

GUANGCHUANG YU

Professor and dean of the Department of Bioinformatics, School of Basic Medicine, Southern Medical University. My research group has been focusing on the development and application of bioinformatics methods and tools, and has developed a number of widely recognized bioinformatics tools in phylogeny, omics data analysis, and data visualization to help biologists explore and understand data.

教授、博导，现任南方医科大学基础医学院生物信息学系系主任。

课题组一直专注于生物信息学方法工具开发及应用，在系统发育、组学数据分析和数据可视化上开发了多款广受同行认可的生物信息学工具，帮助生物学家探索和理解数据。



💻 RESEARCH EXPERIENCE

present	Professor School of Basic Medical Sciences	📍 Southern Medical University
2018	· 2021-present, Director, Department of Bioinformatics · 2019-2021, Associate director, Department of Bioinformatics	
2017	Post-doctoral Fellow State Key Laboratory of Infectious Diseases	📍 The University of Hong Kong
2009	Bioinformatician Key Laboratory of Functional Protein Research of Guangdong Higher Education Institutes	📍 Jinan University

🎓 EDUCATION

2013	PhD., Bioinformatics The University of Hong Kong	📍 Hong Kong, CN
	· Thesis: Big-data computational methods for studying molecular evolution: from accurate genome assembly to phylogenetic analysis and data integration	
2006	M.S., Biochemistry and Molecular Biology Anhui Medical University	📍 Hefei, CN

· Thesis: miRNA 靶基因计算分析新方法及其应用研究

2001	B.S., Biotechnology South China Agricultural University	📍 Guangzhou, CN
------	---	-----------------

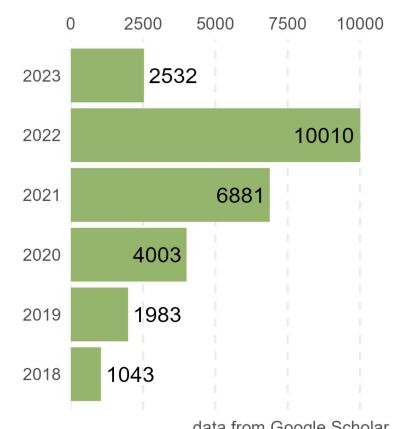
CONTACT

- ✉ gcyu1@smu.edu.cn
🐦 [guangchuanguyu](#)
🔗 github.com/YuLab-SMU
🔗 <https://yulab-smu.top/>
wechat [YuLabSMU](#) (公众号)
📞 (86) 13826432521

Citation = 27852

H-index = 28

I10-index = 42



Last updated on 2023-03-30.

2019	Antigenic cartography and antibody landscapes course University of Cambridge	📍 Cambridge, UK
2018	南方医科大学高层次人才“不忘初心 牢记使命”学习教育 延安干部培训学院	📍 Yan'an, CN
2015	Train the Trainers Institut Pasteur	📍 Paris, FR
2009 2007	Visiting student Beijing Institute of Radiation Medicine	📍 Beijing, CN

≡ CERTIFICATE

2019	高等学校教师资格 广东省教育厅
2015	Certificate of Teaching and Learning in Higher Education Centre for Enhancement of Teaching and Learning 📍 The University of Hong Kong



🏆 SCHOLARSHIPS & AWARDS

2023 2021	连续3年入选“中国高被引学者” Elsevier
2022 2021	连续2年入选“终身科学影响力”排行榜 全球前2%顶尖科学家榜单
2022 2020	连续3年入选“年度科学影响力”排行榜 全球前2%顶尖科学家榜单
2022	2020学年教学优秀一等奖 南方医科大学
2017 2013	Postgraduate studentships The University of Hong Kong
2012	Best paper of the year 2010 Journal of Integrated OMICS



