Jun Wan, Ph.D.

Associate Professor with Tenure in Bioinformatics, Department of Medical and Molecular Genetics

Associate Director, Center for Computational Biology and Bioinformatics (CCBB)

Indiana University School of Medicine (IUSM)

Director, Collaborative Core for Cancer Bioinformatics (C^3B) shared by two NIC-designated cancer centers in Indiana, Indiana University Simon Comprehensive Cancer Center (IUSCCC) and Purdue Institute for Cancer Research (PICR)

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With a comprehensive background spanning physics, biology, and bioinformatics, I possess a diverse skill set and research interests focused on bioinformatics and computational systems biology. Since 2007, I have been actively engaged in studying gene regulation mechanisms across various dimensions, including transcription factor regulation, DNA methylation, alternative splicing, microRNA regulation, histone modifications, and genome-wide chromatin organizations. My research has been published in prominent journals such as *Cell, Nature Nanotechnology, Nature Cell Biology, Nature Biomedical Engineering, Science Immunology, Nucleic Acids Research, Molecular Cell, eLife, Nature Communications, Epigenetics, PNAS, JCI, JCI Insight, and Blood* among others. My work has also explored the collective functions of multiple proteins as emergent epigenetic regulators, such as PRMT5/pICln/MEP50, as evidenced by publications in *Cancer Research, iScience, and Computational and Structural Biotechnology Journal*. Additionally, we have investigated the roles of key factors in chromatin remodeling complexes, as highlighted in *Genome Biology*. As Associate Director of the Center for Computational Biology and Bioinformatics (CCBB) at IUSM, and Director of the Collaborative Core for Cancer Bioinformatics (C^3B) shared by two NCI-designated cancer centers in Indiana, Indiana University Simon Comprehensive Cancer Center (IUSCCC) and Purdue Institute for Cancer Research (PICR), I oversee a wide array of bioinformatics analyses and trainings, particularly focused on next-generation sequencing (NGS) data and various omics data types, including RNA-Seq, ChIP-Seq, ATAC-seq, Whole Genome Bisulfite Sequencing (WGBS), Whole genome/exome sequencing, CRISPR/Cas9, cutting-edge single-cell (sc) technologies such as scRNA-seq, scATAC-seq, and 10X sc-Multiome, and Spatial Transcriptomics. Furthermore, I have successfully managed numerous projects, mentored 2 postdoctoral fellows and 5 PhD students in my lab, while serving on mentoring committees for several junior faculty and 16 PhD/MS students. Additionally, I have supervised 8 senior and junior bioinformaticians within the C^3B. My extensive record of collaborations with over 100 research groups from various institutions has resulted in numerous high-impact publications, some of which have served as cornerstones for grants funded by NIH/DoD and other agencies.

CURRENT APPOINTMENTS

2023-present Associate Director, collaborative research at the Center for Computational

Biology and Bioinformatics (CCBB), Indiana University School of Medicine (IUSM), Indianapolis, IN USA

2022-present Tenured Associate Professor in Bioinformatics, Department of Medical and Molecular Genetics, IUSM, Indianapolis, IN USA

2022-present Adjunct Associate Professor, Department of BioHealth Informatics, Indiana University School of Informatics and Computing, Indiana University – Purdue University at Indianapolis (IUPUI), IN USA

2016-present Director, Collaborative Core for Cancer Bioinformatics (C^3B) shared by two NCI-designated cancer centers, Indiana University Simon Comprehensive Cancer Center (IUSCCC) and Purdue Institute for Cancer Research (PICR), IN USA

EDUCATION & TRAINING

2007-2011 Postdoctoral Fellow, Wilmer Institute, Johns Hopkins University School of Medicine, Baltimore, MD USA

2006-2007 Postdoctoral Fellow, Department of Electrical and Computer Engineering, University of Victoria, Victoria, BC Canada

2006 Ph.D., Department of Physics, Queen's University, Kingston, ON Canada

2001 M.S., Department of Physics, Fudan University, Shanghai, China

1991 B.S., Department of Applied Physics, Shanghai Jiaotong University, Shanghai, China

AWARDS & HONORS

2023-2026 The Showalter Scholar (Faculty) selected by Indiana University School of Medicine and partially funded by the Ralph W. and Grace M. Showalter Research Trust Fund for "significant contributions to the IU School of Medicine and the greater research community" ($75,000).

2004-2005 Ontario Graduate Scholarship, ON Canada.

2003-2005 Carl Reinhardt Fellowship, Queen's University, Kingston, ON Canada.

2002-2003 Queen Elizabeth II Graduate Scholarship in Science and Technology, ON Canada.

2001-2002 Carl Reinhardt Fellowship, Queen's University, Kingston, ON Canada.

OTHER/PREVIOUS ACADEMIC POSITIONS

2019-present Full member, Indiana University Simon Comprehensive Cancer Center (IUSCCC), IUSM, Indianapolis, IN USA

2016-2023 Core faculty member, Center for Computational Biology and Bioinformatics (CCBB), IUSM, Indianapolis, IN USA

2016-2022 Tenure-track Assistant Professor in Bioinformatics, Department of Medical and Molecular Genetics, IUSM, Indianapolis, IN USA

2017-2022 Adjunct Assistant Professor, Department of BioHealth Informatics, Indiana

University School of Informatics and Computing, IUPUI, IN USA

2015-2016 Research Associate (non-tenure-track faculty), Wilmer Institute, Johns Hopkins University School of Medicine, Baltimore, MD USA

2011-2015 Senior Bioinformatician, Wilmer Institute, Johns Hopkins University, Baltimore, MD USA

2001-2005 Research Assistant, Department of Physics, Queen's University, Kingston, ON Canada

2001-2005 Teaching Assistant, Department of Physics, Queen's University, Kingston, ON Canada

1999-2000 Research Assistant (full-time), Department of Physics and Materials Science, City University of Hong Kong, Hong Kong China

PROFESSIONAL SERVICES

Editorial Activities (*Impact factor (IF) published in 2022*)

