

Thank you for considering my application to serve as a CMBE Council Member. As a Chancellor's Fellow professor of surgery and biomedical engineering at the University of California Davis (UC Davis) and Co-director of the UC Davis Center for Surgical Bioengineering, I bring a unique blend of academic expertise and practical experience to this role.

Professional Background

My research focuses on developing innovative tools and technologies that combine molecular, cellular, tissue, and biomaterial engineering to promote regeneration and restore function. As the Vice Chair for Translational Research, Innovation and Entrepreneurship for the Department of Surgery, I lead efforts to develop clinically adoptable theranostics for neurological and vascular disorders and diseases.

Service to Professional Societies

Over the past decade, I have actively contributed to BMES societies in various capacities:

- Abstract reviewer and session chair for multiple BMES and CMBE annual conferences
- Track chair for the 2023, 2024, and upcoming 2025 (expected) BMES annual conferences
- Initiated and chaired a new Special Session on *Clinical Translation and Trials of Biomedical Engineering Technologies and Products* in the 2022 BMES annual conference. This effort was a huge success with the support from the BMES leadership and the entire society and it has evolved into a plenary session in the 2024 annual conference
- Invited Panelist for the 2024 BMES conference special session: NIH/NIBIB Funding Panel
- Invited Panelist for the 2024 BMES conference plenary session: "*Fundamentals of Medical Product Regulation for Biomedical Engineers - Perspectives from Academia, Industry, and Regulators*"
- Invited Panelist for the 2025 CMBE conference plenary workshop: "Transitioning to Product Development"

Additionally, I have led initiatives at UC Davis and across the UC system, including serving on the planning Committee of the 2020 UC Systemwide Bioengineering Annual Symposium organized by UC Bioengineering Institute of California (BIC).

Vision for CMBE

As a CMBE Council Member, I will focus on two key priorities:

1. **Expanding CMBE's Reach and Impact:** I will work to bring together researchers with diverse backgrounds in scientific and clinical interests, with the common goal of improving medical practice through innovative research. This includes expanding CMBE membership and fostering partnerships with industry and other clinical and medical societies.
2. **Promoting Collaborative Research:** I will support CMBE's efforts to enhance collaboration between basic science research, bioengineering, and translational and clinical research. My goal is to build an interactive biomedical research, medical, and industrial ecosystem that can effectively address future societal challenges.

Commitment to CMBE

As a member of the CMBE SIG since its inception, I am deeply committed to its mission and eager to grow as a leader in the cellular molecular bioengineering profession. Serving as a council member represents a crucial step in my journey to leadership within the CMBE SIG, allowing me to guide and nurture the community that has been instrumental in my professional growth. My unique combination of academic expertise, industry connections, and leadership experience positions me to make significant contributions to the CMBE Council. I am prepared to leverage my skills and network to advance CMBE's goals and strengthen its position as a leader in biomedical engineering innovation and education.

AIJUN WANG, PHD

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TITLE

Chancellor's Fellow Professor of Surgery and Biomedical Engineering
Department of Surgery and Department of Biomedical Engineering (Regular Series)
Co-Director, Center for Surgical Bioengineering (formerly known as Surgical Bioengineering Laboratory)
Vice Chair for Translational Research, Innovation and Entrepreneurship
Department of Surgery, School of Medicine
Principal Investigator, Institute of Pediatric Regenerative Medicine (IPRM), Shriners Children's, Northern California
University of California, Davis

EDUCATION

1996–2000 **B.S., Pharmaceutical Chemistry**
Department of Pharmacy
Shandong Medical University, Jinan, China

2000–2003 **M.S., Biochemical Drugs**
Institute of Biochemical & Biotechnological Drugs
School of Pharmaceutical Sciences
Shandong University, Jinan, China

2003–2007 **Ph.D. of Biology**
State Key Laboratory of Biomembrane and Membrane Biotechnology
Department of Biological Sciences and Biotechnology
Tsinghua University, Beijing, China

2008–2010 **Postdoctoral Scholar**
Department of Bioengineering
University of California Berkeley

2010–2012 **Postdoctoral Fellow**
California Institute for Regenerative Medicine (CIRM)
Berkeley Stem Cell Center / Department of Bioengineering
University of California Berkeley

ACADEMIC APPOINTMENTS

2007–2008 **Research Associate**
Biomaterials & Tissue Engineering Lab
Department of Biological Sciences and Biotechnology
Tsinghua University

2012– **Co-Director, [Center for Surgical Bioengineering \(formerly known as Surgical Bioengineering Laboratory\)](#)**
Department of Surgery, University of California Davis School of Medicine

2013– **[Principal Investigator](#)**
[Institute of Pediatric Regenerative Medicine](#)
Shriners Hospitals Pediatric Research Center, Northern California

2018–2021 **Associate Professor (with tenure)**
Department of Biomedical Engineering
University of California Davis College of Engineering

2018–2021 **Associate Professor (with tenure)**
Department of Surgery

- 2018–2020 University of California Davis School of Medicine
Dean’s Fellow in Entrepreneurship
- 2020– University of California Davis School of Medicine
Vice Chair for Translational Research, Innovation and Entrepreneurship
Department of Surgery
- 2020– University of California Davis School of Medicine
Chancellor’s Fellow
- 2021– University of California Davis
Professor of Biomedical Engineering
Department of Biomedical Engineering
- 2021– University of California Davis College of Engineering
Professor of Surgery
Department of Surgery
University of California Davis School of Medicine

HONORS & AWARDS

- 2003 Excellent Graduate of Shandong Province
- 2003 Excellent Graduate Student Scholarship of Shandong University
- 2004-2005
2003-2004 Excellent Student Guanghua Scholarship of Tsinghua University
- 2003-2004 Social Activity Scholarship of Tsinghua University
- 2006 Guanghua Scholarship (*First-class*) of Tsinghua University
Only four students in the Department of Biology awarded each year
- 2006 Youth Excellent Presentation Award of 2006 Beijing International Materials Week (BIMW) and Annual Meeting of Chinese Materials Research Society (C-MRS)
The only recipient in the field of Biomaterials
- 2007 Excellent Presentation Award of 2nd National Scientific Conference of Tissue Engineering, Stem Cells and Nerve Regeneration
- 2010 Honorable mention, QB3 Image Exposure Contest
California Institute for Quantitative Bioscience (QB3)
- 2010 Tsinghua – Hengshanliangci Excellent Thesis Award
Tsinghua University
- 2010-2011 **CIRM** Postdoctoral Fellowship
- 2011 **Winner** of 2011 Venture Lab Competition
Center for Entrepreneurship and Technology (CET), UC Berkeley
- 2011 Abstract Award for the 2011 **Days of Molecular Medicine (DMM): Re-engineering Regenerative Medicine**
Organized by *Science Translational Medicine*
- 2011 **ISSCR** Travel Award for the 9th Annual Meeting at Toronto, Canada
- 2011-2012 **CIRM** Postdoctoral Fellowship
- 2012 **Winner** of the [2012 Deloitte QB3 Award for Innovation California Institute for Quantitative Bioscience \(QB3\)](#)
- 2014 **Best of ASH** 2014
American Society of Hematology (ASH) 2014 Annual Meeting
- 2014 **The Tony Phillips Research Award**
The Children’s Miracle Network (CMN)
- 2015 Marquis **Who’s Who in America** 2015 (69th Edition)
Marquis Who’sWho Publications

- 2015 **The Science Translation and Innovative Research (STAIR) Award**
University of California Davis
- 2015 **Outstanding Reviewer Award**
Editorial office of *Colloids and Surfaces B: Biointerfaces*
- 2016 **The Basil O'Connor Starter Scholar Research Award**
The March of Dimes Foundation (marchofdimes.org)
- 2017 **NIH/NHLBI Technology Development Award**
University of California Center for Accelerated Innovation (UC-CAI)
- 2018 **Dean's Fellow in Entrepreneurship**
University of California Davis School of Medicine
- 2019 **High Altmetric Score Article Award**
Editorial office of journal *Neural Regeneration Research (NRR)*
- 2020 **Deans' Team Award for Excellence in Research**
University of California Davis Health
- 2020 **Chancellor's Fellow**
University of California Davis **Chancellor Gary May**
- 2020 **KidneyX: Redesign Dialysis Phase 2 Award**
The American Society of Nephrology (ASN) and the Department of Health and Human Services (HHS)
- 2021 **The Science Translation and Innovative Research (STAIR) Award**
University of California Davis
- 2021 **Sacramento Region Innovation Award**
Sacramento Business Journal
- 2022 **Cultivating Team Science Award**
University of California Davis School of Medicine
- 2024 **The Science Translation and Innovative Research (STAIR) Award**
University of California Davis
- 2024 **AIMBE College of Fellow**
The American Institute for Medical and Biological Engineering (AIMBE)

PROFESSIONAL SERVICES

CONFERENCE / COMMITTEE SERVICE

- 2012 **Session Chair:** Angiogenesis and Hematopoietic Cardiovascular Tissue Regeneration
Annual World Congress of Regenerative Medicine & Stem Cells. Guangzhou, China.
- 2012 **Science Advisory Board (SAB) Member:** BIT's Annual World Congress of Pediatrics
- 2013 **Session Chair:** Congenital & Genetic Disorders and Therapy
Annual World Congress of Pediatrics. Dalian, China
- 2015 **Session Chair, *Stem Cell Engineering*:** Directing Stem Cell Differentiation I
Biomedical Engineering Society (BMES) Annual Meeting. Tampa, FL
- 2017 **Organizing Committee Member,** 6th International Conference on Tissue Engineering and Regenerative
Medicine. San Francisco, CA
- 2017 **Abstracts Reviewer** for Biomedical Engineering Society (BMES) Annual Meeting
- 2018 **Abstracts Reviewer** for Biomedical Engineering Society (BMES) Annual Meeting
- 2019 Panel member at the Trainee Workshop – Industry Partnerships in Academic Research, **ASNTR (American Society for Neural Therapy and Repair)** Annual Conference. April 25-28, 2019. Clearwater, FL.
- 2019 **Abstracts Reviewer** for the Biomedical Engineering Society (BMES) Annual Meeting
- 2019 **Abstracts Reviewer** for the Cellular and Molecular Engineering (CMBE) Annual Meeting

- 2019 **Planning Committee** member for the 2020 UC Systemwide Bioengineering Annual Symposium organized by UC Bioengineering Institute of California (BIC)
- 2020 **Abstracts Reviewer** for the Biomedical Engineering Society (BMES) Annual Meeting
- 2022 **Session Chair:** Clinical Translation and Trials of Biomedical Engineering Technologies and Products Special Session
BMES Annual Meeting. October 13, 2022. San Antonio, TX.
- 2022 **Scientific Program Manuscript Review Committee**
40th International Fetal Medicine and Surgery Society (IFMSS) Annual Meeting, November 7-12, 2022, Los Cabos, Mexico
- 2022 **Session Chair:** Artificial Placenta/Bioengineering
40th International Fetal Medicine and Surgery Society (IFMSS) Annual Meeting, November 7-12, 2022, Los Cabos, Mexico
- 2023 **Session Chair:** Engineering Strategies for Pediatric Diseases and Disorders
2023 Tissue Engineering and Regenerative Medicine International Society (TERMIS) Annual Meeting, April 11 - 14, 2023, Boston, MA
- 2023 **Track Chair:** Device Technologies & Biomedical Robotics
2023 BMES Annual Meeting. October 11-14, 2023. Seattle, WA.
- 2024 **Track Chair:** Device Technologies & Biomedical Robotics
2024 BMES Annual Meeting. October 23-26, 2024. Baltimore, Maryland.
- 2024 **Panelist on a special session:** NIH/NIBIB Funding Panel
2024 BMES Annual Meeting. October 24, 2024. Baltimore, Maryland
- 2024 **Panelist on a plenary session:** Fundamentals of Medical Product Regulation for Biomedical Engineers - Perspectives from Academia, Industry, and Regulators
2024 BMES Annual Meeting. October 25, 2024. Baltimore, Maryland
- 2025 **Panelist on a plenary workshop: Transitioning to Product Development**
2025 BMES CMBE (Cellular and Molecular Bioengineering) Annual Conference. January 3-6, 2025, San Diego, CA

GRANT REVIEWS FOR FEDERAL AGENCIES AND OTHER AGENCIES:

Federal Agencies:

NIH:

- 2014 **NIH Grant Reviewer** for study section ZRG1-SBIB Q
Bioinformatics in Surgical Sciences, Biomedical Imaging & Bioengineering
- 2015 **NIH Grant Reviewer** for study section ZRG1-SBIB Q (80)
Biomedical Sensing, Measurement and Instrument
- 2016 **NIH Grant Reviewer** for study section ZRG1-SBIB G (11)
Biomedical Sensing, Measurement and Instrument
- 2018- **NIH Grant Reviewer** for study section ZRG1 SBIB-G (11)
Biomedical Sensing, Measurement and Instrument
- 2020 **NIH Grant Reviewer** for study section ZRG1 EMNR-C (54)
Novel Approaches to Safe, Non-Invasive, Real Time Assessment of Human Placenta Development and Function Across Pregnancy
- 2020 **NIH Grant Reviewer** for study section ZRG1 EMNR-E (55)
Novel Approaches to Safe, Non-Invasive, Real Time Assessment of Human Placenta Development and Function Across Pregnancy
- 2020 **NIH Grant Reviewer** for BNVT study section
Bioengineering of Neuroscience, Vision, and Low Vision Technologies (BNVT)
- 2021 **NIH Grant Reviewer** for BNVT study section
Bioengineering of Neuroscience, Vision, and Low Vision Technologies (BNVT)
- 2021 **NIH Grant Reviewer** for GDD study section
Gene and Drug Delivery Systems Study Section
- 2021 **NIH Grant Reviewer** for ZRG1 EMNR-C(02)
Endocrinology, Metabolism, Nutrition and Reproductive Sciences
- 2022 **NIH Grant Reviewer** for BNVT study section

- 2022 Bioengineering of Neuroscience, Vision, and Low Vision Technologies (BNVT)
NIH Grant Reviewer for study section ZRG1 EMNR-S 55 R, PAR20-300
 Maternal and Pediatric Pharmacology and Therapeutics
- 2022 **NIH Grant Reviewer** for study section ZRG IMST-U 02 M
 Member Conflict- Molecular and Cellular Sciences and Technologies
- 2023 **Co-Chair, NIH Grant Reviewer** for study section ZRG1 MCST-B (80)
 Cellular, Molecular, Bioanalytical and Imaging Technologies
- 2024 **NIH Grant Reviewer** for study section SEP- ZRG1 EMS-C (02)
 Human Studies of Diabetes and Obesity (HSDO) Study Section - Metabolism and Reproductive Sciences
- 2024 **NIH Grant Reviewer** for study section INN (Innovations in Nanosystems and Nanotechnology)
- 2025 **NIH Grant Reviewer** for study section INN (Innovations in Nanosystems and Nanotechnology)

DOD:

- 2023 **DOD Grant Reviewer** for the PRMRP IIRA/TTDA study section - Musculoskeletal Health (MSH-3), Peer Reviewed Medical Research Program (PRMRP) for the Department of Defense (DOD) Congressionally Directed Medical Research Programs (CDMRP)
- 2024 **DOD Grant Reviewer** for the Military Infectious Disease Research Program (MIDRP), Wounds Panel (W-1) for the Department of Defense (DOD) Congressionally Directed Medical Research Programs (CDMRP)

Non-federal Agencies

- 2013 **Grant Reviewer** for *Sparks Charity* - The Children's Medical Research Charity in UK
- 2014 **Grant Reviewer** for *Guy's and St Thomas' Charity* (a private philanthropic foundation)
- 2018 **Grant Reviewer** for the Mohammed Bin Rashid University of Medicine and Health Sciences (MBRU) - AlMahmeed Collaborative Research Award (Dubai, UAE)
- 2019 **Grant Reviewer** for the Team of Excellence Research Program, Ministry of Science and Technology, Taiwan, Republic of China
- 2019 **Grant Reviewer** for the University of Nebraska multi-disciplinary research grant program
- 2021 **Grant Reviewer** for the **UK Medical Research Council (MRC)- Career Development Award**
- 2021 **Grant Reviewer** for the **Israeli Ministry of Science and Technology- Developments in tissue engineering**
- 2022 **Grant Reviewer** for **Alzheimer's Association Research Grant**
- 2022 **Grant Reviewer** for **Paul G. Allen Family Foundation Frontiers Fellow Grant**
- 2023 **Grant Reviewer** for **Paul G. Allen Family Foundation Allen Distinguished Investigator (ADI) Program**
- 2024 **Grant Reviewer** for the **Population Health Research Grant (PHRG), under the Singapore Ministry of Health National Medical Research Council**
- 2024 **Grant Reviewer** for the **Campus for Research Excellence and Technological Enterprise (CREATE), under the National Research Foundation (NRF) of Singapore**
- 2024 **Grant Reviewer** for the **U.S.-Egypt Science and Technology Joint Fund program managed by the National Academy of Sciences (NAS)**

CONTRIBUTIONS TO ADVANCING DEI (DIVERSITY EQUITY AND INCLUSION):

- 2020- Member of Faculty Retention and Inclusive Excellence Networks—Designing Solutions (FRIENDS) program
 The FRIENDS program is organized by the UC Davis Office for Diversity Equity and Inclusion, in collaboration with Academic Affairs, funded through the [University of California's Advancing Faculty Diversity Improved Climate and Retention Program](#).

JOURNAL EDITORIALS

- 2013 **Guest Editor:** The special issue of *BioMed Research International* entitled “*Biomaterials for Nerve Regeneration: From Lab Discovery to Clinical Application*”
- 2013- **Editorial Board Member:** [BioMed Research International \(Stem Cells and Tissue Engineering subject area\)](#)

- 2014 **Guest Editor:** the special issue of *BioMed Research International* entitled “*Neurorestoratology Strategies and Mechanisms in the Nervous System*”
- 2017- **Editorial Board:** [Stem Cells International](#)
- 2018- **Editorial Board:** [World Journal of Stem Cells](#)
- 2019 **Guest Associate Editor:** the special issue in *Frontiers in Bioengineering and Biotechnology* entitled “*Nanotechnology in Cardiovascular Regenerative Medicine*”
- 2020- **Editorial Board:** [Extracellular Vesicles and Circulating Nucleic Acids](#)
- 2020- **Editorial Board (Review Editor):** [Frontiers in Bioengineering and Biotechnology: Tissue Engineering and Regenerative Medicine](#) section
- 2020- **Editorial Board:** [WIREs Mechanisms of Disease](#)
- 2021- **Editorial Board:** [Bioengineering](#)
- 2022 **Guest Editor:** The special issue of [Bioengineering](#) entitled “*3D Cell Culture in Disease Modeling and Tissue Regeneration*”
- 2022 **Guest Editor:** The special issue of [Frontiers in Pharmacology](#) entitled “*New Exploration for Therapeutic Tissue Engineering Grafts in the Field of Tissue Regeneration*”
- 2023 **Guest Editor:** The special issue of [Frontiers in Molecular Neuroscience](#) entitled “*Restoring Neural Circuits after Spinal Cord Injury*”
- 2023 **Guest Editor:** The special issue of [Journal of Neural Engineering](#) entitled “*Biomaterials for Neural Repair and Regeneration*”
- 2023 **Guest Editor:** The special issue of [Molecules](#) entitled “*The Development of Peptides and Peptide-Modified Delivery Systems*”
- 2023- **Associate Editor:** [Frontiers in Bioengineering and Biotechnology: Tissue Engineering and Regenerative Medicine](#) section
- 2024- **Editor-in-Chief:** [Precision Medicine and Engineering](#)

JOURNAL REVIEWS

Acta Biomaterialia, ACS Biomaterials Science & Engineering, Advanced Biosystems, Advanced Functional Materials, Advanced Healthcare Materials, Advanced Science, Bioorganic Chemistry, Biomaterials, BioMed Research International, Biotechnology Letters, BMC Complementary and Alternative Medicine, Brain Research Bulletin, Carbohydrate Polymers, Cell and Tissue Research, Cells, Cells Tissues Organs, Cellular and Molecular Bioengineering, Colloids and Surfaces B: Biointerfaces, Cytotherapy, Engineering in Life Sciences, Frontiers in Bioengineering and Biotechnology, Immunotherapy, International Journal of Molecular Sciences, International Journal of Pharmaceutics, IUBMB Life, Journal of Biomedical Materials Research: Part A, Journal of Biomedical Materials Research: Part B, Journal of Biomolecular Screening, Journal of Clinical Medicine, Journal of Composite Materials, Journal of Controlled Release, Journal of Experimental Neuroscience, Journal of Investigative Dermatology, Journal of Orthopaedic Research, Journal of Orthopedic Research & Physiotherapy, Journal of Surgical Research, Macromolecular Bioscience, Marine Drugs, Materials Today Bio, Nature Communications, Oncotarget, Pharmacology Biochemistry and Behavior, Placenta, Protein & Cell, Science Advances, Science China, Life Sciences, Scientific Reports, Small Methods, Spinal Cord, Stem Cell Discovery, Stem Cell Research & Therapy, Stem Cells, Stem Cells International, Stem Cells Translational Medicine, The American Journal of the Medical Sciences, Theranostics, Tissue Engineering, Translational Neuroscience and Clinics, World Journal of Stem Cells

ACADEMIC MEMBERSHIP

- 2003-2006 Member of the World Association for Chinese Biomedical Engineering (WACBE)
- 2011-2012 Member of the Materials Research Society (MRS)
- 2011-2013 Member of the American Heart Association (AHA)
- 2010-present Member of the International Society for Stem Cell Research (ISSCR)
- 2010-Present Member of the Biomedical Engineering Society (BMES)
- 2011-present Member of the Tissue Engineering and Regenerative Medicine International Society (TERMIS)
- 2014-Present Founding Member of the International Perinatal Stem Cell Society (IPSCS)
- 2014-Present Life Member of the World Association for Chinese Biomedical Engineering (WACBE)
- 2017-Present Member of the International Fetal Medicine and Surgery Society (IFMSS)
- 2020-Present Member of the International Society of RNA Nanotechnology and Nanomedicine (ISRNN)

INSTITUTIONAL SERVICE**UC Davis Graduate Groups in Serving**

- 2013- Graduate Group in Integrative Pathobiology (GGIP)
- 2014- Biomedical Engineering Graduate Group (BMEGG)
- 2017- Biochemistry, Molecular, Cellular & Developmental Biology Graduate Group (BMCDB)
- 2020- Clinical Research Graduate Group (Master of Advanced Study in Clinical Research Degree Program)
- 2024- Pharmacology and Toxicology graduate group (PTX)

UC Davis Graduate Council's Student Support Subcommittee

- 2014- Internal Fellowships Review Committee for Continuing Graduate Student
- 2014- Internal Fellowships Review Committee for Travel Award

UC Davis Committees in Serving

- 2012- Research Committee member, Department of Surgery, UC Davis School of Medicine
- 2013 Committee member for New Faculty Search Committee, Department of Surgery, UC Davis
- 2014 Search Committee member for General Surgery Resident Program, UC Davis School of Medicine
- 2015 Search Committee and interview panel member for Neurology/Neurosurgery New Faculty Department of Surgical and Radiological Sciences, UC Davis School of Veterinary Medicine
- 2015- Core faculty member, Veterinary Institute for Regenerative Cures (VIRC), UC Davis
- 2015- Research Committee member, Veterinary Institute for Regenerative Cures (VIRC), UC Davis
- 2016-2022 UC Davis Faculty Executive Committee- Committee for Research Affairs
- 2017- UC Davis Faculty Executive Committee- Committee for Honors and Awards (CHA)
- 2017 UC Davis Biomedical Engineering Graduate Group (BMEGG) Admissions Committee
- 2018 UC Davis Biomedical Engineering Graduate Group (BMEGG) Admissions Committee
- 2018 Reviewer, UC Davis School of Medicine Bridge Funding program
- 2019 Reviewer, UC Davis School of Medicine MSRF (Medical Student Research Fellowship)
- 2019-2020 Recruitment Advisory Committee (RAC) for the new Chair of the Department of Radiology
- 2019- Steering Committee for UC Davis BME Master program (Master of Engineering in Medical Product Development)
- 2019-2020 Special Committee on Consolidation of Biomedical Engineering Graduate Group, UC Davis
- 2020- Executive Leadership Committee, UC Davis Department of Surgery
- 2021 Reviewer, UC Davis School of Medicine MSRF (Medical Student Research Fellowship)
- 2021 Reviewer and selection committee, UC Davis School of Medicine Mentored Clinical Research Training Program (MC RTP)
- 2021 Reviewer and selection committee, UC Davis School of Medicine TL1 Pre and Postdoctoral Clinical Research Training Program
- 2021- UC Davis Neurosciences Strategy Steering Committee
- 2021 2021 Mentored Clinical Research Training Program (MC RTP) Scholar Symposium - Moderator and Reviewer
- 2021 UC Davis Department of Biomedical Engineering Academic Plan Committee for Faculty Recruiting Strategy (2021-2026)
- 2022 Search Committee Chair, UC Davis Surgery/BME/Cancer Center joint faculty position in Cancer Technology Development
- 2022 UC Davis School of Medicine Strategic planning committee- Discovery Science workgroup
- 2023 Reviewer, UC Davis School of Medicine Cultivating Team Science Award
- 2023 Reviewer, UC Davis School of Medicine Internal Medicine Department of Internal Medicine Chair's Research Award
- 2023 Advisory Committee, UC Davis Veterinary Scientist Training Program (VSTP) and MSTP T32 program
- 2023 Search Committee, In-Residence Proteomics Research Faculty, UC Davis School of Medicine
- 2023 Poster Judge for the UC Davis School of Medicine Hugh Edmondson Research Program
- 2023 UC Davis Aggie Square Vivarium Operations Workgroup
- 2023 Plenary Pitch Panel for the UC Entrepreneurship Academy
- 2023 UC Davis Health Innovation & Informatics Research Oversight Committee (I2ROC)
- 2024 UC Davis Comprehensive Cancer Center Flow Cytometry Core's Internal Advisory Board / Faculty Advisory Committee
- 2024 Chair of the Internal Advisory Board (IAB) of UC Davis Comprehensive Cancer Center Combinatorial Chemistry and Chemical Biology Shared Resource (CCCBSR)