↳ GRANTS

2026 2023	基于噬菌体-细菌-人类宿主互作的多囊卵巢综合征患者肠道微生态解析与干预 (32270677) 主持 , CNY ¥ 540,000, 国家自然科学基金, 面上项目
2025 2022	应用型生物信息学专项人才培养计划 (特色班) 主持 , CNY ¥ 300,000, 广东省高校教学质量与教学改革工程建设项目
2022 2020	大样本多组学数据联合分析系统研究与构建 主持 , CNY ¥ 600,000, 省部级项目
2020 2018	南方医科大学第三层次人才引进科研项目 主持 , CNY ¥ 1,500,000
	病毒性新发传染病的研究与防治 (2017YFE0190800) 参与 , CNY ¥ 990,000, 中华人民共和国科学技术部, 国家重点研发计划
2013	hnRNP蛋白在调控人肺癌细胞周期胞质分裂中的作用研究 (21613414) 主持 , CNY ¥ 100,000, 中央高校基本科研业务费专项资金
2011	HeLa细胞周期动态蛋白质组学分析 (21611303) 主持 , CNY ¥ 20,000, 中央高校基本科研业务费专项资金

📘 BOOKS

2023	R实战：系统发育树的数据集成操作及可视化 ISBN: 9787121451829 · 余光创 (著), 李林, 罗晓 (译) · 电子工业出版社
2022	Data Integration, Manipulation and Visualization of Phylogenetic Trees ISBN: 9781032233574, DOI: 10.1201/9781003279242 · G Yu · Chapman and Hall/CRC
	Biomedical Data Visualization: Methods and Applications ISBN: 9782889761906, DOI: 10.3389/978-2-88976-190-6 · G Yu, TTY Lam, CL Xiao, M Zhou (eds.) · Lausanne: Frontiers Media SA

2020

Gene Ontology Semantic Similarity Analysis Using GOSemSim

ISBN: 9781071603000, DOI: 10.1007/978-1-0716-0301-7_11

- G Yu
- In: Kidder B. (eds) *Stem Cell Transcriptional Networks, Methods in Molecular Biology*, 2117:207-215.
- Humana, New York, NY



TEACHING EXPERIENCE

present
|
2022

生物信息学

School of Basic Medical Sciences

📍 Southern Medical University

毒理学原理与方法

School of Public Health

📍 Southern Medical University

生物信息学导论

School of Basic Medical Sciences

📍 Southern Medical University

- Undergraduate level class

present
|
2021

基础医学研究与医学发展

School of Basic Medical Sciences

📍 Southern Medical University

- Undergraduate level class

present
|
2019

基因组学

School of Basic Medical Sciences

📍 Southern Medical University

- Undergraduate level class

基础医学新进展讲座

School of Basic Medical Sciences

📍 Southern Medical University

- Undergraduate level class

2021
|
2019

生物信息学科研训练

School of Basic Medical Sciences

📍 Southern Medical University

- Undergraduate level class

2019

BMB209: Workshops in Applied Bioinformatics

Department of Biochemistry and Molecular Biology

📍 University of Southern Denmark

- PhD level class, invited lecture

2012
|
2011

功能蛋白质研究
College of Life Science and Technology
· Graduate level class

Jinan University

2023

PUBLICATIONS

MicrobiotaProcess: A comprehensive R package for deep mining microbiome

The Innovation. 2023, 4(2):100388.

- S Xu, L Zhan, W Tang, Q Wang, Z Dai, L Zhou, T Feng, M Chen, T Wu, E Hu, G Yu*

Editorial: Computational and Systematic Analysis of Multi-omics Data for Drug Discovery and Development

Frontiers in Medicine. 2023, 10:1146896.

- S Guo*, D Zhang, H Wang, Q An, G Yu, J Han, C Jiang, J Huang

2022

Ggtree: A serialized data object for visualization of a phylogenetic tree and annotation data

iMeta, 2022, 1(4):e56.

- S Xu, L Li, X Luo, M Chen, W Tang, L Zhan, Z Dai, TT. Lam, Y Guan, G Yu*

Exploring epigenomic datasets by ChIPseeker

Current Protocols in Bioinformatics, 2022, 2(10):e585.

- Q Wang#, M Li#, T Wu, L Zhan, L Li, M Chen, W Xie, Z Xie, E Hu, S Xu, G Yu*

Characterization of toxin-antitoxin systems from public sequencing data: a case study in *Pseudomonas aeruginosa*

Frontiers in Microbiology. 2022, 13:951774.