2024 Associate Editor for Bioinformatics and Computational Biology, *Heliyon* (Cell press)

2022-present Associate Editor for Evolutionary and Genomic Microbiology, specialty section of *Frontiers in Microbiology* (IF: 6.06), *Frontiers in Genetics* (IF: 4.77), and *Frontiers in Ecology and Evolution* (IF: 13.78)

2017-present Editorial Board Member, *Briefings in Bioinformatics* (IF: 13.99)

2012-present Editorial Board Member, *International Journal of Computational Biology and Drug Design*

2019-present Topics Board Member, *Life* (IF: 3.81)

2013 Guest Editor, Special Issues "*Computational Systems Biology*" of Scientific World Journal

2011-present Journal reviewer for: *Lancet* (IF: 202.73)*, Cell Research* (IF: 46.29), *Journal of Hematology & Oncology* (IF: 23.17)*, Journal of Medical Virology* (IF: 20.69), *Nucleic Acids Research* (IF: 19.16), *Genome Biology* (IF: 17.91), *Briefings in Bioinformatics* (IF: 13.99), *Environment International* (IF: 13.35), *Clinical and translational medicine* (IF: 8.55), Computers in Biology and Medicine (IF: 7.70), *Cells* (IF: 7.67), *BMC Biology* (IF: 7.36), *Computational and Structural Biotechnology Journal* (IF: 7.27), *Genes & Diseases* (IF: 7.24), *Bioinformatics* (IF: 6.93), *Genomics Proteomics & Bioinformatics* (IF: 6.41), *Frontiers in Cell and Developmental Biology* (IF: 6.08), *Molecular Cancer Research (IF: 5.20), Epigenetics* (IF: 4.86), *PLoS Computational Biology* (IF: 4.78), *BMC Genomics* (IF: 4.55), *Genes* (IF: 4.14), *Frontiers in Neurology* (IF: 4.09), *PLoS One* (IF: 3.75), *Translational Vision Science & Technology* (IF: 3.05), *Oncotarget, Journal of Biomedicine and Biotechnology, Journal of Integrative Bioinformatics*

Study Sections

2024 NIGMS/NIH "Biomedical Technology Optimization and Dissemination Center (BTOD)"

2024 Indiana Clinical and Translational Sciences Institute (CTSI) Pilot Grants

2024 IUSCCC Early Career Investigator Pilot Grants

2021 DFG (German Research Foundation) on "COVID-19 Focus Funding: SARS-CoV-2 Sequencing Projects"

2020 Clinical and Translational Science Awards (CTSA) Program of the NIH National Center for Advancing Translational Sciences (NCATS)

2020 Ohio State University Center for Clinical and Translational Science (CCTS) Pilot Grants

2017 Research Support Funds Grant (RSFG) from IUPUI Office of the Vice Chancellor for Research

2017 Indiana University Simon Cancer Center Pilot Grants

2017 Indiana Clinical and Translational Sciences Institute (CTSI) Pilot Grants

Other Organizational Activities

2024 Co-chair, Workshop/Tutorial Committee for International Conference on Intelligent Biology and Medicine (ICIBM) 2024, Houston, Texas USA

2023 Co-Chair, Session of Cancer Basic Research & Diagnosis, The 15th Annual World Cancer Congress, Sapporo, Japan.

2023 Chair, Workshop/Tutorial Committee of International Conference on Intelligent Biology and Medicine (ICIBM) 2023, Tampa, Florida USA.

2023 External reviewer on CCSG renewal for Biostatistics & Bioinformatics Shared Resource at Sylvester Comprehensive Cancer Center, University of Miami.

2023 Independent external reviewer on faculty promotion and/or tenure for Vanderbilt University, Ohio State University.

2023 Independent external reviewer on faculty promotion and/or tenure for Ohio State University.

2023 Co-Chair, Tutorial Session of the 14th Association of Computing Machinery (ACM) Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB 2023), Houston Texas USA

2023-present CME Seminar Committee, Department of Medical and Molecular Genetics, Indiana University School of Medicine

2022 Co-Chair/moderator, Session of Mechanisms of Post-Mortem Conatus, The Workshop on Human Post-Mortem Tissue Conatus 2022, Bethesda, Maryland USA

2022-present Member of International Society of Computational Biology (ISCB)

2021 Co-Chair, Tutorial Session of the 12th Association of Computing Machinery (ACM) Conference on Bioinformatics, Computational Biology, and Health Informatics

2021 Chair, Session "AI in Omics", and Moderator of Panel Discussion on "Traditionalist vs AI approaches", 2021 Conference of "Bringing Artificial Intelligence to the Bedside", West Lafayette, Indiana USA

2020-2024 Chair, Organizing Committee for IUSM CCBB Annual Retreats

2019-present Chair, Seminar Committee at the Center for Computational Biology and Bioinformatics (CCBB), Indiana University School of Medicine

2018 Chair, Session "Cancer Genomics" in 2018 International Conference on Intelligent Biology and Medicine, Los Angeles CA USA

2018 Co-chair, Organizing Committee for Walther Cancer Foundation Annual Symposium at Notre Dame University

2018 Chair, Session of Bioinformatics, Walther Cancer Foundation Annual Symposium

2018-present Member of American Association of Cancer Research (AACR)

2012-present Program Committee Member, International Conference on Intelligent Biology and Medicine

2010-present Program Committee Member, Workshop on Integrative Data Analysis in Systems Biology in the IEEE International Conference on Bioinformatics and Biomedicine

2008-2009 Organizer, Wilmer Eye Institute Research Discussion

RESEARCH ACTIVITIES

Peer Reviewed Publications (**H-index: 41; i10-index: 109**, provided by google scholar, *https://scholar.google.com/citations?user=4pP5A50AAAAJ&hl=en*)