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- 2024 Reviewer, UC Davis CTSC TL1 Postdoctoral training grant
 2024 Reviewer, UC Davis Limited Submissions: Moore Inventor Fellows

Qualifying Exam (QE) Committee

- 2015 PhD QE Committee: Zijie (Jeremy) Zhu, PI: Kit Lam, Chemical Physics
 2017 PhD QE Committee: Zijie (Jeremy) Zhu, PI: Tingrui Pan, Electrical & Computer Engineering (ECE)
 2018 PhD QE Committee: David Yang, PI: Reen Wu & Ching-Hsien Chen, Integrative Pathobiology Graduate Group (GGIP)
 2018 PhD QE Committee: Dustin Hadley, PI: Eduardo Silva, Biomedical Engineering graduate group (BMEGG)
 2019 PhD QE Committee: Xueer Jiang, PI: Li-En Jao, Biochemistry, Molecular, Cellular and Developmental Biology graduate group (BMCDB)
 2019 PhD QE Committee: Kaitlin (Kasey) Clark, PI: Aijun Wang, Biochemistry, Molecular, Cellular and Developmental Biology graduate group (BMCDB)
 2019 PhD QE Committee: Harkanwalpreet Sodhi, PI: Alyssa Panitch, Biomedical Engineering graduate group (BMEGG)
 2020 PhD QE Committee: Lalithasri Ramasubramanian, PI: Aijun Wang, Biomedical Engineering graduate group (BMEGG)
 2020 PhD QE Committee: Nick DeCuzzi, PI: John Albeck, Biochemistry, Molecular, Cellular and Developmental Biology graduate group (BMCDB)
 2020 PhD QE Committee: Michael Nguyen, PI: Alyssa Panitch, Biomedical Engineering graduate group (BMEGG)
 2020 PhD QE Committee: Pablo Juarez, PI: Veronica Martinez-Cerdeño, Integrative Pathobiology Graduate Group (GGIP)
 2020 PhD QE Committee: Rachel Mizenko, PI: Randy Carney, Biomedical Engineering graduate group (BMEGG)
 2020 PhD QE Committee: Yaojun Guo, PI: Jiandi Wan, Electrical & Computer Engineering (ECE)
 2020 PhD QE Committee: Victoria Thai, PI: Kent Leach, Biomedical Engineering graduate group (BMEGG)
 2021 PhD QE Committee: Robert Gresham, PI: Kent Leach, Biomedical Engineering graduate group (BMEGG)
 2021 PhD QE Committee: Vanessa Hull, PI: David Pleasure, Neuroscience Graduate Group (NGG)
 2021 PhD QE Committee: Leora Goldbloom-Helzner, PI: Aijun Wang, Biomedical Engineering graduate group (BMEGG)
 2021 PhD QE Committee: Selin Gumusderelioglu, PI: Dan Starr, Biochemistry, Molecular, Cellular and Developmental Biology graduate group (BMCDB)
 2022 PhD QE Committee: Yongheng Wang, PI: Aijun Wang, Biomedical Engineering graduate group (BMEGG)
 2022 PhD QE Committee: Sabrina Mierswa, PI: Kent Leach, Biomedical Engineering graduate group (BMEGG)
 2023 PhD QE Committee: David Wang, PI: Aijun Wang, Biomedical Engineering graduate group (BMEGG)
 2023 PhD QE Committee: Neona Lowe, PIs: Randy Carney/Alyssa Panitch, Biomedical Engineering graduate group (BMEGG)
 2023 PhD QE Committee: Bryan Nguyen, PIs: Randy Carney/Steven George, Biomedical Engineering graduate group (BMEGG)
 2024 PhD QE Committee: Sara Ali, PIs: Konstantinos Zarbaliis/ Raph Green, Graduate Group in Integrative Pathobiology (GGIP)
 2025 PhD QE Committee: Jared Lee-Kin, PI: Cheemeng Tan, Biomedical Engineering graduate group (BMEGG)

Master Thesis Committee

- 2016 Master Thesis Committee: Zijie (Jeremy) Zhu, PI: Kit Lam, MS in Chemical Physics
 2019 Master Thesis Committee: Emily Misnick, PI: Alyssa Panitch, MS in Biomedical Engineering (BMEGG)
 2021-2023 Major Professor and Master Thesis Committee: Nghia James Bui, MS in Integrative Pathobiology (GGIP)

2021-2022	Major Professor and Master Thesis Committee: Shanxiu Xu, MS in Biomedical Engineering (BMEGG)
2022-2024	Major Professor and Master Thesis Committee: Arundhuti Sanyal, MS in Biomedical Engineering (BMEGG)
2022-2024	Major Professor and Master Thesis Committee: Siyu Lin, MS in Biomedical Engineering (BMEGG)
2023-	Major Professor and Master Thesis Committee: Emma Loll, MS in Integrative Pathobiology (GGIP)
2023-	Major Professor and Master Thesis Committee: Isha Maisuriya, MS in Biomedical Engineering (BMEGG)

PhD Thesis Committee

2018-2023	Major Professor and PhD Thesis Committee: Kaitlin (Kasey) Clark, BMCDB
2018-2022	Major Professor and PhD Thesis Committee Chair: Lalithasri Ramasubramanian, BMEGG
2018-2023	PhD Thesis Committee: Vicky Thai, BMEGG (PI: J. Kent Leach)
2018-2023	PhD Thesis Committee: Vanessa Hull, Neuroscience (PI: David Pleasure)
2019-2024	Major Professor and PhD Thesis Committee: Leora Goldbloom-Helzner, BMEGG
2019-2024	PhD Thesis Committee: Rachel Mizenko, BMEGG
2020-2024	Major Professor and PhD Thesis Committee: Yongheng Wang, BMEGG (Co-mentor: Kit Lam)
2020-	Major Professor and PhD Thesis Committee: David Wang, BMEGG
2020-	Major Professor and PhD Thesis Committee: Tanner Henson, BMEGG (Co-mentor: Cheemeng Tan)
2021-	Major Professor and PhD Thesis Committee: Yofiel Wyle, MCIP Graduate Group
2021-	PhD Thesis Committee: Sabrina Mierswa, BMEGG (PI: J. Kent Leach)
2022-	Major Professor and PhD Thesis Committee: Kuan-Wei Huang, BMEGG (Co-mentor: Randy Carney)
2023-	Major Professor and PhD Thesis Committee Chair: Abigail Humphries, BMEGG (Co-mentor: Randy Carney)
2024-	Major Professor and PhD Thesis Committee Chair: Siyu Lin, BMEGG
2024-	Major Professor and PhD Thesis Committee Chair: Nhung Au, Pharmacology (Co-mentor: Yuanpei Li)
2024-	Major Professor and PhD Thesis Committee Chair: Arya Lall, Chemistry (Co-mentor: Elizabeth Neumann)
2025-	Major Professor and PhD Thesis Committee Chair: Negar Ahmadian, GGIP
2025-	Major Professor and PhD Thesis Committee Chair: Samuel Jay Emerson, BMEGG

MENTOR FOR TRAINEES' AWARD & FELLOWSHIP

2017	UC Davis Students Training in Advanced Research (STAR) Scholarship Connor Long, DVM Candidate, UC Davis School of Veterinary Medicine
2017	The Marshall Plan Foundation Scholarship Stefanie Emrich, Salzburg University of Applied Sciences, Austria
2018	The Willis W. and Ethel M. Clark Foundation Investment in <u>Community Fellowship</u> Kaitlin Clark, UC Davis BMCDB PhD student
2019	Towards Outstanding Postgraduate Students (TOPS) Award Leora Goldbloom-Helzner, UC Davis BMEGG PhD student
2019	The Willis W. and Ethel M. Clark Foundation Investment in <u>Community Fellowship</u> Kaitlin Clark, UC Davis BMCDB PhD student
2019	The Lodric Maddox <u>Graduate Fellowship</u> Kaitlin Clark, UC Davis BMCDB PhD student
2019	TL1 <u>Predoctoral</u> Clinical Research Training Program Scholar Award (declined) UC Davis Clinical and Translational Science Center (CTSC) Kaitlin Clark, UC Davis BMCDB PhD student
2019	Shriners Hospitals for Children <u>Postdoctoral</u> Fellowship Dake Hao, PhD, UC Davis IPRM / Shriners Hospitals for Children

- 2019 Shriners Hospitals for Children Postdoctoral Fellowship
Kewa Gao, MD, PhD, UC Davis IPRM / Shriners Hospitals for Children
- 2019 Mentored Clinical Research Training Program (MC RTP)
UC Davis Clinical and Translational Science Center (CTSC)
Erin Brown, MD, Pediatric Surgery Assistant Professor, UC Davis
- 2019 UC Davis CIRM Cellular Therapy Training Program
Erin Brown, MD, Pediatric Surgery Assistant Professor, UC Davis
- 2020 TL1 Predoctoral Clinical Research Training Program Scholar Award
UC Davis Clinical and Translational Science Center (CTSC)
Kaitlin Clark, UC Davis BMCDB PhD student
- 2020 T32 Predoctoral Fellowship in Basic and Translational Cardiovascular Science (declined)
NIH/NHLBI
Lalithasri Ramasubramanian, UC Davis BMEGG PhD student
- 2020 Predoctoral Fellowship/Training Award
UC Tobacco Related-Disease Research Program (TRDRP)
Lalithasri Ramasubramanian, UC Davis BMEGG PhD student
- 2020 Mentored Clinical Research Training Program (MC RTP)
UC Davis Clinical and Translational Science Center (CTSC)
Mimmie Kwong, MD, Vascular Surgery Assistant Professor, UC Davis
- 2021 Shriners Hospitals for Children Postdoctoral Fellowship
Chaoxing Zhang, PhD, UC Davis IPRM / Shriners Hospitals for Children
- 2021 T32 Postdoctoral Fellowship in Basic and Translational Cardiovascular Science
NIH/NHLBI
Nataliya Bahatyrevich, UC Davis Cardiothoracic Surgery Resident, PGY-4, Divisions of Cardiac and Thoracic Surgery
- 2021 F31 Pre-doctoral Fellowship from NIH/NINDS
Rachel Mizenko, BMEGG PhD student (Co-Sponsors: Randy Carney, Aijun Wang)
- 2022 Pre-doctoral National Defense Science and Engineering Graduate (NDSEG) Fellowship
Tanner Henson, BMEGG PhD student (Co-Sponsors: Aijun Wang, Cheemeng Tan)
- 2022 T32 Pre-doctoral Fellowship UC Davis Lung Center Training Program
NIH/NHLBI
Yofiel Wyle, MCIP PhD student
- 2022 UC Davis Postdoctoral Research Excellence Award
Dake Hao, PhD, UC Davis
- 2023 Pre-doctoral Fellowship from the Pharmaceutical Research and Manufacturers of America Foundation (PhRMA Foundation)
Leora Goldbloom-Helzer, BMEGG PhD student
- 2023 Fulbright Visiting Scholar Program
Marie Morille, Associate Professor, Department of Pharmaceutical Engineering of Biomedicines
University of Montpellier, France
- 2023 Designated Emphasis in Biotechnology (DEB) Research Award in Platform Technologies
Yofiel Wyle, MCIP PhD student
- 2024 T32 Postdoctoral Fellowship in Basic and Translational Cardiovascular Science
NIH/NHLBI
Kaitlin Clark, Postdoctoral fellow
- 2024 T32 Pre-doctoral Fellowship in Basic and Translational Cardiovascular Science Training Program
NIH/NHLBI
David Wang, BMEGG PhD student
- 2025 T32 Pre-doctoral Fellowship in the UC Davis Lung Biology Training Program
NIH/NHLBI
Yofiel Wyle, MCIP PhD student

AREAS OF RESEARCH INTEREST

KEYWORDS:

Stem Cell Biology and Engineering, Extracellular Vesicle, Nanomedicine, Extracellular Matrix, Biomaterial Scaffolds, Tissue Regeneration, Tissue Engineering, Translational Medicine, Birth Defect, Lipid Nanoparticles, mRNA Delivery, Gene Editing, Single Cell Spatial Multi-omics, IND enabling Studies and Clinical Trials

Dr. Wang's research program focuses on developing innovative tools, technologies, and therapeutics that combine molecular, cellular, tissue, and biomaterial engineering to promote regeneration and restore function. Dr. Wang's lab engineers and develops products and technologies using stem cells, extracellular vesicles, lipid nanoparticles, and extracellular matrices to treat a wide range of medical conditions and diseases, and employ cutting-edge single-cell spatial omics technologies and AI to accelerate discoveries in precision medicine and targeted therapies.

CURRENT RESEARCH PROJECTS IN THE WANG LAB INCLUDE:

(1) Studying stem cell biology, differentiation, and secretion

We derive stem cells from various sources and investigate the mechanisms of action behind stem cell benefits, their differentiation capabilities, and secretion profiles to improve their application as regenerative therapeutics for various diseases.

(2) Engineering stem cell-derived extracellular vesicles (EVs) for tissue regeneration and targeted delivery

Extracellular vesicles (EVs) mediate critical cell-to-cell communication and have emerged as a new class of nanotherapeutics for regenerative medicine. We develop high-density culture methods to improve yields of stem cell-derived EVs for translational applications. We engineer EVs to improve their therapeutic functions by loading chemical drugs or biological molecules, and engineering their surface to improve targeting efficiency.

(3) Developing gene editing strategies for treatment of genetic diseases

Novel gene editing approaches are transforming medicine. We develop novel extracellular vesicles, lipid nanoparticles (LNPs), and virus-like particles (VLPs) to overcome limitations such as limited stability, low endosomal disruption rates, and high toxicity. These approaches are non-viral, potentially less immunogenic alternatives to traditional virus-based methods. We are particularly interested in applying gene editing in utero to treat early diagnosable genetic diseases. By administering this therapy in utero, there is an opportunity to correct the genetic defect before the onset of the syndrome's manifestations, possibly preventing or significantly reducing the disease's impact on development.

(4) Applying single-cell spatial multi-omics technologies for enhanced diagnostics, prognosis, and therapies

Single-cell spatial multi-omics technologies have revolutionized our ability to analyze complex biological systems at unprecedented resolution, offering significant potential for enhanced diagnostics, prognosis, and therapies. Single-cell spatial multi-omics integrates various techniques to simultaneously analyze multiple molecular layers (e.g., genome, transcriptome, proteome, epigenome, and metabolome) while preserving spatial information within tissues. We routinely use cutting-edge spatial technologies such as CosMx and MALDI Mass Spectrometry Imaging in the lab. The rich, multi-dimensional data enables more sophisticated predictive models that can provide personalized prognostic information based on a patient's unique cellular and molecular profile and contribute to therapeutic advancements.

(5) Advancing AI-driven drug discovery and bioinformatics

Our research harnesses cutting-edge artificial intelligence to revolutionize drug discovery and bioinformatics analysis. We employ state-of-the-art technologies such as vision transformers to accelerate and enhance the accuracy of drug efficacy evaluation. Our team has pioneered innovative, cost-effective, high-throughput methodologies for assessing drug effectiveness. A prime example of our work is the development of SIC50, a groundbreaking label-free approach that combines vision transformer technology with Sobel-edge detection. This method enables us to determine a drug's inhibitory concentration (IC50) directly from phase-contrast images, streamlining the evaluation process. Furthermore, we leverage the power of generative AI and large language models to tackle the complexities of bioinformatics analysis. These advanced tools allow us to efficiently process and interpret vast, multifaceted datasets, including those generated by single-cell spatial multi-omics techniques. This approach significantly enhances our ability to extract meaningful insights from complex biological data, potentially accelerating discoveries in personalized medicine and targeted therapies.

(6) Establishing and using experimental and naturally-occurring disease models to evaluate regenerative products and treatments

Effective research largely depends on the development of successful animal models that can accurately portray the disease processes observed in humans. Our team has been successfully using well-established, surgically- and drug-induced small and

large animal models to rigorously test treatment products. In addition, naturally-occurring models, which can more accurately exemplify disease processes are also being used. These models are extremely beneficial not only for humans but also for veterinary scientific advancement in treatment options. Currently, the Wang group is actively collaborating with the UC Davis Veterinary Medicine team and translating the innovative treatments developed in the lab to treat companion animal patients.

(7) Generating clinical-grade stem cell products and conducting human clinical trials

Our team has developed rigorous protocols for the production of stem cells under current Good Manufacturing Practice (cGMP) at the UC Davis GMP facility, and carried out extensive investigational new drug (IND)-enabling studies required by the U.S. Food and Drug Administration (FDA) for clinical applications. In particular, Dr. Wang has been collaborating with Dr. Diana Farmer for the past decade in developing a stem cell regenerative therapy for spina bifida and the team has recently received approval from the FDA to test a groundbreaking spina bifida treatment that combines surgery with stem cells. The one-of-a-kind treatment, delivered while the baby is still in the mother's womb, could improve outcomes for children with the birth defect.

(8) Fostering academic innovation and entrepreneurship

Dr. Wang has established the Center for Surgical Bioengineering (CSB) as a hub for innovation and education, by integrating varying disciplines for a robust collaborative environment and by mentoring physicians, residents, scholars, and graduate and medical students to foster future innovation. The CSB is actively engaged with the emerging Aggie Square, the UC Davis - Sacramento Innovation Center. As the UC Davis School of Medicine inaugural Dean's Fellow in Entrepreneurship, Dr. Wang is devoted in expanding our institution's infrastructure in innovation and entrepreneurship to better link advances in academic research with product and technology development and commercialization, and promoting UC Davis' contribution to socio-economic development.

PEER-REVIEWED PUBLICATIONS

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2. Qiang Ao, **Aijun Wang**, Wenling Cao, Chang Zhao, Yandao Gong, Nanming Zhao, Xiufang Zhang. Fabrication and Characterization of Chitosan Nerve Conduits with Microtubular Architecture. *Tsinghua Science and Technology*. 2005, 10(4):435-8.
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3. Wenling Cao, **Aijun Wang**, Duohui Jing, Yandao Gong, Nanming Zhao, and Xiufang Zhang. Novel Biodegradable Films and Scaffolds of Chitosan Blended with Poly(3-hydroxybutyrate). *Journal of Biomaterials Science, Polymer Edition*. 2005, 16(11):1379-94.
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[http://dx.doi.org/10.1016/S1007-0214\(05\)70099-7](http://dx.doi.org/10.1016/S1007-0214(05)70099-7)
5. **Aijun Wang**, Qiang Ao, Qing He, Xiaoming Gong, Kai Gong, Yandao Gong, Nanming Zhao, Xiufang Zhang. Neural Stem Cell Affinity of Chitosan and Feasibility of Chitosan-based Porous Conduits as Scaffolds for Nerve Tissue Engineering. *Tsinghua Science and Technology*. 2006, 11(4):415-20.
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6. **Aijun Wang**, Qiang Ao, Wenling Cao, Mingzhi Yu, Qing He, Lijun Kong, Ling Zhang, Yandao Gong, Xiufang Zhang. Porous Chitosan Tubular Scaffolds with Knitted Outer Wall and Controllable Inner Structure for Nerve Tissue Engineering. *Journal of Biomedical Materials Research Part A*. 2006, 79A(1): 36-46.
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8. **Aijun Wang**, Wenling Cao, Kai Gong, Qiang Ao, Lijun Kong, Chengzhao He, Yaodao Gong, Xiufang Zhang. Development of Porous Chitosan Tubular Scaffolds for Tissue Engineering Applications. *Asian Chitin Journal*. 2006, 2: 53-60.

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14. Lijun Kong, Qiang Ao, **Aijun Wang**, Kai Gong, Xi Wang, Yandao Gong, Nanming Zhao, Xiufang Zhang. Effect of Multilayer Biomimetic Nano-hydroxyapatite/chitosan Composite Scaffolds on Repairing Rabbit Fibula Defect. **Journal of Clinical Rehabilitative Tissue Engineering Research**. 2007,11(5):815-8. (in Chinese)
https://www.researchgate.net/publication/289869069_Effect_of_multilayer_biomimetic_nano-hydroxyapatitechitosan_composite_scaffolds_on_repairing_rabbit_fibula_defect
15. Qing He, Qiang Ao, **Aijun Wang**, Yandao Gong, Nanming Zhao, Xiufang Zhang. *In Vitro* Cytotoxicity and Protein Drug Release Properties of Chitosan/Heparin Microspheres. **Tsinghua Science and Technology**. 2007, 12(4): 361-5.
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17. Qiang Ao/**Aijun Wang** (Co-first author), Guoqiang Chen, Shijie Wang, Huancong Zuo, Xiufang Zhang. Combined Transplantation of Neural Stem Cells and Olfactory Ensheathing Cells for the Repair of Spinal Cord Injuries. **Medical Hypotheses**. 2007, 69(6):1234-7.
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24. Zhenhuan Zheng, Ling Zhang, Lijun Kong, **Aijun Wang**, Yandao Gong, Xiufang Zhang. The Behavior of MC3T3-E1 Cells on Chitosan/poly-L-lysine Composite Films: Effect of Nanotopography, Surface Chemistry, and Wettability. *Journal of Biomedical Materials Research Part A*. 2009, 89A(2):453-65. PMID: 18431777. DOI: [10.1002/jbm.a.31979](https://doi.org/10.1002/jbm.a.31979)
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 36. Payam Saadai, Yvette Nout, Jose Encinas, **Aijun Wang**, Timothy Downing, Michael S. Beattie, Jacqueline C. Bresnahan, Song Li, Diana L. Farmer. Prenatal Repair of Myelomeningocele with Aligned Nanofibrous Scaffolds - A Pilot Study in Sheep. *The Journal of Pediatric Surgery*. 2011; 46:2279-83. PMID: 22152865. DOI: [10.1016/j.jpedsurg.2011.09.014](https://doi.org/10.1016/j.jpedsurg.2011.09.014)
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(Highlighted in *Nature*, **486**, 9 (07 June 2012) DOI:[10.1038/486009d](#).)
PMID: 22673902. PMCID: [PMC3538044](#). DOI: [10.1038/ncomms1867](#)
Press release: This study has been reported by over 100 major news outlets worldwide. Examples:
[Berkeley News](#), [NPR's Science Friday](#), [San Francisco Business Times](#), [SF Chronicle \(FRONT page on 6/6/2012\)](#), [Fox News](#), [Medical News Today](#), [US News & World Report](#), [Daily Mail \(UK\)](#).
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INVESTIGATOR-INITIATED INDs AND CLINICAL TRIALS APPROVED BY THE FDA

1. **FDA IND# 24097 (Phase 1/2a):** Allogeneic, early gestational, placenta-derived mesenchymal stem cells (PMSC) seeded on Cook Biodesign Dural Graft Extracellular Matrix (PMSC-ECM)
PI: Dr. Diana Farmer, Co-PI: Dr. Aijun Wang

FDA Approval Date: August 5, 2020

- 2. Clinical Trial (NCT04652908): Cellular Therapy for *In Utero* Repair of Myelomeningocele - The *CuRe* Trial.** This is a first-in-human Phase 1/2a clinical trial to test the stem cell product for *in utero* treatment of spina bifida.