- Z Dai, T Wu, S Xu, L Zhou, W Tang, E Hu, L Zhan M Chen, G Yu*

Stemness Analysis Uncovers That The Peroxisome Proliferator-Activated Receptor Signaling Pathway Can Mediate Fatty Acid Homeostasis In Sorafenib-Resistant Hepatocellular Carcinoma Cells

Frontiers in Oncology. 2022, 12:912694.

- T Feng#, T Wu#, Y Zhang#, L Zhou#, S Liu, L Li, M Li, E Hu, Q Wang, X Fu, L Zhan, Z Xie, W Xie, X Huang*, X Shang*, G Yu*

ggmsa: a visual exploration tool for multiple sequence alignment and associated data

Briefings in Bioinformatics. 2022, 23(4):bbac222.

- L Zhou[#], T Feng[#], S Xu, F Gao, TT Lam, Q Wang, T Wu, H Huang, L Zhan, L Li, Y Guan, Z Dai^{*}, G Yu^{*}

CBNplot: Bayesian network plots for enrichment analysis

Bioinformatics. 2022, 38(10):2959-2960.

- N Sato, Y Tamada, G Yu, Y Okuno^{*}

Editorial: Biomedical Data Visualization: Methods and Applications

Frontiers in Genetics. 2022, 13:890775.

- T Wu, CL Xiao, TT Lam, G Yu^{*}

Altered gut microbiota as an auxiliary diagnostic indicator for patients with fracture-related infection

Frontiers in Microbiology. 2022, 13:723791.

- X Zhao[#], W Tang[#], H Wan[#], Z Lan H Qin, Q Lin, Y Hu, G Yu^{*}, N Jiang^{*}, B Yu^{*}

2021

Use ggbreak to effectively utilize plotting space to deal with large datasets and outliers

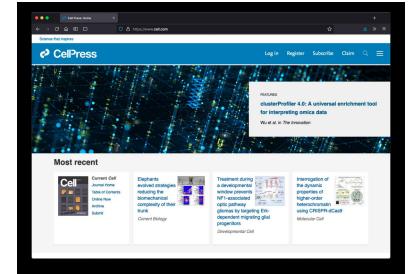
Frontiers in Genetics. 2021, 12:774846.

- S Xu[#], M Chen[#], T Feng, L Zhan, L Zhou, G Yu^{*}

clusterProfiler 4.0: A universal enrichment tool for interpreting omics data

The Innovation. 2021, 2(3):100141.

- T Wu[#], E Hu[#], S Xu, M Chen, P Guo, Z Dai, T Feng, L Zhou, W Tang, L Zhan, X Fu, S Liu, X Bo^{*}, G Yu^{*}



clusterProfiler (Wu et al. 2021), the featured article in 2021-08-24's website banner of Cell Press

ggtreeExtra: Compact visualization of richly annotated phylogenetic data

Molecular Biology and Evolution. 2021, 38(9):4039-4042.

- S Xu, Z Dai, P Guo, X Fu, S Liu, L Zhou, W Tang, T Feng, M Chen, L Zhan, T Wu, E Hu, Y Jiang^{*}, X Bo^{*}, G Yu^{*}

ggVennDiagram: An intuitive, easy-to-use, and highly customizable R package to generate Venn diagram

Frontiers in Genetics. 2021, 12:706907.

- CH Gao, G Yu, P Cai^{*}

IOBR: Multi-Omics Immuno-Oncology Biological Research to Decode Tumor Microenvironment and Signatures

Frontiers in Immunology. 2021; 12:687975.

- D Zeng[#], Z Ye[#], R Shen, G Yu, J Wu, Y Xiong, R Zhou, W Qiu, N Huang, L Sun, X Li, J Bin, Y Liao, M Shi, W Liao^{*}

nCov2019: an R package for studying the COVID-19 coronavirus pandemic

PeerJ. 2021; 9:e11421.

- T Wu, E Hu, X Ge^{*}, G Yu**

TreeSummarizedExperiment: a S4 class for data with hierarchical structure

F1000Research. 2021; 9:1246.

- R Huang, C Soneson, FGM Ernst, KC Rue-Albrecht, G Yu, SC Hicks, MD Robinson^{*}

Identification of prognostic Stromal–Immune Score-Based Genes in Hepatocellular Carcinoma microenvironment

Frontiers in Genetics. 2021; 12: 625236.

