. *High-yields and extended serum half-life of human interferon alpha-2 and human growth hormone expressed in tobacco cells as arabinogalactan-protein fusion glycoproteins*. **U.S. PCT Patent Applications.** Application No. **60/746,146.**

INVITED LECTURES

1. Engineering novel biomolecules in plants and plant cells for biomedical and industrial applications. Dalian University of Technology, Dalian, China, July 23, 2024.
2. Engineering strategically designed biomolecules in plants and plant cells for biomedical and industrial applications. University of Mississippi, Oxford, MS, Feb. 23, 2024.
3. Engineering "designer" biomolecules in plants and plant cells for biomedical and industrial applications. Arkansas Research Alliance (ARA), Webinar (State-wide), July 28, 2023.
4. Engineering biomolecules in plant cells for biomedical and industrial applications. Higher Education Subcommittee of the Arkansas Legislative Council, Little Rock, AR, May 17, 2022.
5. Plant cell-secreted growth factors for *ex vivo* production of red blood cells. 2021 Southeast Regional IDEA Conference, San Juan, Puerto Rico, Nov. 13, 2021.
6. Biomolecular engineering based on plant cell wall structural glycoproteins and their applications in plant molecular farming and cell wall reconstruction. Huibei University of Arts and Sciences, Xiangyang, China, Nov. 23, 2017.
7. Plant cell wall polysaccharides and glycoproteins: applications for value-added bioproducts production and biomolecular engineering. Zhejiang Academy of Agricultural Sciences, Hangzhou, China, Nov. 21, 2017
8. Engineering the plant cell wall with novel "designer" glycopeptides as a molecular carrier for cell wall-modifying enzymes. The 3rd International Conference on Agricultural and Biological Sciences, Qingdao, China, June 27-29, 2017
9. Production of biofuels and value-added products from plant biomass. Delta Research Consortium Policy Convening. Memphis, TN, Feb. 2017.
10. Directing the expression of thermostable glycohydrolases *in planta* and designer glycopeptide engineering technology for sustainable sugar beet post-harvest processing. The Plant and Animal Genome XXIV Conference. San Diego, CA, Jan. 2016.
11. Directed expression of an endo-arabinanase *in planta* with a designer molecular carrier and colon-endothelium functioning by arabino-oligosaccharide products. 2015 International Chemical Congress of Pacific Basin Societies. Honolulu, HI, Dec. 2015.
12. Engineering "designer" glycopeptides as a molecular carrier for cell wall-modifying enzymes expressed *in planta*. Seminar at University of Arkansas at Little Rock. Little Rock, AR, Nov.2015.
13. Hydroxyproline-*O*-glycosylated biopolymer carriers for competitive plant cell and tissue bioproduction platforms. 2013 *In Vitro* Biology Meeting, Providence, RI, June 2013.

14. Engineering hydroxyproline-*O*-glycosylated peptide carriers in plant cells and tissues for enhanced production of recombinant proteins. 2013 Annual NSF AR EPSCoR meeting, Little Rock, AR, Apr. 2013.
15. Self-flocculating yeast for enhanced fermentation for the production of cellulosic ethanol. University of Arkansas at Fayetteville, Mar. 2013.
16. Fermentation of Arkansas energy beets for bio-ethanol production. 3rd Annual Renewable Energy Conference, Jonesboro, AR, Nov. 5, 2012.
17. Hydroxyproline-*O*-glycosylated biopolymer carriers for a competitive plant cell bioproduction platform, 2012 Annual Arkansas Biosciences Institute Fall Research Symposium (invited guest speaker), Fayetteville, AR, Oct. 23, 2012.
18. Bioprocessing engineering for the production of recombinant proteins and biofuels. 2010 Annual NSF AR EPSCoR meeting, Petit Jean Mountain, AR, Aug. 15, 2010.
19. Plant cell culture for the production of recombinant proteins. 2009 Annual NSF AR EPSCoR meeting, Little Rock, AR, Oct.2009.
20. Hydroxyproline-*O*-glycosylation code of plant cell wall proteins and its novel applications. University of Arkansas at Little Rock. Little Rock, AR, Jan. 26, 2009.
21. Plant cell culture-a powerful platform for the synthesis of therapeutic proteins and secondary metabolites. Arkansas Biosciences Institute, Jonesboro, AR, May 11, 2008.
22. High-yields and extended serum half-life of human growth hormone expressed as fusion glycoproteins in plant cells. Ambrx, La Jolla, CA, May 9, 2008.
23. High-yields and extended serum half-life of therapeutic proteins expressed as fusion glycoproteins in plant cells. Fraunhofer USA CMB, Newark, DE, Apr. 17, 2007.
24. Plant cell/tissue culture for the production of valuable products. Phyton Biotech, East Windsor, NJ, Jan. 28, 2006.