PI: Dr. Diana Farmer, Co-PI: Dr. Aijun Wang

Recruitment Status: Recruiting

First Posted: December 3, 2020

PATENTS FILED

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2. Song Li, Zhenyu Tang, **Aijun Wang**. Multipotent Vascular Stem Cells and Methods of Use Thereof. U.S. Patent Application Serial No.: 61/594,175. PCT International Patent Application No.: PCT/US2013/023647. Publication Number: WO 2013/116224 A1. US20150125428A1.
3. **Aijun Wang**, David Boudreault, Nicole Sitkin, Christopher Pivetti. Sutureless Anastomosis Device. U.S. Patent Application Serial No.: 62/012,223. PCT International Patent Application No.: PCT/US2015/035587. Publication Number: WO 2015/192022 A1. US20170128072A1.
4. **Aijun Wang**, Maricel G. Miguelino, Jerry Powell. Prenatal Therapy. U.S. Patent Application Serial No.: 62/161,793. PCT International Patent Application No.: PCT/US2016/032785.
5. **Aijun Wang**, Alyssa Panitch, Emily Misnick, Jenny Lin, Kit Lam, Ruiwu Liu, Dake Hao. Proteoglycan mimetics for enhanced wound healing, angiogenesis, and vascular repair. U.S. Patent Application Serial No., 17/062,300. International Patent Application No. PCT/US2019/026141, filed Apr. 5, 2019. Continuation filed: Oct 2, 2020. Priority to US17/062,300. Publication Date: Apr 1, 2021. Publication Number: US20210093728A1.
6. **Aijun Wang**, Harsha Jyothi, Lalithasri Ramasubramanian. Exosome Mimicking Nanovesicles: Making and Biological Use. Provisional Patent Application UC Case No. 2019-781. U.S. Patent Application Serial No.: 62/836,028. US17/604,375. PCT International Patent Application No.: PCT/US2020/028867. Publication of WO2020215024A1 2020-10-22.
7. **Aijun Wang**, Diana Farmer. Placenta-derived Multipotent Stem Cells. U.S. Patent Application Serial No.: 15/998,529. U.S. Patent Application Serial No.: US20190046574A1. Continuation of application No. 14/912,066, filed on Feb. 12, 2016, now Pat. No.10,058,572, filed as application No. PCT/US2014/051155 on Aug. 14, 2014.
8. **Aijun Wang**, Diana Farmer. Placenta-derived Multipotent Stem Cells. U.S. Patent Application Serial No.: US20230149470A1. Continuation of application No. US18/098,631, filed on Jan. 18, 2023.
9. **Aijun Wang**, Kit S. Lam. Engineered Scaffolds for Vascularized Tissue Repair. U.S. Patent Application Serial No.: US201662/307,050. PCT International Patent Application No.: PCT/US2017/021855. Continuation of application No. U.S. Patent Application Serial No.: US17/671,071, filed on 2022-10-06. Publication of US20220313867A1
10. **Aijun Wang**, Kewa Gao, Hengyue Song, Yongheng Wang, Jie Li, Niren Murthy. Non-viral Gene Editing *In utero* with Lipid Nanoparticles Complexed to mRNA. Provisional Patent Application, 2021.
11. **Aijun Wang**, Yongheng Wang, Weidi Zhang, Kit Lam. Artificial Intelligence-based Evaluation of Drug Efficacy. U.S. Provisional Patent Application No. 63/500,490. U.S. patent application serial no. 63/500,490, filed on May 5, 2023
12. **Aijun Wang**, Yongheng Wang, Weidi Zhang, Siyu Lin, Kayle Bender, Kit Lam, Elizabeth Neuman. Systems and Methods of Single-Cell Spatial Omics and Metabolomics Analyses. Provisional Patent Application, 2023.

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1. **Aijun Wang**, Diana Farmer. Placenta-derived multipotent stem cells. **U.S. Patent No. 11,583,557**, issued February 21, 2023, [Priority to US18/098,631](#) 15/998,529, filed August 16, 2018. Patent granted date: 2023-02-21. Status: Active. Anticipated expiration: 2034-08-14.
2. **Aijun Wang**, Alyssa Panitch, Emily Misnick, Jenny Lin, Kit Lam, Ruiwu Liu, Dake Hao. Proteoglycan mimetics for enhanced wound healing, angiogenesis, and vascular repair. Provisional Patent Application 62/653,329 (UC Case No. 2018-492-1). U.S. Patent Application Serial No., 17/062,300. International Patent Application No. PCT/US2019/026141, filed Apr. 5, 2019. **Patent No.: US 11,612663B2**. Patent granted date: 2023-03-28. Status: Active. Anticipated expiration: 2039-04-05.
3. **Aijun Wang**, Kit S. Lam. Engineered Scaffolds for Vascularized Tissue Repair. U.S. Patent Application Serial No.: US201662/307,050. PCT International Patent Application No.: PCT/US2017/021855. Application granted date: 2022-02-15. **Patent No.: US 11,246961B2**. Status: Active. Adjusted expiration: 2037-03-21.

4. **Aijun Wang**, Kit S. Lam. Engineered Scaffolds for Vascularized Tissue Repair. Worldwide applications: 2017 EP JP CA WO CN AU; 2018 US. **European Patent No. 17764206.3**. Notice of Allowance received: 2021-07-13.
5. **Aijun Wang**, Kit S. Lam. Engineered Scaffolds for Vascularized Tissue Repair. Worldwide applications: 2017 EP JP CA WO CN AU; 2018 US. **Australian Patent No.: AU 2017229972B2**. Patent granted date: 2021-05-13. Status: Active. Anticipated expiration: 2037-03-10.
6. **Aijun Wang**, Diana Farmer, Benjamin Keller, Volodymyr Ryzhuk. Decellularized human Amniotic Membrane for Cell Delivery, Cell Culture and Inflammation Prevention. U.S. **Patent Appl. No.: 62/149,447**. PCT International Patent Application No.: PCT/US2016/027967. Publication Number: WO2016168752 A1, CN107635567A. **Patent No.: US 11,028,362**. Patent granted date: 2021-06-08. Status: Active. Anticipated expiration: 2037-03-29.
7. **Aijun Wang**, Diana Farmer. *In Utero* Repair of Myelomeningocele with Placenta-derived Multipotent Stem Cells. U.S. Patent Appl. No. 61/866,524, 61/982,804. PCT International **Patent Appl. No.: PCT/US2014/051155**. Publication Number: WO2015/023901 A1. **Patent No.: US 10,058,572B2**. Patent granted date: 2018-08-28. Status: Active. Anticipated expiration: 2034-08-14.
8. Qiang Ao, Xiufang Zhang, **Aijun Wang**, Yandao Gong. A Special Mold for Production of Multi-channeled Nerve Conduits. Chinese Patent No. **ZL200420009148.3**, date of patent: July 27, 2005.
9. Xiufang Zhang, **Aijun Wang**, Yandao Gong, Qiang Ao, Wenling Cao, Jing Xi. A Kind of Chitosan Tubular Scaffold and Its Preparation Method. Chinese Patent No. **ZL 200410009091.1**, date of patent: Feb 7, 2007.
10. Qiang Ao, **Aijun Wang**, Xiufang Zhang, Yandao Gong. A Kind of Tubular Scaffold for Nerve Tissue Engineering and Method for Making Same. Chinese Patent No. **ZL200410009259.9**, date of patent: Mar 14, 2007.
11. Qiang Ao, Xiufang Zhang, **Aijun Wang**, Yandao Gong. Multi-channeled Nerve Guidance Channel, its Preparation Process and Dedicated Mold. Chinese Patent No. **ZL200510012201.4**, date of patent: Feb 27, 2008.
12. Xiufang Zhang, Lijun Kong, Yandao Gong, Qiang Ao, **Aijun Wang**, Kai Gong. A Kind of Biomimetic Scaffold for Bone Tissue Engineering and Preparation Thereof. Chinese Patent No. **ZL200610089736.6**, date of patent: July 23, 2008.

INVITED PRESENTATIONS

1. **Aijun Wang**, **Song Li**. Nanofibrous Conduits and Induced Pluripotent Stem Cells for Nerve Regeneration. **Aegean 4th International Conference on Tissue Engineering**. May 31- June 5, 2011. Crete, Greece.
2. **Aijun Wang**. Nanofibrous Scaffolds for Nerve Regeneration. **5th Annual Symposium on Integrating Nanotechnology with Cell Biology and Neuroscience (INCBN)**. August 15-16, 2011. Albuquerque, NM.
3. **Aijun Wang**. Nanofibrous Scaffolds & Stem Cells for Regenerative Medicine. **The Institute for Regenerative Cures (IRC) Shared Translational Lab, UC Davis**. April 30, 2012. Sacramento, CA.
4. **Aijun Wang**. Stem Cells & Nanomaterials for Tissue Regeneration. **College of Biomedical Engineering, Chongqing University**. June 6, 2012. Chongqing, China.
5. **Aijun Wang**. Multipotent Vascular Stem Cells in Vascular Diseases. **School of Medicine, Shandong University**. June 15, 2012. Jinan, China.
6. **Aijun Wang**. Biomaterial Engineering and Stem Cell Engineering for Tissue Regeneration. **Med-X Research Institute, Shanghai Jiao Tong University**. Oct. 31, 2012. Shanghai, China.
7. **Aijun Wang**. Differentiation of Multipotent Vascular Stem Cells Contribute to Vascular Diseases. **BIT's Annual World Congress of Regenerative Medicine & Stem Cells**. Dec. 2-5, 2012. Guangzhou, China.
8. **Aijun Wang**. Endogenous Neural Crest Stem Cell Homing Contributes to Vascular Remodeling. **International Symposium on Small-diameter Vascular Grafts**. Dec. 7-10, 2012. Tianjin, China.
9. **Aijun Wang**. Multipotent Vascular Stem Cells in Vascular Remodelling & Diseases. **24th Annual UC Davis Surgery Research Symposium**. April 24, 2013. Sacramento, CA.
10. **Aijun Wang**. Nanofibrous scaffolds and Stem Cells for Tissue Regeneration. **2013 UCDMC/UCD Musculoskeletal Stem Cell Symposium**. May 13, 2013. Davis, CA.
11. **Aijun Wang**. Stem Cells in Tissue Regeneration & Disease Development. **2013 Stem Cell Research and Regenerative Medicine Retreat**. September 18, 2013. UC Davis, Sacramento, CA.
12. **Aijun Wang**. Human Induced Pluripotent Stem Cell-derived Neural Crest Stem Cells for In Utero Repair of Fetal Myelomeningocele. **BIT's 1st Annual World Congress of Pediatrics**. Oct. 12-14, 2013. Dalian, China. (Podium presentation)
13. **Aijun Wang**. Redefining the Treatment of Congenital Anomalies with Autologous *In Utero* Stem Cell Therapy. Invited speaker at *the Hartwell Foundation*. November 19th, 2013. Memphis, TN.

14. **Aijun Wang.** Beyond the scalpel: fetal tissue engineering as *in utero* therapy. Invited speaker at *the Departmental Seminars*, the Departments of Bioengineering, Musculoskeletal Research Center, Orthopedic Surgery and the McGowan Institute for Regenerative Medicine, at **the University of Pittsburgh**. March 6th, 2014. Pittsburg, PA.
15. **Aijun Wang.** Engineering Biomaterials and Stem Cells for Neural and Vascular Tissue Repair. Invited speaker at the Grand Rounds at **the San Joaquin General Hospital**. April 2nd, 2014. French Camp, CA.
16. **Aijun Wang.** Engineering Biomaterials and Stem Cells for *In Utero* Repair of Structural Birth Defects. **International Fetal Treatment Symposium**. April 17-18, 2014. San Francisco, CA.
17. **Aijun Wang.** Surgical Bioengineering. **12th Annual UCDPHSA Pre-Medical and Pre-Health Professions National Conference UC Davis**, Oct. 11-12, 2014. Davis, CA.
18. **Aijun Wang.** Beyond the Scalpel: Engineering Biomaterials and Stem Cells for In Utero Repair of Birth Defects. **2014 STEM (Science, Technology, Engineering & Mathematics) Scholars Public Lecture, California State University**, November 25, 2014. Sacramento, CA.
19. **Aijun Wang.** Engineering Biomaterials and Stem Cells for In Utero Repair of Spina Bifida. **Orthopaedic Research Seminar, Department of Orthopaedic Surgery, UC Davis School of Medicine**, Jan. 27, 2015. Sacramento, CA.
20. **Aijun Wang.** Engineering Stem Cells for *In Utero* Repair of Spina Bifida. **First Annual Shriners-Temple Symposium on Neural Repair, Shriners Hospitals Pediatric Research Center / Center for Neural Repair and Rehabilitation, Temple University School of Medicine**, June 11-12, 2015. Philadelphia, PA.
21. **Aijun Wang.** Engineering Biomaterials and Stem Cells for *In Utero* Repair of Birth Defects in Animal Models. **North American Veterinary Regenerative Medicine Association 2015 Annual Conference**, June 28 - July 1, 2015, Monterey, CA.
22. **Aijun Wang.** Tissue engineering solutions for Congenital Diaphragmatic hernia and other fetal diagnoses. **UC Davis Department of Pediatrics Grand Rounds**, September 16, 2016, Sacramento, CA.
23. **Aijun Wang.** Developing stem cell-based treatments for spina bifida before or after birth in animal models. Invited presentation at **the Veterinary Institute for Regenerative Cures (VIRC) Regenerative Medicine Seminar, UC Davis**. September 20, 2016. Davis, CA.
24. **Aijun Wang.** Bioengineering for Surgeons. **UC Davis Surgery Grand Rounds**, October 18, 2016, Sacramento, CA.
25. **Aijun Wang.** Developing stem cell-based treatments for spina bifida before or after birth in animal models. **The Institute for Pediatric Regenerative Medicine Annual Research Symposium**, Nov. 4th, 2016. Davis, CA.
26. **Aijun Wang.** Engineering Artificial Matrix for Vascular Regeneration. **The 28th Annual UC Davis Surgery Research Symposium- Featured Faculty Presentation**. April 18, 2017. Sacramento, CA.
27. **Aijun Wang.** Developing Regenerative Therapies for Birth Defects in Animal Models. Invited presentation at **the Institute for Regenerative Cures (IRC) Shared Translational Lab, UC Davis**. June 12, 2017. Sacramento, CA.
28. **Aijun Wang, Diana Farmer.** Developing Regenerative Therapies for Spina Bifida. **Ben Ali Shrine Stated Meeting Featured Presentation**, June 13, 2017. Sacramento, CA.
29. **Aijun Wang.** Engineering stem cells and biomaterials to treat birth defects before birth. **6th International Conference on Tissue Engineering and Regenerative Medicine**. August 23-24, 2017. San Francisco, CA.
30. **Aijun Wang.** Advancing Surgical Research through Inter-department & Inter-school Collaboration. **UC Davis Surgery Grand Rounds**, September 5, 2017, Sacramento, CA.
31. **Aijun Wang.** Fetal Surgery Outcomes in Spina Bifida. **2nd Annual Shriners Western Regional Conference**, September 29-30, 2017. Sacramento, CA.
32. **Aijun Wang.** Engineering of Early Gestation Placenta-derived Stem Cells for Fetal Treatment of Hemophilia. **36th Annual IFMSS (The International Fetal Medicine and Surgery Society) Meeting**, October 8-12, 2017. Jackson Hole, WY.
33. **Aijun Wang.** Fetal Tissue Engineering with Biomaterials and Placenta-derived Stem Cells to Treat Birth Defects. **36th Annual IFMSS (The International Fetal Medicine and Surgery Society) Meeting**, October 8-12, 2017. Jackson Hole, WY.
34. **Aijun Wang.** Stem Cell-based Regenerative Therapies for Spina Bifida. **The Institute for Pediatric Regenerative Medicine Annual Research Symposium**, November 3, 2017. Davis, CA.
35. **Aijun Wang.** Animal Models for Spina Bifida Research. **The Institute for Pediatric Regenerative Medicine Seminar Series, Shriners Hospital Northern California**, March 9, 2018. Sacramento, CA.
36. **Aijun Wang.** Translational Research for the Treatment of Spina Bifida. **Wilson Bost Annual Meeting, Shriners Hospital Northern California**, April 6, 2018. Sacramento, CA.

37. **Aijun Wang.** *In utero* stem cell transplantation and fetal tissue engineering to treat birth defects in the developing fetus. **Investigators' Meeting 2018 | Center for Multimodal Evaluation of Engineered Cartilage, Case Western Reserve University**, May 21, 2018. Cleveland, OH.
38. **Aijun Wang.** Stem cell-based regenerative treatments for spina bifida. **Fourth Annual Shiners-Temple Symposium on Neural Repair, Shriners Hospitals Pediatric Research Center / Center for Neural Repair and Rehabilitation, Temple University School of Medicine**, June 8, 2018. Philadelphia, PA.
39. **Aijun Wang.** Developing stem cell treatments for spina bifida in a naturally occurring disease model. **6th Annual Midwest Conference on Cell Therapy and Regenerative Medicine**, September 14, 2018. Overland Park, KS.
40. **Aijun Wang.** Surgical Bioengineering- Innovation, Invention and Entrepreneurship. **Department of Surgery Grand Rounds**, September 25, 2018. Sacramento, CA.
41. **Aijun Wang.** From Engineering Stem Cells and Biomaterials for Tissue Regeneration- Idea to Clinic: Stem cell treatment for spina bifida. **2018 UC Davis Stem Cell Awareness Day UC Davis Medical Center**, October 10, 2018. Sacramento, CA.
42. **Aijun Wang.** Engineering Stem Cells and Biomaterials for Tissue Regenerative. **The Institute for Pediatric Regenerative Medicine Annual Research Symposium**, October 10, 2018. Davis, CA.
43. **Aijun Wang.** Surgical Bioengineering: Engineering Stem Cells and Biomaterials for Tissue Regeneration. **The Department of Biomedical Engineering BME Seminar**, November 8, 2018. Davis, CA.
44. **Aijun Wang.** Fetal and Neonatal Treatment of Spina Bifida with Stem Cells. **Special Orthopaedic Research Seminar, UC Davis Health**, December 5, 2018. Sacramento, CA.
45. **Aijun Wang.** Engineering the Fetal Environment with Stem Cells to Treat Birth Defects Before Birth. **2019 BMES Cellular and Molecular Bioengineering Conference**, January 2-6, 2019. San Diego, CA
46. **Aijun Wang.** Fetal and Neonatal Treatment of Spina Bifida with Stem Cells. **2019 Shriners Symposium - State of Research Special Emphasis on Muscle and Bone Health**. March 1-2, 2019. Chicago, IL.
47. **Aijun Wang.** Surgical Bioengineering- Innovation, Invention and Entrepreneurship. **2019 ASNTR (American Society for Neural Therapy and Repair) Annual Conference**. April 25-28, 2019. Clearwater, FL.
48. **Aijun Wang.** Introduction to the Surgical Bioengineering Laboratory at UC Davis. **1st Bay Area Stem Cell Conference**. May 8-11, 2019. Asilomar, CA.
49. **Aijun Wang.** Engineering stem cells, extracellular vesicles and matrices for tissue regeneration. **2019 NTU-UCD Summit**. May 30-31, 2019. Davis, CA.
50. **Aijun Wang.** Engineering stem cells, extracellular vesicles and matrices for surgical applications. **Department of Surgery Grand Rounds**, July 30, 2019. Sacramento, CA.
51. **Aijun Wang.** Engineering stem cells for surgical applications. **Educational Seminar for California State Society of American Medical Technologists**, September 21, 2019. Sacramento, CA.
52. **Aijun Wang.** Bioengineering Endothelial Cell/Matrix Interactions for Improved Endothelialization and Vascularization. **UC Davis Cardiovascular Research Institute Annual Retreat, UC Davis Health**, October 22, 2019. Sacramento, CA.
53. **Aijun Wang.** Surgical Bioengineering- Engineering Stem Cells and Extracellular Components for Tissue Regeneration. **UC Riverside Bioengineering Department Colloquium Speaker**, Nov. 6, 2019. Riverside, CA.
54. **Aijun Wang.** Surgical Bioengineering- Engineering Stem Cells and Extracellular Components for Tissue Regeneration. **UC Davis Health Research Mentor Series**, Nov. 12, 2019. Sacramento, CA.
55. **Aijun Wang.** Engineering Stem Cells and Extracellular Vesicles and Matrices for Tissue Regeneration. **The Institute for Pediatric Regenerative Medicine Annual Research Symposium**, Dec. 13, 2019. Sacramento, CA.
56. **Aijun Wang.** *In utero* stem cell transplantation and fetal tissue engineering in the developing fetus. **Center for Multimodal Evaluation of Engineered Cartilage, External Advisory Committee meeting 2020. Case Western Reserve University**. Jan. 6, 2020. Cleveland, OH
57. **Aijun Wang.** Engineering Stem Cell-derived EVs For Local Delivery and Therapeutic Applications. **SelectBIO EV-based Diagnostics, Delivery & Therapeutics Summit**. Feb. 17-18, 2020. San Diego, CA.
58. **Aijun Wang.** Developing Self-Renewable "Living" Endothelium Vascular Grafts for Hemodialysis. **The virtual 3rd Annual Innovations in Dialysis: Expediting Advances Symposium (IDEAS) 2020, University of Washington Kidney Research Institute & Center for Dialysis Innovation**. Virtual. Aug. 31-Sept. 1, 2020.
59. **Aijun Wang.** Applying Placental MSC-Derived Exosomes to Treat Neurological Disorders & Congenital Diseases. **The 2nd Digital Exosome-Based Therapeutic Development Summit**. Virtual. Nov. 11-12, 2020.

60. **Aijun Wang.** Developing Surgical Bioengineering Technologies for Surgical Innovation. **Department of Surgery Grand Rounds**, Feb. 2, 2021. Sacramento, CA.
61. **Aijun Wang.** Engineering stem cells, extracellular vesicles and matrices for surgical applications. **George Mason University Colloquium Series Seminars**. Virtual. Feb. 23, 2021.
62. **Aijun Wang.** Engineering stem cells and extracellular components to promote tissue regeneration and restore function. **Shriners Hospitals for Children & Georgia Institute of Technology Tissue Engineering Seminar**. Virtual. March. 31, 2021.
63. **Aijun Wang.** Quarter at Aggie Square: Collaborative Opportunities between the Departments of Biomedical Engineering and Surgery. **Department of Surgery Grand Rounds**, May 11, 2021. Sacramento, CA.
64. **Aijun Wang.** Engineering Extracellular Vesicles as Nanotherapeutics for Targeted Delivery and Regenerative Medicine. **4th Annual meeting on Exosomes, Microvesicles and Infectious Disease**. Virtual. May 14, 2021.
65. **Aijun Wang.** Bioengineered Vessels for Dialysis Vascular Access: Creating a Living Breathing Vessel (& panel discussion). [Vascular Access Society of the Americas 2021 Spring Virtual Conference \(VASA, 21–22 May, 2021 online\)](#)
66. **Aijun Wang.** Bioengineering Stem Cells and Extracellular Components to Promote Tissue Regeneration. **Medical Student Research Mentor Presentation**, UC Davis School of Medicine, October 14, 2021, Sacramento, CA.
67. **Aijun Wang.** Engineering Stem Cell-Derived Extracellular Vesicles as Nanotherapeutics for Targeted Delivery and Regenerative Medicine. **AAPS (American Association of Pharmaceutical Scientists) PharmSci 360 Conference**. Virtual. October. 17-20, 2021.
68. **Aijun Wang.** Engineering stem cell-derived extracellular vesicles as nanotherapeutics for targeted delivery and regenerative medicine. **3rd Conference on Biomotors, Virus Assembly, and RNA Nanobiotechnology**. Virtual. Dec 14, 2021.
69. **Aijun Wang.** Developing a stem cell-based regenerative treatment for spina bifida. **Shriners Summer Youth Academy** (for high school students). Virtual. July 12, 2022.
70. **Aijun Wang.** Engineering Stem Cells and Extracellular Components to Promote Tissue Regeneration and Restore Function. **UC Davis Stem Cell & Gene Therapy Seminar Series**. July 18, 2022. Sacramento, CA, USA.
71. **Aijun Wang.** Bioengineering Extracellular Matrices and Extracellular Vesicles for Tissue Regeneration. **Shriners Hospitals for Children Science Seminar Series**. September 16, 2022. Sacramento, CA, USA.
72. **Aijun Wang.** Bioengineering Stem Cells and Extracellular Components to Promote Tissue Regeneration. **Medical Student Research Mentor Series**, UC Davis School of Medicine, September 22, 2022, Sacramento, CA.
73. **Aijun Wang.** Bioengineering Stem Cells and Extracellular Components to Promote Tissue Regeneration. **CIRM Bridges Program Mentor Presentation**, UC Davis Institute for Regenerative Cures, September 27, 2022, Sacramento, CA.
74. **Aijun Wang.** Biomaterial Regulation of Endogenous Stem Cells to Promote Vascularized Fetal Bone Formation for Treatment of Spina Bifida. **40th International Fetal Medicine and Surgery Society (IFMSS) Annual Meeting**, November 7-12, 2022, Los Cabos, Mexico.
75. **Aijun Wang.** Engineering Stem Cells and Extracellular Components to Promote Tissue Regeneration and Restore Function. **The Inaugural SOM-SVM Research Day, Reaching Across the Causeway**, UC Davis School of Medicine, January 11, 2023, Sacramento, CA.
76. **Aijun Wang.** Extracellular Vesicle Theranostics in the Central Nervous System. **UC Davis Alzheimer's Disease Research Center (ADRC) seminar**, UC Davis ADRC, Feb 13, 2023, Sacramento, CA.
77. **Aijun Wang.** Engineering Stem Cells and Extracellular Vesicles to Promote Tissue Regeneration and Restore Function. **Invited Speaker** for **Department Seminar** at the **Department of Molecular and Integrative Physiology, University of Illinois at Urbana Champaign**, March 2, 2023. Urbana Champaign, Illinois.
78. **Aijun Wang.** Mesenchymal Stem Cell-Derived Extracellular Vesicles: A Promising Theranostics in the CNS. **Invited Speaker** for **1st Annual American Physiological Society APS Summit 2023**. Special Session: Emerging Roles of Extracellular Vesicles in Central Nervous System Pathologies. April 20-23, 2023, Long Beach, CA.
79. **Aijun Wang.** Bioengineering Stem Cells and Extracellular Components to Promote Tissue Regeneration. **CIRM Bridges Program Mentor Series**, UC Davis Institute for Regenerative Cures, May 26, 2023, Sacramento, CA.
80. **Aijun Wang.** Engineering Stem Cells and Extracellular Vesicle Theranostics in the Central Nervous System. **Cancer Center Brain Malignancies Innovation Group**, UC Davis Cancer Center, June 27, 2023, Sacramento, CA.
81. **Aijun Wang.** Engineered Stem Cell-Derived Extracellular Vesicles: Promising Theranostics for Tissue Regeneration. **Keynote Speaker** for **Extracellular Vesicles 2023: Drug Delivery, Biologics & Therapeutics**, July 26-27, Orlando, Florida.