- S Liu, G Yu^{*}, L Liu^{*}, X Zou, L Zhou, E Hu, Y Song

2020

Gut microbiota and metabolite alterations associated with reduced bone mineral density or bone metabolic indexes in postmenopausal osteoporosis

Aging (Albany NY). 2020; 12(9):8583-8604.

- J He[#], S Xu[#], B Zhang, C Xiao, Z Chen, F Si, J Fu, X Lin, G Zheng^{*}, G Yu^{*}, J Chen^{*}

Using ggtree to Visualize Data on Tree-Like Structure

Current Protocols in Bioinformatics, 69(1):e96

- G Yu^{*}

treeio: an R package for phylogenetic tree input and output with richly annotated and associated data

Molecular Biology and Evolution. 2020; 37(2):599-603.

- LG Wang, TTY Lam, S Xu, Z Dai, L Zhou, T Feng, P Guo, CW Dunn, BR Jones, T Bradley, H Zhu, Y Guan, Y Jiang, G Yu^{*}
- Impact Factor = 16.24
- 🏆 ESI Highly Cited Paper

RIdogram: drawing SVG graphics to visualize and map genome-wide data on the idiograms

PeerJ Computer Science. 2020, 6:e251.

- Z Hao, D Lv, Y Ge, J Shi, D Weijers, G Yu ^{*}, J Chen ^{*}
- 🏆 ESI Highly Cited Paper

2018

Two methods for mapping and visualizing associated data on phylogeny using ggtree

Molecular Biology and Evolution. 2018, 35(12):3041-3043.

- G Yu ^{*}, TTY Lam, H Zhu, Y Guan ^{*}
- Impact Factor = 14.797

Using meshes for MeSH term enrichment and semantic analyses

Bioinformatics. 2018, 34(21):3766–3767.

- G Yu ^{*}

2017

ggtree: an R package for visualization and annotation of phylogenetic trees with their covariates and other associated data

Methods in Ecology and Evolution. 2017, 8(1):28-36

- G Yu, DK Smith, H Zhu, Y Guan, TTY Lam ^{*}
- 🏆 ESI Highly Cited Paper

2016

ReactomePA: an R/Bioconductor package for reactome pathway analysis and visualization

Molecular BioSystems. 2016, 12(2):477-479

- G Yu, QY He ^{*}
- 🏆 ESI Highly Cited Paper

Integrated Translatomics with Proteomics to Identify Novel Iron-Transporting Proteins in *Streptococcus pneumoniae*

Frontiers in Microbiology. 2016, 7:78

- XY Yang, K He, G Du, X Wu, G Yu, Y Pan, G Zhang ^{*}, X Sun ^{*}, QY He ^{*}

Genetic characterization of highly pathogenic H5 influenza viruses from poultry in Taiwan, 2015

Infection, Genetics and Evolution. 2016, 38:96-100

- PY Huang, CCD Lee, CH Yip, CL Cheung, G Yu, TTY Lam, DK Smith, H Zhu ^{*}, Y Guan ^{*}



The [ggtree \(Yu et al. 2017\)](#) paper was selected as a feature article to celebrate the 10th anniversary of the launch of [Methods in Ecology and Evolution](#).

2015

ChIPseeker: an R/Bioconductor package for ChIP peak annotation, comparision and visualization

Bioinformatics. 2015, 31(14):2382-2383

· G Yu^{*}, LG Wang, QY He^{*}

· 🏆 ESI Highly Cited Paper

DOSE: an R/Bioconductor package for Disease Ontology Semantic and Enrichment analysis

Bioinformatics. 2015, 31(4):608-609

· G Yu^{*}, LG Wang, GR Yan, QY He^{*}

· 🏆 ESI Highly Cited Paper

ACK1 Promotes Gastric Cancer Epithelial–Mesenchymal Transition and Metastasis through AKT-POU2F1-ECD Signaling