PRESENTATIONS (from 2020 to 2024)

2024

1. **Xu J**, Dickey B. Thermophilic E1 endoglucanase from *Acidothermus cellulolyticus* undergoes extensive hydroxyproline-*O*-glycosylation when expressed in planta. 2024 American Society for Biochemistry and Molecular Biology Annual Meeting. San Antino, March 23-26, 2024.
2. PerezLaguna D, Fang H, Karki U, **Xu J**. Engineering "designer" biomolecules in planta for enhanced biomass processibility. National Conference on Undergraduate Research (NCUR). Long Beach, CA, April 8-10, 2024.
3. Perezsanchez P, TrejoMartinez J, Guo W, **Xu J**. Engineering novel anti-TNFα biomolecules in tobacco BY-2 cells for oral treatment of inflammatory bowel disease. 2024 In Vitro Biology Meeting. St Louis, MO, June 8-12, 2024.
4. **Xu J**, Vargas J, Karki U. Cellular Engineering of plant cells for enhanced recombinant protein production. 2024 In Vitro Biology Meeting. St Louis, MO, June 8-12, 2024.
5. **Xu J**, CRISPR/Cas9-mediated genome editing to generate cell wall-deficient tobacco by-2 cell lines for improved recombinant protein production. 2024 AIChE Annual Meeting. San Diego, CA, October 27-30, 2024.

2023

6. Vargas J, Karki U, **Xu J**. Creating cell wall-deficient tobacco BY-2 cells with CRISPR/Cas9 for enhanced recombinant protein production. 2023 Arkansas INBRE Research Conference. Fayetteville, AR, November 3-4, 2023.
7. **Xu J,** PerezSanchez P, Dickey B, TrejoMartinez J, Karki U. Engineering "designer" proteins and enzymes in plants for biomedical and industrial applications. 2023 In Vitro Biology Meeting. Norfolk, VA, June 10-14, 2023.
8. Perez-Sanchez P, Trejo-Martinez J, **Xu J**. Plant cells -produced anti-TNFα biomolecules for oral treatment of inflammatory bowel disease. 2023 In Vitro Biology Meeting. Norfolk, VA, June 10-14, 2023.

9. Perez-Laguna D, Karki U, Wang X, **Xu, J.** Plant cell-secreted growth factors for ex vivo massive production of red blood cells. National Conference on Undergraduate Research (NCUR). Eau Claire, WI, April 13-15, 2023.

