

## CURRICULUM VITAE

September 19, 2019

NAME: **Hongyu Wang, M.D. Ph.D.**

PRESENT TITLE: Research Assistant Professor of  
Department of Diagnostic and Interventional Imaging  
and Institute of Molecular Medicine, McGovern Medical School

Interim Director of the Research Department Laboratory,  
Cizik School of Nursing

WORK ADDRESS: The University of Texas Medical School at Houston,  
The Brown Foundation Institute of Molecular Medicine,  
1825 Pressler Street, Houston, Texas 77030

CITIZENSHIP: USA

### UNDERGRADUATE EDUCATION:

M.D.; School of Medicine, Southeast University, Nanjing, China, 1986

### GRADUATE EDUCATION:

M.S. Toxicology, Capital Medical University, Beijing, China, 1990

Ph.D. Immunology, University of Kiel, Kiel, Germany, 1997

### POSTGRADUATE TRAINING:

Hematology/Oncology, Baylor College of Medicine, 1998-2001

### ACADEMIC & ADMINISTRATIVE APPOINTMENTS:

Research Assistant Professor of Department of Diagnostic and Interventional  
Imaging and Institute of Molecular Medicine, McGovern Medical School

Co-Director of Clinical and Translational Proteomics Service Center, IMM, UT  
Health

Interim Director of the Research Department Laboratory, Cizik School of Nursing

### CERTIFICATION:

Technologist in Molecular Biology, M.B. (ASCP)<sup>CM</sup>

Medical Chamber of the Federal State of Schleswig-Holstein, Germany (1993-  
1997)

### PROFESSIONAL ORGANIZATIONS (AND COMMITTEES OF THESE):

Local: MD Anderson Cancer Center UTHealth Graduate School  
of Biomedical Sciences Associate Member

NATIONAL: American Society of Gene and Cell Therapy (ASGCT)  
American Society for Clinical Pathology

American Association for Clinical Chemistry  
Society of Interventional Radiology  
INTERNATIONAL: Medical Chamber of the Schleswig-Holstein State, Germany  
(1993-1997)

**HONORS AND AWARDS:**

- Honors Scholar Award, Medical School, Southeast University, 1982-1986
- Graduated with magna cum laude, University of Kiel, Germany, 1997
- SPORE in Prostate Cancer Award for outstanding translational research in the poster presentation category, Baylor College of Medicine, 2002, 2003
- Postdoctoral research award of The Texas Center for Cancer Nanomedicine (TCCN), 2013, 2014

**EDITORIAL POSITIONS:**

Editorial board member, Current Pharmaceutical Biotechnology  
Board reviewer: Disease Markers  
Board reviewer: Molecular Therapy-Nucleic Acids

**SERVICE ON McGOVERN MEDICAL SCHOOL at UTHEALTH COMMITTEES:**

Medical School Admissions Committee, McGovern Medical School, 2018-present  
Medical School Admission Interviewer 2015-present  
Faculty Senate member 2018-2019

**CURRENT TEACHING RESPONSIBILITIES:**

Instructor for GSBS course, GS21 1331 Precision BioMedicine and Nanotechnology

Instructor for Nanomedicine and Biomedical Engineering Scholarly Concentration Summer Seminar Series, 2014-present

**MENTORING ACTIVITIES:**

Mentored postdoctoral fellow: Roberto Cardenas-Zuniga, Ph.D.  
Mentored medical residents: Shrey Patel, MD, Srinivasan V Narayanan, MD, Raya H Alhalawani, MD.  
Mentored medical students: Andrea M Costello, Charissa Kim, Francis G Celii,  
Mentored high school students: Esha L. Pisipat, Natalie Wang

**CURRENT GRANT SUPPORT: (include project title, P.I., funding agency, award period and amount)**

- Society of Interventional Oncology Anil K. Pillai (PI) 07/01/2019-06/30/2020 \$100,000  
Title: Identify Proteomic Biomarkers for Outcome Prediction of Lipiodol TACE Treatment  
Role: Co-Investigator
- NIH/NIDDK R21 (DK122234) Absalon D. Gutierrez (PI) 09/10/2019-

06/30/2022 \$192,500

Title: GLP-1 therapy: the role of IL-6 signaling and adipose tissue remodeling in metabolic response

Role: Co-Investigator

PAST GRANT SUPPORT: (include project title, P.I., funding agency, award period and amount)