§: co-corresponding author; *****: co-first author

1. Liu S, Nam HS, Zeng Z, Deng X, Pashaei E, Zang Y, Yang L, Li C, Huang J, Wendt MK, Lu X, Huang R, **Wan J** (2024) CDHu40: a novel marker gene set of neuroendocrine prostate cancer (NEPC). *Briefings in Bioinformatics* 25(6), bbae471. (PMID: 38585861)
2. Liu S, Chu X, Reiter JL, Yu X, Fang F, McGuire P, Gao H, Liu Y, **Wan J**§, Yue Wang§ (2024) Dynamic chromatin accessibility and transcriptome changes following PDGF-BB treatment of bone-marrow derived mesenchymal stem cells. *BMC Genomics* 25(1):962. (PMID: 39407135)
3. Cai W, Liu X, Barajas S, Xiao S, Vemula S, Chen H, Yang Y, Bochers C, Henley D, Liu S, Jia Y, Hong M, Mays TM, Capitano ML, Liu H, Ji P, Gao Z, Pasini D, **Wan J**, Yue F, Platanias LC, Xi R, Chen S, Liu Y (2024) Polycomb group protein Mel18 inhibits hematopoietic stem cell self-renewal through repressing the transcription of self-renewal and proliferation genes. *Leukemia* (in print). (PMID: 39562720)
4. Ramdas B, Dayal N, Pandey R, Larocque E, Kumar S, Liu S, Kanellopoulou C, Chu ERF, Mohallem R, Virani S, Chopra G, Aryal UK, Lapidus R, **Wan J**, Emadi A, Haneline L, Holtsberg F, Aman MJ, Sintim H, Kapur R (2024) Alkynyl nicotinamides with antileukemic activity for treating poor prognosis AML. *The Journal of Clinical Investigation* 134(12): e169245. (PMID: 38950330).
5. Wang D, Wang T, Kim D, Tan S, Liu S, **Wan J**, Deng Q (2024) MicroRNA-375 modulates neutrophil chemotaxis via targeting Cathepsin B in zebrafish. *Fish & Shellfish Immunology* 154:109933. (PMID: 39343064)
6. Yu T, Van der Jeught K, Zhu M, Zhou Z, Sharma S, Liu S, Eyvani H, So KM, Singh N, Wang J, Sandusky GE, Liu Y, Opyrchal M, Cao S, **Wan J**, Zhang C, Zhang X (2024) Inhibition of

Glutamate-to-Glutathione Flux Promotes Tumor Antigen Presentation in Colorectal Cancer Cells. *Advanced Science* e2310308. (PMID: 39482885)

7. Heller DT, Kolson DR, Brandebura AN, Amick EM, **Wan J**, Ramadan J, Holcomb PS, Liu S, Deerinck TJ, Ellisman MH, Qian Q, Mathers PH, Spirou GA (2024) Astrocyte Ensheathment of Calyx-Forming Axons of the Auditory Brainstem Precedes Accelerated Expression of Myelin Genes and Myelination. *Journal of Comparative Neurology* 532(2):e25552 (featured on the Cover). (PMID: 37916792).
8. Yadav AK, MacNeill JJ, Krylov A, Ashrafi N, Mimi RA, Saxena R, Liu S, Graham SF, **Wan J**, Morral N (2024) Sex-and age-associated factors drive the pathophysiology of MASLD. *Hepatology Communications* 8(9):e0523. (PMID: 39185904)
9. Wang W, Zhou Y, Wang J, Zhang S, Ozes A, Gao H, Fang F, Wang Y, Chu X, Liu Y, **Wan J**, Mitra AK,O'Hagan HM, Nephew KP (2024) Targeting Ovarian Cancer Stem Cells by Dual Inhibition of the Long Noncoding RNA HOTAIR and Lysine Methyltransferase EZH2. *Molecular Cancer Therapeutics* 23(11):1666-1679. (PMID: 39039946).
10. Kittaka M, Mizuno N, Morino H, Yoshimoto T, Zhu T, Liu S, Wang Z, Mayahara K, Iio K, Kondo K, Kondo T, Hayashi T, Coghlan S, Teno Y, Doan AAP, Levitan M, Choi RB, Matsuda S, Ouhara K, **Wan J**, Cassidy AM, Pelletier S, Nampoothiri S, Urtizbera AJ, Robling AG, Ono M, Kawakami H, Reichenberger EJ, Ueki Y (2024) Loss-of-function OGFRL1 variants identified in autosomal recessive cherubism families. *JBMR Plus* 8(6):ziae050. (PMID:38699440).
11. Zhang Y, Hu J, Zhang X, Liang M, Wang X, Gan D, Li J, Lu X, **Wan J**, Feng S, Lu X (2024) Protein Signature Differentiating Neutrophils and Myeloid-Derived Suppressor Cells Determined Using a Human Isogenic Cell Line Model and Protein Profiling. *Cells* 13(10):795. (PMID:38786019).
12. Noble P, Pozhitkov A, Singh K, Woods E, Liu C, Levin M, Javan G, **Wan J**, Abouhashem A, Mathew-Steiner S, Sen C (2024) Unraveling the Enigma of Organismal Death: Insights, Implications, and Frontiers. *Physiology (Bethesda)* 39(5). (PMID:38624244)
13. Mijit M, Kpenu E, Chowdhury NN, Gampala S, Wireman R, Liu S, Babb O, Georgiadis MM, **Wan J**, Fishel ML, Kelley MR (2024) In vitro and In vivo evidence demonstrating chronic absence of Ref-1 Cysteine 65 impacts Ref-1 folding configuration, redox signaling, proliferation and metastasis in pancreatic cancer. *Redox Biology* 69:102977 (PMID:38056311).
14. Gu X*, Li K*, Zhang M, Chen Y, Zhou J, Yao C, Zang Y, He J[§], **Wan J**[§], Guo B[§] (2023) Aspartyl-tRNA synthetase 2 orchestrates iron-sulfur metabolism in hematopoietic stem cells via fine-tuning alternative RNA splicing. *Cell Reports* 42(10):113264. (PMID: 37838946)
15. Zhao Y, Liu Z, Liu G, Zhang Y, Liu S, Gan D, Chang W, Peng X, Sung ES, Gilbert K, Zhu Y, Wang X, Zeng Z, Baldwin H, Ren G, Weaver J, Huron A, Mayberry T, Wang Q, Wang Y, Diaz-Rubio ME, Su X, Stack MS, Zhang S, Lu X, Sheldon RD, Li J, Zhang C, **Wan J**, Lu X (2023) Neutrophils resist ferroptosis and promote breast cancer metastasis through aconitate decarboxylase 1. *Cell Metabolism* 35(10):1688-1703. (PMID: 37793345)
16. Han L, Huang D, Wu S, Liu S, Wang C, Sheng Y, Lu X, Broxmeyer HE, **Wan J**, Yang L (2023) Lipid droplet-associated long non-coding RNA LIPTER preserves cardiac lipid metabolism. *Nature Cell Biology* 25(7):1033–1046. (PMID: 37264180)

