

# 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   2018	<b>Professor</b> School of Basic Medical Sciences • 2021-present, Director, Department of Bioinformatics • 2019-2021, Associate director, Department of Bioinformatics	Southern Medical University
2018   2017	<b>Post-doctoral Fellow</b> State Key Laboratory of Infectious Diseases	The University of Hong Kong
2013   2009	<b>Bioinformatician</b> Key Laboratory of Functional Protein Research of Guangdong Higher Education Institutes	Jinan University

## EDUCATION

2017   2013	<b>PhD., Bioinformatics</b> The University of Hong Kong • Thesis: Big-data computational methods for studying molecular evolution: from accurate genome assembly to phylogenetic analysis and data integration	Hong Kong, CN
2009   2006	<b>M.S., Biochemistry and Molecular Biology</b> Anhui Medical University • Thesis: miRNA靶基因计算分析新方法及其应用研究	Hefei, CN
2005   2001	<b>B.S., Biotechnology</b> South China Agricultural University	Guangzhou, CN
2019	<b>Antigenic cartography and antibody landscapes course</b> University of Cambridge	Cambridge, UK

## CONTACT

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

Citation = 22272

H-index = 26

I10-index = 38



Last updated on 2022-09-22.

- 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 Visiting student  
Beijing Institute of Radiation Medicine 📍 Beijing, CN
- 2007

## sertificate

- 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

- 2022 2020学年教学优秀一等奖  
南方医科大学
- 2021 2021年中国高被引学者  
Elsevier
- 2021 2020全球前2%顶尖科学家  
美国斯坦福大学
- 2021 2020年中国高被引学者  
Elsevier
- 2017 Postgraduate studentships  
The University of Hong Kong
- 2012 Best paper of the year 2010  
Journal of Integrated OMICS



## grants

- 2026 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  
主持, CNY ¥540,000, 国家自然科学基金, 面上项目
- 2022 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 (G618289088)  
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
- 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
- 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

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
- [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
  - Graduate level class
- **毒理学原理与方法**  
School of Public Health       Southern Medical University
  - Graduate level class
- **生物信息学导论**  
School of Basic Medical Sciences       Southern Medical University
  - Undergraduate level class

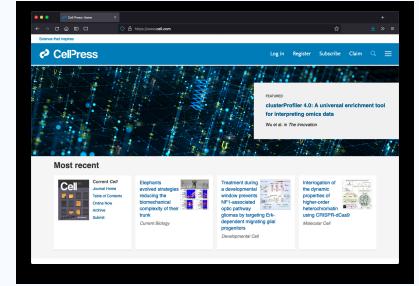
present   2021	<ul style="list-style-type: none"> <li> <b>基础医学研究与医学发展</b>            School of Basic Medical Sciences            Southern Medical University           <ul style="list-style-type: none"> <li>Undergraduate level class</li> </ul> </li> </ul>
present   2019	<ul style="list-style-type: none"> <li> <b>基因组学</b>            School of Basic Medical Sciences            Southern Medical University           <ul style="list-style-type: none"> <li>Undergraduate level class</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li> <b>基础医学新进展讲座</b>            School of Basic Medical Sciences            Southern Medical University           <ul style="list-style-type: none"> <li>Undergraduate level class</li> </ul> </li> </ul>
2021   2019	<ul style="list-style-type: none"> <li> <b>生物信息学科研训练</b>            School of Basic Medical Sciences            Southern Medical University           <ul style="list-style-type: none"> <li>Undergraduate level class</li> </ul> </li> </ul>
2019	<ul style="list-style-type: none"> <li> <b>BMB209: Workshops in Applied Bioinformatics</b>            Department of Biochemistry and Molecular Biology            University of Southern Denmark           <ul style="list-style-type: none"> <li>PhD level class, invited lecture</li> </ul> </li> </ul>
2012   2011	<ul style="list-style-type: none"> <li> <b>功能蛋白质研究</b>            College of Life Science and Technology            Jinan University           <ul style="list-style-type: none"> <li>Graduate level class</li> </ul> </li> </ul>

## PUBLICATIONS

- 2022
- 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\*

2021

- **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\*
- **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\*
- **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\*\*



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

- **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
- **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\*
- 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\*

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***

*Metallomics*. 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\*



The *ggtree* (Yu et al. 2017) paper was selected as a feature article to celebrate the 10<sup>th</sup> anniversary of the launch of *Methods in Ecology and Evolution*.

- **Proteomic analysis on the antibacterial activity of a Ru(II) complex against *Streptococcus pneumonia***  
*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 pneumonia***  
*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\*
  - **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\*
- 2012



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

- **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
- **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 KIF20A, a proteomics study**  
*Proteomics*. 2012, 12(14):2391-2399  
· GR Yan#, FY Zhou#, BL Dang, Y Zhang, G Yu, X Liu, QY He\*
- 2011
- **Functional similarity analysis of human virus-encoded miRNAs**  
*Journal of Clinical Bioinformatics*. 2011, 1(1):15  
· G Yu, QY He\*
- **A new method for measuring functional similarity of microRNAs**  
*Journal of Integrated OMICS*. 2011, 1(1):49-54  
· G Yu#, CL Xiao#, X Bo, CH Lu, Y Qin, S Zhan, QY He\*
- **Phosphoproteome profile of human lung cancer cell line A549**  
*Molecular BioSystems*. 2011, 7(2):472-479  
· 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 *Streptococcus pneumoniae* with Multiple Separation Methods plus High Accuracy Mass Spectrometry**  
*OMICS: A Journal of Integrative Biology*. 2011, 15(10):683-694  
· 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**  
*Bioinformatics*. 2010, 26(7):976-978  
· G Yu#, F Li#, Y Qin, X Bo\*, Y Wu, S Wang\*  
· 🏆 ESI Highly Cited Paper
- 2009
- **结合基因组分析预测炎症相关miRNA及其靶标**  
*军事医学科学院院刊*. 2009, 33(3):245-247  
· 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  
*中国生物化学与分子生物学报*. 2007, 23(11):881-887  
· 余光创, 秦宜德, 伯晓晨, 王升启\*

## CONFERENCE PROCEEDINGS

2021

- **clusterProfiler 4.0: A universal enrichment tool for interpreting omics data**  
The 7<sup>th</sup> 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

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<sup>th</sup> China-R Conference, May 2016  Renmin University of China

## PROFESSIONAL AFFILIATIONS

- present | 2022
- **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 📍 Guangdong, CN
  - **广东省医学会**  
医学遗传学分会青年委员会副主任委员 📍 Guangdong, CN
- 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 📍 Guangdong, CN
- 2016
- **International Society for Influenza and other Respiratory Virus Disease**  
Member
- 2015
- **International Network for Data Analysis**  
Steering Committee 📍 Institut Pasteur