

# 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**  
|  
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

- [guangchuangyu@gmail.com](mailto:guangchuangyu@gmail.com)
- [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 2020-10-22.*

- 2015 ● **Train the Trainers**  
Institut Pasteur  Paris, FR





## CERTIFICATE

- 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)**  
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

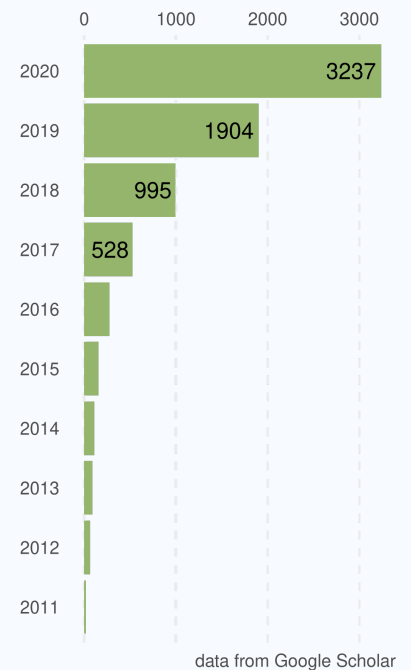
- 2020
- **Using ggtree to Visualize Data on Tree-Like Structure**  
*Current Protocols in Bioinformatics*, 69(1):e96  
· G Yu
  - **Gene Ontology Semantic Similarity Analysis Using GOSemSim**  
*Methods in Molecular Biology*, 2117:207-215.  
· G Yu  
· In: Kidder B. (eds) *Stem Cell Transcriptional 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



## PUBLICATIONS

- 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<sup>#</sup>, S Xu<sup>#</sup>, B Zhang, C Xiao, Z Chen, F Si, J Fu, X Lin, G Zheng<sup>\*</sup>, G Yu<sup>\*</sup>, J Chen<sup>\*</sup>
  - **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<sup>\*</sup>  
· 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<sup>\*</sup>, J Chen<sup>\*</sup>
- 2018
- **Two methods for mapping and visualizing associated data on phylogeny using ggtree**  
*Molecular Biology and Evolution*. 2018, 35(12):3041-3043.  
· G Yu<sup>\*</sup>, TTY Lam, H Zhu, Y Guan<sup>\*</sup>  
· Impact Factor = 14.797
  - **Using meshes for MeSH term enrichment and semantic analyses**  
*Bioinformatics*. 2018, 34(21):3766-3767.  
· G Yu

- Citation = 7454
- H-index = 17
- I10-index = 29



Our article [ggtree: an R package for visualization and annotation of phylogenetic trees with their covariates and other associated data](#) was selected to highlight to celebrate the 10th anniversary of the launch of *Methods in Ecology and Evolution*.

url: to be updated

- 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\*

- **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#, 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 Isodexylephantopin 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<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\*



## 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

● R包开发十条建议

第一届生信人才发展论坛

📍 Zhuhai, CN

● 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

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 ● 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