Xu Guo

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Education

School of Mathematics, University of Edinburgh **UK**
Statistics with Data Science (master's degree), 2024-9 ~ (2025-7), GPA: 75.8%

School of Life and Pharmaceutical Sciences, Dalian University of Technology (985 & 211) **CHN**
Bioinformatic (bachelor's degree), 2019-9 ~ 2023-6, GPA: 90.0/100
Applied Chemistry (double degree), 2020-9 ~ 2023-6, GPA: 76.0/100

Practice & Internship

Prof. Frank Huang, Mayo Clinic **USA**
Research on Medulloblastoma, 2024-3 ~ 2024-8

Prof. Yanshuo Han, Dalian University of Technology **CHN**
Research on Abdominal Aortic Aneurysm (Internship & Research Assistant)
2021-10~2023-6 & 2023-7 ~ 2024-8

Prof. Qi WU, Chinese Academy of Sciences **CHN**
Evolutionary biology and Population Inheritance (Internship & Young Elite Program)
2021-7~2021-8 & 2022-6~2022-8 & 2023-1 ~ 2023-6

Prof. Shuangge Ma, Yale University **USA**
Biostatistics (Summer Course), 2022-8 ~ 2022-9

Prof. Lingdong Li, Dalian University of Technology **CHN**
Exploration on the improvement of 2D resin (Internship), 2020-9 ~ 2021-10

Research Experience

Research on Medulloblastoma (MB) **March 2024 ~ Aug 2024**
Overview: Annotated tumor-infiltrating immune cells and conducted cell-cell communication analysis; Explored the role of CD74 in immune cells within Group 3 medulloblastoma;
Contribution: Analysis of single-cell, time-series single-cell, scATAC, and spatial transcriptomics data; implementation of various cell communication algorithms; manuscript writing
Output: Publications [1]

Research on Abdominal Aortic Aneurysm (AAA) **July 2023 ~ Aug 2024**
Overview: Research on the mechanism of AAA developing into rupture AAA; Mendelian randomization, GWAS-eQTL Colocalization and Multi-omics Analysis; Single-cell combined analysis of human and mouse; Development of functional enrichment scoring algorithm;
Contribution: Development and Programming of a Probability-Based Single-Cell Metabolic Weighting Scoring Algorithm; Mining of Single-Cell and Metabolic Databases; Cross-Species Analysis of Human and Mouse Single-Cell Data; Joint Analysis of Single-Cell Data from Arterial Tissues and PBMCs; GWAS-eQTL Colocalization and Mendelian Randomization; Comparative Analysis of Single-Cell Data Under Different Pathological Conditions; ATAC-Seq and Proteomics Analysis; Multi-Omics Data Visualization; Application of Omics Analysis Tools Such as scDRS and pySCENIC; Experimental Design and Methodology; Manuscript Writing, Editing, and Submission;
Output: Publications [2] [3]

Research on acute myelogenous leukemia (AML) **Jun 2022 ~ Aug 2023**
Overview: Identification and analysis of methylation signature genes and association with immune infiltration in pediatric acute myeloid leukemia
Contribution: Team Organization and Leadership; Single-Cell Data Analysis and Visualization; Multi-Cohort Joint Analysis; Epigenetics and RNA-Seq Joint Analysis; Experimental Design and Methodology; Manuscript Editing and Submission;
Output: Publications [6], Other Awards

Exploration of metabolic biosynthesis diversity of Fungi **Oct 2021 ~ Jun 2023**
Overview: Cluster analysis of fungal biosynthetic gene clusters and exploration of metabolic biosynthesis diversity
Contribution: Mining of Multiple Large Databases; Statistical Analysis of Large Data; Application of Bioinformatics Tools Such as antiSMASH and BigSlice; Prediction, Annotation, and Clustering of Biosynthetic Gene Clusters; Large-Scale Server Operation and Maintenance; High-Throughput Data Processing and Visualization;
Output: Publications [5], Graduation thesis

Prognosis, treatment and drug development of maternal and pediatric cancers **Jul 2021 ~ Aug 2021**
Overview: Exploration of circRNA-based treatment for Osteosarcoma; Establishment, immunological analysis and drug prediction of a prognostic signature of ovarian cancer related to histone acetylation; Tumor immune infiltration and construction and analysis of ceRNA network in cervical cancer;
Contribution: circRNA-miRNA-mRNA Data Mining and Network Construction; Drug Prediction and Screening; Cancer Prognostic Model Development; Application of Algorithms Such as WGCNA and CiberSort; Tumor Burden Calculation, Mutation Analysis, and Immune Assessment; Epigenetics Joint Analysis with scRNA-seq and RNA-seq; Experimental Design and Methodology; Molecular Docking; Data Visualization; Manuscript Writing, Editing, and Submission;
Output: Publications [4] [7] [8], Main Awards [2] [5]

Exploration on the improvement and application of 2D resin **Sep 2020 ~ May 2022**
Overview: Exploration on the improvement and application of 2D resin
Contribution: Participation in NMR Experiments; Involvement in 2D Resin Coupling Experiments with Different Additives; Procurement and Preparation of Chemical Reagents; Experimental Data Analysis; Writing of Experimental Reports; Creation of PPT and Presentation;
Output: Main Awards [6]