17. Mijit M*, Liu S*, Sishtla K, Hartman GD, **Wan J**§, Corson TW§, Kelley MR§ (2023) Identification of novel pathways regulated by APE1/Ref-1 in human retinal endothelial cells. *International Journal of Molecular Science* 24(2):1101. (PMID: 36674619)

18. Zhu Y, Zhao Y, Wen J, Liu S, Huang T, Hatial I, Peng X, Janabi HA, Huang G, Mittlesteadt J, Cheng M, Bhardwaj A, Ashfeld BL, Kao KR, Maeda DY, Dai X, Wiest O, Blagg BSJ, Lu X, Cheng L, **Wan J**, Lu X (2023) Targeting the chromatin effector Pygo2 promotes cytotoxic T cell responses and overcomes immunotherapy resistance in prostate cancer. *Science Immunology* 8(81):eade4656. (PMID: 36897957)

19. Noonan ML, Ni P, Solis E, Marambio YG, Agoro R, Chu X, Wang Y, Gao H, Xuei X, Clinkenbeard EL, Jiang G, Liu S, Stegen S, Carmeliet G, Thompson WR, Liu Y, **Wan J**, White KE (2023) Osteocyte Egln1/Phd2 links oxygen sensing and biomineralization via FGF23. *Bone Research* 11(1):7. (PMID: 36650133)

20. Zhou Z, Van der Jeught K, Li Y, Sharma S, Yu T, Moulana I, Liu S, **Wan J**, Territo PR, Opyrchal M, Zhang X, Wan G, Lu X (2023) A T cell-engaging tumor organoid platform for pancreatic cancer immunotherapy. *Advanced Science* 2023:e230058. (PMID: 37271874).

21. Mijit M, Kpenu E, Chowdhury NN, Gampala S, Wireman R, Liu S, Babb O, Georgiadis MM, **Wan J**, Fishel ML, Kelley MR (2023) In vitro and In vivo evidence demonstrating chronic absence of Ref-1 Cysteine 65 impacts Ref-1 folding configuration, redox signaling, proliferation and metastasis in pancreatic cancer. *Redox Biology* 69:102977. (PMID: 38056311).

22. Pal D, Ghatak S, Singh K, Abouhashem AS, Kumar M, Masry ME, Mohanty SK, Palakurti R, Rustagi Y, Tabasum S, Khona DK, Khanna S, Kacar S, Srivastava R, Bhasme P, Verma SS, Hernandez E, Sharma A, Reese D, Verma P, Ghosh N, Gorain M, **Wan J**, Liu S, Liu Y, Castro NH, Gnyawali SC, Lawrence W, Moore J, Perez DG, Roy S, Yoder MC, Sen CK (2023) Identification of a physiological vasculogenic fibroblast state to achieve tissue repair. *Nature Communications* 14(1):1129. (PMID: 36854749)

23. Chen H, Bai Y, Kobayashi M, Xiao S, Cai W, Barajas S, Chen S, Miao J, Meke FN, Vemula S, Ropa J, Croop J, Boswell HS, **Wan J**, Jia Y, Liu H, Li L, Altman JK, Eklund EA, Ji P, Tong W, Band H, Huang D, Platanias LC, Zhang ZY, Liu Y (2023) PRL2 phosphatase enhances oncogenic FLT3 signaling via dephosphorylation of the E3 ubiquitin ligase CBL at tyrosine 371. *Blood* 141(3):244-259. (PMID: 36206490)

24. Liu J, Wu S, Zhang Y, Wang C, Liu S, **Wan J**, Yang L (2023) SARS-CoV-2 Viral Genes Nsp6, Nsp8, and M Compromise Cellular ATP Levels to Impair Survival and Function of Human Pluripotent Stem Cell-derived Cardiomyocytes. *Stem Cell Research & Therapy* 14(1):249. (PMID: 37705046)

25. Pasupuleti SK, Chao K, Ramdas B, Kanumuri R, Palam LR, Liu S, **Wan J**, Annesley C, Loh ML, Stieglitz E, Burke MJ, Kapur R (2023) Potential clinical use of Azacitidine and MEK inhibitor combination therapy in PTPN11-mutated Juvenile myelomonocytic leukemia. *Molecular Therapy* 31(4):986-1001. (PMID: 36739480)

26. Jiang J, Srivastava S, Liu S, Seim G, Claude R, Zhong M, Cao S, Davé U, Kapur R, Mosley AL, Zhang C, **Wan J**, Fan J, Zhang J (2023) Asparagine starvation suppresses histone demethylation through iron depletion. *iScience* 26(4):106425. (PMID: 37034982)

27. Zhao T, Liu S, Hanna NH, Jalal S, Ding X, **Wan J**, Yan C§, Du H§ (2023) LAL deficiency induced myeloid-derived suppressor cells as targets and biomarkers for lung cancer. *Journal of Immunotherapy of Cancer* 11(3):e006272. (PMID: 36914206)

28. Chen D, Liu S, Chu X, Reiter J, Gao H, McGuire P, Yu X, Xuei X, Liu Y, **Wan J**, Fang F, Liu Y, Wang Y (2023) Osteogenic Differentiation Potential of Mesenchymal Stem Cells Using Single Cell Multiomic Analysis. *Genes* 14(10):1871. (PMID: 37895219)

