Di-Ao Liu

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Education

University of Pennsylvania
Ph.D. in Biological Science *Aug 2018 – June 2024*

- Supervisor: Dr. Wei Guo. Hirsch Family President's Distinguished Professor
- Thesis "Molecular mechanism of exosomes secretion"

Sun Yat-sen University Guangzhou, China
B.S. in Biological Science *Aug 2014 – Jul 2018*

- Supervisor: Dr. Jun Cui, Dean of the biology department
- GPA: 3.97/4 Rank in major: 2/88
- National plan for developing top scientists in China, Yat-sen School
- Honored undergraduate student of Biology and Yat-sen School

Publications

* Represents Equal Contribution (First / co-first/ Corresponding author publications highlighted)

First Author

1. **Liu, DA.**, Tao, K., Wu, B., Yu, Z., Szczepaniak, M., Rames, M., Yang, C., Svitkina, T., Zhu, Y., Nan, X., Guo, W. A phosphoinositide switch mediates exocyst recruitment to multivesicular endosomes for exosome secretion. **Nature Communications** (2023)

2. Wu, B*., **Liu, DA.***, Guan, L.*, Myint, P.K., Chin, L-K., Dang, H., Xu, Y., Ren, J., Li, T., Yu, Z., Jabban, S., Mills, G.B., Nukpezah, J., Chen, Y-H., Furth, E.F., Gimotty, P.A., Wells, R.G., Weaver, V.M., Radhakrishnan, R., Wang, X., Guo, W. Stiff matrix induces exosome secretion and promotes tumor growth. **Nature Cell Biology** (2023) (Featured in NCB News & Views, Penn Today and other media)

Contributing Author

3. K Mei, **DA Liu**, W Guo. Determine the Function of the Exocyst in Vesicle Tethering by Ectopic Targeting. **Membrane Trafficking: Methods and Protocols** (2022).

4. Jacob F, Salinas RD, Zhang DY, Nguyen PTT, Schnoll JG, Wong SZH, Thokala R, Sheikh S, Saxena D, Prokop S, **Liu DA**, Qian X, Petrov D, Lucas T, Chen HI, Dorsey JF, Christian KM, Binder ZA, Nasrallah M, Brem S, O'Rourke DM, Ming GL, Song H. A Patient-Derived Glioblastoma Organoid Model and Biobank Recapitulates Inter- and Intra-tumoral Heterogeneity. **Cell**. (2020).

5. Xie W, Jin S, Wu Y, Xian H, Tian S, **Liu DA**, Guo Z, Cui J. Auto-ubiquitination of NEDD4-1 Recruits USP13 to Facilitate Autophagy through Deubiquitinating VPS34. **Cell Rep**. (2020).

6. Jin S, Zhang X, Miao Y, Liang P, Zhu K, She Y, Wu Y, **Liu DA**, Huang J, Ren J, Cui J. m6A RNA modification controls autophagy through upregulating ULK1 protein abundance. **Cell Res**. (2018).

Publications Under Revision

Review 1: Mechanical Cues Direct EVs in Tumor Progression. Kshitiz Parihar, **Di-Ao Liu**, David A. Issadore, Valerie M. Weaver, Wei Guo, Ravi Radhakrishnan (Under review in Nature Reviews Bioengineering)

Review 2: The Origin of Extracellular Vesicles , **Di-Ao Liu*** and Wei Guo*. (Under review in Nature Reviews Molecular Cell Biology) (First and corresponding Author)

Awards & Honors

- National Outstanding Abroad Student Fellowship In Progress 2024
- Penn Bio PhD Fellowship 2018
- iGEM 2016 Gold Prize 2016
- National Scholarship of China from the Ministry of Education of the PRC 2016
- First Class Scholarship of SYSU 2016
- National Scholarship of China from the Ministry of Education of the PRC 2015
- First Class Scholarship of SYSU 2015
- National Scholarship of China from the Ministry of Education of the PRC 2014
- First Class Scholarship of SYSU 2014
- National Olympiad of Biology in Provinces, First Prize 2012

Research

Department of Biology, University of Pennsylvania 2019-2024

Graduate Researcher

Project: "A phosphoinositide switch mediates exocyst recruitment to multivesicular endosomes for exosome secretion". *Funded by: NIH grants R35 GM141832 and NCI CA261608 to W.G., and R35 GM140832 to T.S.*

1. Highlighted the role of phospholipids and the exocyst complex in regulating the exocytic trafficking of exosomes.
2. Proposed and reassessed factors that determines the trafficking fate of exosomes

Project: "Stiff matrix induces exosome secretion to promote tumour growth" *Funded by: NIH grants R35 GM141832 to W.G., NCI U01 CA250044 to R.R., V.M.W. and W.G., NCI intramural research program, Z01 BC 010877, Z01 BC 010876, Z01 BC 010313 to H.D. and X.W.W., and Abramson Cancer Center Support Grant (CA016520) to P.A.G.*

1. Highlighted the importance of extracellular matrix in regulating the secretion of exosomes and the subsequent effect to tumor growth.
2. Identified Akt-Rabin8-Rab8 axis activated by stiff matrix as a mechanism to promotes Jagged-1 loading into exosomes.

Conferences and Presentations

- Poster: “Exocyst controls exosome secretion by phosphoinositides switch”. ASCB CellBio 2022
- Chief Executive of CCiC (Central China iGEM Consortium) 2016

Academic Appointments

- Associate Faculty Member for Faculty Opinions
  Recommended journal articles: https://facultyopinions.com/prime/738401155
- BIOL205, BIOL121 Teaching Assisstant

Referees