Journal of Pathology. 2015, 236(2):175-185

· SH Xu, JZ Huang, ML Xu, G Yu, XF Yin, D Chen^{*}, GR Yan^{*}

Proteomic analysis on the copper resistance of *Streptococcus pneumoniae*

Metalomics. 2015, 7(3):448-454

· Z Guo, J Han, XY Yang, K Cao, K He, G Du, G Zeng, L Zhang, G Yu, Z Sun, QY He^{*}, X Sun^{*}

Proteomic analysis on the antibacterial activity of a Ru(II) complex against *Streptococcus pneumoniae*

Journal of Proteomics. 2015, 115:107-116

· XY Yang, L Zhang, J Liu, N Li, G Yu, K Cao, J Han, G Zeng, Y Pan, X Sun^{*}, QY He^{*}

2014

Proteomic analysis of putative heme-binding proteins in *Streptococcus pyogenes*

Metalomics. 2014, 6(8):1451-1459

· N Wang[#], J Zhang[#], L Zhang, XY Yang, N Li, G Yu, J Han, K Cao, Z Guo, X Sun^{*}, QY He^{*}

2013

Putative cobalt- and nickel-binding proteins and motifs in *Streptococcus pneumoniae*

Metalomics. 2013, 5(7):928-935

· X Sun[#], G Yu[#], Q Xu, N Li, C Xiao, X Yin, K Cao, J Han, QY He^{*}

A novel andrographolide derivative AL-1 exerts its cytotoxicity on K562 cells through a ROS-dependent mechanism

Proteomics. 2013, 13(1):169-178

- YY Zhu[#], G Yu[#], Y Zhang, Z Xu, YQ Huang, GR Yan^{*}, QY He^{*}

A DNA-Based Semantic Fusion Model for Remote Sensing Data

PLoS One. 2013, 8(10):e77090

- H Sun^{*}, J Weng, G Yu, RH Massawe

Quantitative Proteomics Characterization on the Anti-tumor Effects of Isodexyelephantopin against Nasopharyngeal Carcinoma

Proteomics. 2013, 13(21):3222-3232

- GR Yan[#], Z Tan[#], Y Wang, ML Xu, G Yu, Y Li^{*}, QY He^{*}

Design, SAR, angiogenic activities evaluation and pro-angiogenic mechanism of new marine cyclopeptide analogs

Current Medicinal Chemistry. 2013, 20(9):1183-1194

- J Li, X Lu, Q Wu, G Yu, Z Xu, L Qiu, Z Pei, Y Lin, J Pang^{*}

Proteomic investigation of the interactome of FMNL1 in hematopoietic cells unveils a role in calcium-dependent membrane plasticity

Journal of Proteomics. 2013, 78:72-82

- Y Han, G Yu, H Sarioglu, A Caballero-Martinez, F Schlott, M Ueffing, H Haase, C Peschel, AM Krackhardt^{*}

2012

LXtoo: an integrated live Linux distribution for the bioinformatics community

BMC Research Notes. 2012, 5(1):360

- G Yu[#], LG Wang[#], XH Meng, QY He^{*}

clusterProfiler: an R package for comparing biological themes among gene clusters

OMICS: A Journal of Integrative Biology. 2012, 16(5):284-287

- G Yu, LG Wang, Y Han, QY He^{*}
- 🏆 ESI Highly Cited Paper



clusterProfiler (Yu et al. 2012) 被中国科学技术信息研究所列为“2011-2021我国高被引论文中被引次数最高的10篇国际论文”（2021年中国科技论文统计报告）

Cellular MicroRNA let-7c Inhibits M1 Protein Expression of the H1N1 Influenza A Virus in Infected Human Lung Epithelial Cells

Journal of Cellular and Molecular Medicine. 2012, 16(10):2539-2546

- Y Ma[#], J Yang[#], X Fan[#], H Zhao, W Hu, Z Li, G Yu, X Ding, J Wang, X Bo, X Zheng, Z Zhou^{*}, S Wang^{*}