29. Zhao YQ, Jin HR, Kim D, Jung SH, Liu S, **Wan J**, Lo H-Y, Fu XQ, Wang Q, Hao C, Bellail AC (2023) SUMO1 degrader induces ER stress and ROS accumulation through deSUMOylation of TCF4 and inhibition of its transcription of StarD7 in colon cancer. *Molecular Carcinogenesis* 62(9):1249-1262. (PMID: 37191369)

30. Dausinas Ni P, Hartman M, Slack J, Basile C, Liu S, **Wan J**, O'Leary HA (2023) Novel differential calcium regulation of hematopoietic stem and progenitor cells under physiological low oxygen conditions. *Journal of Cellular Physiology* 238(7):1492-1506. (PMID: 37051890)

31. Agoro R, Nookaew I, Noonan ML, Marambio YG, Liu S, Chang W, Gao H, Horan D, Thompson WR, Xuei X, Liu Y, Zhang C, Robling AG, Bonewald LF, **Wan J**, White KE (2023) Single Cell Cortical Bone Transcriptomics Defines Novel Osteolineage Gene Sets Altered in Chronic Kidney Disease. *Frontiers in Endocrinology* 14:1063083. (PMID: 36777346)

32. Fang S, Liu S, Yang D, Yang L, Hu CD, **Wan J** (2022) Decoding Regulatory Associations of G-quadruplex with Epigenetic and Transcriptomic Functional Components. *Frontiers in Genetics* 13:957023. (PMID: 36092921)

33. Li K, Wang AK, Liu S, Fang S, Lu AZ, Shen J, Yang L, Hu CD, Yang K, **Wan J** (2022) Advanced Functions Embedded in the Second Version of Database, Global Evaluation of SARS-CoV-2/hCoV-19 Sequences 2. *Frontiers in Medicine* 9:813964. (PMID: 35479940)

34. Asberry AM, Liu S, Nam HS, Deng X, **Wan J**[§], Hu CD[§] (2022) Reprogramming landscape highlighted by dynamic transcriptomes in therapy-induced neuroendocrine differentiation. *Computational and Structural Biotechnology Journal* 20:5873-5885. (PMID: 36382181)

35. Owens J, Beketova E, Liu S, Shen Q, Pawar JS, Asberry AM, Yang J, Deng X, Elzey BD, Ratliff TL, Cheng L, Choo CR, Citrin DE, Polascik TJ, Wang B, Huang J, Li C, **Wan J**[§], Hu CD[§] (2022) Targeting protein arginine methyltransferase 5 (PRMT5) suppresses radiation-induced neuroendocrine differentiation and sensitizes prostate cancer cells to radiation. *Molecular Cancer Therapeutics* 21(3):448-459. (PMID: 35027481)

36. Shao C*, **Wan J***, Lam FC*, Tang H, Marley AR, Song Y, Miller C, Brown M, Han J, Adeboyeje G (2022) A comprehensive literature review and meta-analysis of the prevalence of pan-cancer BRCA mutations, homologous recombination repair gene mutations, and homologous recombination deficiencies. *Environmental and Molecular Mutagenesis* 63(6):308-316. (PMID:36054589)

37. Liu Q, **Wan J**[§], Wang G[§] (2022) A survey on computational methods in discovering protein inhibitors of SARS-CoV-2. *Briefings in Bioinformatics* 23(1):bbab416. (PMID: 34623382)

38. Du J, Wand Q, Yang S, Chen S, Fu Y, Spath S, Domeier P, Hagin D, Anover-Sombke S, Haouili M, Liu S, **Wan J**, Han L, Liu J, Yang L, Sangani N, Li Y, Lu X, Janga SC, Kaplan MH, Torgerson TR, Ziegler SF, Zhou B (2022) FOXP3 exon 2 controls Treg stability and autoimmunity. *Science Immunology* 7(72):eabo5407. (PMID: 35749515)

39. Singh K, Rustagi Y, Abouhashem AS, Tabasum S, Verma P, Hernandez E, Pal D, Khona DK, Mohanty SK, Kumar M, Srivastava R, Guda PR, Verma SS, Mahajan S, Killian JA, Walker LA, Ghatak S, Mathew-Steiner SS, Wanczyk K, Liu S, **Wan J**, Yan P, Bundschuh R, Khanna S, Gordillo GM, Murphy MP, Roy S, Sen CK (2022) Genome-wide DNA hypermethylation opposes healing in chronic wound patients by impairing epithelial-to-

mesenchymal transition. *The Journal of Clinical Investigation* 132(17):e157279. (PMID: 35819852)