82. **Aijun Wang.** Advancing Surgical Bioengineering Technologies for Innovation and Translation. **UC Davis Surgery Grand Rounds**, August 22, 2023, Sacramento, CA.
83. **Aijun Wang.** Bioengineering Stem Cells and Extracellular Components to Promote Tissue Regeneration. **CIRM Bridges Program Mentor Series**, UC Davis Institute for Regenerative Cures, September 22, 2023, Sacramento, CA.
84. **Aijun Wang.** Advancing Surgical Bioengineering Technologies for Innovation and Translation. **UC Davis Medical Student Mentor Series Presentation**, UC Davis School of Medicine, September 26, 2023, Sacramento, CA.
85. **Aijun Wang.** Collaboration and Partnership – Pathway for Innovation to Translation. UC Davis Cardiovascular Research Institute (CVRI) Retreat and Heart Day. Oct 27, 2023.
86. **Aijun Wang.** Engineering extracellular vesicles and lipid nanoparticles for targeted delivery. **4th Conference on Biomotors, Virus Assembly, and RNA Nanobiotechnology**. Dec 18-20, 2023.
87. **Aijun Wang.** Engineering Extracellular Vesicles and Lipid Nanoparticles for Targeted Delivery and *In Utero* Treatment. **Shriners Hospitals for Children Science Seminar Series**. Feb 16, 2024. Sacramento, CA, USA.
88. **Aijun Wang.** From the Barn to the Bedside: The CuRe Trial Story. **2024 Shriners State of Research on Muscle and Bone Health**. Feb 22-23, 2024. Atlanta, GA.
89. **Aijun Wang.** Surgical Bioengineering - Stem Cells and Extracellular Vesicles for Disease Treatment. **UC Berkeley Bioengineering Seminar Series**. April. 10, 2024. Berkeley, CA, USA.
90. **Aijun Wang.** Engineering Stem Cells, Extracellular Vesicles, and Lipid Nanoparticles for Translational Medicine. **UC Davis Cancer Center Seminar Series**. May 9, 2024. Sacramento, CA, USA.
91. **Aijun Wang.** Nanoparticle-mediated non-viral gene editing for in utero treatment of Duchenne muscular dystrophy. ***Invited Speaker*** for the Session: Biomaterial-assisted gene therapy to treat musculoskeletal disorders. **2024 WBC (World Biomaterials Congress) Annual Meeting**. May 25-28, 2024. Daegu, South Korea.
92. **Aijun Wang.** Engineering stem cells and extracellular components to treat birth defects. ***Keynote Speaker*** for the Session: Pediatric Tissue Engineering - Clinical Translation and Recent Advances. **2024 TERMIS Annual Meeting**. June 25-30, 2024. Seattle, WA, USA.
93. **Aijun Wang.** Engineering Extracellular Vesicles and Lipid Nanoparticles for *In Utero* Treatment of Birth Defects. **UCLA Bioengineering Song Li Laboratory Seminar**. July 13, 2024. Los Angeles, CA.
94. **Aijun Wang.** Engineering Stem Cells and Extracellular Vesicles for Disease Treatment. **UC Davis Institute for Regenerative Cures CIRM Bridges Studnets Mentor Series**. Sept. 24, 2024. Sacramento, CA, USA.
95. **Aijun Wang.** Engineering Stem Cells for *In Utero* Treatment of Birth Defects: Fundamentals of Medical Product Regulation for Biomedical Engineers (Perspectives from Academia, Industry, and Regulators Workshop). **2024 BMES Annual Meeting**. October 22-26, 2024. Baltimore, MD
96. **Aijun Wang.** Engineering Extracellular Vesicles and Lipid Nanoparticles for *In Utero* Treatment of Structural and Genetic Birth Defects. **8th iFeTIS (International Fetal Transplantation and Immunology Society) Annual Conference**. Nov 1-2, 2024. Winston-Salem, NC.
97. **Aijun Wang.** Engineering Extracellular Vesicles and Lipid Nanoparticles for Targeted Delivery. **UC Davis Lung Center Webinar Series**. Nov 8, 2024. Davis, CA, USA.
98. **Aijun Wang.** Engineering Stem Cells and Extracellular Vesicles for Targeted Delivery. **UC Davis Cardiovascular Biology Seminar Series**. Nov 14, 2024. Davis, CA, USA.
99. **Aijun Wang.** Engineering Stem Cell-derived Extracellular Vesicles for Targeted Treatment of CNS Disorders. **2024 ISEVxTech EV Technology and Method Summit**. Nov 21-23, 2024. Baltimore, MD.
100. **Aijun Wang.** Engineering Stem Cells and Extracellular Components for Tissue Regeneration. **UC Berkeley Stem Cell Seminar Series**. Dec. 5, 2024. Berkeley, CA, USA.
101. **Aijun Wang.** Engineering Stem Cells for *In Utero* Treatment of Birth Defects. **2025 BMES-CMBE (Cellular and Molecular Bioengineering) Annual Conference**. January 3-6, 2025, San Diego, CA.

CONFERENCE PRESENTATIONS

1. **Qiang Ao, Aijun Wang,** Wenling Cao, Yandao Gong, Nanming Zhao, Xiufang Zhang. Preparation of Axon-tunneling Conduits for Nerve Regeneration, **The 6th Asia Symposium on Biomedical Materials**, July 19-22, 2004, Emei City, Chengdu, China (Podium presentation)

2. Wengling Cao, Aijun Wang, Duohui Jing, Yandao Gong, Nanming Zhao, Xiufang Zhang. Physicochemical Properties and Cytocompatibility of the Blend Films of Chitosan with PHB. **The 6th Asia Symposium on Biomedical Materials**, July 19-22, 2004, Emei City, Chengdu, China (Podium presentation)
3. Ling Zhang, Aijun Wang, Yuan Gao, Qiang Ao, Yandao Gong, Nanming Zhao, Xiufang Zhang. A Novel Chitosan-based Tubular Scaffold for Blood Vessel Tissue Engineering, **The 8th Annual Meeting of Tissue Engineering Society International**, Oct.22-25, 2005, Shanghai, China. (Podium presentation)
4. Qiang Ao, Aijun Wang, Wenling Cao, Qing He, Yandao Gong, Nanming Zhao, Xiufang Zhang. Inner-structure Controllable Chitosan Nerve Conduits Made by Using Novel Molds and Thermal Induced Phase-separation Technique, **The 8th Annual Meeting of Tissue Engineering Society International**, Oct.22-25, 2005, Shanghai, China. (Podium presentation)
5. Aijun Wang, Qiang Ao, Qing He, Wenling Cao, Yandao Gong, Nanming Zhao, Xiufang Zhang. Nerve Guidance Scaffolds with Controllable Multiple Longitudinally Aligned Macro-channels and Interconnected Micro-pores, **The 8th Annual Meeting of Tissue Engineering Society International**, Oct.22-25, 2005, Shanghai, China. (Podium presentation)
6. Jing Xi, Qiang Ao, Aijun Wang, Yandao Gong, Nanming Zhao, Xiufang Zhang. Preparation and Evaluation of Porous Poly(3-hydroxybutyrate-co-3-hydroxyhexanoate)/hydroxyapatite Composite Scaffolds, **The 3rd International Symposium on Apatite and Correlative Biomaterials**, Oct. 25-28, 2005, Wuhan, China. (Podium presentation)
7. Aijun Wang, Qiang Ao, Kai Gong, Yandao Gong, Xiufang Zhang. Implantation and Function Evaluation of Chitosan Nerve Guide in Animal Models, **2005 Annual Meeting of State Key Laboratory of Biomembrane & Membrane Biotechnology**, Nov.25-28, 2005, Beijing, China. (Podium presentation)
8. Aijun Wang, Qiang Ao, Kai Gong, Yandao Gong, Xiufang Zhang. *In vivo* Study of Chitosan Nerve Guide Conduits in Goats and Monkeys, **2006 Beijing International Materials Week (BIMW) and Annual Meeting of Chinese Materials Research Society**, Jun.25-30, 2006, Beijing, China. (Podium presentation. Youth Excellent Thesis Award)
9. Aijun Wang, Qiang Ao, Kai Gong, Zhenhuan Zheng, Lijun Kong, Gan Wang, Qing He, Yandao Gong, Xiufang Zhang. Fabrication and functional evaluation of chitosan nerve guide conduits. **The 2nd National Scientific Conference of Tissue Engineering, Stem Cells and Nerve Regeneration**, Dec.11-13, 2006, Nantong, China. (Podium presentation. Excellent Thesis Award)
10. Zhenhuan Zheng, Ling Zhang, Aijun Wang, Yandao Gong, Xiufang Zhang. Effects of Surface Characteristics of Chitosan/Polycation Composite on Behaviors of MC3T3-E1 Cells, **The 8th World Biomaterials Congress**, May 28 - June 1, 2008, Amsterdam, the Netherlands. (Poster presentation)
11. Aijun Wang, Qiang Ao, Kai Gong, Yandao Gong, Xiufang Zhang. A Chitosan-based Semipermeable Conduit for Peripheral Nerve Repair: In vivo Studies in Goats and Nonhuman Primates after 16 Months Postoperatively, **The 8th World Biomaterials Congress**, May 28 - June 1, 2008, Amsterdam, the Netherlands. (Poster presentation)
12. Aijun Wang, Hayley Lam, Song Li. Neural Stem Cells Derived from Human Induced Pluripotent Stem (iPS) Cells Hold Promise for Nerve Tissue Engineering. **The 3rd Annual Retreat of UC Berkeley Stem Cell Center**, Apr. 13-14, 2008, Asilomar, CA. (Poster presentation)
13. Borami Shin, Alexis Dang, David Lee, Aijun Wang, Song Li, Hubert, Kim. Enhanced DRG Neurite Outgrowth with Aligned Nanofiber Scaffolds and Neurotrophins. **55th Annual Meeting of the Orthopaedic Research Society (ORS)**. Feb. 22-25, 2009. Las Vegas, Nevada.
14. Borami Shin, Aijun Wang, Song Li, Hubert, Kim. Sciatic Nerve Regeneration in RGD-conjugated-Aligned-Nanofiber Conduits. **56th Annual Meeting of the Orthopaedic Research Society (ORS)**. March 6-9, 2010. New Orleans, Louisiana.
15. Borami Shin, Alexis Dang, David Lee, Aijun Wang, Song Li, Hubert, Kim. Enhanced Axonal Outgrowth with RGD-conjugated-Aligned Nanofiber Scaffolds and Nerve Growth Factor. **56th Annual Meeting of the Orthopaedic Research Society (ORS)**. March 6-9, 2010. New Orleans, Louisiana.
16. Aijun Wang, Song Li. Neural crest stem cells derived from human induced pluripotent stem cells **The 5th Annual Retreat of UC Berkeley Stem Cell Center**, Apr. 10-12, 2008, Asilomar, CA. (Podium presentation)
17. Aijun Wang, Zhenyu Tang, In-Hyun Park, Yiqian Zhu, Shyam Patel, George Q. Daley, Song Li. Induced Pluripotent Stem Cell-Derived Neural Crest Stem Cells for Peripheral Nerve Regeneration. **International Society for Stem Cell Research (ISSCR) 2010 Annual Meeting**. June 6-9, 2010. San Francisco, CA. (Poster presentation)
18. Yiqian Zhu, Aijun Wang, Shyam Patel, Song Li. Nanofibrous Nerve Grafts for Peripheral Nerve Regeneration. **11th Annual UC Systemwide Bioengineering**. June 13-15, 2010. UC Davis. (Grand Challenge Podium Presentation)
19. Aijun Wang, Zhenyu Tang, In-Hyun Park, Yiqian Zhu, Shyam Patel, George Q. Daley, Song Li. Peripheral Nerve Regeneration by Induced Pluripotent Stem Cell-Derived Neural Crest Stem Cells. **BMES 2010 Annual Meeting**. Oct. 6-9, 2010. Austin, TX. (Podium presentation)

20. Timothy Downing, **Aijun Wang**, Zhiqiang Yan, Song Li. Drug-Eluting Nanofibrous Patches Demonstrate Importance of Release Kinetics In Spinal Cord Repair. **12th Annual UC Systemwide Bioengineering**. June 13-15, 2011. UC Santa Barbara. (Grand Challenge Podium Presentation)
21. Yiqian Zhu, **Aijun Wang**, Timothy L. Downing, Song Li. Biomaterials and Stem Cells for Nerve Regeneration. **12th Annual UC Systemwide Bioengineering**. June 13-15, 2011. UC Santa Barbara. (Podium presentation)
22. **Aijun Wang**, Zhenyu Tang, Yiqian Zhu, Ying Li, Julia Chu, Song Li. Neural Crest Stem Cells Derived from Human Induced Pluripotent Stem Cells for Vascular and Neural Tissue Regeneration. **CIRM 2011 Grantee Meeting**. Sep. 14-16, 2011. San Francisco, CA. (Poster presentation)
23. **Aijun Wang**, Yiqian Zhu, Zhenyu Tang, Ying Li, George Kwong, Song Li. Neural Crest Stem Cells Undergo Specific Differentiation in Vascular and Neural Microenvironment During Regeneration. **BMES 2011 Annual Meeting**. Oct. 12-15, 2011. Hartford, CT. (Podium presentation)
24. **Aijun Wang**, Jian Yu, Zhenyu Tang, Yiqian Zhu, Jeffrey Henry, Fengping Huang, Song Li. Engineer Bioactive Vascular Grafts to Recruit Endogenous Progenitor Cells for In Situ Regeneration of Blood Vessels. **Days of Molecular Medicine (DMM) 2011: Re-engineering Regenerative Medicine**. Dec. 9-11, 2011. (Organized by *Science Translational Medicine*). Hong Kong, China. (Poster presentation)
25. Zhenyu Tang, **Aijun Wang**, Zhiqiang Yan, Julia Chu, Song Li. Synthetic Smooth Muscle Cells are Derived from Multipotent Vascular Stem Cells Instead of Contractile Smooth Muscle Cells. **American Heart Association (AHA) Scientific Sessions 2011**. Nov. 14-16, 2011. Orlando, FL. (Poster presentation)
26. **Aijun Wang**, Zhenyu Tang, Jian Yu, Zhiqiang Yan, Benjamin Lee, Song Li. The Recruitment of Neural Crest-like Stem Cells Contributes to Vascular Regeneration. **American Heart Association (AHA) Scientific Sessions 2011**. Nov. 14-16, 2011. Orlando, FL. (Poster presentation)
27. **Aijun Wang**, Zhenyu Tang, Andy Lee, Song Li. Neural Crest Stem Cells, but Not the Differentiated Schwann Cells or Smooth Muscle Cells, Promote Peripheral Nerve Regeneration. **Tissue Engineering Regenerative Medicine International Society –Americas (TERMIS-AM) Annual Meeting**. Dec. 10-14, 2011. Houston, TX. (Podium presentation)
28. **Aijun Wang**, Jian Yu, Zhenyu Tang, Jeffery Henry, Benjamin Lee, Song Li. Engineer Bioactive Vascular Grafts to Recruit Endogenous Progenitor Cells for *In Situ* Regeneration of Blood Vessels. **AIChE SBE's 6th International Conference on Bioengineering and Nanotechnology (ICBN) – “Bionanoscience and Bioengineering for Translational Medicine”**. June 24-27, 2012. Berkeley, CA. (Poster presentation)
29. Payam Saadai, **Aijun Wang**, Yvette Nout, Timothy L. Downing, Katrine Lofberg, Michael S. Beattie, Jacqueline C. Bresnahan, Song Li, Diana L. Farmer. Human Induced Pluripotent Stem Cell-Derived Neural Crest Stem Cells Integrate into The Injured Spinal Cord in The Fetal Lamb Model of Myelomeningocele. 43th Annual Meeting of the American Pediatric Surgical Association, SAN ANTONIO, TX. May 20-23, 2012.
30. Lee Lankford, Maricel Miguelino, Christopher Pivetti, Diana Farmer, **Aijun Wang**. Isolation and Characterization of Neural Crest-like Stem Cells from Human Placental Tissue. **2012 CIRM Bridges to Stem Cell Research Awardee Meeting**. July 17, 2012. San Francisco, CA. (Poster presentation)
31. **Aijun Wang**, Lee Lankford. Neural Crest-like Stem Cells from Human Placental Tissue. **The World Congress on Engineering and Technology (CET-2012)**. Oct. 26-28, 2012. Beijing, China. (Podium presentation)
32. Lee Lankford, Chris Pivetti, **Aijun Wang**, Diana Farmer. Isolation and Characterization of Placental Mesenchymal Stem Cells for Autologous *In Utero* Cell Therapy. **24th Annual UC Davis Surgery Research Symposium**. April 24, 2013. Sacramento, CA.
33. Erin Brown, Payam Saadai, Christopher Pivetti, **Aijun Wang**, Diana Farmer. In utero repair of myelomeningocele with autologous amniotic membrane in the fetal lamb model. **24th Annual UC Davis Surgery Research Symposium**. April 24, 2013. Sacramento, CA.
34. Erin Brown, Payam Saadai, Christopher Pivetti, **Aijun Wang**, Diana Farmer. In utero repair of myelomeningocele with autologous amniotic membrane in the fetal lamb model. 44th Annual Meeting of the American Pediatric Surgical Association, Marco Island, FL. May 2-5, 2013.
35. **Aijun Wang**, Song Li. *In Situ* Regeneration of Blood Vessels by Simultaneously Recruiting Endogenous Endothelial and Smooth Muscle Progenitor Cells. **The National Institutes of Health (NIH) NHLBI Symposium on Cardiovascular Regenerative Medicine**. Sep. 25-26, 2013. Bethesda, MD. (Poster presentation)
36. **Aijun Wang**, Zhenyu Tang, Dong Wang, Song Li. Sox10+ Adult Stem Cells Contribute to Wound Healing and Tissue Regeneration. **The Tissue Engineering & Regenerative Medicine International Society -Americas (TERMIS-AM) Conference and Exposition**. Nov. 10-13, 2013. Atlanta, GA. (Podium presentation)

37. Erin Brown, **Aijun Wang**, Diana Farmer. In utero repair of myelomeningocele with Placenta-derived Multipotent Stem Cells in the fetal lamb model. **Annual Retreat of California Institute for Regenerative Medicine at UC Davis**. August 16, 2013. Sacramento, CA.
38. Erin G. Brown, Benjamin A. Keller, Christopher D. Pivetti, Lee Lankford, **Aijun Wang**, Diana L. Farmer. Age Does Matter: A Comparison of Placenta-Derived Stem Cells for in Utero Repair of Fetal Myelomeningocele in the Fetal Lamb Model. **2014 American Academy of Pediatrics National Conference & Exhibition**. Oct. 11-14, 2014. San Diego, CA.
39. Maricel G. Miguelino, Christopher D. Pivetti, Lee Lankford, Jerry Powell, **Aijun Wang**. *In Utero* Chorionic Villus Stem Cell Transplantation for the Treatment of Hemophilia A. **56th Meeting & Exposition, American Society of Hematology (ASH)**. Dec. 6-9, 2014. San Francisco, CA. (**Awarded Best of ASH 2014 out of 4685 abstracts presented**)
40. **Aijun Wang**, Erin G. Brown, Benjamin A. Keller, Christopher D. Pivetti, Nicole A. Sitkin, Michael S. Beattie, Jacqueline C. Bresnahan, Diana L. Farmer. Placental Mesenchymal Stromal Cells Rescue Ambulation in Ovine Myelomeningocele. **2015 Biomedical Engineering Society (BMES) Annual Meeting**. Oct. 7-10, 2015. Tampa, Florida. (**KEYNOTE** presentation of the Stem Cell Engineering track)
41. Maricel G. Miguelino, Priyadarsini Kumar, Jerry Powell, **Aijun Wang**. Human Chorionic Villus Stem Cells May Contribute to Endogenous Factor VIII Production during Gestation. **57th Annual Meeting & Exposition, American Society of Hematology (ASH)**. Dec. 5-8, 2015. Orlando, FL.
42. Maricel G. Miguelino, Priyadarsini Kumar, Christopher D. Pivetti, Lee Lankford, Jerry Powell, **Aijun Wang**. Liver Tropism and Factor VIII Transgene Expression after Intrauterine Chorionic Villus Stem Cell Transplantation. **57th Meeting & Exposition, American Society of Hematology (ASH)**. Dec. 5-8, 2015. Orlando, FL.
43. Josephine Tsang, Andrea G. Kulinich, **Aijun Wang**. The Characterization of Placenta-derived Mesenchymal Stem Cells (PMSCs) for Use in Prenatal Treatment of Hemophilia A. **The 27th Annual UC Davis Undergraduate Research, Scholarship and Creative Activities Conference**. April 8-9, 2016. Davis, CA.
44. Alan T. Nguyen, **Aijun Wang**. Novel in vivo Screening Method of OBOC Combinatorial Libraries in Living Mouse for the Discovery of Clinically Relevant anti-Angiogenic Agents. **The 27th Annual UC Davis Undergraduate Research, Scholarship and Creative Activities Conference**. April 8-9, 2016. Davis, CA.
45. Y. Julia Chen, Lee Lankford, Zoe Saenz, Sandra Kabagambe, James Becker, Ben Keller, Priyadarsini Kumar, **Aijun Wang**, Diana Farmer. *In vitro* characterization of placenta derived mesenchymal stromal cells (PMSCs) on extracellular matrix (ECM). **The 27th Annual UC Davis Surgery Research Symposium**. April 19, 2016. Sacramento, CA.
46. James Becker, Priyadarsini Kumar, Lee Lankford, Ben Keller, Diana Farmer, **Aijun Wang**. Role of human placenta-derived mesenchymal stem cells in neuroprotection and neurogenesis. **The 27th Annual UC Davis Surgery Research Symposium**. April 19, 2016. Sacramento, CA.
47. Scott Walker, Priyadarsini Kumar, Lee Lankford, James Becker, Diana Farmer, Kit Lam **Aijun Wang**. Comparison of genetically identical placental and amniotic fluid mesenchymal stem cells in secreted proteins, exosome cargo, and neuroprotective functionality. **The 27th Annual UC Davis Surgery Research Symposium**. April 19, 2016. Sacramento, CA.
48. Connor Long, Lee Lankford, Priyadarsini Kumar, Diana Farmer, **Aijun Wang**. Isolation of canine placental mesenchymal stem cells to treat naturally occurring spina bifida in the dog. **The 27th Annual UC Davis Surgery Research Symposium**. April 19, 2016. Sacramento, CA. (The Best Poster Award)
49. Dake Hao, Yahan Fan, Yang Wu, Wenwu Xiao, Yuanpei Li, Ruiwu Liu, Christopher Pivetti, Diana Farmer, Kit Lam, **Aijun Wang**. Screening of a specific small peptide targeting endothelial progenitor cells and endothelial cells and study on its endothelialization function for vascular grafts. **The 27th Annual UC Davis Surgery Research Symposium**. April 19, 2016. Sacramento, CA.
50. Benjamin A. Keller, James C. Becker, Erin G. Brown, Lee Lankford, Christopher D. Pivetti, Taryn M. Selby, Zoe M. Saenz, **Aijun Wang**, Diana Farmer. Fetal Ovine Repair of Myelomeningocele with Placental Mesenchymal Stromal Cells Preserves Hind Limb Motor Function: Are These Improvements in Motor Function Durable? 2016 Annual Meeting of the American Pediatric Surgical Association, San Diego, CA. May 15-17, 2016.
51. Priyadarsini Kumar, James Becker, Lee Lankford, Benjamin Keller, Diana Farmer, **Aijun Wang**. Role of Human Placenta-derived Mesenchymal Stem Cells in Neuroprotection and Neurogenesis. **International Society for Stem Cell Research (ISSCR) 2016 Annual Meeting**. June 22-25, 2016. San Francisco, CA.
52. Dake Hao, Yahan Fan, Yang Wu, Wenwu Xiao, Yuanpei Li, Ruiwu Liu, Christopher Pivetti, Diana Farmer, Kit Lam, **Aijun Wang**. Engineering bioactive vascular grafts with a novel ligand against $\alpha v \beta 3$ integrin to recruit endothelial progenitor cells for improved endothelialization and patency. **International Society for Stem Cell Research (ISSCR) 2016 Annual Meeting**. June 22-25, 2016. San Francisco, CA.

