BIOGRAPHICAL SKETCH

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NAME	POSITION TITLE
Wang, Tong	Professor
eRA COMMONS USER NAME TOWANG	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Washington School of Medicine	Post-Doc	2010	Virology and immunology
University of Nebraska Medical Center	Post-Doc	2008	Proteomics and HIV-1
Jinan University, China.	Ph.D.	2004	Immunology
South China Agriculture University, China	M.S.	2000	Ecology
Xiamen University, China	B.S.	1997	Biology

A. Personal statement

I have more than 15 years' experience working on cancer and infectious diseases. I take the lead of the mechanistic investigations on the systems biology, focusing on infection, inflammation and cancer. I established platforms for both functional investigations and systems biology, integrating proteomics, next-generation sequencing and cellular and molecular biology. I am also leading the development of novel strategies of very low level detections of infection and cancer.

B. Positions and Honors.

Positions and Employment

2014-present	Professor of systems biology and biomedical engineering
2012-present	Chief Scientist of cancer research, the Guangdong Provincial Key Discipline of Surgery at Jinan University, China
2012-present	Assistant Director, Key Laboratory of Functional Protein Research of Guangdong Higher Education Institutes, China
2010 – 2014	Associate professor, Jinan University, China
2008 – 2010	Senior Fellow, Department of Laboratory Medicine, University of Washington
2006 – 2008	Postdoctoral research fellow, Center for Neurovirology and Neurodegenerative Disorders, University of Nebraska Medical Center
2004 – 2006	Assistant professor, Jinan University, China

Other Experience and Professional Memberships

2015-present	Chair of Youth Committee of Human Proteome Organization of China (CNHUPO).
2015-present	Member, American Society of Chemistry
2010-present	International Affiliated Member, UW/FHCRC CFAR, University of Washington
2007	Member of Society of Neuroscience (SfN)
2004-present	Member of Society of Cell Biology of China

Honors

2015	Membership award, American Society of Chemistry
2009	New Investigator Award (AI 27757), UW/FHCRC CFAR, University of Washington
2008	Young Investigator Award to attend CROI 2009 in Montreal, Canada.
2002	"Second Place Award for Science and Technology" by Jilin Province, China, "Study on the Mechanism of the Injury Recovery Effect of Acidic Fibroblast Factor"

C. Selected peer-reviewed publications.

(*Corresponding author; # Co-first author)

1. Chen, Z., Yang, L., Cui, Y., Zhou, Y., Yin, X., Guo, J., Zhang, G., **Wang, T.***, and He, Q.Y.*

Cytoskeleton-centric protein transportation by exosomes transforms tumor-favorable macrophages, *Oncotarget*, (2016). PMID: 27602764

2. Guo, J., Cui, Y., Yan, Z., Luo, Y., Zhang, W., Deng, S., Tang, S., Zhang, G., He, Q.Y.*, and **Wang, T***. Phosphoproteome Characterization of Human Colorectal Cancer SW620 Cell-Derived *Exosomes* and New Phosphosite Discovery for C-HPP, *J. Proteome Res.*, (2016). PMID: 27470641

3. Lian, X., Guo, J., Gu, W., Cui, Y., Zhong, J., Jin, J., He, Q.Y. *, **Wang, T. ***, and Zhang, G*. Genome-Wide and Experimental Resolution of Relative Translation Elongation Speed at Individual Gene Level in Human Cells, PLoS Genet 12, e1005901 (2016). PMID: 26926465

4. Yang, L., Lian, X., Zhang, W., Guo, J., Wang, Q., Li, Y., Chen, Y., Yin, X., Yang, P., Lan, F., He, Q.Y. *, Zhang, G. *, and Wang, T*. Finding Missing Proteins from the Epigenetically Manipulated Human Cell with Stringent Quality Criteria, J. Proteome Res. 14, 3645-57 (2015). PMID: 26202631