Main Awards

[1] Science and Technology Innovation Scholarship (2022, Dalian University of Technology)
[2] China Undergraduate Life Sciences Contest First prize (2022, Education Department of Liaoning Province)
[3] China Undergraduate Life Sciences Contest First prize (2022, Education Department of Liaoning Province, Another)
[4] Academic Excellence Scholarship (2021, Dalian University of Technology)
[5] College Students' innovation and Entrepreneurship Competition Accepted (National level, 2021, Dalian University of Technology)
[6] College Students' innovation and Entrepreneurship Competition Accepted (School level, 2021, Dalian University of Technology)
[7] Academic Excellence Scholarship (2020, Dalian University of Technology)
[8] China High School Biology Olympiad Second prize (2018, Botanical Society of China and Will China's Zoology)

Publications

[1] *MIF-CD74 signaling drives immune modulation in medulloblastoma*
Authors: Benjamin Draper#, Zhen You#, Dean Thompson**, Xu Guo ...** L Frank Huang* and Laura K Donovan*
State: Cancer Cell, **Under Review,** 2025-3
[2] *Cross-Species Insight into Abdominal Aortic Aneurysm: Deciphering the Myeloid Code in Human and Mouse Models*
Authors: Xiaoxu Zhang#, **Xu Guo#**, Jamol Uzokov, Han Jiang, Azad Hussain, Deying Jiang, Yuemeng Li, Chen Chen, Yanshuo Han*, and Jian Zhang*
State: Submitting, 2025-3
URL: https://sean-guo-xu.github.io/Profile/project/AAA/Manuscrip.pdf
[3] *Comprehensive Multi-Omics Analysis Identifies HLA-DR and Causal Genes as Critical Factors in Abdominal Aortic Aneurysms Progression*
Authors: Xu Guo#, Xiaoxu Zhang#, Tan Li, Shuai Zhang, Jamol Uzokov, Yuemeng Li, Yu Lun, Han Jiang, Chen Chen, Philipp Erhart, Dittmar Böckler, Jian Zhang* and Yanshuo Han*
State: Genes & Development, **Under Review,** 2025-3
URL: https://sean-guo-xu.github.io/Profile/project/AAA/519091_0_art_file_8520940_sjld17.pdf
[4] *Targeting the has_circ_0000253/miR-7/COL5A2 Axis: Unveiling CCT-018159's Role in Halting Osteosarcoma Progression*
Authors: Xu Guo#, Xiangrui Zhu#; Xin Tian, Yunfeng Dai, Batchimeg Tsedenbal, Mahmoud A.A Ibrahim, Yanshuo Han*, Jinzhu Liu*
State: Journal of Biochemical and Molecular Toxicology, **Under Revision**, 2025-1
URL: https://sean-guo-xu.github.io/Profile/project/osteosarcoma/EJCI-2024-1636_Proof_hi.pdf
[5] *Compendium of natural products biosynthetic diversity encoded in fungal genomes*
Authors: Shu Zhang#, Guohui Shi#, Xinran Xu#, **Xu Guo**, Sijia Li, Zhiyuan Li, Qi Wu* & Wen-Bing Yin*
State: Journal of Fungi, **Published, 2024-9, DOI: 10.3390/jof10090653**
[6] *Identification and analysis of methylation signature genes and association with immune infiltration in pediatric acute myeloid leukemia*
Authors: Huawei Zhu #, Yanbo Xu #, Jun Xia #, **Xu Guo #**, Yujie Fang, Jingzhi Fan, Fangjun Li, Jinhong Wu, Guoliang Zheng*, Yubo Liu*
State: Journal of Cancer Research and Clinical Oncology, **Published, 2023-8, DOI: 10.1007/s00432-023-05284-y**
[7] *CircRNA-Based Cervical Cancer Prognosis Model, Immunological Validation and Drug Prediction*
Authors: Xu Guo, Sui Chen, Sihan Wang, Hao Zhang, Fanxing Yin, Panpan Guo, Xiaoxu Zhang, Xuesong Liu, Yanshuo Han*
State: Current Oncology, **Published, 2022-10, DOI: 10.3390/curroncol29110633**
[8] *Establishment, immunological analysis and drug prediction of a prognostic signature of ovarian cancer related to histone acetylation*
Authors: Yujie Fang#, Jing Zhao#, **Xu Guo**, Yunfeng Dai, Hao Zhang, Fanxin Yin, Xiaoxu Zhang, Chenxi Sun, Zequan Han, Hecheng Wang*, Yanshuo Han*
State: Frontiers in Pharmacology, **Published, 2022-9, DOI: 10.3389/fphar.2022.947252**
*Note: # for co-first author, * for corresponding author*

Skills

Programming: R (100/100), Python (100), Java (84), Perl (100), C (90), Linux (96), SQL (83), Data Structure (90), HTML.
Research skills: Statistical Analysis and Visualization, RNA-seq, scRNA, ATACseq, Spatial transcriptomics, Cross-model single-cell data analysis, Time series single cell data, Chip-seq, Database Mining, Server Usage, Multiple Omics Association, High Throughput Data Processing, Molecular Docking, Mendelian Randomization, GWAS-QTL, Bioinformatics Algorithm Development, Experimental Design and Paper Writing, etc.