53. Y. Julia Chen, Lee Lankford, Sandra Kabagambe, Zoe Saenz, Priyadarsini Kumar, **Aijun Wang**, Diana Farmer. Effect of 2-octylcyanoacrylate on placenta derived mesenchymal stromal cells on extracellular matrix. **American Academy of Pediatrics 2016 Annual Meeting**. Oct. 21-25, 2016. San Francisco, CA.
54. Sandra Kabagambe, Ben Keller, James Becker, Laura Goodman, Christopher Pivetti, Lee Lankford, Zoe Saenz, Y. Julia Chen, Priyadarsini Kumar, Melissa Vanover, **Aijun Wang**, Diana Farmer. Placenta mesenchymal stromal cells seeded on clinical grade extracellular matrix improves ambulation in ovine myelomeningocele. **The 28th Annual UC Davis Surgery Research Symposium**. April 18, 2017. Sacramento, CA.
55. Y. Julia Chen, Karen Chung, Christopher Pivetti, Lee Lankford, Sandra Kabagambe, Zoe Saenz, Melissa Vanover, James Becker, Chelsey Lee, **Aijun Wang**, Diana Farmer. Fetal Repair with Placenta-derived Mesenchymal Stromal Cell Engineered Extracellular Matrix Patch Limits Spinal Cord Damage in Rodent Myelomeningocele. **American Pediatric Surgical Association (APSA) 2017 Annual Meeting**. May 4-7, 2017. Hollywood, FL.
56. Y. Julia Chen, Christopher Pivetti, Sandra Kabagambe, Karen Chung, Zoe Saenz, Lee Lankford, Melissa Vanover, **Aijun Wang**, Diana Farmer. Fetal Surgical Repair of Myelomeningocele Using a Bioengineered Extracellular Matrix Patch in a Retinoic Acid Induced Model: A Feasibility Study. **American Pediatric Surgical Association (APSA) 2017 Annual Meeting**. May 4-7, 2017. Hollywood, FL.
57. Sandra Kabagambe, Ben Keller, James Becker, Laura Goodman, Christopher Pivetti, Lee Lankford, Zoe Saenz, Y. Julia Chen, Priyadarsini Kumar, Melissa Vanover, **Aijun Wang**, Diana Farmer. Placenta mesenchymal stromal cells seeded on clinical grade extracellular matrix improves ambulation in ovine myelomeningocele. **American Pediatric Surgical Association (APSA) 2017 Annual Meeting**. May 4-7, 2017. Hollywood, FL.
58. Priyadarsini Kumar, Kewa Gao, James Becker, Randy Carney, Kyle Herout, Kit Lam, Diana Farmer, **Aijun Wang**. Isolation and Functional characterization of Exosomes Derived from Human Placental Mesenchymal Stromal Cell **American Society for Exosomes and Macrovesicles (ASEMV) Annual Meeting**. October 8-12, 2017. Asilomar Conference Center in Pacific Beach, CA.
59. Galganski LA, Sandra Kabagambe, Lee Lankford, Priyadarsini Kumar, Y. Julia Chen, Kyle Herout, Chelsey Lee, Rebecca Stark, Diana Farmer, **Aijun Wang**. Isolation of Myogenic Progenitors from Human Placenta: Pilot Study. **36th Annual IFMSS (The International Fetal Medicine and Surgery Society) Meeting**, October 8-12, 2017. Jackson Hole, WY.
60. Galganski LA, Kabagambe SK, Kumar P, **Wang A**, Farmer D. Do Paracrine and Neuroprotective Capacities of Placental Mesenchymal Stromal Cells Vary by Gestational Age. **2017 Clinical Congress of the American College of Surgeons (ACS)**. San Diego, CA. October 22-26, 2017.
61. Dake Hao, Lee Lankford, Priyadarsini Kumar, Kewa Gao, Chuwang Wang, Jeanna Harvestine, Kent Leach, Diana Farmer, **Aijun Wang**. Engineering Chorionic Villus-derived Mesenchymal Stromal Cells for *In Utero* Treatment of Spina Bifida. **Tissue Engineering and Regenerative Medicine International Society – Americas (TERMIS-AM) Annual Meeting**. Dec. 3-6, 2017. Charlotte, NC.
62. Dake Hao, Yahan Fan, Yang Wu, Wenwu Xiao, Yuanpei Li, Ruiwu Liu, Christopher Pivetti, Diana Farmer, Kit Lam, **Aijun Wang**. Application of A Novel Small Peptide Targeting Endothelial Progenitor Cells for Improved Endothelialization And Patency in Vascular Grafts. **Tissue Engineering and Regenerative Medicine International Society –Americas (TERMIS-AM) Annual Meeting**. Dec. 3-6, 2017. Charlotte, NC.
63. Kyle Herout, Scott Walker, Lee Lankford, Priyadarsini Kumar, Diana Farmer, **Aijun Wang**. Comparison of Donor-Matched Amniotic Fluid and Placental Mesenchymal Stromal Cells. **Tissue Engineering and Regenerative Medicine International Society –Americas (TERMIS-AM) Annual Meeting**. Dec. 3-6, 2017. Charlotte, NC.
64. Tara Narasimhalu, Danielle Wang, Priyadarsini Kumar, Diana Farmer, **Aijun Wang**. Exosomes of Placental Mesenchymal Stem Cells: Paracrine Signaling and Therapeutic Potential. **UC Davis Medical Student Research & Poster Forum**. March 1, 2018. Sacramento, CA.
65. Muhtada Kamal Aldin, Kewa Gao, Priyadarsini Kumar, Diana Farmer, **Aijun Wang**. Postnatal Transplantation of Cord Blood derived Endothelial Progenitor Stem Cells for the Treatment of Hemophilia A. **UC Davis Medical Student Research & Poster Forum**. March 1, 2018. Sacramento, CA. **(Best Poster Award- Second Place to Muhtada Kamal Aldin MSII)**
66. Erica Tutuwan, Melissa Vanover, Diana Farmer, **Aijun Wang**. Placenta Stem Cell Therapy for Spinal Cord Injury. **The 29th Annual UC Davis Undergraduate Research, Scholarship and Creative Activities Conference**. April 28, 2018. Davis, CA.

67. Dake Hao, Yahan Fan, Yang Wu, Wenwu Xiao, Yuanpei Li, Ruiwu Liu, Christopher Pivetti, Diana Farmer, Kit Lam, **Aijun Wang**. Engineering small diameter vascular grafts with an endothelial progenitor cell capturing ligand for improved endothelialization and patency. **The Northern California Chapter of the American College of Surgeons (NCCACS) Annual Meeting**. April 6-7, 2018. Berkeley, CA (A Top 10 abstract of the NCCACS Russell Surgical Trainee Research Competition).
68. Dake Hao, Yahan Fan, Yang Wu, Wenwu Xiao, Ruiwu Liu, Christopher Pivetti, Diana Farmer, Kit Lam, **Aijun Wang**. Engineering small diameter vascular grafts with a specific endothelial progenitor cell / endothelial cell capturing ligand for improved endothelialization and patency. **The 4th UCD Annual Postdoctoral Research Symposium**. April 23, 2018. Davis, CA.
69. Melissa Vanover, Christopher Pivetti, Priyadarsini Kumar, Karen Chung, Laura Galganski, Diana Farmer, **Aijun Wang**. Placental Mesenchymal Stromal Cells Improve Forelimb Motor Function in a Rodent Cervical Spinal Cord Contusion Model. **The 29th Annual UC Davis Surgery Research Symposium**. April 24, 2018. Sacramento, CA.
70. Priyadarsini Kumar, James Becker, Kewa Gao, Randy Carney, Benjamin Keller, Kyle Herout, Kit Lam, Diana Farmer, **Aijun Wang**. Neuroprotective Effect of Human Placenta-derived Mesenchymal Stromal Cells - Role of Exosomes. **The 29th Annual UC Davis Surgery Research Symposium**. April 24, 2018. Sacramento, CA.
71. Melissa Vanover, Sandra Kabagambe, Christopher Pivetti, Lee Lankford, Priyadarsini Kumar, Julia Chen, Ben Keller, Chelsey Lee, Zack Paxton, Laura Galganski, **Aijun Wang**, Diana Farmer. High Dose Placental Mesenchymal Stromal Cells Provide Neuronal Preservation Following *In Utero* Treatment Of Ovine Myelomeningocele. **The 29th Annual UC Davis Surgery Research Symposium**. April 24, 2018. Sacramento, CA.
72. Kewa Gao, Priyadarsini Kumar, Lizette Reynage, Dake Hao, Ping Zhou, Jianda Zhou, **Aijun Wang**. Co-transplantation of cord blood derived endothelial colony-forming cells with placental mesenchymal stromal cells achieved stable long-term engraftment. **The 29th Annual UC Davis Surgery Research Symposium**. April 24, 2018. Sacramento, CA.
73. Dake Hao, Ruiwu Liu, Christopher Pivetti, Priyadarsini Kumar, Nicole Kreutzberg, Laura Galganski, Kewa Gao, Lizette Reynage, Kit Lam, Diana Farmer, **Aijun Wang**. Engineering autologous stem cell-based vascularized bone graft for in utero treatment of spina bifida. **The 29th Annual UC Davis Surgery Research Symposium**. April 24, 2018. Sacramento, CA.
74. Melissa Vanover, Christopher Pivetti, Priyadarsini Kumar, Karen Chung, Laura Galganski, Diana Farmer, **Aijun Wang**. Placental Mesenchymal Stromal Cells Improve Forelimb Motor Function in a Rodent Cervical Spinal Cord Contusion Model. **2018 Annual Scientific Meeting of the American Spinal Injury Association**, Mayo Civic Center, Rochester, MN. May 2-4, 2018.
75. Melissa Vanover, Sandra Kabagambe, Christopher Pivetti, Lee Lankford, Priyadarsini Kumar, Julia Chen, Ben Keller, James Becker, Chelsey Lee, Zack Paxton, Laura Galganski, Laura Goodman, Guy Jenson, **Aijun Wang**, Diana Farmer. High Density Placental Mesenchymal Stromal Cells Provide Neuronal Preservation and Improved Motor Function Following *In Utero* Treatment Of Ovine Myelomeningocele. **2018 Annual Meeting of the American Pediatric Surgical Association**, Palm Desert, CA. May 3-6, 2018.
76. Melissa Vanover, Priyadarsini Kumar, Lee Lankford, Julia Chen, Diana Farmer, **Aijun Wang**. Mesenchymal Stromal Cells Isolated from Placenta of a Fetus with Spina Bifida Provide Neuroprotection *In Vitro*. **2018 Annual Meeting of the American Pediatric Surgical Association**, Palm Desert, CA. May 3-6, 2018.
77. Galganski LA, Vanover MA, Pivetti CD, Lankford L, Kumar P, Kabagambe SK, Keller B, Becker J, Chen YJ, Chung K, Lee CJ, Paxton ZJ, Deal B, Goodman L, Anderson JE, Jensen G, **Wang A**, Farmer DL. High Density Placental Mesenchymal Stromal Cells Provide Neuronal Preservation and Improved Motor Function Following *In Utero* Treatment Of Ovine Myelomeningocele. **International Fetal Medicine and Surgery Society (IFMSS)**. Bali, Indonesia. August 6-12, 2018.
78. Kewa Gao, Priyadarsini Kumar, Dake Hao, Lizette Reynaga, Diana Lee Farmer, Melanie Rose, Jan A. Nolta, Jianda Zhou, Ping Zhou, **Aijun Wang**. Potential Long-Term Treatment of Hemophilia a by early postnatal co-Transplantation of cord blood derived endothelial colony-forming cells and placental mesenchymal stem cells. **60th American Society of Hematology (ASH) Annual Meeting & Exposition**. San Diego, CA. December 1-4, 2018.
79. Lalithasri Ramasubramanian, Priyadarsini Kumar, Dake Hao, Diana L. Farmer, **Aijun Wang**. Development of Exosome Mimics for Vascularization in Ischemic Wound Sites. **The 1st Northern California Biomaterials Day**. January 11, 2019. Davis, CA.
80. Lalithasri Ramasubramanian, Priyadarsini Kumar, Dake Hao, Diana L. Farmer, **Aijun Wang**. Development of Exosome Mimics for Vascularization in Ischemic Wound Sites. **The 28th Annual Biotechnology Program Retreat**. March 9, 2019. Davis, CA.

81. Kaitlin Clark, Rogério Martins Amorim, Priyadarsini Kumar, Naomi Walker, Lee Lankford, Nicole Kreutzberg, Beverly Sturges, Dori Borjesson, Diana L. Farmer, **Aijun Wang**. Translational Applications of Placenta-derived Mesenchymal Stem Cells for the Treatment of Neurodegenerative Disease. **UC Davis Biochemistry, Molecular, Cellular and Developmental Graduate Group Retreat**. April 19, 2019. Davis, CA.
82. Siqi He, Tanaya Walimbe, Hongyuan Chen, Kewa Gao, Dake Hao, Priyadarsini Kumar, Ruiwu Liu, Diana Farmer, Kit Lam, Jianda Zhou, Alyssa Panitch, **Aijun Wang**. Functionalized ECM scaffolds loaded with endothelial progenitor cells potentiates neovascularization and promotes diabetic ischemic wound healing. **The 30th Annual UC Davis Surgery Research Symposium**. Sacramento, CA. April 23, 2019.
83. Dake Hao, Kewa Gao, Ruiwu Liu, Diana Farmer, Alyssa Panitch, Kit Lam, **Aijun Wang**. Engineering collagen hydrogel with a novel ligand against integrin $\alpha\beta3$ to improve endothelial cell survival after transplantation. **The 30th Annual UC Davis Surgery Research Symposium**. Sacramento, CA. April 23, 2019.
84. Galganski LA, Kumar P, Vanover MA, Pivetti CD, Anderson JE, Lankford L, Paxton ZJ, Chung K, Lee C, Hegazi MS, Yamashiro KJ, **Wang A**, Farmer DL. *In Utero* Treatment of Myelomeningocele with Placental Mesenchymal Stromal Cells Rescues Ambulation in the Ovine Model – Selection of an Optimal Cell Line. **The 30th Annual UC Davis Surgery Research Symposium**. Sacramento, CA. April 23, 2019.
85. Kewa Gao, Priyadarsini Kumar, Dake Hao, Lizette Reynage, Jianda Zhou, Ping Zhou, **Aijun Wang**. Co-transplantation of cord blood derived endothelial colony-forming cells with placental mesenchymal stromal cells achieved stable long-term engraftment. **The 30th Annual Department of Surgery Research Symposium**. April 23, 2019. Sacramento, CA.
86. Lalithasri Ramasubramanian, Priyadarsini Kumar, Dake Hao, Diana L. Farmer, **Aijun Wang**. Development of Exosome Mimics for Vascularization in Ischemic Wound Sites. **The 30th Annual Department of Surgery Research Symposium**. April 23, 2019. Sacramento, CA.
87. Kaitlin Clark, Rogério Martins Amorim, Priyadarsini Kumar, Naomi Walker, Lee Lankford, Nicole Kreutzberg, Beverly Sturges, Dori Borjesson, Diana L. Farmer, **Aijun Wang**. Translational Applications of Placental Derived Mesenchymal Stem Cells for the Treatment of Spina Bifida: A Canine Model. **The 30th Annual UC Davis Surgery Research Symposium**. April 23, 2019. Sacramento, CA.
88. Kaeli Yamashiro, Laura Galganski, Jamie Peyton, Christopher Pivetti, James Becker, Benjamin Keller, Kalie Haynes, Victoria Vicuna, Priyadarsini Kumar, Zachary Paxton, **Aijun Wang**, Diana Farmer. Long Term Survival of Lambs with Myelomeningocele. **The 30th Annual UC Davis Surgery Research Symposium**. April 23, 2019. Sacramento, CA.
89. Lalithasri Ramasubramanian, Priyadarsini Kumar, Dake Hao, Diana L. Farmer, **Aijun Wang**. Development of Exosome Mimics for Vascularization in Ischemic Wound Sites. **The 8th Annual Biomedical Engineering Graduate Group Student Research Symposium**. April 26, 2019. Davis, CA.
90. Kaitlin Clark, Rogério Martins Amorim, Priyadarsini Kumar, Naomi Walker, Lee Lankford, Nicole Kreutzberg, Beverly Sturges, Dori Borjesson, Diana L. Farmer, **Aijun Wang**. Placental Derived Mesenchymal Stromal/Stem Cells: Immunomodulatory Properties and Applications for Central Nervous System Inflammation. **1st Annual Bay Area Stem Cell Conference**. May 8-10, 2019. Pacific Grove, CA.
91. Galganski LA, Kumar P, Vanover MA, Pivetti CD, Anderson JE, Lankford L, Paxton ZJ, Chung K, Lee C, Hegazi MS, Yamashiro KJ, **Wang A**, Farmer DL. *In Utero* Treatment of Myelomeningocele with Placental Mesenchymal Stromal Cells Rescues Ambulation in the Ovine Model – Selection of an Optimal Cell Line. Oral Presentation. **American Pediatric Surgical Association APSA 2019 50th Anniversary Meeting**. May 19-22, 2019. Boston, MA.
92. Dake Hao, **Aijun Wang**. Engineering the developmental milieu to repair spina bifida bony defect *in utero*. **Investigators' Meeting 2019 | Center for Multimodal Evaluation of Engineered Cartilage, Case Western Reserve University**, May 20, 2019. Cleveland, OH.
93. Kaitlin Clark, Melissa Vanover, Nicole Kretuzberg, Connor Long, Rogério Martins Amorim, Diana L. Farmer, Dori Borjesson, Beverly Sturges, **Aijun Wang**. Translational Applications of Placenta-Derived Mesenchymal Stem Cells for the Treatment of Spina Bifida: A Canine Model. **2019 International Society for Cell & Gene Therapy (ISCT) Annual Conference**. May 29 - June 1, 2019. Melbourne, Australia.
94. Dake Hao, Kewa Gao, Ruiwu Liu, Diana Farmer, Alyssa Panitch, Kit Lam, **Aijun Wang**. Engineering collagen hydrogel with a novel ligand against integrin $\alpha\beta3$ to improve endothelial cell survival after transplantation. **17th International Society for Stem Cell Research (ISSCR) Annual Meeting**, June 26-29, 2019. Los Angeles, CA.

95. Kaitlin Clark, Rogério Martins Amorim, Priyadarsini Kumar, Naomi Walker, Lee Lankford, Nicole Kreutzberg, Beverly Sturges, Dori Borjesson, Diana L. Farmer, **Aijun Wang**. Immunomodulatory Properties of Canine Placenta-Derived Mesenchymal Stem Cells: A Novel Translational Model of Inflammatory Brain Disease. **17th International Society for Stem Cell Research (ISSCR) Annual Meeting**, June 26-29, 2019. Los Angeles, CA.
96. Rachel Mizenko, **Aijun Wang**, Randy Carney. Fluorescence activated vesicle sorting for isolation of extracellular vesicle subpopulations from individuals with multiple sclerosis. **35th Congress of the European Committee for Treatment and Research in Multiple Sclerosis**, September 11-13, 2019. Stockholm, Sweden.
97. Kewa Gao, Dake Hao, Diana Farmer, Jan Nolte, Ping Zhou, **Aijun Wang**. Stable, long-term engraftment of cord blood derived endothelial colony-forming cells by co-transplantation with placental mesenchymal stromal cells. **2019 Biomedical Engineering Society (BMES) Annual Meeting**. Oct. 16-19, 2019. Philadelphia, PA.
98. Dake Hao, Kewa Gao, Ruiwu Liu, Diana Farmer, Alyssa Panitch, Kit Lam, **Aijun Wang**. Engineering Collagen Hydrogel with a Novel Ligand Against Integrin α v β 3 to Improve Endothelial Cell Survival After Transplantation. **2019 Biomedical Engineering Society (BMES) Annual Meeting**. Oct. 16-19, 2019. Philadelphia, PA.
99. Tanaya Walimbe, Siqi He, **Aijun Wang**, Alyssa Panitch. Collagen Binding Proangiogenic Proteoglycan Mimetics to Promote Ischemic Wound Healing. **2019 Biomedical Engineering Society (BMES) Annual Meeting**. Oct. 16-19, 2019. Philadelphia, PA.
100. Dake Hao, Yahan Fan, Wenwu Xiao, Ruiwu Liu, Christopher Pivetti, Diana Farmer, Alyssa Panitch, **Aijun Wang**. *In Situ* Rapid Endothelialization of Small Diameter Vascular Grafts by a Novel Integrin-binding Peptide Ligand Specifically Targeting Endothelial Progenitor Cells and Endothelial Cells. **2019 Biomedical Engineering Society (BMES) Annual Meeting**. Oct. 16-19, 2019. Philadelphia, PA.
101. Lalithasri Ramasubramanian, Priyadarsini Kumar, Dake Hao, Diana L. Farmer, **Aijun Wang**. Design of Exosome Mimics for Vascular Regeneration. **Tissue Engineering and Regenerative Medicine International Society –Americas (TERMIS-AM) Annual Meeting**. Dec. 2-5, 2019. Orlando, FL.
102. Siqi He, Tanaya Walimbe, Hongyuan Chen, Kewa Gao, Dake Hao, Priyadarsini Kumar, Ruiwu Liu, Diana Farmer, Kit Lam, Jianda Zhou, Alyssa Panitch, **Aijun Wang**. Functionalized ECM scaffolds loaded with endothelial progenitor cells potentiates neovascularization and promotes diabetic ischemic wound healing. **Tissue Engineering and Regenerative Medicine International Society –Americas (TERMIS-AM) Annual Meeting**. Dec. 2-5, 2019. Orlando, FL.
103. Stefan Wei, Siqi He, **Aijun Wang**. Functionalized scaffolds loaded with endothelial progenitor cells promotes neovascularization and diabetic wound healing. **The 31st Annual UC Davis Undergraduate Research, Scholarship and Creative Activities Conference**. May 13, 2020. Davis, CA.
104. Hannah Schmitz, Dake Hao, **Aijun Wang**. Exploring the Anti-Inflammatory Potential of Extracellular Vesicles-derived from Human Early Gestation Chorionic Villus Mesenchymal Stem/Stromal Cells scaffolds. **The 31st Annual UC Davis Undergraduate Research, Scholarship and Creative Activities Conference**. May 13, 2020. Davis, CA.
105. Shixian Du, Dake Hao, **Aijun Wang**. Exosomes Derived from Human Chorionic Villus Mesenchymal Stromal/Stem Cells Promote Vascularization and Angiogenesis. **The 31st Annual UC Davis Undergraduate Research, Scholarship and Creative Activities Conference**. May 13, 2020. Davis, CA.
106. K.C. Clark, S Zhang, S Barthe, P Kumar, C Pivetti, N Kreutzberg, C Reed, Z Paxton, DL Farmer, F Guo, A Wang. Extracellular vesicles isolated from placenta-derived mesenchymal Stem/Stromal Cells improve myelination in an induced rodent model of multiple sclerosis. **UC Davis Department of Surgery 31st Annual Research Symposium**. June 23, 2020. Sacramento, CA.
107. Goldbloom-Helzner, L.; Wang, A. Optimizing the isolation of placental mesenchymal stromal cell-derived extracellular vesicles in a 3D bioreactor system. Virtual annual meeting of the **International Society for Extracellular Vesicles**. May 17, 2020. Virtual.
108. Priyadarsini Kumar, Lizette Reynaga, Alicia Hyllen, Chelsey Lee, Christopher Pivetti, William Gruenloh, Laura Galganski, Kaeli Yamashiro, Michaela Canova, Laura Jones, Brian Fury, Gerhard Bauer, Jan Nolte, **Aijun Wang**, Diana Farmer. Manufacturing Clinical Grade Placenta-Derived Mesenchymal Stromal Cells for In Utero Repair of Myelomeningocele. **18th International Society for Stem Cell Research (ISSCR) Virtual Annual Meeting**, June 24-27, 2020.
109. Leora Goldbloom-Helzner, **Aijun Wang**. Optimizing the Isolation of Placental Mesenchymal Stromal Cell-Derived Extracellular Vesicles in a 3D Bioreactor System. **International Society for Extracellular Vesicles (ISEV) Virtual Annual Meeting**, July 20-22, 2020.
110. Leora Goldbloom-Helzner, Tatu Rojalín, Hila Shimshi Swindell, Kaitlin Clark, **Aijun Wang**. Optimizing Yields Of Placental Mesenchymal Stem Cell-Derived Extracellular Vesicles In 3D Culture. **BMES Virtual Annual Meeting**, October 14-17, 2020.