5. Chen, Y., Li, Y., Zhong, J., Zhang, J., Chen, Z., Yang, L., Cao, X., He, Q.Y. *, Zhang, G. *, and **Wang, T***. Identification of Missing Proteins Defined by Chromosome-Centric Proteome Project in the Cytoplasmic Detergent-Insoluble Proteins, J. Proteome Res. 14, 3693-709 (2015). PMID: 26108252

6. Guo, J.[#], Lian, X.[#], Zhong, J., **Wang, T.*,** and Zhang, G.* Length-dependent translation initiation benefits the functional proteome of human cells, *Molecular BioSystems*, **11**(2):370-8. (2015). PMID: 25353704 (Outside Cover)

7. Zhong, J.[#], Cui, Y.[#], Guo, J.[#], Chen, Z., Yang, L., He, Q.Y.*, Zhang, G.*, and **Wang, T***. Resolving Chromosome-Centric Human Proteome with Translating mRNA Analysis: A Strategic Demonstration, *J. Proteome Res.*, **13**(1), 50-9 (2014). PMID: 24200226

8. Shen, S.[#], Guo, J.[#], Luo, Y., Zhang, W., Cui, Y., Wang, Q., Zhang, Z.*, and **Wang, T***. Functional proteomics revealed IL-1beta amplifies TNF downstream protein signals in human synoviocytes in a TNF-independent manner, *Biochem. Biophys. Res. Commun.*, (2014). PMID: 24928389

9. Zhang, C.[#], Li, N.[#], Zhai, L.[#], Xu, S.[#], Liu, X.[#], Cui, Y.[#], Ma, J., Han, M., Jiang, J., Yang, C., Fan, F., Li, L., Qin, P., Yu, Q., Chang, C., Su, N., Zheng, J., Zhang, T., Wen, B., Zhou, R., Lin, L., Lin, Z., Zhou, B., Zhang, Y., Yan, G., Liu, Y., Yang, P., Guo, K., Gu, W., Chen, Y., Zhang, G., He, Q.Y., Wu, S., **Wang, T.***, Shen, H.*, Wang, Q.*, Zhu, Y.*, He, F.*, and Xu, P*. Systematic analysis of missing proteins provides clues to help define all of the protein-coding genes on human chromosome 1, *J. Proteome Res.*, **13**(1), 114-25 (2014). PMID: 24256544

10. Wang, Q.[#], Wen, B.[#], **Wang, T.**[#], Xu, Z.[#], Yin, X.[#], Xu, S. , Ren, Z., Hou, G., Zhou, R., Zhao, H., Zi, J., Zhang, S., Gao, H., Lou, X., Sun, H., Feng, Q., Chang, C., Qin, P., Zhang, C., Li, N., Zhu, Y., Gu, W., Zhong, J., Zhang, G., Yang, P., Yan, G., Shen, H., Liu, X., Lu, H., Zhong, F., He, Q.Y., Xu, P., Lin, L., and Liu, S. The omics evidences: single nucleotide variants transmissions on Chromosome 20 in liver cancer cell lines, *J. Proteome Res.*, **13**(1), 200-11 (2014). PMID: 24261934

11. Zhang, G.*, **Wang, T. ***, and He, Q*. How to discover new proteins-translatome profiling, *Sci China Life Sci*. **57**, 358-60 (2014). PMID: 24532458

12. **Wang, T. #***, Cui, Y.#, Jin, J.#, Guo, J., Wang, G., Yin, X., He, QY*. and Zhang, G*. Translating mRNAs strongly correlate to proteins in a multivariate manner and their translation ratios are phenotype specific, *Nucleic Acids Res.* **41**(9), 4743-54 (2013), PMID: 23519614

13. **Wang, T.#,** Xu, Y.#, Zhu, H., Andrus, T., Ivanov, SB, Pan, C., Dolores, J., Dann, DC. Zhou, M., Forte, D., Yang, Z., Holte, S., Corey, L. and Zhu, T. Successful isolation of infectious and high titer human monocyte-derived HIV-1 from two subjects with discontinued therapy, *PLoS ONE* 8, e65071. (2013), PMID: 23741458

14. Zeng, X.#, **Wang, T.#,** Zhu, C., Xing, X.., Ye, Y., Lai, X., Song, B., and Zeng, Y.. Topographical and biological evidence revealed FTY720-mediated anergy-polarization of mouse bone *marrow*-derived dendritic cells in vitro, *PLoS One* (2012). 7(5): e34830.

