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., Bioinformaitcs
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

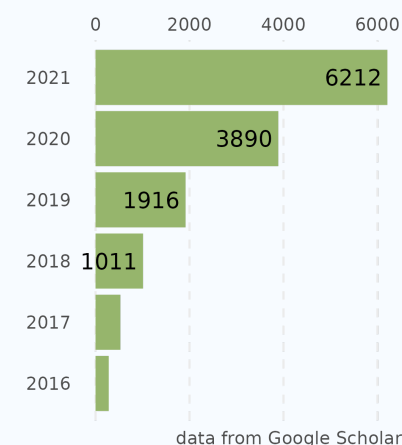**南方医科大学高层次人才"不忘初心 牢记使命"学习教育**
延安干部培训学院 📍 Yan'an, CN

CONTACT

✉ gcyu1@smu.edu.cn
🐦 guangchuangyu
⌨ github.com/YuLab-SMU
🔗 https://yulab-smu.top/
💬 YuLabSMU (公众号)
📞 (86) 13826432521

Citation = 14421
H-index = 23
I10-index = 31

2021	6212	
2020	3890	
2019	1916	
2018	1011	
2017		
2016		

data from Google Scholar

Last updated on 2021-11-25.

| 2015 | **Train the Trainers** | |
| | Institut Pasteur | 📍 Paris, FR |

| 2009 | **Visiting student** | |
| — 2007 | 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

Scopus
2020 Highly Cited Chinese Researchers
爱思唯尔2020中国高被引学者
Awarded to:
余光创
南方医科大学
For exceptional research performance in the field of
生物医学工程

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

基础医学研究与医学发展

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

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

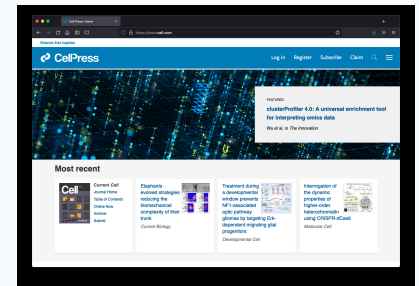College of Life Science and Technology　　📍 Jinan University

· Graduate level class

PUBLICATIONS

2021

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**[*]

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[*]

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**[*]

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**[*]

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

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

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*.

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, 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 pneumonia*

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 *Strepococcus 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*

Metallomics. 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*

Metallomics. 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

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 7th 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 9th China-R Conference, May 2016 Renmin University of China

PROFESSIONAL AFFLIATIONS

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		广东潮博智库	
|	●		
2014		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