No.	K22-2056	
研究課題名	Functional polarization of tumour-associated macrophages by tumor microenvironment	
研究代表者	何 暁東 ( 山東大学・講師 )	
研究組織	受入教員	中西 真 ( 東京大学医科学研究所・教授 )
	分担者	Xiao-dong He ( Shandong University · Lecturer )
	分担者	Hai Yu ( Shandong University · Graduate student )
	分担者	Tian-shu Liu ( Shandong University · Graduate student )
	分担者	Makoto Nakanishi ( Cancer Cell Biology, Institute of Medical Science, University of Tokyo · Professor )

Xiao-dong He

# IMSUT International Joint Usage/Research Center Project <International>

## Joint Research Report (Annual/Project Completion)

#### **Annual Report**

### Report

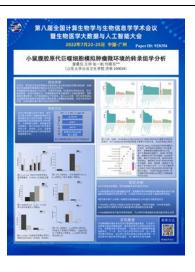
In 2022, we stimulated mouse macrophages with the construction of the lactylation of tumor microenvironment and performed transcriptome analysis to determine the possible mechanisms of tumor cell interaction with mouse macrophages.

At the same time, we constructed a co-culture system of HGC-27 and Raw264.7 cells, successfully isolated exosomes from the supernatant of cell culture medium, and analyzed microRNA-seq of exosomes. We use the CSHL research to develop a small program (https://github.com/wososa/PSI-Sigma),RNA splicing,RNA m6A methylation,DNA methylation and Gene expression analysis were combined for comprehensive analysis, mainly focusing on RNA splicing. We found some interesting biomarkers and validated them by cellular molecular biology methods.

The results were presented at the 8th National Conference on Computational Biology and Bioinformatics (NCCBB) and The Biomedical Big Data and Artificial Intelligence. At the same time, we published a review paper and a research paper. These are written: "This study was partly supported by a Grant from the International Joint Usage/Research Center, The Institute of Medical Science, the University of Tokyo."

In addition, with the support of IMSUT, we have a certain foundation to work on, we have also obtained the project support from the National Natural Science Foundation of China and the Outstanding Innovation Fund of Shandong University, and trained two postgraduate students and one doctoral student.







Research Results from the Project during FY2022

### <Publications>

Hai Y., Kawachi A., He X., Yoshimi A. (2022) Pathogenic Roles of RNA-Binding Proteins in Sar comas. Cancers (Basel). 14(15):3812.

Tianshu Liu; Hai Yu; Shuai Wang; Huimin Li; Xinyiran Du; Xiaodong He. (2023)Chondroitin sulf ate alleviates osteoporosis caused by calcium defciency by regulating lipid metabolism, NUTRI TION & METABOLISM, 2023, 20(6)

<Patent Applications>