40. Zhao T, Liu S, Ding X, Johnson EM, Hanna NH, Singh K, Sen CK, **Wan J**, Du H[§], Yan C[§] (2022) Lysosomal acid lipase, CSF1R and PD-L1 determine functions of CD11c+ myeloid-derived suppressor cells. *JCI Insight* 7(17):e156623. (PMID: 35917184)
41. Asberry AM, Cai X, Deng X, Santiago U, Liu S, Sims HS, Liang W, Xu X, **Wan J**, Jiang W, Camacho CJ, Dai M, Hu CD (2022) Discovery and Biological Characterization of PRMT5:MEP50 Protein-Protein Interaction Inhibitors. *Journal of Medicinal Chemistry* 65(20):13793-13812. (PMID: 36206451)
42. Zhong X, Narasimhan A, Silverman LM, Young AR, Shahda S, Liu S, **Wan J**, Liu Y, Koniaris LG, Zimmers TA (2022) Sex specificity of pancreatic cancer cachexia phenotypes, mechanisms, and treatment in mice and humans – role of Activin. *J Cachexia Sarcopenia Muscle* 13(4):2146-2161. (PMID: 35510530)
43. Zhang PW, Zhang SH, Li WF, Keuthan CJ, Li S, Takaesu F, Berlinicke CA, **Wan J**, Sun J, Zack DJ (2022) Fatality assessment and variant risk monitoring for COVID-19 using three new hospital occupancy related metrics. *eBioMedicine* (Part of THE LANCET Discovery Science) 83:104225. (PMID: 36030648)
44. Rustagi Y, Abouhashem AS, Verma P, Verma SS, Hernandez E, Liu S, Kumar M, Guda PR, Srivastava R, Mohanty SK, Kacar S, Mahajan S, Wanczyk KE, Khanna S, Murphy MP, Gordillo GM, Roy S, **Wan J**, Sen CK, Singh K (2022) Endothelial Phospholipase Cγ2 Improves Outcomes of Diabetic Ischemic Limb Rescue Following VEGF Therapy. *Diabetes* 71(5):1149. (PMID: 35192691)
45. Liu J, Zhang Y, Han L, Guo S, Wu S, Doud EH, Wang C, Chen H, Rubart-von der Lohe M, **Wan J**, Yang L (2022) Genome-wide Analyses Revealed the Detrimental Impacts of SARS-CoV-2 Viral Gene Orf9c on Human Pluripotent Stem Cell-derived Cardiomyocytes. *Stem Cell Reports* 17(3):522. (PMID: 351803944)
46. Shi Z, Lopez J, Kalliney W, Sutton B, Simpson J, Maggert K, Liu S, **Wan J**, Stack MS (2022) Development and evaluation of ActSeq: a targeted next-generation sequencing panel for clinical oncology use. *PLoS One* 17(4):e0266914. (PMID: 35446881)
47. Hsu AY, T Wang, R Syahirah, Liu S, Li K, Zhang W, Wang J, Cao Z, Tian S, Matosevic S, Staiger C, **Wan J**, Deng Q (2022) RORA regulates neutrophil migration and activation in zebrafish. *Frontiers in Immunology* 13:756034. (PMID: 35309302)
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Current Grants

07/2023-06/2026	Showalter Scholar Grant for Associate/Full Professors The Ralph W. and Grace M. Showalter Research Trust Fund and Indiana University School of Medicine ($75,000) PI: Wan J (no salary)
06/2022-05/2025	PRMT5/MEP50 as a critical epigenetic regulator and therapeutic target for therapy-induced neuroendocrine DoD W81XWH2210332 ($1,081246) PI: Hu CD/Wan J (IU Site PI, 5%)
04/2020-03/2025	Converting Cold to Hot Tumor Microenvironment in Prostate Cancer by Targeting Chromatin Effector NIH/NCI R01 CA248033 ($1,832,205) PI: Lu X/Wan J (IU Site PI, 10%)
04/2020-03/2025	Nucleolin recognition of MYC promoter G-quadruplex and its role in MYC regulation by MycG4-ligands NIH/NCI U01 CA240346 ($1,808,305) PI: Yang DZ/Wan J (IU Site PI, 5%)
09/2019-08/2029	Indiana University Melvin and Bren Simon Cancer Center Support Grant NIH/NCI P30 CA082709-20 ($13,746,24)

PI: Lee K/Wan J (Module PI, 10% + 25% bioinformatician)

05/2021-01/2025 Mechanisms and targeting of treatment-induced neuroendocrine differentiation in prostate cancer
IUSCCC Near Miss Initiative ($50,000)
PI: Wan J (no salary)

07/2023-06/2025 Spatial transcriptomics for KRASG12D-targeted pancreatic cancer
IUSCCC TMM New Technologies Shark Tank Pilot Project ($50,000)
PI: Lu X/Wan J/Turk A (no salary)

02/2023-01/2028 Morphogenesis and growth of the ventricular wall in development and disease
NIH P01HL134599 ($13,987,625)
PI: Firulli A Role: co-I (5% + 25% postdoc)

09/2022-08/2027 Sex specific epigenetic regulation of colon cancer metastasis
NIH R01CA262798 ($2,431,620)
PI: Clinkenbeard E Role: co-I (5%)

12/2021-11/2026 Role of disrupted polyamine synthesis during CKD-MBD related bone loss
NIH R01DK130866 ($2,010,595)
PI: Clinkenbeard E Role: co-I (5%)

09/2021-07/2026 The role of Wnt signaling in treating glucocorticoid-induced glaucoma
NIH R01EY031700 ($2,877,337)
PI: Mao W Role: co-I (5% + 15% postdoc)

07/2021-06/2026 Novel DNA damage response therapeutics targeting replication protein A
NIH/NCI R01CA257430 ($3,185,878)
PI: Turchi J Role: co-I (5% + 50% postdoc)

07/2022-06/2026 Transcription cycle regulation by nutrients
NIH/NCI R01CA257430 ($3,185,878)
PI: Morral N Role: co-I (4% + 10% postdoc)

05/2021-04/2026 Transcriptional and metabolic regulation of Treg cell specification for the control of allergic airway disease
NIH R01DK131143 ($1,396,216)
PI: Yang K Role: co-I (5%)

06/2021-05/2025 Targeting EZH2-HOTAIR to Block Platinum-Induced Ovarian Cancer Stem Cell Enrichment and Reduce Recurrence
DOD W81XWH2110284 ($950,999)
PI: Nephew K/O'Hagan H Role: co-I (5% for year 3-4)

Completed Grants

12/2022-11/2024 24-hour urine based ctDNA analysis for early-stage NSCLC detection
Lung Cancer Research Foundation ($150,000)
PI: Lautenschlaeger T Role: co-I (2%)

09/2019-08/2024 IUSM Alzheimer's Disease Drug Discovery Center
NIH U54 AG065181 ($28,074,203)
PI: Palkowitz A Role: co-I (5% + 30% bioinformatician)

07/2019-06/2024 Transcriptional Factor SOX2, LncRNA HBL1, MicroRNA1 and PRC2 Epigenetic Complex Compose A Network to Orchestrate Cardiac Differentiation from Human Pluripotent Stem Cells
NIH R01 HL147871 ($1,967,679)
PI: Yang L Role: co-I (10%)