	Genistein-induced mitotic arrest of gastric cancer cells by downregulating KIF2oA, a proteomics study <i>Proteomics</i> . 2012, 12(14):2391-2399
2011	<ul style="list-style-type: none"> · GR Yan[#], FY Zhou[#], BL Dang, Y Zhang, G Yu, X Liu, QY He[*] Functional similarity analysis of human virus-encoded miRNAs <i>Journal of Clinical Bioinformatics</i> . 2011, 1(1):15 <ul style="list-style-type: none"> · G Yu, QY He[*] A new method for measuring functional similarity of microRNAs <i>Journal of Integrated OMICS</i> . 2011, 1(1):49-54 <ul style="list-style-type: none"> · G Yu[#], CL Xiao[#], X Bo, CH Lu, Y Qin, S Zhan, QY He[*] Phosphoproteome profile of human lung cancer cell line A549 <i>Molecular BioSystems</i> . 2011, 7(2):472-479 <ul style="list-style-type: none"> · G Yu[#], CL Xiao[#], CH Lu[#], HT Jia, F Ge, W Wang, XF Yin, HL Jia, JX He[*], QY He[*] Proteomic Analysis of Membrane Proteins from <i>Streptococcus pneumoniae</i> with Multiple Separation Methods plus High Accuracy Mass Spectrometry <i>OMICS: A Journal of Integrative Biology</i> . 2011, 15(10):683-694 <ul style="list-style-type: none"> · X Sun[#], XY Yang[#], XF Yin, G Yu, CL Xiao, X He, QY He[*]
2010	GOSemSim: an R package for measuring semantic similarity among GO terms and gene products <i>Bioinformatics</i> . 2010, 26(7):976-978 <ul style="list-style-type: none"> · G Yu[#], F Li[#], Y Qin, X Bo[*], Y Wu, S Wang[*]
2009	结合基因组分析预测炎症相关miRNA及其靶标 <i>军事医学科学院院刊</i> . 2009, 33(3):245-247 <ul style="list-style-type: none"> · 余光创, 王超, 许尹, 伯晓晨, 王升启[*], 秦宜德[*]
2007	依赖于5'端非编码区高级结构的真核生物mRNA翻译调控 <i>中国生物化学与分子生物学报</i> . 2007, 23(11):881-887 <ul style="list-style-type: none"> · 余光创, 秦宜德, 伯晓晨, 王升启[*]

2021	clusterProfiler 4.0: A universal enrichment tool for interpreting omics data The 7 th National Conference on Computational Biology and Bioinformatics
2020	Data integration and visualization of phylogenetic trees BioC Asia, Oct 2020 📍 Virtual Conference
2019	R语言在生物信息学数据可视化中的应用 第八届南方医院博士论坛 - 研而有信之修“生”养“信”, Oct 2019 📍 Southern Medical University
	Data integration and visualization of phylogenetic trees Managing Zoonotic Infections in the era of One Health, Oct 2019 📍 Guangzhou Medical University
	R包开发十条建议 第一届生信人才发展论坛 📍 Zhuhai, CN
	Two methods for mapping and visualizing associated data on phylogeny using ggtree 第一届南方医科大学基础医学学术年会, Jan 2019 📍 Southern Medical University
2017	ggtree for tree visualization & annotation Phylogenetic tree visualization workshop/hackathon, May 2017 📍 The Field Museum of Natural History
	Computational Methods in Ecology and Evolution The Second International Workshop on Environmental Microbiomes, Apr 2017 📍 Sun Yat-sen University
2016	R语言与生物信息学 潮博沙龙 📍 Guangzhou, CN
	ggtree for visualization and annotation of phylogenetic trees The 9 th China-R Conference, May 2016 📍 Renmin University of China
present 2022	PROFESSIONAL AFFILIATIONS
	iMeta Associate Editor
	The Innovation Youth Editor

	南方医科大学基础医学院第二届学术分委员会 委员
present 2021	中国生物工程学会 计算生物学与生物信息学专业委员会委员
present 2020	广东省精准医学应用学会 微生态医学分会常务委员
	广东省医学会 医学遗传学分会青年委员会副主任委员
present 2019	中国计算机学会 会员
present 2017	香港大学校友会 会员
present 2014	广东潮博智库 专家
2016	International Society for Influenza and other Respiratory Virus Disease Member
2015	International Network for Data Analysis Steering Committee
	📍 Guangdong, CN
	📍 Guangdong, CN
	📍 Guangdong, CN
	📍 Institut Pasteur