111. K.C. Clark, S Zhang, S Barthe, P Kumar, C Pivetti, N Kreutzberg, C Reed, Z Paxton, DL Farmer, F Guo, **A Wang**. Placental Mesenchymal Stem Cells and Secreted Extracellular Vesicles: Potential Novel Therapeutics for CNS Disorders. **Shriners Institute of Pediatric Regenerative Medicine** Annual Research Symposium. December 9, 2020. Sacramento, CA.
112. Stokes SC, Theodorou CM, Jackson JE, Pivetti CD, Kumar P, Yamashiro KJ, Paxton ZJ, Reynaga L, Hyllen A, **Wang A**, Farmer DL. "Placental mesenchymal stromal cells for in utero repair of myelomeningocele do not present additional risk for pregnant ewes in an ovine model." **Society for Maternal-Fetal Medicine (SMFM)** Annual Meeting (virtual), Jan. 28- Jan. 29, 2021.
113. Theodorou CM, Stokes SC, Jackson JE, Pivetti CD, Kumar P, Yamashiro KJ, Paxton ZJ, Reynaga L, Hyllen A, **Wang A**, Farmer DL. "Efficacy of Human Clinical Trial-Selected Placental Mesenchymal Stromal Cell Line in Fetal Ovine Myelomeningocele Repair." **Pacific Coast Surgical Association** Annual Meeting, February 2021.
114. Jackson JE, Theodorou CM, Stokes SC, Pivetti CD, Kumar P, **Wang A**, Farmer DL. "Placental Mesenchymal Stromal Cells: Preclinical Safety Evaluation for Fetal Myelomeningocele Repair" 16th Annual Academic Surgical Congress (ASC) virtual congress, February 2-4, 2021.
115. Aida Nasirishargh, Priyadarsini Kumar, Lalithasri Ramasubramanian, Kaitlin Clark, Dake Hao, Sabrina Valentina Lazar, **Aijun Wang**. Exosomal MicroRNAs from Mesenchymal Stem/stromal Cells: Biology and Applications in Neuroprotection. **UC Davis Medical Student Research Forum- Virtual Poster Day**. March 2, 2021. Sacramento, CA.
116. Theodorou CM, Stokes SC, Jackson JE, Pivetti CD, Kumar P, Yamashiro KJ, Paxton ZJ, Reynaga L, Hyllen A, **Wang A**, Farmer DL. "Fetal Ovine Myelomeningocele Repair with Placental Mesenchymal Stromal Cells Results in Normal Bowel and Bladder Function." **2021 WinterCAPS Research Forum of The Canadian Association of Paediatric Surgeons** Annual Meeting (virtual), February 28, 2021.
117. Kiran Nagra, Kaitlin Clark, **Aijun Wang**. The Therapeutic Potential of Placental Mesenchymal Stem Cells and their Exosomes for the Treatment of Neurodegenerative Diseases. **UC Davis Medical Student Research Forum- Virtual Poster Day**. March 2, 2021. Sacramento, CA.
118. Dake Hao, Jonathan Lin, Christopher Pivetti, Ruiwu Liu, Kaeli Yamashiro, Linda Schutzman, Diana Farmer, Misty Humphries, Alyssa Panitch, Kit Lam, Aijun Wang. Developing a novel vascular device coating technology to improve rapid endothelialization, inhibit platelet binding and suppress thrombosis and intimal hyperplasia. UC Davis Department of Surgery 32nd Annual Research Symposium-Quick shot presentation. April 20th, 2021. Sacramento, CA.
119. Dake Hao, Christopher Pivetti, Tomas Gonzalez Fernandez, Edwin Samuel Kulubya, Jordan Elizabeth Jackson, Ruiwu Liu, Kit Lam, J. Kent Leach, Diana Farmer, Aijun Wang. Engineering the developmental milieu to repair spina bifida bony defect in utero. UC Davis Department of Surgery 32nd Annual Research Symposium-Quick shot presentation. April 20th, 2021. Sacramento, CA.
120. Kewa Gao, Hengyue Song, Priyadarsini Kumar, Siqi He, Diana Farmer, **Aijun Wang**. *In utero* transplantation of placenta-derived endothelial progenitor cells for Hemophilia A treatment in an operable mouse model. UC Davis Department of Surgery 32nd Annual Research Symposium-Quick shot presentation. April 20th, 2021. Sacramento, CA.
121. Lalithasri Ramasubramanian, Harsha Jyothi, Priyadarsini Kumar, Diana L. Farmer, **Aijun Wang**. Characterization of Lipid Raft Nanovesicles as Neuroprotective and Angiogenic Exosome-Mimics. **UC Davis Department of Surgery 32nd Annual Research Symposium- Oral presentation**. April 20th, 2021. Sacramento, CA.
122. Goldbloom-Helzner L; Gomez J., Kumar P., Wang A. Optimizing the yield of placental mesenchymal stromal/stem cell-derived extracellular vesicles in 3D culture systems. **Annual research symposium of UC Davis' Department of Biomedical Engineering**. May 17, 2021. Davis, CA.
123. Stokes SC, Theodorou CM, Jackson JE, Pivetti CD, Kumar P, Yamashiro KJ, Paxton ZJ, Reynaga L, Hyllen A, **Wang A**, Farmer DL. "Long-Term Safety of Placental Mesenchymal Stromal Cells for *In Utero* Repair of Myelomeningocele In An Ovine Model." **American Pediatric Surgical Association APSA 2021 Annual Meeting**. Sept. 30 - Oct. 3, 2021. Seattle, WA.
124. Megan F Hoang, Christopher E. Holden-Wingate, Dake Hao, **Aijun Wang**. Extracellular Matrix Mimicking Nanofibrous Scaffolds Modified with Mesenchymal Stem Cell-Derived Extracellular Vesicles for Improved Vascularization. **The 32st Annual UC Davis Undergraduate Research, Scholarship and Creative Activities Conference**. April 28 - May 1, 2021. Davis, CA.
125. K.C. Clark, S Zhang, S Barthe, P Kumar, C Pivetti, N Kreutzberg, C Reed, Z Paxton, DL Farmer, F Guo, **A Wang**. Placenta-derived Mesenchymal Stem/Stromal Cells and Secreted Extracellular Vesicles as a Novel Treatment of Multiple Sclerosis. (Virtual). **International Society of Cell and Gene Therapy Annual Conference**. May 26, 2021. New Orleans, LA
126. Stokes SC, Theodorou CM, Jackson JE, Pivetti CD, Kumar P, **Wang A**, Farmer DL. Cellular therapy for *in utero* repair of myelomeningocele: a decade of translational bioengineering. **20th Annual UC Systemwide Bioengineering**. June 24-25, 2021. UC Davis (Virtual).

127. Katlin Clark, Rogério Martins Amorim, Naomi Walker, Priyadarsini Kumar, Dori Borjesson, **Aijun Wang**. Comparison of canine placenta and adipose-derived mesenchymal stem/stromal cell immunomodulatory properties: applications to inflammatory brain disease. **North American Veterinary Regenerative Medicine Association (NAVRMA) 2021 Annual Conference**. September 21-24, 2021. Colorado State University, Colorado. (*New Investigator presentation award 2nd place*).
128. K.C. Clark, M. Vanover, N. Kreutzberg, C. Long, L. Lankford, R.M. Amorim, D.L Farmer1, D.L. Borjesson, B. Sturges, **Aijun Wang**. Translational Applications of Placenta-Derived Mesenchymal Stem Cells for the Treatment of Spina Bifida: A Canine Model. **North American Veterinary Regenerative Medicine Association (NAVRMA) 2021 Annual Conference**. September 21-24, 2021. Colorado State University, Colorado. (*Poster presentation award 1st place*).
129. Dake Hao, Christopher Pivetti, Su Yeon Lee, Abd-Elrahman Said Hassan, Robert Gresham, Priyadarsini Kumar, Edwin Samuel Kulubya, Jordan Elizabeth Jackson, Juan-Maria Lopez, Rodrigo A Somoza, J. Kent Leach, Arnold I. Caplan, Diana L Farmer, Aijun Wang. Developing a combinational stem cell-based tissue engineering approach to treat spina bifida before birth. **Shriners IPRM 13th Annual Research Symposium**. December 6-10, 2021. Sacramento, CA, USA.
130. Hengyue Song, Kewa Gao, Andrew Li, Ruiwu Liu, Bryan Anggito, Qianyu Jin, Kit S. Lam, Alyssa Panitch, Diana L Farmer, **Aijun Wang**. A biocompatible scaffold engineered with proangiogenic proteoglycan mimetics and loaded with endothelial cells promotes deep burn wound healing. **13th Annual Research Symposium IPRM at Shriners Hospital for Children**. December 8, 2021. Sacramento, CA
131. David Wang, Lalithasri Ramasubramanian, Kaitlin Clark, Diana Farmer, **Aijun Wang**. Characterization of Hybrid Extracellular Vesicles as a Targeted Alzheimer's Disease Therapy. **UC Davis 2nd Annual Biophysics Colloquium**. April 11, 2022. Davis, CA.
132. Kewa Gao, Jie Li, Hengyue Song, Yongheng Wang, Hesong Han, Bryan Anggito, Qianyu Jin, Diana L. Farmer, Niren Murthy, **Aijun Wang**. Non-viral gene editing in utero with lipid nanoparticles complexed to mRNA. **UC Davis Department of Surgery 33rd Annual Research Symposium**- Oral presentation. April 12th, 2022. Sacramento, CA.
133. Lalithasri Ramasubramanian, Diana L. Farmer, Aijun Wang. Evaluation of Endothelial Progenitor Cell Plasma Membrane as an Anti-thrombotic and Pro-Angiogenic Biomaterial. **UC Davis Department of Surgery 33rd Annual Research Symposium**- Oral presentation. April 12th, 2022. Sacramento, CA.
134. Hengyue Song, Kewa Gao, Andrew Li, Ruiwu Liu, Bryan Anggito, Qianyu Jin, Kit S. Lam, Alyssa Panitch, Diana L Farmer, **Aijun Wang**. A biocompatible scaffold engineered with proangiogenic proteoglycan mimetics and loaded with endothelial cells promotes deep burn wound healing. **UC Davis 33rd Annual Department of Surgery Research Symposium**. April 12, 2022. Sacramento, CA
135. Dake Hao, Lu Lu, Hengyue Song, Yixin Duan, Jianing Chen, Randy Carney, Jian-Jian Li, Ping Zhou, Jan Nolta, Kit S. Lam, J. Kent Leach, Diana L Farmer, Alyssa Panitch, Aijun Wang. Engineered extracellular vesicles with high collagen-binding affinity present superior *in situ* retention and therapeutic efficacy in tissue repair. **UC Davis 33rd Annual Department of Surgery Research Symposium**. April 12, 2022. Sacramento, CA
136. Goldbloom-Helzner L.; Mizenko R.; Kumar P.; Carney R.; Farmer D. L.; Wang A. Use of ExoView technology to measure extracellular vesicle surface modification efficiency and inform optimization of carbodiimide crosslinking protocols. **UC Davis 33rd Annual Department of Surgery Research Symposium**. April 12, 2022. Sacramento, CA
137. Dake Hao, Christopher Pivetti, Su Yeon Lee, Abd-Elrahman Said Hassan, Robert Gresham, Priyadarsini Kumar, Edwin Samuel Kulubya, Jordan Elizabeth Jackson, Juan-Maria Lopez, Rodrigo A Somoza, J. Kent Leach, Arnold I. Caplan, Diana L Farmer, Aijun Wang. Developing a combinational stem cell-based tissue engineering approach to treat spina bifida before birth. **UC Davis 33rd Annual Department of Surgery Research Symposium**. April 12, 2022. Sacramento, CA
138. Dake Hao, Christopher Pivetti, Su Yeon Lee, Abd-Elrahman Said Hassan, Robert Gresham, Priyadarsini Kumar, Edwin Samuel Kulubya, Jordan Elizabeth Jackson, Juan-Maria Lopez, Rodrigo A Somoza, J. Kent Leach, Arnold I. Caplan, Diana L Farmer, Aijun Wang. Combinational cell-based and cell-free tissue engineering strategies for spina bifida treatment before birth. **Shriners Hospitals for Children Science Seminar Series**. April 15, 2022. Sacramento, CA, USA.
139. Goldbloom-Helzner L.; Mizenko R.; Kumar P.; Carney R.; Farmer D. L.; Wang A. Use of ExoView technology to measure extracellular vesicle surface modification efficiency and inform optimization of Click Chemistry crosslinking protocols. **Annual research symposium of UC Davis Department of Biomedical Engineering**. April 17, 2022, Davis, CA.
140. Lalithasri Ramasubramanian, Harsha Jyothi, Leora Goldbloom-Helzner, Brandon M. Light, Priyadarsini Kumar, Diana L. Farmer, Aijun Wang. Placental Mesenchymal Stem/Stromal Cell-derived Lipid Raft Nanovesicles: A Bioinspired Therapeutic for Regenerative Medicine. **International Society for Cell & Gene Therapy (ISCT) Annual Conference**. May 4-7, 2022, San Francisco, CA.

141. David Wang, Lalithasri Ramasubramanian, Kaitlin Clark, Priyadarsini Kumar, Diana Farmer, Aijun Wang. Characterization of Hybrid Extracellular Vesicles for Treatment of Neurodegenerative Diseases. **International Society for Cell & Gene Therapy (ISCT) Annual Conference**. May 4-7, 2022, San Francisco, CA.
142. Lalithasri Ramasubramanian, Harsha Jyothi, Leora Goldbloom-Helzner, Brandon M.Light, Priyadarsini Kumar, Diana L. Farmer, **Aijun Wang**. Development of Bioinspired Lipid Raft-derived Nanovesicles as Nanotherapeutics for Regenerative Medicine. **International Society for Extracellular Vesicles Annual Conference**. May 26-29, 2022. Lyon, France.
143. Yofiel Wyle, **Aijun Wang**. Employing Chip-based Neural Tube Organoids for Functional Screening of Stem Cells for in Utero Treatment of Myelomeningocele. **ISSCR Annual Conference**. June 14-17, 2022. San Francisco, CA.
144. Hengyue Song, Kewa Gao, Andrew Li, Ruiwu Liu, Bryan Anggito, Qianyu Jin, Kit S. Lam, Alyssa Panitch, Diana L Farmer, **Aijun Wang**. A biocompatible scaffold engineered with proangiogenic proteoglycan mimetics and loaded with endothelial cells promotes deep burn wound healing. **BMES Annual Meeting. October 13, 2022**. San Antonio, TX.
145. Dake Hao, Lu Lu, Hengyue Song, Yixin Duan, Jianing Chen, Randy Carney, Jian Jian Li, Ping Zhou, Jan Nolte4, Kit S. Lam, J. Kent Leach, Diana L. Farmer, Alyssa Panitch, **Aijun Wang**. Engineered extracellular vesicles with high collagen-binding affinity present superior in situ retention and therapeutic efficacy in tissue repair. **BMES Annual Meeting. October 13, 2022**. San Antonio, TX.
146. Dake Hao, Christopher Pivetti, Robert Gresham, Rodrigo A Somoza, Abd-Elrahman Said Hassan, Priyadarsini Kumar, Edwin Samuel Kulubya, Jordan Elizabeth Jackson, Maria G. Hernandez, J. Kent Leach, Arnold I. Caplan, Diana L. Farmer, **Aijun Wang**. Developing a combinational stem cell-based tissue engineering approach to treat spina bifida before birth. **BMES Annual Meeting. October 13, 2022**. San Antonio, TX.
147. Dake Hao, Jonathan Lin, Ruiwu Liu, Christopher Pivetti, Kaeli Yamashiro, Linda M Schutzman, Junichiro Sageshima, Mimmie Kwong, Nataliya Bahatyrevich, Diana L Farmer, Misty D Humphries, Kit S Lam, Alyssa Panitch, **Aijun Wang**. A stable parylene-based conformal coating suppresses thrombosis and neointimal hyperplasia on implantable vascular devices. **BMES Annual Meeting. October 13, 2022**. San Antonio, TX.
148. Dake Hao, Ruiwu Liu, Tomas Gonzalez Fernandez, Christopher Pivetti, Jordan Elizabeth Jackson, Edwin Samuel Kulubya, Alyssa Panitch, Kit S. Lam, J. Kent Leach, Diana L. Farmer, **Aijun Wang**. A bioactive material with dual integrin-targeting ligands regulates endogenous cell adhesion and promotes vascularized bone regeneration in adult and fetal bone defects. **BMES Annual Meeting. October 13, 2022**. San Antonio, TX.
149. Su Yeon Lee, Christopher D. Pivetti, Zachary J. Paxton, Emma G. Loll, Stephanie Osborn, Chaoxing Zhang, Abd-Elrahman S. Hassan, **Aijun Wang**, Diana L. Farmer, Maheen Hassan, Payam Saadai. Early Investigations of Characterizing Bowel and Bladder Function in Ovine Myelomeningocele Model. **40th International Fetal Medicine and Surgery Society (IFMSS) Annual Meeting**, November 7-12, 2022, Los Cabos, Mexico.
150. Sarah C. Stokes, Sandra K. Kabagambe, Chelsey J. Lee, **Aijun Wang**, Diana L. Farmer, Priyadarsini Kumar. Impact Of Gestational Age on Neuroprotective Function of Placenta Derived Mesenchymal Stromal Cells. **40th International Fetal Medicine and Surgery Society (IFMSS) Annual Meeting**, November 7-12, 2022, Los Cabos, Mexico.
151. Abd-Elrahman S. Hassan, Su Yeon Lee, Piryadarsini Kumar, Amy B. Powne, Maria G. Hernandez, Christopher D. Pivetti, Erin G. Brown, Payam Saadai, Shinjiro Hirose, **Aijun Wang**, Diana L. Farmer. Preliminary Safety Outcomes of First Three Patients Enrolled in the Cellular Therapy for In Utero Repair of Myelomeningocele (CuRe) Trial. **40th International Fetal Medicine and Surgery Society (IFMSS) Annual Meeting**, November 7-12, 2022, Los Cabos, Mexico.
152. Su Yeon Lee, Abd-Elrahman S. Hassan, Piryadarsini Kumar, Amy B. Powne, Maria G. Hernandez, Christopher D. Pivetti, Erin G. Brown, Payam Saadai, Shinjiro Hirose, **Aijun Wang**, Diana L. Farmer. Preliminary Safety Outcomes of First Three Patients Enrolled in the Cellular Therapy for In Utero Repair of Myelomeningocele (CuRe) Trial. **40th International Fetal Medicine and Surgery Society (IFMSS) Annual Meeting**, November 7-12, 2022, Los Cabos, Mexico.
153. Weitai Qian, Kourosh Vali, Begum Kasap, Christopher D. Pivetti, Christina M. Theodorou, Edwin Kulubya, Kaeli Yamashiro, **Aijun Wang**, M. Herman L. Hedriana, Diana L. Farmer, Soheil Ghiasi. Continuous Transabdominal Fetal Pulse Oximetry (TFO) in Pregnant Ewe Models under Induced Fetal Hypoxia. **43rd Annual Pregnancy Meeting**. February 6-11, 2023, San Francisco, CA.
154. David Wang, Kaitlin Clark, Leora Goldbloom-Helzner, Grace Baird, Priyadarsini Kumar, Diana Farmer, **Aijun Wang**. Engineered Extracellular Vesicles as a Targeted Nanoparticle Therapy. **UC Davis 3rd Annual Biophysics Colloquium**. April 24, 2023. Davis, CA.

155. Dake Hao, Su Yeon Lee, Christopher Pivetti, Robert Gresham, Rodrigo A Somoza, Abd-Elrahman Said Hassan, Priyadarsini Kumar, Edwin Samuel Kulubya, Jordan Elizabeth Jackson, Maria G. Hernandez, J. Kent Leach, Arnold I. Caplan, Diana L. Farmer, **Aijun Wang**. A combinational stem cell-based tissue engineering approach to treat spina bifida before birth. 2023 **Tissue Engineering and Regenerative Medicine International Society (TERMIS) Annual Meeting**. April 11-14, 2023. Boston, MA, USA.
156. Dake Hao, Jonathan Lin, Ruiwu Liu, Christopher Pivetti, Kaeli Yamashiro, Linda M Schutzman, Junichiro Sageshima, Mimmie Kwong, Nataliya Bahatyrevich, Diana L Farmer, Misty D Humphries, Kit S Lam, Alyssa Panitch, **Aijun Wang**. A bioactive coating technology suppresses thrombosis and neointimal hyperplasia on implantable vascular devices. 2023 Tissue Engineering and Regenerative Medicine International Society (TERMIS) Annual Meeting. April 11-14, 2023. Boston, MA, USA.
157. Goldbloom-Helzner L.; Bains H.; Henson T.; Kumar P.; Farmer D. L.; Wang A. Optimization of Aptamer Surface Conjugation onto Extracellular Vesicles (EVs) using Single EV Analysis Technologies. **UC Davis Department of Surgery Annual research symposium**, 2023, April 11, Sacramento, CA.
158. Goldbloom-Helzner L.; Bains H.; Henson T.; Mizenko R.; Kumar P.; Carney R.; Farmer D. L.; **Wang A.** *Optimization of Aptamer Surface Conjugation onto Extracellular Vesicles (EVs) using Single Nanovesicle Analysis Technologies*. Presented at **Nanomedicine and Drug Delivery Symposium 2023 (Nano DDS)**. September 15-17, 2023, Massachusetts Institute of Technology, Boston, MA.
159. David Wang, Lalithasri Ramasubramanian, Kaitlin Clark, Priyadarsini Kumar, Lee-Way Jin, Diana Farmer, **Aijun Wang**. Development of Hybrid Extracellular Vesicles for Alzheimer's Disease Treatment. **UC Davis Alzheimer's Disease Research Center Seminar**. May 4, 2023. Davis, CA.
160. David Wang, Lalithasri Ramasubramanian, Kaitlin Clark, Priyadarsini Kumar, Diana Farmer, **Aijun Wang**. Hybrid Extracellular Vesicles as a Nanoparticle-Based Therapeutic Platform. **Biomedical Engineering Student Research Symposium**. May 23, 2023. Davis, CA.
161. Wyle, Y., Haczk, A., **Wang, A.** Rescue Potential of Placenta- and Amniotic Fluid-Derived Mesenchymal Stem Cell Extracellular Vesicles Using in vitro Models of Congenital Diaphragmatic Hernia (CDH). **UC Davis Lung Day 2023**. Jun 16, 2023. Davis, CA, USA.
162. Tanner Henson, Alessandra Arizzi, Hye Hyun Kim, David Wang, Neona Lowe, Keerthana Ananda, Erkin Seker, Randy Carney, Cheemeng Tan, **Aijun Wang**. Precise and Robust Cell-free Synthesis of Artificial Extracellular Vesicle. **23rd Annual UC Systemwide Bioengineering Symposium**. June 22- 23, 2023. Berkeley, CA.
163. Priyadarsini Kumar, Christopher Pivetti, Laura Galganski, Melissa Vanover, Jamie Anderson, Kaeli Yamashiro, Zachary Paxton, Diana Farmer, **Aijun Wang**, Diana Farmer. Autologous In Utero Mesenchymal Stem/Stromal Cell Therapy for Myelomeningocele - A Pilot Study. **20th International Society for Stem Cell Research (ISSCR) Annual Meeting**, June 14-17, 2023.
164. Wyle, Y., Haczk, A., & **Wang, A.** Rescue potential of placenta- and amniotic fluid-derived mesenchymal stem cell extracellular vesicles (EVs) in human lung models of oxidative stress and apoptosis. **2023 Lung Development, Injury and Repair, Gordon Research Conference**, August 13-18th. Waterville Valley, NH, USA.
165. Emily Byrd, Su Yeon Lee, Abd-Elrahman S. Hassan, Christopher D. Pivetti, Erin G. Brown, Payam Saadai, Shinjiro Hirose, **Aijun Wang**, Diana L. Farmer. Revisiting an ovine model for *in utero* repair of gastroschisis. IFMSS 2023. Stockholm, Sweden. Oral presentation. **41st International Fetal Medicine and Surgery Society (IFMSS) Annual Meeting**, September 4-9, 2023, Stockholm, Sweden.
166. K.C. Clark, M. Vanover, D.L Farmer1, D.L. Borjesson, B. Sturges, **Aijun Wang**. Clinical Trial Evaluating Safety and Efficacy of Postnatal Cellular Therapy for Myelomeningocele in English Bulldogs. **North American Veterinary Regenerative Medicine Association (NAVRMA) 2023 Annual Conference**. September September 22 – 24, 2023. Kona, Hawaii, USA.
167. Wyle, Y., **Wang, A.** Evaluating Rescue Potential of Donor-Matched Amniotic Fluid-and Placenta-derived MSC Extracellular Vesicles in Human Lung Injury. 2023 UC Davis EV Club. October 10, 2023. Sacramento, CA, USA.
168. Dake Hao, Nataliya Bahatyrevich, Ruiwu Liu, Vanessa Franco Carvalho Dartora, Christopher Pivetti, Diana L. Farmer, Kit S. Lam, Alyssa Panitch, **Aijun Wang**. A collagen-binding proangiogenic proteoglycan mimetics promotes rapid endothelialization and suppresses intimal hyperplasia in a rat angioplasty model. **2023 Biomedical Engineering Society (BMES) Annual Meeting**. October 11-14, 2023. Seattle, WA, USA.
169. Dake Hao, Ruiwu Liu, Alyssa Panitch, Kit S. Lam, J. Kent Leach, Diana L. Farmer, **Aijun Wang**. A bioengineered scaffold regulates endogenous stem cells to synergistically augment BMP-2-driven bone regeneration. **2023 Biomedical Engineering Society (BMES) Annual Meeting**. October 11-14, 2023. Seattle, WA, USA.

