

# 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

• 2019-present, Associate director, Department of Bioinformatics

2018  
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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

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

## CERTIFICATE



## CONTACT

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🐦 [guangchuangyu](#)

🔗 [github.com/GuangchuangYu](https://github.com/GuangchuangYu)

🌐 [guangchuangyu.github.io](https://guangchuangyu.github.io)

🗣 [biobabble](#)

📞 (86) 13826432521

## SELECTED R PACKAGES

### NGS

• [ChIPseeker](#)

### Ontology

• [clusterProfiler](#)  
• [DOSE](#)  
• [enrichplot](#)  
• [GOSemSim](#)

### Phylogeny

• [tidytree](#)  
• [treeio](#)  
• [ggtree](#)

### Visualization

• [ggimage](#)  
• [ggplotify](#)  
• [seqcombo](#)

*Last updated on 2020-01-15.*

- 2015 ● **Certificate of Teaching and Learning in Higher Education**  
Centre for Enhancement of Teaching and Learning  
📍 The University of Hong Kong



## TEACHING EXPERIENCE

- 2020  
|  
2019 ● **基因组学**  
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
- **生物信息学科研训练**  
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
- 2012  
|  
2011 ● **功能蛋白质研究**  
College of Life Science and Technology 📍 Jinan University  
• Graduate level class



## GRANTS

- 2020  
|  
2018 ● **南方医科大学第三层次人才引进科研项目 (G618289088)**  
PI, CNY ¥1,500,000
- 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)**  
PI, 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)**  
PI, CNY ¥20,000, 中央高校基本科研业务费专项资金



## BOOKS

- 2020 ● **Chapter 11: Gene Ontology Semantic Similarity Analysis Using GOSemSim**  
*Stem Cell Transcriptional Networks: Methods and Protocols, Methods in Molecular Biology, vol. 2117.* Benjamin Kidder (ed), Springer Science+Business Media  
• G Yu

2012



## 生物信息学II

《功能蛋白质研究》. 385-425. 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)

· 余光创



## PUBLICATIONS

2020



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

*PeerJ Computer Science*. 2020

· Z Hao, D Lv, Y Ge, J Shi, D Weijers, G Yu\*, J Chen\*



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

*Molecular Biology and Evolution*. 2020, doi:10.1093/molbev/msz240

· 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

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*

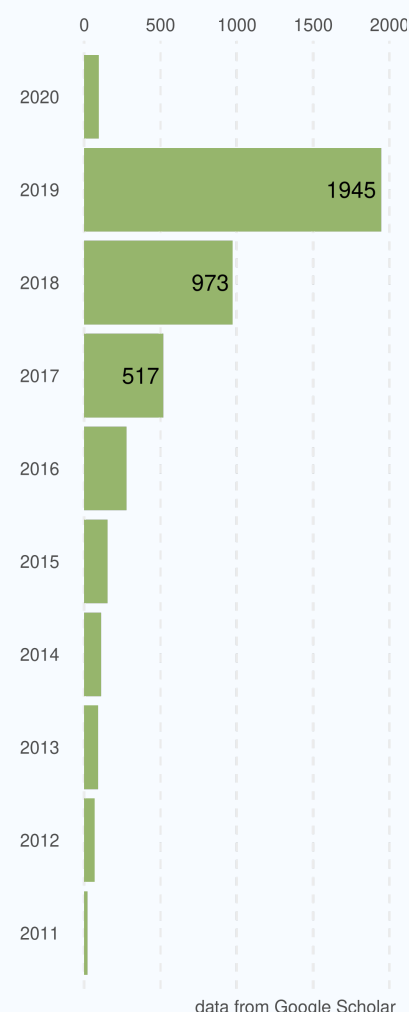
*Frontiers in Microbiology*. 2016, 7:78

· XY Yang, K He, G Du, X Wu, G Yu, Y Pan, G Zhang\*, X Sun\*, QY He\*

· Citation = 4331

· H-index = 17

· I10-index = 22



- **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\*
- **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 *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***  
*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<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 Isodexylephantopin 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\*
  - **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

- 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
  - **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

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- 2018 ● **Data integration and visualization of phylogenetic trees**  
The 3<sup>rd</sup> South Lake Innovation Forum for International Young Talents, May 2018  
📍 Huazhong Agricultural 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 ● **ggtree for visualization and annotation of phylogenetic trees**  
The 9<sup>th</sup> China-R Conference, May 2016 📍 Renmin University of China