07/2020-06/2024 Epigenetic regulation in liver fibrosis
NIH R01DK121925-01A1 ($1,828,228)
PI: Dong C Role: co-I (4.17% + 20% postdoc)

04/2021-04/2024 Blood-Based DNA Methylation Biomarkers of Acquired Platinum Resistance in Women with Ovarian Cancer
DOD W81XWH-21-1-0281 ($591,772)
PI: Nephew K Role: co-I (2% for year 3)

05/2021-04/2024 Human Post-Mortem Tissue Conatus
John Templeton Foundation ($1,787,805)
PI: Sen C Role: co-I (10% + 15% postdoc)

01/2021-01/2024 Unraveling FGF23-Klotho interactions to target crossover pathogeneses of CKD and aging
Calico Inc
PI: White K Role: co-I (15%, or 50% postdoc)

12/2018-11/2023 Metabolic Regulation of PD-L1 in CD11c+ Cells
NIH R01 CA225108 ($2,672,290)
PI: Yan C/Du H Role: co-I (4%)

09/2020-09/2023(NCE) Decoding and Disrupting the Coupled Cellular Plasticity and Myeloid Cell Instigation in Metastatic Prostate Cancer
DOD W81XWH2010332/203995IUSM ($582,561)
PI: Lu X/Wan J (IU Site PI, 4.17%)

09/2020-09/2023 Targeting Basal-Like Prostate Cancer with Cadherin 3 Antibody-Drug Conjugate as single agent and in combination with immunotherapy
DOD W81XWH2010312/203994IUSM ($1,150,994)
PI: Lu X/Wan J (IU Site PI, 8.33%)

09/2018-08/2023 (PQ12) Enhancement of DNA repair in neurons via a targeted APE1 small molecule modifier to decrease and reverse chemotherapy-induced peripheral neuropathy (CIPN)
NIH/NCI R01CA231267-03 ($2,304,070)
PI: Fehrenbacher J/Kelley M Role: co-I (3.5%)

09/2019-02/2023 Big Data Training for Cancer Research
NIH/NCI R25 CA233429 ($1,193,545)
PI: Zhang M Role: co-I (2.5%)

09/2020-08/2022 Analysis of the MR1/MAIT cell axis in a murine model of Alzheimer's disease
NIH R21AG071269 ($435,875)
PI: Brutkiewicz R Role: co-I (5%)

07/2019-06/2022 Dissecting essential roles of ARID1A in controlling cardiac and neural differentiation from human pluripotent stem cells
AHA Transformational Project Award ($300,000)

PI: Yang L Role: co-I (5%)

07/2018-06/2022 Role of microRNA-29 in pancreatic cancer tumor-stromal biology
American Cancer Society ($792,000)
PI: Kota J Role: co-I (2%)

12/2020-11/2021 Determining the molecular mechanisms of SARS-CoV-2 caused heart dysfunctions
IUSM CCBB pilot grant ($10,000)
PI: Yang L/Wan J (MPI, no salary)

04/2020-12/2020 Inter-Personnel Agreement
VA IPA (Richard L. Roudebush, VAMC) ($7,936)
PI: Wan J (no salary)

09/2018-08/2020 Open scalable software infrastructure for metabolomics data integration
NIH SBIR ($286,868)
PI: Kitware, Inc. Role: co-I (15%)

07/2017-06/2020 Collaborative Core for Cancer Bioinformatics and Bioinformatics Training
Walther Cancer Foundation ($1,000,000)
PI: Ratliff T Role: IU Site co-PI (10%)

07/2015-06/2020 Bioinformatics-Molecular Genomics/Genetics Joint IU-Purdue Initiative
Walther Cancer Foundation Loehrer ($1,000,000)
PI: Loehrer P Role: Director of C^3B core (50%)

Selected Invited Talks

2024 "Dissecting Association of DNA G-quadruplex with Epigenetic Regulatory Elements" (***keynote speech***), Joint Conference on Cancer, Cell Science & Microbiology, Rome, Italy, June 2024

2023 "CDHu40: A Novel Marker Gene Set for Neuroendocrine Prostate Cancer", The 15th Annual World Cancer Congress, Sapporo, Japan

2022 "Exploring the Association between DNA G-quadruplex and Epigenetic Regulatory Elements", Genomics Seminar Series, University of Wisconsin-Madison, Madison, WI USA

2021 "Genetic spectrum and distinct evolution patterns of SARS-CoV-2", Precision Medicine, University of Texas School of Biomedical Informatics, Houston, TX USA

2021 "Updated Trends in SARS-CoV-2 Genomic Variants and Mortality Association", Center for Biomedical Informatics at Loyola University Chicago, Chicago, IL USA

2021 "Deciphering single nucleotide variants of SARS-CoV-2 genomes: distribution, evolution, and mortality association", The Philips Institute Seminar Series, Virginia Commonwealth University (VCU), Richmond, VA USA

2021 "Decoding SARS-CoV-2 genome", The Genomics Seminar Series, University of South Florida, Tampa, FL USA

2020 "Genetic spectrum and distinct evolution patterns of SARS-CoV-2" (***Keynote speech***), The BIOKDD 2020, 19th International Workshop on Data Mining in Bioinformatics

2021 "Overview of the C^3B", Dental School, Indiana University School of Medicine, Indianapolis, IN USA

2019 "Dissect functional interactions between methylated DNA sequences and TFs", Purdue University, West Lafayette, IN USA

2019 "Functional modulation of DNA methylation on transcription factor binding activities", The Biomarkers and Computational Biology Meeting at IUSM, Indianapolis, IN USA

2018 "Introduction to Cancer Bioinformatics", Regenstrief Institute, Indianapolis, IN USA

2018 "Achievements and future plan for Collaborative Core for Cancer Bioinformatics", Walther Cancer Foundation Annual Symposium, South bend, IN USA

2017 "KLF4 acts as DNA methylation reader to drive gene activation in glioblastoma", Purdue University Institute for Drug Discovery, West Lafayette, IN USA

2017 "Methyl CpG-dependent KLF4 binding activates genes in cell migration", Harper Cancer Center, University of Notre Dame, South bend, IN USA