2022

10. **Xu, J**. Engineer novel functional proteins in plant cell culture for industrial and biomedical applications. 2022 AIChE Annual Meeting. Phoenix, AZ, November 13-18, 2022.
11. **Xu, J.,** Guo, W., TrejoMartinez, J., Karki, U. Engineering novel designer biologics in plant cells for oral treatment of inflammatory bowel disease. 2022 In Vitro Biology. June 4-7, 2022.
12. England, C., **Xu., J.** Protein Engineering in *Chlamydomonas reinhardtii* for improved production of recombinant proteins. 2022 In Vitro Biology Meeting. June 4-4, 2022.
13. Karki, U., Fang, H., **Xu, J.** CRISPR/Cas9 mediated cell wall engineering of plant cells for enhanced recombinant protein production. 2022 In Vitro Biology Meeting. June 4-7, 2022.
14. **Xu, J.,** Guo, W., Trejo-Martinez, J. Engineering designer biologics in plant cells for oral treatment of inflammatory bowel disease (IBD). Experimental Biology 2022 Annual Meeting. Philadelphia, PA, April 2-5, 2022
15. Karki, U., Fang, H., **Xu, J.** CRISPR/Cas9 mediated cell wall engineering of plant cells for enhanced recombinant protein production. Plant and Animal Genome Conference (PAG) for 2022, Virtual, January 13-18, 2022.

2021

16. **Xu, J.** Plant cell-secreted growth factors for ex vivo production of red blood cells. 2021 Southeast Regional Idea Conference, San Juan, Puerto Rico, November 12-14, 2021.
17. **Xu, J**. Engineering "designer" biologics in plant cells for oral treatment of inflammatory bowel disease. 2021 AIChE Annual Meeting. Boston, MA, November 7-11, 2021.
18. Trejo-Martinez, J., Guo, W., **Xu, J**. Plant cells produced biologics for oral treatment of inflammatory bowel disease (IBD). 2021 Arkansas INBRE Research Conference. Fayetteville, AR, October 29-30, 2021.
19. Ramsey, A., Akana, L., Gray, J., Miyajima, E., Rowland, A., Sharma, K., **Xu, J.**, Xie, J.Y., Zhou. G. The cytoskeletal protein CAP1 fulfills context-dependent functions in the adhesion and migration of colon cancer cells. 2nd International Conference on Cell and Experimental Biology, United Scientific Group, Virtual, July 12-14, 2021.
20. Karki, U., **Xu, J**. Generating cell wall deficient plant cells for enhanced recombinant protein production. 2021 World Congress on In Vitro Biology. Virtual, June 6-10, 2021.
21. Unnold-Cofre, C., Guo, W., **Xu, J**. Plant cells produced biologics for oral treatment of inflammatory bowel disease (IBD). 2021 World Congress on In Vitro Biology. Virtual, June 6-10, 2021.

2020

22. **Xu, J.**, Wang, X., Karki, U. Tobacco cell-secreted hematopoietic growth factors for ex vivo production of red blood cells. 2020 Virtual AIChE Annual Meeting, Virtual, November 16-20, 2020.
23. UnnoldCofre, C., Guo, W., **Xu, J.** Engineering novel designer biologics in plant cells for oral treatment of inflammatory bowel disease (IBD). 2020 Arkansas INBRE Research Conference. Fayetteville, AR, November 6-7, 2020.
24. Karki, U., **Xu, J**. High yields secretion of human erythropoietin from tobacco cell for ex vivo production of red blood cells. 2020 World Congress on In Vitro Biology Meeting. San Diego, CA, June 6-10, 2020.
25. **Xu, J**., Karki, U. Developing an expression vector for easy establishment of stable plant cell lines to produce recombinant proteins. 2020 World Congress on In Vitro Biology Meeting. San Diego, CA, June 6-10, 2020.
26. **Xu, J**. High-yield production of hematopoietic growth factors by tobacco BY-2 cells for ex vivo production of red blood cells. The Experimental Biology 2020 meeting. San Diego, CA, April 4-7, 2020.
27. Unnold, C., **Xu, J**. Developing an expression vector for easy establishment of stable plant cell lines to produce recombinant proteins. 5th Annual Regional Student Scholars Forum. Shreveport, LA, March 12, 2020.

28. Hasara, H., Tristen, W., **Xu, J.** Plant cell-derived growth factors for ex vivo mass production of red blood cells. 5th Annual Regional Student Scholars Forum. Shreveport, LA, March 12, 2020.