15. Zeng, X.#, **Wang, T.#**, Zhu, C., Ji, Y., Ye, Y., Song, B., Lai, X., and Zeng, Y.. FTY720 mediates activation suppression and G0/G1 cell cycle arrest in a concanavalin A-induced mouse lymphocyte pan-activation model, *Inflamm* Res 61, 623-34 (2012). PMID: 22407397

16. He, F., Zeng, Y.*, Wu, X., Ji, Y., He, X., Andrus, T., Zhu, T., and **Wang, T*** . Endogenous HIV-1 Vpr-mediated apoptosis and proteome alteration of human T-cell leukemia virus-1 transformed C8166 cells, *Apoptosis* 14, 1212-26 (2009). PMID: 19655254

17. **Wang, T.**, Gong, N., Liu, J., Kadiu, I., Kraft-Terry, S.D., Mosley, R.L., Volsky, D.J., Ciborowski, P., and Gendelman, H.E. Proteomic modeling for HIV-1 infected microglia-astrocyte crosstalk, *PLoS ONE* 3, e2507 (2008). PMID: 18575609

18. **Wang, T.**, Gong, N., Liu, J., Kadiu, I., Kraft-Terry, S.D., Schlautman, J.D., Ciborowski, P., Volsky, D.J., and Gendelman, H.E. HIV-1-infected astrocytes and the microglial proteome, *J Neuroimmune Pharmacol* 3, 173-86 (2008). PMID: 18587649

Scientific talks

2010.11.12 **Invited speaker**. 1st Congress of Computational Proteomics of China, Beijing. "Signaling pathway analysis-assisted proteomics"

2011.11.30 **Invited Speaker**. University of Washington AIDS and STD Research Symposium, Seattle, USA. "HIV-1 *gp120* DNA in macrophages and HIV-associated lung cancer"

2011.4.3-5 **Oral presentation.** The 7th CNHUPO Annual Congress, Hangzhou, China. "Functional and quantitative proteomics analysis of mitochondria of lung cancer A549 cells in EMT"

2011.11.3-5 **Oral presentation**. 18th Hong Kong International Cancer Congress, Hong Kong. "Co-localization of migration-associated proteins in proliferative mitochondria of lung cancer A549 cells upon epithelial-mesenchymal transition".

2013.9.7-10 **Oral presentation.** The 8th CNHUPO Annual Congress, Chongqing, China. "Resolving Chromosome-Centric Human Proteome with Translating mRNA Analysis: A Strategic Demonstration".

2014.5.10 **Invited Speaker.** Inflammation and Cancer- 2nd Proteomics Symposium, Guangzhou, China. "Metastatic colorectal cancer cells transform macrophages via exosomal transportation of vimentin/F-actin functional units"

2014.10.7-8 **Invited Speaker.** 4th Annual Next Generation Sequencing Asia Congress, Singapore. "Next generation sequencing and cancer translatome"

2015.10.13-14 **Invited Speaker.** 5th Annual Next Generation Sequencing Asia Congress, Singapore. "Discovery of Hidden Human Proteome by Translatome Sequencing"

D. Research Support

Ongoing Research Support

Guangdong Key Project for Research and Development, 2016B020238002
Ultrasensitive evaluation of HIV-1 DNA in the peripheral blood.
(T. Wang, PI) 08/01/2016 – 07/31/2019
The goal of this study to evaluate the scientific and clinical significance of HIV-1 DNA measurement in peripheral blood.
Fund available: ￥8,000,000 (CNY)