2017 "A Reinterpretation of Role of DNA Methylation in Gene Regulation", BioHealth Informatics Colloquia Series, Indiana University School of Informatics and Computing, Indianapolis, IN USA

2016 "Overview of Collaborative Core for Cancer Bioinformatics", Walther Cancer Foundation Annual Symposium, West Lafayette, IN USA

EDUCATIONAL ACTIVITIES

Teaching

2017-present Co-instructor of "Introduction to Next Generation Sequencing" (IUSM G788), Indiana University – Purdue University at Indianapolis (IUPUI), IN USA

2018-2022 Lecturer of "Bioinformatics, Genomics, Proteomics, and Systems Biology" (IUSM G848), Indiana University School of Medicine, Indianapolis, IN USA

2018-2022 Lecturer of "Molecular and Biochemical Genetics Lab" (IUSM Q613), Indiana University School of Medicine, Indianapolis, IN USA

2020 Co-instructor of 10-week short course "Bioinformatics for Biologist (B4B)", Indiana University School of Medicine, Indianapolis, IN USA

2020 Lecturer of "Big Data Training for Cancer Research", Purdue University, West Lafayette, IN USA

2019 Lecturer of summer workshop "Molecular Biology", Indiana University School of Public Health, Indianapolis, IN USA

2019 Lecturer of "overview of Precision Health", Indiana University School of Public Health, Indianapolis, IN USA

Mentorship

Junior Faculty

2024-present Yan Han (Ph.D., Assistant Research Professor, Biostatistics & Health Data Science at IUSM)
Faculty mentor committee

2023-present Gang Peng (Ph.D., Assistant Professor, MMGE at IUSM)
Faculty mentor committee

2021-present Jamie L. Felton, (M.D., Assistant Professor, Pediatrics at IUSM)
Faculty mentor committee

Research Scientists

2017-present	Sheng Liu (Ph.D., Assistant Scientist, MMGE at IUSM)	Mentor
2020-2021	Yucheng Zhang (Ph.D., bioinformatician I, MMGE at IUSM)	Mentor
2021-present	Asha Jacob Jannu (Research Associate, part-time, Biostatistics & Health Data Science at IUSM)	Mentor
2017-2017	Xi Rao (Ph.D., Research Associate, MMGE at IUSM)	Co-mentor
2016-2019	Guanglong Jiang (Bioinformatician, MMGE at IUSM)	Supervisor
2016-2017	Yan Dong (Ph.D., Research Associate, MMGE at IUSM)	Mentor
2016-present	Nadia Atallah Lanman (Ph.D., Research Associate Professor and Manager at C^3B)	Supervisor
2016-present	Sagar Utturkar (Ph.D., Bioinformatician at C^3B)	Supervisor
2022-present	Harish Kothandaraman (Ph.D., Bioinformatician at C^3B)	Supervisor

Postdoctoral Fellows

2024-present	Elham Pashaei (Ph.D. MMGE at IUSM)	Mentor
2022-present	Elnaz Pashaei (Ph.D. MMGE at IUSM)	Mentor
2022-present	Shirzat Sulaiman (Ph.D. MMGE at IUSM)	Mentor

Ph.D. Students

2022-present	Sandali Dewni Lokuge (BioHealth Informatics at IUPUI)	Mentor
2022-present	Xiashiyao Zhang (Bioinformatics at IUPUI)	Mentor
2019-present	Kailing Li (Bioinformatics at IUPUI)	Mentor
2017-2022	Shuyi Fang (Bioinformatics at IUPUI, now bioinformatician at a biotech company)	Mentor
2022-present	Alexander Maldeney (Microbiology & Immunology at IUSM)	Thesis Committee
2022-present	Jing Yang (Microbiology & Immunology at IUSM)	Thesis Committee
2022-present	Wenjie Cai **(**Pediatrics at IUSM)	Thesis Committee
2022-present	Lainey Hibbard (MMGE at IUSM)	Thesis Committee
2021-present	Abdullahi Abdi (Microbiology & Immunology at IUSM)	Thesis Committee
2023-2023	Abdul Rehman Basharat (BioHealth Informatics at IUPUI)	Thesis Committee

2018-2022	Fahim Syed (Microbiology & Immunology at IUSM)	Thesis Committee
2020-2022	Paige Dausinas (Cellular and Integrative Physiology at IUSM, now scientist at Eli Lilly)	Thesis Committee
2019-2022	Chuanpeng Dong (BioHealth Informatics at IUPUI, now postdoctoral fellow at Yale University)	Thesis Committee
2018-2022	Duojiao Chen (BioHealth Informatics at IUSM, now postdoctoral fellow at Zhejiang University)	Thesis Committee
2018-2021	Ed Ronald Simpson (BioHealth Informatics at IUPUI, now scientist at Eli Lilly)	Thesis Committee
2018-2020	Alan Hsu (Biological Sciences at Purdue University, now postdoctoral fellow at Harvard University)	Thesis Committee
2019-2021	Enze Liu (BioHealth Informatics at IUPUI, now Assistant Research Professor at IUSM)	Thesis Committee

Master Students

2022-2023	Kayleigh Jennings (MMGE at IUSM)	Thesis Committee
2019-2019	Deepak Kumar Lakshmipathi (BioHealth Informatics at IUPUI)	Thesis Committee
2019-2020	Sunneta Modekurty (BioHealth Informatics at IUPUI, now scientist at IUSM)	Thesis Committee

Summer/Rotation Students

2023	Marissa Shang (Marc Garneau Collegiate Institute in Canada)	Mentor
2019-2023	Alex Lu (Park Tudor School in USA)	Mentor
2020-2022	Audrey Wang (Park Tudor School in USA, now undergraduate at Cornell University)	Mentor
2019	Michael Wang (Carmel High School in USA, now undergraduate student at Purdue University)	Mentor
2017	Arun Kumar Boddapati (BioHealth Informatics at IUPUI)	Mentor
2017	Yi Li (Chemistry at Indiana University)	Mentor