170. Tanner Henson, Alessandra Arizzi, Hye Hyun Kim, David Wang, Neona Lowe, Keerthana Ananda, Erkin Seker, Randy Carney, **Aijun Wang**, Cheemeng Tan. Precise and Robust Cell-free Synthesis of Artificial Extracellular Vesicles. **2023 Biomedical Engineering Society (BMES) Annual Meeting**. October 11-14, 2023. Seattle, WA, USA.
171. Grace Garcia, Dake Hao, Christopher Pivetti, Diana Farmer, **Aijun Wang**. Evaluating the Binding Affinity of Circulating Human Endothelial Progenitor Cells to Integrin Ligand LXW7 Modified Synthetic Vascular Grafts. **2024 CSU Annual Biotechnology Symposium**. January 11-13, 2024. Santa Clara, CA, USA.
172. Emily Byrd, Dake Hao, Christopher D. Pivetti, Shinjiro Hirose, Diana L. Farmer, **Aijun Wang**. Treatment of intestinal ischemia reperfusion injury with engineered extracellular vesicles in a rodent model. Oregon Health & Science University (OHSU) Grand Rounds, January 22, 2024. Portland, OR.
173. Luis Eduardo Contreras Llano, **Aijun Wang**, Cheemeng Tan. Engineering Cyborg Mammalian Cells as Therapeutic Materials. **2023 UC Davis Chemical Biology Innovation Group Meeting (CBIG)**. Feb 14, 2024. Davis, CA, USA.
174. Kewa Gao, Jie Li, Hengyue Song, Hesong Han, Yongheng Wang, Boyan Yin, Diana L. Farmer, Niren Murthy, **Aijun Wang**. *In utero* delivery of mRNA to the heart, diaphragm and muscle with lipid nanoparticles. **2024 Shriners State of Research on Muscle and Bone Health**. Feb 22-23, 2024. Atlanta, GA.

MENTORSHIP ON TRAINEE'S FELLOWSHIPS:

- | | | |
|----|--|----------------|
| 1. | 2019 The Lodric Maddox Graduate Fellowship
PI: Kaitlin Clark
Total Award: \$49,710
Role: Mentor | 7/2019-6/2020 |
| 2. | 2019 Shriners Hospitals for Children Postdoctoral Fellowship (84705-NCA-19)
PI: Dake Hao
Total Award: \$145,507
Role: Mentor | 7/2019-6/2021 |
| 3. | 2019 Shriners Hospitals for Children Postdoctoral Fellowship (EDUC4-12792)
PI: Kewa Gao
Total Award: \$145,507
Role: Mentor | 7/2019-6/2021 |
| 4. | 2019 UC Davis CIRM Cellular Therapy Training Program (EDUC4-12792)
PI: Erin Brown, MD, Pediatric Surgery Assistant Professor, UC Davis
Total Award: \$118,000
Role: Mentor | 7/2019-6/2021 |
| 5. | 2020 TL1 Pre-doctoral Clinical Research Training Program Scholar Award (TL1 TR001861)
PI: Kaitlin Clark
Role: Mentor | 7/2020-6/2022 |
| 6. | 2020 TRDRP Pre-doctoral Clinical Research Training Program Scholar Award (T31DT1599)
PI: Lalithasri Ramasubramanian
Role: Mentor | 7/2020-6/2023 |
| | 2020 UC Davis CIRM Cellular Therapy Training Program (EDUC4-12792)
PI: Mimmie Kwong, MD, Vascular Surgery Assistant Professor, UC Davis
Total Award: \$118,000
Role: Mentor | 7/2020-6/2022 |
| 7. | 2021 Shriners Hospitals for Children Postdoctoral Fellowship (84304-NCA-21)
PI: Chaoxing Zhang
Total Award: \$145,507
Role: Mentor | 7/2021-6/2023 |
| 8. | 2022 NIH F31 Pre-doctoral Fellowship (1F31NS120590-01A1)
PI: Rachel Mizenko
Total Award: \$115,320
Role: Co-Mentor (Mentor: Randy Carney) | 7/2022-6/2024 |
| 9. | 2022 Cardiovascular biology T32 Postdoctoral Fellowship (HL086350) | 1/2022-12/2022 |

- PI: Nataliya Bahatyrevich
Total Award: \$76,300
Role: Mentor
10. 2022 DOD NDSEG Pre-doctoral Fellowship (ND-4592032951) 7/2022-6/2025
PI: Tanner Henson
Total Award: \$145,507
Role: Mentor (Co-Mentor: Cheemeng Tan)
11. 2022 T32 Predoctoral Program in Comparative Lung Biology and Medicine (HL007013) 8/2022-7/2024
PI: Yofile Wyle
Total Award: \$130,600
Role: Mentor
12. 2023 UC Davis CIRM Stem Cell and Gene Therapy Training Program 2.0 (EDUC4-12792) 1/2023-12/2023
PI: Emily Byrd, MD, Pediatric Surgery research resident, UC Davis
Total Award: \$118,000
Role: Co-Mentor (Mentor: Erin Brown, MD)
13. 2023 UC Davis CIRM Stem Cell and Gene Therapy Training Program 2.0 (EDUC4-12792) 1/2023-12/2023
PI: Monalisa Hassan, MD, Pediatric Surgery research resident, UC Davis
Total Award: \$118,000
Role: Co-Mentor (Mentors: Shinjiro Hirose, MD)
14. 2023 Predoctoral Fellowship in Drug Delivery from the PhRMA Foundation 4/2023-10/2024
PI: Leora Goldbloom-Helzer, BMEGG PhD student
Total Award: \$65,600
Role: Mentor
15. 2023 UC Davis CIRM Stem Cell and Gene Therapy Training Program 2.0 (EDUC4-12792) 10/2023-9/2024
PI: Zoe Saenz, MD, Pediatric Surgery research resident, UC Davis
Total Award: \$118,000
Role: Co-Mentor (Mentor: Diana Farmer, MD)
16. 2024 Cardiovascular biology T32 Postdoctoral Fellowship (HL086350) 1/2024-12/2025
PI: Kaitlin Clark
Total Award: \$77,428
Role: Co-Mentor (Mentor: Diana Farmer, MD)
17. 2024 Cardiovascular biology T32 Predoctoral Fellowship (HL086350) 1/2024-12/2025
PI: David Wang
Total Award: \$37,308
Role: Mentor
18. 2024 Lung biology T32 Predoctoral Fellowship (HL086350) 1/2024-12/2025
PI: Yofiel Wyle
Total Award: \$37,308
Role: Mentor

RESEARCH GRANTS:

- 1. 1R01NS131538-01A1** Wang (PI) 9/1/2024-8/31/2029
Annual Direct Costs: \$301,840.00
Total Award: \$2,975,100.00
Engineering an extracellular vesicle-based targeted regenerative nanotherapeutic for multiple sclerosis
This project is supported by the NIH/NINDS as a R01 grant. The major goal of this project is to develop a new extracellular vesicle based nanotherapeutic with improved targeting efficiency and therapeutic function for treating multiple sclerosis.
Role: PI
- 2. UC Davis Matching Funding for Shared Equipment Program** Wang (PI) 8/1/2024-7/31/2025

Total Award: \$150,000.00

A high speed, high content, automated, confocal imager

Dr. Wang is the 2024 recipient of the inaugural UC Davis School of Medicine Matching Funding for Shared Equipment program. This program helps meet the collective needs of School of Medicine researchers by assisting in the purchase of equipment that will have broad use across the School of Medicine. Through this funding, Wang will acquire a high content, high throughput confocal imager is a high speed, automated, confocal imager which contains live cell imaging and 7 channel fluorescence laser excitations.

Role: PI

3. UC Davis STAIR grant

Wang (PI)

7/1/2024-6/30/2025

Annual Direct Costs: \$69,738.00

Total Award: \$69,738.00

Off-the-shelf stem cell-derived regenerative treatment for cerebral palsy

This project was supported by the **Science Translation and Innovative Research (STAIR)** grant offered by UC Davis Venture Catalyst and the School of Medicine Dean's office matching funds. We have developed a stem cell-derived, extracellular vesicle based regenerative treatment for cerebral palsy, currently for which there is no available medical treatment.

Role: PI

4. UC Davis College of Letters and Science Incentives for Large Grant Initiative

Neumann, E (PI), Wang (Co-PI)

7/1/2024-6/30/2026

Annual Direct Costs: \$80,000.00

Total Award: \$80,000.00

Spatial Investigation of Cellular and Molecular Neighborhoods within Rett Syndrome Using Integrated Multimodal Imaging Approaches

This project is the UC Davis College of Letters and Science Incentives for Large Grant Proposals. This Large Grant Initiative will provide support for L&S academic senate faculty to pursue large awards of >\$1M in direct expenses (over no more than 3 years).

Role: Co-PI

5. UCSF Center for Translational Research in Transfusion Medicine and Cellular Therapies Pilot Grant

Maltepe, E (PI), Wang (Co-PI)

7/1/2024-6/30/2025

Annual Direct Costs: \$50,000.00

Total Award: \$50,000.00

Intranasal delivery of human placenta mesenchymal stem cell extracellular vesicles (PMSC-EVs) to treat newborn brain injury

This project is the UCSF 2024 inaugural Pilot Grant for the Center for Translational Research in Transfusion Medicine and Cellular Therapies. It is a collaborative effort between Dr. Emin Maltepe from UCSF and Dr. Aijun Wang from UC Davis. Our joint team will test intranasal delivery of human placenta mesenchymal stem cell extracellular vesicles (PMSC-EVs) to treat newborn brain injury in the sheep model.

Role: Co-PI

6. 3R01EB033389-02S1

Carney (Contact PI)/ Wang (mPI)

4/1/2024-3/31/2026

Annual Direct Costs: \$82,990.00

Total Award: \$166,086.00

Homogenized, engineered extracellular vesicles for intracranial targeting (Diversity Supplement)

This is a Diversity Supplement Fellowship from NIH/NIBIB awarded to Ms. Abigail (Abby) Humphries under the Research Supplements to Promote Diversity in Health-Related Research Program (PA-23-189). Ms. Humphries' is a joint PhD student with Drs. Randy Carney and Aijun Wang. The goal of this project is to leverage the extracellular vesicle homogenization platform technology to engineer a novel EV-based drug delivery vehicle for the treatment of spina bifida. This PA-23-189 supplemental funding to support Ms. Humphries' work in the Carney/Wang labs at UC Davis on project R01EB033389 (Homogenized, engineered extracellular vesicles for intracranial targeting) will have major positive impacts on both the project specific aims, as well as her long-term career objectives.

Role: mPI

7. 1R21HD114014-01

Yang, W (PI)

1/1/2024-12/31/2025

Annual Direct Costs: \$150,000.00

Total Award: \$413,379.00

Interferometric near-infrared spectroscopy for transabdominal fetal oximetry

This project is supported by the NIH/NICHHD as a R21 grant. The major goal of this project is to develop an interferometric near-infrared spectroscopy to transabdominally measure fetal oxygen saturation level.

Role: Co-I**8. CIRM CLIN2-15115 Farmer (PI), Wang (Co-PI) 1/1/2024-12/31/2026**

Annual Direct Costs: \$2,820,296.00

Total Award: \$8,996,477.00

The CuRe Trial: Cellular Therapy for In Utero Myelomeningocele Repair (Phase 2a)

This is a *CLIN 2: CIRM Clinical Trial Stage Project* supported by the California Institute for Regenerative Medicine (CIRM). The major goal of this project is to conduct the Phase 2a portion of the CuRe trial (NCT04652908 - *Cellular Therapy for In Utero Myelomeningocele Repair*) to evaluate the safety and preliminary efficacy of PMSC-ECM product for the treatment of spina bifida *in utero*.

Role: Co-PI**9. Shriners Children's (70012-NCA-23) Farmer (PI), Wang (Co-PI) 1/1/2024-12/31/2026**

Annual Direct Costs: \$2,000,000.00

Total Award: \$6,000,000.00

The CuRe Trial: Cellular Therapy for In Utero Myelomeningocele Repair (Phase 2a)

This project is supported as a Clinical Research First program by Shriners Children's as the matching fund (40%) for the CIRM CLIN2-15115. The major goal of this project is to conduct the Phase 2a portion of the CuRe trial (NCT04652908 - *Cellular Therapy for In Utero Myelomeningocele Repair*) to demonstrate the safety and preliminary efficacy of PMSC-ECM product for the treatment of spina bifida *in utero*.

Role: Co-PI**10. Shriners Children's (87300-NCA-24) Hao, D (PI) 1/1/2024-12/31/2025**

Annual Direct Costs: \$149,944.00

Total Award: \$299,650.00

Bioengineered extracellular matrix bioscaffold for fetal treatment of spina bifida

This project is supported as a developmental research award (**equivalent to the NIH R21 grant mechanism**) by Shriners Children's. The major goal of this project is to develop a bioengineered extracellular matrix bioscaffold for fetal treatment of spina bifida *in utero*.

Role: Co-I**11. Shriners Children's (85220-NCA-24) Farmer (PI), Wang (Co-PI) 1/1/2024-12/31/2026**

Annual Direct Costs: \$274,848.00

Total Award: \$824,820.00

In Utero Treatment for Cleft Palate Using Engineered 3D Bioprinted Scaffolds

This project is supported as a basic research award (**equivalent to the NIH R01 grant mechanism**) by Shriners Children's. The major goal of this project is to develop a 3D bio-printed customized composite tissue engineered (bCUTE) scaffold for *in utero* treatment of cleft palate.

Role: Co-PI**12. Shriners Children's (85400-NCA-24) Wang (PI) 1/1/2024-12/31/2026**

Annual Direct Costs: \$274,853.00

Total Award: \$824,759.00

Nanoparticle-based Gene Editing to Induce Exon Skipping for In Utero Treatment of Duchenne Muscular Dystrophy

This project is supported as a basic research award (**equivalent to the NIH R01 grant mechanism**) by Shriners Children's. The major goal of this project is to develop a nanoparticle-based gene editing approach to induce exon skipping for *in utero* treatment of duchenne muscular dystrophy.

Role: PI**13. DOD/CDMRP PR221734P1 Supp, D (PI)/Wang, A (site PI) 9/1/2023-8/31/2026**

Annual Direct Costs: \$585,120.00

Total Award: \$2,533,119.00

Tissue Engineering for Cutaneous and Systemic Epidermolysis Bullosa Gene Therapy

This is the DOD Congressionally Directed Medical Research Program (CDMRP). The central objective of this study is to develop biomimetic pre-vascularized allogeneic dermal templates with rete ridges to improve engraftment of transplanted engineered cells for local and systemic treatment of Recessive Dystrophic Epidermolysis Bullosa (RDEB).

Role: site PI**14. 1R01HD112991-01 Lasalle, J (PI) 8/15/2023-5/31/2027**

Annual Direct Costs: \$429,745.00

Total Award: \$3,374,044.00

Placental identified NHIP regulating neuronal oxidative stress in autism

The central objective of this study is to determine the molecular mechanisms of NHIP function and how NHIP is transcriptionally responsive to hypoxia-induced oxidative stress. We will also determine if NHIP delivered exogenously protects neurons and embryonic neural precursor cells from hypoxia-induced oxidative stress.

Role: Co-I

15. 1R21NS133881-01

Wang (Contact PI)/Pleasure (mPI)

6/1/2023-5/31/2025

Annual Direct Costs: \$125,000.00

Total Award: \$424,091.00

Nanoparticle-mediated delivery of a base editor for in utero treatment of Canavan Disease

The central objective of this study is to develop nanoparticles to efficiently edit oligodendrocytes in utero and to develop a strategy for treating Canavan disease (CD) before birth.

Role: PI

16. CIRM DISC2-14097

Wang (PI)

5/1/2023-4/30/2026

Annual Direct Costs: \$500,000.00

Total Award: \$2,035,544.00

In Utero Treatment of Duchenne Muscular Dystrophy with Non-viral Gene Editing

This is a discovery/Quest award supported by the California Institute for Regenerative Medicine (CIRM). The central objective of this study is to develop a non-viral base editing strategy for treatment of DMD using lipid nanoparticles (LNPs).

Role: PI

17. 1R01EB034279-01

Tan (Contact PI)/Carney (mPI)/Wang (mPI)

4/1/2023-3/31/2027

Annual Direct Costs: \$376,000.00

Total Award: \$2,292,521.00

Bottom-up, high-throughput prototyping of extracellular vesicle mimetics using cell-free synthetic biology

This project is a NIH/NIBIB MPI R01 awarded to Drs. Cheemeng Tan (contact), Randy Carney (MPI) and Aijun Wang (MPI). The goal of this project is to synthesize scalable nanoparticles from the bottom up that mimic the effects of natural vesicles. The proposed research will create an effective platform for designing and testing extracellular vesicles with high efficacy.

Role: mPI

18. 1R01EB033389-01A1

Carney (Contact PI)/ Wang (mPI)

4/1/2023-3/31/2027

Annual Direct Costs: \$375,818.00

Total Award: \$2,366,493.00

Homogenized, engineered extracellular vesicles for intracranial targeting

This project is a NIH/NIBIB MPI R01 awarded to Drs. Randy Carney (contact) and Aijun Wang (MPI). The goal of this project is to develop physicochemical approaches to homogenize extracellular vesicles and fuse them with synthetic drug loaded liposomes to engineer a drug delivery vehicle that delivers a therapeutic payload with high intracranial uptake. We will also test the safety and biodistribution of the engineered product as well as its efficacy in a glioblastoma orthotopic mouse model.

Role: mPI

19. Cultivating Team Science Award

Wang (PI)

8/1/2022-7/31/2024

Total Award: \$200,000.00

Extracellular Vesicle Theranostics in the Central Nervous System

The major goal of this project is to develop new team between departments/schools and have a multiplicative effect on extramural research funding in the near future. Our new team is comprised of 12 UC Davis faculty members from surgical subspecialties, pharmacology, biomedical engineering, pathology, and computer science, across the College of Engineering, School of Medicine, and School of Veterinary Medicine, with complementary expertise across the spectrum of clinical sciences, biology, and engineering.

Role: PI

20. COE Next Level Vision Award

George/Carney/Wang/Tan (PI)

8/1/2022-7/31/2024

Total Award: \$40,000.00

Extracellular Vesicle Theranostics in the Central Nervous System

The major goal of this project is to develop new engineering technologies to study EV biology, engineering EVs for theranostics applications. Our team is composed of 12 UC Davis faculty members across the College of Engineering, School of Medicine, and School of Veterinary Medicine.

Role: Co-PI

-
- 21. NIH/UF1NS100608** **Maillard (PI)** **8/1/2022-7/31/2023**
 Total Award: \$294,722.00
Novel Imaging and Biofluid Biomarkers of Small Vessel Cerebrovascular Disease
 The major goal of this project is to develop technologies to isolate and characterize extracellular vesicles as biofluid biomarkers from platelet-poor plasma (PPP) specimens from patients with Small Vessel Cerebrovascular Disease.
Role: Co-I
- 22. 1R21HD107324-01** **Hong (Contact PI)/ Wang (mPI)** **7/19/2022-6/30/2025 (NCE)**
 Annual Direct Costs: \$125,000.00
 Total Award: \$441,125.00
Biodegradable elastic patches for congenital diaphragmatic hernia treatment
 The goal of this project is to develop a novel biodegradable, bioactive, elastic patch that matches the mechanical properties of the native diaphragm and supports the regeneration and treatment of congenital diaphragmatic hernia (CDH).
Role: MPI
- 23. CIRM TRAN3-13332** **Wang (PI)** **7/1/2022-6/30/2025 (NCE)**
 Annual Direct Costs: \$999,432
 Total Award: \$3,082,579
Living Synthetic Vascular Grafts with Renewable Endothelium
 This is a translational grant supported by the California Institute for Regenerative Medicine (CIRM). The major goal of this project is to develop a new technology to coat ePTFE vascular grafts with LXW7 to achieve rapid endothelialization and improve graft patency by capturing endogenous endothelial progenitor cells.
Role: PI
- 24. STAIR grant** **Wang (PI)** **7/1/2021-6/30/2023**
 Annual Direct Costs: \$75,000.00
 Total Award: \$75,000.00
Engineered Placental Mesenchymal Stromal Cells and Extracellular Vesicles for the Treatment of Spinal Cord Injury
 This project was supported by the **Science Translation and Innovative Research (STAIR)** grant offered by UC Davis Venture Catalyst (\$50k) and by the School of Medicine Dean's office matching funds (\$25k). We have developed a stem cell treatment for spina bifida, a congenital form of spinal cord injury, that has been shown to be effective in a fetal lamb model and is now in a first-in-human clinical study. The major goal of this project is to expand this technology to treat adult-onset spinal cord injuries, currently for which there is no available medical treatment.
Role: PI
- 25. 1R41HD104537-01** **Ghiasi (PI), Wang (Co-PI), Hedriana (Co-PI)** **3/1/2021-8/31/2022**
 Annual Direct Costs: \$181,934.00
 Total Award: \$280,374.00
Intrapartum Transabdominal Fetal Pulse Oximetry: Demonstration in Ewe Models
 This is an NIH STTR Phase I grant application with Storx Technologies, Inc. as the sponsor. The goal of this project is for Storx to develop a commercially viable transabdominal fetal pulse oximeter prototype, which will be validated intrapartum, using a pregnant sheep model experiencing induced uterine contractions.
Role: Co-PI
- 26. Shriners Hospitals for Children (85135-NCA-21)** **Farmer (PI), Wang (Co-PI)** **1/1/2021-12/31/2023**
 Annual Direct Costs: \$249,682.00
 Total Award: \$748,785.00
Developing a stem cell-derived cell-free regenerative therapy for spina bifida
 This project is supported as a basic research award (**equivalent to the NIH R01 grant mechanism**) by the Shriners Hospital for Children. The major goal of this project is to develop a cell-free, off-the-shelf, and easy-to-use therapeutic to provide structural and functional support to the protected spinal cord tissue and preserve long-term motor function in spina bifida animal models.
Role: Co-PI
- 27. CIRM CLIN2-12129** **Farmer (PI), Wang (Co-PI)** **1/1/2021-12/31/2023**
 Annual Direct Costs: \$2,820,296.00
 Total Award: \$8,996,474.00
The CuRe Trial: Cellular Therapy for In Utero Myelomeningocele Repair

This is a *CLIN 2: CIRM Clinical Trial Stage Project* supported by the California Institute for Regenerative Medicine (CIRM). The major goal of this project is to conduct a Phase 1 clinical trial to demonstrate safety and preliminary efficacy of PMSC-ECM product (Allogeneic Placenta-derived Mesenchymal Stem Cells Seeded on Cook Biodesign® Dural Graft Extracellular Matrix).