Subcontract: National Basic Research Program "973" of China (2014CBA02000)
(T. Wang, PI) 06/01/2014 – 05/31/2019
Draft map of human proteome of China
The goal of this study is to address the disease subtype differentiation based on proteome in China population.
Funds available: ￥970,000 (CNY)

Natural and Science Foundation of China (NSFC) 81372135
(T. Wang, PI) 01/01/2014 – 12/31/2017
HIV-1 gp120 NDA - containing macrophages and their exosomal modulation on the translation of lung cancer cells
The goal of this project is to unveil novel etiological mechanism in HIV-1 associated lung cancer in terms of tumor microenvironment and functional proteomics and translatomics.
Funds available: ￥730,000 (CNY)

Completed Research Support (Past 3 Years)

UW/FHCRC CFAR New Investigator Award AI 27757 (T. Wang, PI) 04/01/2009 – 03/31/2011
UW/FHCRC CFAR
Monocyte-derived primary infectious HIV-1 and brain transmission
The goal of the project is to use our newly isolated monocyte-derived HIV-1 to investigate monocytes/macrophages (M/M) migration behavior in response to the chemotactic induction of brain cell secretions.
Total Funds: $ 90,000 (USD)

Natural and Science Foundation of China (NSFC) 81272185 (T. Wang, PI) 01/01/2013 – 12/31/2013
HIV-gp120 DNA containing macrophage and malignant phenotypes of lung cancer cells
The goal of this project is to explore the mechanism of the progression of HIV-1 associated lung cancer when focusing on the inflammation medicated by the macrophages that contain non-integrating HIV-1 gp120 DNA. In this context, the role of exosomes will be addressed systematically.
Funds available: ￥160,000 (CNY)

NSFC 81000516 (T. Wang, PI) 01/01/2011 – 12/31/2013

National Natural and Science Foundation, China
Functional proteomics: human astrocyte-mediated HIV-1 maturation inhibition in monocytes/macrophages
The goal of this project is to investigate biological targets of astrocyte-mediated HIV-1 maturation in infected M/M by functional proteomics strategy.
Total Funds: ￥200,000 (CNY)

Subcontract: National Basic Research Program "973" of China (2011CB910700)
(T. Wang, PI) 01/01/2012 – 12/31/2015
Mechanism of the Formation of Cancer-associated Inflammation
This project is to answer how tumor-associated myeloid cells contribute to the formation of cancer-associated inflammation employing functional proteomics and translatomics.
Funds available: ￥500,000 (CNY)

Scientific Research Foundation for the Returned Overseas Chinese Scholars, State Education Ministry of China
(T. Wang, PI) 01/01/2012 – 12/31/2014
The anti-HIV-1 mechanism of astrocytes.
The research is to find the proteomic signatures in HIV-1 infected immune cells when exposed to astrocytes.
Total Funds: ￥30,000 (CNY)

Jinan University Innovation Award – International (T. Wang, PI) 01/01/2010 – 12/31/2010
The Fundamental Research Funds for the Central Universities, Educational Department of China
Astrocytes and HIV-1 infection inhibition in macrophages
The goal of this project is to probe the target host molecules that interact with HIV proteins as endpoints of astrocyte-associated HIV inhibition in M/M.
Total Funds: ￥150,000 (CNY)

Jinan University Innovation Award – International (T. Wang, PI) 01/01/2012 – 12/31/2013
The Fundamental Research Funds for the Central Universities, Educational Department of China
Mitochondrial proteome and epithelial-mesenchymal transition in lung cancer cells
The project is to address the differentiation force derived from mitochondria in the EMT of lung cancer cells, employing a strategy of functional proteomics.
Total Funds: ￥100,000 (CNY)

Open Grant of State Key Laboratory of Respiratory Diseases (2007DA780154F0901)
(Q. He, PI) 01/01/2010 – 12/31/2012
Proteomics-based lung cancer biomarker screening and clinical application
To identify biomarkers via *in vitro* experimentation employing quantitative proteomics and using human lung cancer tissue samples to perform validation.
Role: Co-investigator
Total Funds: ￥500,000