

# GUANGCHUANG YU

Professor of Bioinformatics at [Southern Medical University](#). I have developed more than 20 R packages, including [clusterProfiler](#), [ChIPseeker](#), [treeio](#) and [ggtree](#), to help biologists to explore and understand their data.

I am broadly interested in bioinformatics, metagenomics, molecular evolution, data integration and visualization.



## RESEARCH EXPERIENCE

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



## EDUCATION

- 2017  
|  
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
- 2009  
|  
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
- 2005  
|  
2001
- B.S., Biotechnology**  
South China Agricultural University 📍 Guangzhou, CN
- 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



## CONTACT

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🐦 [guangchuangyu](#)  
🔗 [github.com/YuLab-SMU](#)  
🌐 <https://yulab-smu.top/>  
🗣 YuLabSMU (公众号)  
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Last updated on 2021-04-25.

- 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

- 2021 ● **2020全球前2%顶尖科学家**  
美国斯坦福大学
- **2020年中国高被引学者**  
Elsevier
- 2017 |  
2013 ● **Postgraduate studentships**  
The University of Hong Kong
- 2012 ● **Best paper of the year 2010**  
Journal of Integrated OMICS



## GRANTS

- 2022 |  
2020 ● **大样本多组学数据联合分析系统研究与构建 (K921280198)**  
主持, CNY ¥600,000, 中央军委科学技术委员会, 国防科技创新特区163计划
- 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
- 2013 ● **hnRNPK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



2020 ● **Gene Ontology Semantic Similarity Analysis Using GOSemSim**

*Methods in Molecular Biology*, 2117:207-215.

- G Yu
- In: Kidder B. (eds) *Stem Cell Transcriptional Networks*
- Humana, New York, NY

2012 ● **生物信息学II**

《功能蛋白质研究》. 385-425.

- 余光创
- 何庆瑜（主编），科学出版社
- “十二五”国家重点图书出版规划项目



## TEACHING EXPERIENCE

2021 | 2019 ● **生物信息学科研训练**

School of Basic Medical Sciences

📍 Southern Medical University

- Undergraduate level class

2020 | 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

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

📍 Jinan University

- Graduate level class



## PUBLICATIONS

2021 ● **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\*



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](#).

- **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 = 14.797
- **RIdeogram: 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, comparison 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\*
- **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***  
*Metallomics*. 2014, 6(8):1451-1459  
 • N Wang<sup>#</sup>, J Zhang<sup>#</sup>, L Zhang, XY Yang, N Li, G Yu, J Han, K Cao, Z Guo, X Sun<sup>\*</sup>, QY He<sup>\*</sup>
- 2013 ● **Putative cobalt- and nickel-binding proteins and motifs in *Streptococcus pneumonia***  
*Metallomics*. 2013, 5(7):928-935  
 • X Sun<sup>#</sup>, G Yu<sup>#</sup>, Q Xu, N Li, C Xiao, X Yin, K Cao, J Han, QY He<sup>\*</sup>
- **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<sup>#</sup>, G Yu<sup>#</sup>, Y Zhang, Z Xu, YQ Huang, GR Yan<sup>\*</sup>, QY He<sup>\*</sup>
- **A DNA-Based Semantic Fusion Model for Remote Sensing Data**  
*PLoS One*. 2013, 8(10):e77090  
 • H Sun<sup>\*</sup>, J Weng, G Yu, RH Massawe
- **Quantitative Proteomics Characterization on the Anti-tumor Effects of Isodexyephantopin against Nasopharyngeal Carcinoma**  
*Proteomics*. 2013, 13(21):3222-3232  
 • GR Yan<sup>#</sup>, Z Tan<sup>#</sup>, Y Wang, ML Xu, G Yu, Y Li<sup>\*</sup>, QY He<sup>\*</sup>
- **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<sup>\*</sup>
- **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<sup>\*</sup>
- 2012 ● **LXtoo: an integrated live Linux distribution for the bioinformatics community**  
*BMC Research Notes*. 2012, 5(1):360  
 • G Yu<sup>#</sup>, LG Wang<sup>#</sup>, XH Meng, QY He<sup>\*</sup>
- **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<sup>\*</sup>  
 • 🏆 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<sup>#</sup>, J Yang<sup>#</sup>, X Fan<sup>#</sup>, H Zhao, W Hu, Z Li, G Yu, X Ding, J Wang, X Bo, X Zheng, Z Zhou<sup>\*</sup>, S Wang<sup>\*</sup>
- **Genistein-induced mitotic arrest of gastric cancer cells by downregulating KIF20A, a proteomics study**  
*Proteomics*. 2012, 12(14):2391-2399  
 · GR Yan<sup>#</sup>, FY Zhou<sup>#</sup>, BL Dang, Y Zhang, G Yu, X Liu, QY He<sup>\*</sup>
- 2011 ● **Functional similarity analysis of human virus-encoded miRNAs**  
*Journal of Clinical Bioinformatics*. 2011, 1(1):15  
 · G Yu, QY He<sup>\*</sup>
- **A new method for measuring functional similarity of microRNAs**  
*Journal of Integrated OMICS*. 2011, 1(1):49-54  
 · G Yu<sup>#</sup>, CL Xiao<sup>#</sup>, X Bo, CH Lu, Y Qin, S Zhan, QY He<sup>\*</sup>
- **Phosphoproteome profile of human lung cancer cell line A549**  
*Molecular BioSystems*. 2011, 7(2):472-479  
 · G Yu<sup>#</sup>, CL Xiao<sup>#</sup>, CH Lu<sup>#</sup>, HT Jia, F Ge, W Wang, XF Yin, HL Jia, JX He<sup>\*</sup>, QY He<sup>\*</sup>
- **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<sup>#</sup>, XY Yang<sup>#</sup>, XF Yin, G Yu, CL Xiao, X He, QY He<sup>\*</sup>
- 2010 ● **GOSemSim: an R package for measuring semantic similarity among GO terms and gene products**  
*Bioinformatics*. 2010, 26(7):976-978  
 · G Yu<sup>#</sup>, F Li<sup>#</sup>, Y Qin, X Bo<sup>\*</sup>, Y Wu, S Wang<sup>\*</sup>  
 · 🏆 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<sup>\*</sup>, 秦宜德<sup>\*</sup>
- 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<sup>\*</sup>

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



## PROFESSIONAL AFFILIATIONS

- 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