Role: Co-PI

28. ASSH Basic Science Grant Li (PI), Wang (Co-PI) 10/1/2020-6/30/2022

Total Award: \$20,000.00

A High-Throughput Peripheral Nerve Injury Model Using Microchannel Arrays

This project is supported by the [American Society for Surgery of the Hand](#) (ASSH) as one of the three **2020 Basic Science Grants** (similar to the NIH R21 grant mechanism) awarded to Drs. Andrew Li and Aijun Wang. The major goal of this project was to develop a high-throughput peripheral nerve injury model using microchannel arrays to study peripheral nerve injury and regeneration.

Role: Co-PI

29. 1R01NS115860-01A1 Farmer (Contact PI)/ Wang (mPI) 9/1/2020-8/31/2025

Annual Direct Costs: \$322,989.00

Total Award: \$2,486,879.00

Engineered neuroprotective stem-cell exosomes for in utero spina bifida therapy

This project is a NIH/NINDS MPI R01 awarded to Drs. Diana Farmer and Aijun Wang. The goal of this project is to develop a novel engineered hydrogel system in conjunction with a bone scaffold, thus resulting in an optimal combination scaffold for *in utero* treatment of spina bifida.

Role: mPI

30. 1R21HD097467-01A1 Ghiasi (Contact)/Farmer (mPI)/Wang (mPI) 7/15/2020-6/30/2023

Annual Direct Costs: \$150,000.00

Total Award: \$413,440.00

Validation of Transabdominal Fetal Pulse Oximetry in Hypoxic Fetal Lamb Models

This project is supported by the NIH/NICHHD as a R21 grant. The major goal of this project is to improve fetal health monitoring during active labor and delivery, by developing and validating a prototyped oximetry device for noninvasive, transabdominal measurement of fetal arterial blood oxygen saturation (FSpO₂) in hypoxic fetal lamb models.

Role: mPI

31. TRDRP (T31IP1530) Wang (PI) 7/1/2020-6/30/2023

Annual Direct Costs: \$200,000.00

Total Award: \$520,000.00

Developing a luminal coating technology targeting vascular injury to promote reendothelialization

This project is supported by the University of California Tobacco Related-Disease Research Program (TRDRP) as a **High Impact Pilot Award**. The goal of this project is to explore the possibility and feasibility of a novel luminal coating technology targeting vascular injury to promote reendothelialization by recruiting endogenous endothelial progenitor cells. We are going to evaluate the function of the novel technology in a rat endothelial denudation model.

Role: PI

32. New Research Initiatives and Interdisciplinary Research grant Tan (PI), Wang (Co-PI) 7/1/2020-9/30/2021

Annual Direct Costs: \$25,426.00

Total Award: \$25,426.00

Prototyping bottom-up synthesis of exosomes using a synthetic biology approach

This project is supported by the UC Davis Academic Senate as a New Research Initiatives and Interdisciplinary Research grant. The major goal of this project is to prototype a novel bottom-up synthesis approach to produce exosomes using a synthetic biology strategy.

Role: Co-PI

33. The Innovative Development Award Pereira (PI), Wang (Co-PI) 7/1/2020-6/30/2022

Total Award: \$19,800.00

Enhancing Axonal Regenerative Accuracy and Efficacy in Peripheral Nerve Injuries: A Novel Precision Alignment Process

This project is supported by the UC Davis Academic Federation as an Innovative Development Award. The major goal of this project is to develop a novel precision axonal alignment process that aligns axons accurately at the molecular level.

Role: Co-PI

34. UC Davis Alzheimer's Disease Center Pilot Grant Wang (PI) 7/1/2020-6/30//2021

Annual Direct Costs: \$32,000.00

Total Award: \$40,320.00

Developing a stem cell-based multifaceted treatment for Alzheimer's disease

This project is supported by the UC Davis Alzheimer's Disease Center Pilot program. The major goal of this project is to generate pilot data in developing a novel a stem cell-based multifaceted treatment for Alzheimer's disease.

Role: PI

35. NSF STTR 2015174

Fong (PI), Wang (Co-PI)

7/1/2020-12/31/2020

Annual Direct Costs: \$172,440.00

Total Award: \$225,000.00

A Novel Device for Accurate Intrapartum Fetal Health Monitoring

This NSF STTR award/subcontract is sponsored by **Storx Technologies, Inc., a UC Davis start-up company**. The major goal of this project is to evaluate a novel device for accurate intrapartum fetal health monitoring using the established fetal sheep model.

Role: Co-PI

36. Q@AS Planning Grant

George/Simon/Choi/Wang (mPI)

1/1/2020-12/31/2020

Annual Direct Costs: \$25,000.00

Total Award: \$25,000.00

Leveraging the Medical Campus to Enhance the Design and Clinical Experience in Biomedical Engineering

The **Quarter at Aggie Square (Q@AS) Planning Grant** is supported by the Office of the Provost and Executive Vice Chancellor to develop new courses at the emerging Aggie Square on the UC Davis Sacramento Campus. This course is designed to increase the exposure of biomedical engineering undergraduate students to healthcare settings that deploy biomedical technology.

Role: mPI

37. 3 UL1 TR003096-02S1

Primary PI: Wasko, M; Sub-PI: Kenyon, NJ 5/1/2019-4/30/2023

Annual Direct Costs: \$75,000.00

Total Award: \$75,000.00 (Total Program Award Amount (including Indirect Costs): \$26,909,484.00

I-Corps at NCATS Program (UC Davis Clinical and Translational Science Center)

This I-Corps@NCATS Regional Short Course program is sponsored by NIH/NCATS. Based on the National Science Foundation's Innovation Corps (I-Corps™) program, the premier federally-funded innovation and commercialization training in the U.S., I-Corps@NCATS provides biomedical scientists, clinician scientists, and engineers with a new approach to accelerate the translation of discoveries from the lab to clinical practice. This short course is offered by UC Davis Clinical and Translational Science Center in collaboration with University of Alabama at Birmingham to UC Davis Teams of faculty, postdocs, and/or students with biomedical innovations or ideas for commercialization. I am serving as one of the Instructors for this program.

Role: Instructor

38. Shriners Hospitals for Children (85108-NCA-19)

Wang (PI)

1/1/2019-12/31/2022

Annual Direct Costs: \$249,291.00

Total Award: \$998,330.00

Stem Cell-based Treatment of Spina Bifida in a Naturally Occurring Disease Model

This project is supported as a basic research award (**equivalent to the NIH R01 grant mechanism**) by the Shriners Hospital for Children. In this study, we will establish spina bifida English bulldogs as a naturally occurring disease model of spina bifida. We propose adapting our lab's validated prenatal spina bifida therapy to test its efficacy as a therapy after birth via a clinical trial in English bulldogs born with spina bifida. This study could pave the way to treating children born with spina bifida.

Role: PI

39. CIRM CLIN1-11404

Farmer (PI), Wang (Co-PI)

1/1/2019-12/31/2020

Annual Direct Costs: \$2,685,267.00

Total Award: \$5,666,078.00

Placental Mesenchymal Stem Cell Augmentation of Fetal Myelomeningocele Repair

This project is supported by the California Institute for Regenerative Medicine (CIRM) as CLIN1 award. The major goal of this project is to produce GMP (Good Manufacturing Practice) grade placental mesenchymal stem cell (PMSC) banks and carry out IND enabling studies for developing allogenic PMSC products for fetal treatment of spina bifida using a clinical grade dura replacement material as a cell delivery vehicle. As the Co-PI on this project, I am leading the GMP production of PMSCs, release testing and constructing the combinatorial cellular products.

Role: Co-PI

40. Shriners Hospitals for Children (87200-NCA-19)

Wang (PI)

1/1/2019-12/31/2020

Annual Direct Costs: \$59,969.00

Total Award: \$119,885.00

Development of regenerative treatments to improve healing of burn wounds

This project is supported as a developmental research award (**equivalent to the NIH R03 grant mechanism**) by the Shriners Hospital for Children. The study is based on the recently identified specific endothelial cell-binding ligand LXW7. When coupled with burn scaffold, LXW7 may accelerate deep burn wound healing. We will test our therapy in mice to evaluate its ability to rescue vital skin functions after burn injury.

Role: PI

41. Department of Defense (W81XWH-18-1-0657) Kurzrock (PI) 9/1/2018-8/31/2021

Annual Direct Costs: \$167,957.00

Total Award: \$785,000.00

Vascularization of Bioengineered Bladder Wall in a Large Animal Model

This project is supported by the Department of Defense Spinal Cord Injury Research Program (SCIRP). The goal of this project is to produce and evaluate vascularized bioengineered bladder grafts to treat spinal cord injury in a large animal model.

Role: Collaborator

42. NIH/NHLBI Technology Development Award Panitch (PI) 8/1/2018-7/30/2020

Annual Direct Costs: \$100,000.00

Total Award: \$313,984.00

Development of Biomimetic luminal coating to capture endothelial progenitor cells to improve outcomes following balloon angioplasty

This **Technology Development Award** is supported by the NIH/NHLBI through University of California Center for Accelerated Innovation (UC CAI). The goal of this project is to develop a biomimetic luminal coating (“liquid stent”) to capture endothelial progenitor cells (EPCs) to improve outcomes following balloon angioplasty for cardiovascular disease patients.

Role: Co-I

43. Dean’s Fellowship in Entrepreneurship Wang (PI) 8/1/2018-7/30/2020

Annual Direct Costs: \$40,000.00

Total Award: \$80,000.00

Using Vascular Devices to Develop Best Practices in Innovator Career Advancement

This **Deans Fellowship in Entrepreneurship Award** was provided by the School of Medicine (SOM) Dean’s Office. The major goal of this project is to increase the School of Medicine’s institutional capacity in academic entrepreneurship and to establish the Surgical Bioengineering Laboratory as a hub for innovation, invention and education.

Role: PI

44. Craig H. Nielsen Foundation (546558) Farmer (PI) 7/31/2018-12/31/2020

Annual Direct Costs: \$135,000.00

Total Award: \$323,000.00

A Placental Stem Cell Derived Treatment for Acquired Spinal Cord Injury

This project is supported by the Nielsen Pilot Research Grant from the Craig H. Nielsen Foundation. The goal of this project is to elucidate the mechanism of action behind the neuroprotective capabilities of placental mesenchymal stromal cells (PMSCs) and develop a PMSC-derived cell-free treatment for adult acute spinal cord injury (SCI).

Role: Co-I

45. CIRM Inception Award (DISC1-10516) Panitch (PI) 4/1/2018-3/31/2019

Annual Direct Costs: \$150,000.00

Total Award: \$235,800.00

Development of treatments to improve healing of ischemic wounds

This project was supported by the California Institute for Regenerative Medicine (CIRM). The goal of this project is to develop an angiogenic proteoglycan mimic that will protect tissue from rapid degradation, and in conjunction with endothelial progenitor cells (EPCs) promote angiogenesis in order to accelerate ischemic wound healing.

Role: Co-I

46. Center for Companion Animal Health (CCAH) Borjesson (PI) 1/1/2018-12/31/2018

Annual Direct Costs: \$25,000.00

Total Award: \$25,000.00

Stem Cell-Based Treatment of Spina Bifida in English Bulldogs

This pilot grant was supported by the Center for Companion Animal Health (CCAH) of UC Davis. The goal of this project is to investigate placenta derived MSCs for use in treating spina bifida English bulldogs to generate more preliminary data to support a larger canine clinical trial.

Role: Co-I

47. Shriners Hospitals for Children (85119-NCA-18) Wang (PI) 1/1/2018-12/31/2019

Annual Direct Costs: \$59,512.00

Total Award: \$109,882.00

Placental Mesenchymal Stromal Cell-derived Cell-Free Therapy for Multiple Sclerosis

This project was supported as a developmental research award (**equivalent to the NIH R03 grant mechanism**) by the Shriners Hospital for Children. The study is based on the recently established placental mesenchymal stromal cell (PMSC) based therapy for neurological diseases such as spina bifida. The major goal of this project is to develop a PMSC-based, cell-free therapy for multiple sclerosis in children.

Role: PI

48. NIH/NHLBI Technology Development Award Wang (PI) 12/1/2017-7/31/2019

Annual Direct Costs: \$100,000.00

Total Award: \$313,984.00

“Living” Synthetic Vascular Grafts with Renewable Endothelium

This **Technology Development Award** was supported by the NIH/NHLBI through University of California Center for Accelerated Innovation (UC CAI). The major goal of this project is to develop a novel synthetic vascular graft for hemodialysis applications. We will use LXW7, a recently identified small molecule that can specifically capture endothelial cells from circulation, to modify synthetic vascular grafts and to promote *in situ* endothelialization and long-term patency of vascular grafts.

Role: PI

49. 1R01NS100761-01A1 Wang (PI) 8/1/2017-4/30/2023

Annual Direct Costs: \$218,750.00

Total Award: \$1,717,190.00

Fetal Tissue Engineering to Treat Spina Bifida Before Birth

This project is supported by the NIH/NINDS as a R01 grant. The major goal of this project is to develop multifunctional tissue engineered scaffolds to treat spina bifida before birth. The multifunctional bioengineered scaffolds will be used with placental mesenchymal stem cells to provide functions such as neuroprotection, anti-adhesion and bone regeneration. Therapeutic functions of the multifunctional tissue engineered scaffolds will be evaluated in animal models of spina bifida in multiple animal species.

Role: PI

50. 1R03HD091601-01 Wang (PI) 7/1/2017-6/30/2020

Annual Direct Costs: \$50,000.00

Total Award: \$157,000.00

Guinea pigs as a model of in utero stem cell therapy for spina bifida

This project was supported by the NIH/NICHHD as a R03 grant. The major goal of this project is to derive and characterize placental mesenchymal stem cells from guinea pigs (gpPMSCs) and transplant them for *in utero* treatment of spina bifida in the guinea pig model. Therapeutic functions of gpPMSCs will be evaluated in the fetal model of spina bifida in guinea pigs.

Role: PI

51. Shriners Hospitals for Children (87410-NCA-17) Wang (PI) 1/1/2017-12/31/2018

Annual Direct Costs: \$60,000.00

Total Award: \$120,000.00

Developing guinea pigs as a cost-effective high throughput model of spina bifida

This project was supported as a developmental research award (**equivalent to the NIH R01 grant mechanism**) by the Shriners Hospital for Children. The major goal of this project is to evaluate the therapeutic functions of our established human placental mesenchymal stem cells (PMSCs) in fetal guinea pig model of spina bifida. Xenogeneic human PMSCs will be transplanted in utero in this study.

Role: PI

52. UCD Center for Biophotonics (C4B) Pilot Grant Wang (PI) 6/1/2016-5/30/2018

Annual Direct Costs: \$25,000.00

Total Award: \$25,000.00

Investigation of Stem Cell-Derived Exosomes and Exosome-Cell Interaction Using Biophotonics Approaches

This project was supported by UC Davis Center for Biophotonics (C4B). The major goal of this project is to isolate and characterize placental mesenchymal stem cell derived exosomes and investigate exosome-cell interaction and exosome subcellular trafficking within target cells using advanced Biophotonics approaches.

Role: PI

53. March of Dimes Foundation (5FY1682) Wang (PI) 2/1/2016-1/31/2019

Annual Direct Costs: \$75,000.00

Total Award: \$165,000.00

In Utero Treatment of Spina Bifida via Autologous Fetal Stem Cell Mediated Neuroprotection

This project was supported by the March of Dimes Foundation as a Basil O'Connor Starter Scholar Research Award. Spina bifida is a common neural tube birth defect. The major goal of this project is to characterize the neuroprotection function of fetal stem cells derived from chorionic villi in placenta. These fetal stem cells will be used as autologous cells for in utero treatment of spina bifida.

Role: PI

54. Center for Companion Animal Health (CAAH) Borjesson (PI) 2/1/2016-1/31/2018

Annual Direct Costs: \$25,000.00

Total Award: \$25,000.00

Mesenchymal stem cells for canine inflammatory brain disease

This project was supported by the Center for Companion Animal Health (CAAH) and Center for Equine Health (CEH) of UC Davis. The goal of this project is to investigate placenta derived MSCs for use in necrotizing meningoencephalitis, a potential model for acute multiple sclerosis.

Role: Co-I

55. VIRC Pilot Grant Program Wang (PI) 2/1/2016-1/31/2017

Annual Direct Costs: \$10,000.00

Total Award: \$10,000.00

Isolation of canine placental stem cells to treat spinal cord injury in the dog

This project was supported by the Veterinary Institute for Regenerative Cures (VIRC) at UC Davis School of Veterinary Medicine. The VIRC's mission is to pioneer regenerative medicine cures for animals and people with a primary objective to develop and integrate regenerative medicine discoveries into clinical practice. This pilot program supports significant and novel ideas that may otherwise go unfunded due to a lack of preliminary data and/or the high risk of the project. The major goal of this project is to isolate and characterize the canine placental stem cells to treat spinal cord injury in the dog.

Role: PI

56. Shriners Hospitals for Children (85120-NCA-16) Farmer (PI), Wang (Co-PI) 1/1/2016-12/31/2019

Annual Direct Costs: \$198,933.00

Total Award: \$832,261.00

Early Gestation Placental Mesenchymal Stem Cells for the Treatment of Spina Bifida

This project was supported as a basic research award (**equivalent to the NIH R01 grant mechanism**) by the Shriners Hospital for Children. Early gestational placenta contains multiple types of stem cells and hold promise for regenerative medicine applications. The major goal of this project is to engineer mesenchymal stem cells from early gestational placentas and use them to augment fetal surgical treatment of spina bifida. Stem cell engraftment, neurophysiological analyses and long-term outcome evaluation of the treated sheep is included in this study. As the Co-PI on this project, I am responsible for isolating and expanding placenta mesenchymal stem cells, developing and optimizing the delivery vehicle, producing the stem cell/matrix combination product for in utero transplantation, and evaluating stem cell engraftment and immunohistological analyses.

Role: Co-PI

57. The UCDHS Interdepartmental Seed Grant Wang (PI) 1/1/2016-1/1/2017

Annual Direct Costs: \$20,000.00

Total Award: \$20,000.00

Engineering Blood Vessels with induced Pluripotent Stem Cell-derived Endothelial Cells and Artificial Matrix

This project was to develop novel artificial blood vessels by combining induced pluripotent stem cell (iPSC) derived endothelial cells and artificial matrix. We have identified novel ligands that specifically bind to integrins expressed on endothelial cells and we will use these novel ligands to design and develop artificial matrices for the isolation, expansion and delivery of iPSC-derived endothelial cells.

Role: PI

58. CIRM PC1-08103 Farmer (PI), Wang (Co-PI) 9/1/2015-8/31/2018

Annual Direct Costs: \$781,112.00

Total Award: \$2,182,146.00

Placental Stem Cells for the In Utero Treatment of Spina Bifida

This project was supported by the California Institute for Regenerative Medicine (CIRM). Spina bifida is a common neural tube birth defect. The major goal of this project is to establish an *in utero* stem cell transplantation to augment fetal surgical treatment. We have had a very successful Pre-IND meeting with the FDA on developing this product for clinical use. As the Co-PI on this project, I am responsible for isolating and expanding placenta mesenchymal stem cells, developing and optimizing the delivery vehicle, and producing the stem cell/matrix combination product for *in utero* transplantation.

Role: Co-PI

59. STAIR grant

Wang (PI)

9/1/2015-8/31/2017

Annual Direct Costs: \$50,000.00

Total Award: \$50,000.00

Sutureless Artificial Graft for Arterial Replacement

This project was supported by the Science Translation and Innovative Research (STAIR) grant offered by UC Davis Venture Catalyst. The major goal of this project is to develop an artificial vascular graft that can be attached to vessel walls without sutures, and improve endothelial regeneration against turbulent blood flow, thrombosis and intimal hyperplasia.

Role: PI

60. Biogen Idec US-HEM-14-10806

Wang (PI)

6/1/2015-2/30/2016

Annual Direct Costs: \$110,368.00

Total Award: \$173,278.00

Sustained Factor VIII Expression via in Utero Chorionic Villus Derived Stem Cell Transplantation

This investigator-initiated research project was sponsored by Biogen Idec. The major goal of this project is to establish the proof-of-concept for using the chorionic villus derived placental mesenchymal stem cells (PMSCs) for prenatal treatment of Hemophilia A in the rodent models. Human and mouse PMSCs will be isolated, expanded and genetically modified with a lentiviral vector encoding B-domain deleted human FVIII gene with GFP and luciferase for cell tracking. Human and mouse PMSCs will be transplanted in utero in the mouse.

Role: PI

61. The Children's Miracle Network

Wang (PI)

7/1/2014-6/30/2016

Annual Direct Costs: \$24,000.00

Total Award: \$24,000.00

Tissue Engineering to Treat Congenital Diaphragmatic Hernia

This project was supported by the Children's Miracle Network (CMN). Congenital Diaphragmatic Hernia (CDH) is a severe birth defect in which the diaphragm abnormally developed. The major goal of this project is to develop a stem cell derived muscle patch that can be surgically implanted to repair the defect and restore function to the diaphragm, so that children born with CDH not only survive, but thrive.

Role: PI

62. 5R01 HL117213

Li (PI)

7/1/2013-6/30/2017

Annual Direct Costs: \$253,422.00

Total Award: \$1,451,845.00

Subcontract Total Award: \$231,000.00

Stem Cells in Vascular Remodeling

This project was supported by the NIH/NHLBI. The major goal of this project is to characterize multipotent vascular stem cell (MVSC) markers and the relative contribution of MVSCs and mature smooth muscle cells (SMCs) to proliferative/synthetic SMCs in vitro by using lineage tracing models; to determine the roles of MVSCs and mature SMCs in neointima formation following vascular injury in transgenic mouse models; and to characterize MVSCs in human arteries.

Role: Co-I

GRANTS PRIOR TO JOINING UC DAVIS:

63. Army-USAMRAA/TATRC

Li (PI)

7/1/2011-12/31/2012

Total Award: \$325,000.00

Novel Stem Cells for Tissue Engineering

The goal of this seed grant is to isolate novel adult multipotent vascular stem cells from blood vessels and use these cells for peripheral nerve regeneration.

Role: Co-I

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- 64. CIRM Early Career Grant # TG2-01164** **Wang (PI)** **1/1/2011-12/31/2011**
Total Award: \$65,473.00
Human iPS Cell-derived Neural Crest Stem Cells for Tissue Regeneration
The goal of this study was to derive and characterize neural crest stem cells (NCSCs) derived from human induced Pluripotent Stem Cells (iPSCs) and use these multipotent stem cells for nerve and vascular tissue regeneration.
Role: PI
- 65. CIRM Early Career Grant # TG2-01164** **Wang (PI)** **1/1/2010-12/30/2010**
Total Award: \$65,670.00
Peripheral Nerve Regeneration by Using iPS Cell-derived Neural Crest Stem Cells
The goal of this study was to develop a tissue engineering approach to regenerate peripheral nerve. Electrospun nanofibrous nerve grafts were prepared to deliver neural crest stem cells (NCSCs) derived from human iPSCs and the combination product, iPSC-NCSCs loaded in nanofibrous scaffolds, were transplanted into the sciatic nerve defects in a rat model for studying the regeneration in peripheral nerve.
Role: PI
- 66. USAMRAA/TATRC** **Li (PI)** **7/12009-7/1/2010**
Total Award: \$127,280.00
Nanofibrous scaffolds for spinal cord regeneration
The goal of this study was to use electrospun nanofibrous scaffolds for the treatment of spinal cord injury in the rat model.
Role: Co-I