- NIH/NCRR 5UL1TR000371 David McPherson (PI) 1/1/2006-5/31/2017  
Center for clinical and translational sciences (CCTS)  
The goal of this study is to provide infrastructure to promote translation of science into the clinic.  
Role: Director of proteomics service center
- NIH 1R21HD082947-01A1 Jerrie S Refuerzo (PI) 8/1/2015–7/31/2017  
The goal of this study is to develop nanovectors to prevent placental passage of a tocolytic agent.  
Role: Co-investigator
- Center for Clinical & Translational Sciences Core Lab Pilot Grant  
Hongyu Wang (PI) 03/1/2017-08/31/2017 \$8,000  
The goal of this project is to use services of CCTS Core Laboratories for translational research projects using Morph-X-Select to discover biomarkers for triple negative breast cancer.  
Role: PI
- Center for Clinical & Translational Sciences Core Lab Pilot Grant  
H. Alex Choi (PI) 03/1/2017-08/31/2017 \$8,000  
The goal of this project is to use services of CCTS Core Laboratories for translational research project “Discovery of Novel Pathways Leading to Delayed Cerebral Ischemia after Subarachnoid Hemorrhage”  
Role: Co-PI
- Center for Clinical & Translational Sciences (CCTS) Core Lab Pilot Grant  
Hongyu Wang (PI) 03/1/2015-08/31/2016  
The goal of this project is to use services of CCTS Core Laboratories for translational research projects using Morph-X-Select to discover tumor biomarkers.  
Role: PI
- Pilot Project of Texas Center for Cancer Nanomedicine (TCCN)  
NIH/NCI U54CA1516 Hongyu Wang (PI), 03/01/2014-02/28/2015  
\$45,059  
Goals: Develop novel combinatorial tissue X-aptamers selection methods using laser microdissection.  
Role: PI

- U54CA1516 NIH/NCI David G. Gorenstein (PI)  
Texas Cancer Center for Nanomedicine, 09/01/2010-08/31/2016  
The major goals of this project are to utilize innovative nanotechnologies for new therapeutic strategies.  
Role: Co-Investigator

## PUBLICATIONS:

### A. Abstracts (\*indicate abstracts presented at meetings)

1. **Wang H**, Ulrichs K, Müller-Ruchholtz W. Down-regulation of xenophile antibodies by specific immunosuppressive protocols to facilitate xenogeneic organ transplantation, 24th Meeting of the Society of Immunology. Leipzig, Germany, September 30-October 2, 1993.
2. Jackson KJ, Majka S, **Wang H**, Pocius J, Hartley C, Majeski M, Entman M, Lloyd M, Hirschi K, and Goodell MA. Regeneration of Ischemic Cardiac Muscle and Vascular Endothelium by Adult Stem Cells. American Society of Hematology (ASH) 41st Annual Meeting December 3 - 7, 1999; New Orleans, Louisiana.
3. **Wang H**, Yang G, Satoh T, Kusaka N, Ji X, Timme TL, Fujita T, Men T, Thompson TC, Antimetastatic Effects of IL-12 Gene-modified Bone Marrow Cells in a Mouse Model of Metastatic Prostate Cancer. American Society of Gene and Cell Therapy 6th Annual Meeting, June 4-8, 2003, Washington, D.C.
4. **Wang H**, Yang G, Timme TL, Fujita T, Naruishi K, Ji X, Brenner MK, Kadmon D, Thompson TC. IL-12 Transduced Bone Marrow Cells Home to Bone and Generate Anti-Metastatic Activities in a Mouse Prostate Cancer Model. 7th Annual Meeting of the American Society of Gene and Cell Therapy, June 2-6, 2004, Minneapolis, Minnesota.
5. **Wang H**, Abdelfattah EM, Tahir SA, Yang G, Goltsov A, Tian W, Ren CZ, Ren CH, Timme TL, Thompson TC. RTVP-1 Protein Stimulates Markers of Maturation in Mouse and Human Dendritic Cells. 8th Annual Meeting of the American Society of Gene Therapy (oral presentation), June 1-5, 2005, America's Center, St. Louis, MO.
6. **Wang H.**, He W., Elizondo-Riojas M-A., Somasunderam A., Sherry Y. Wu S.Y., Mangala L.S., Li X., Rao L.G., Thiviyanathan V., Chang J.T., Lu E., Volk D.E., Li L., Rosenblatt K.P., Sood A.K. and Gorenstein D.G. Cell Selected Thioaptamers Targeting Human Ovarian Cancer. Principal Investigators Meeting NCI Alliance for Nanotechnology in Cancer. October, 2013. Bethesda, MD.
7. Lingegowda S. Mangala, Dahai Jiang, **Hongyu Wang**, Sherry Y Wu, Lokesh G. Rao, Cristian Rodriguez-Aguayo, Sunila Pradeep, David E. Volk, Gabriel Lopez-Berestein, David G. Gorenstein, Anil K. Sood. Tumor vasculature targeting using cell-specific thioaptamer decorated chitosan nanoparticle. Proceedings: AACR Annual Meeting 2014; April 5-9, 2014; San Diego, CA.
8. **Wang H.**, He W., Elizondo-Riojas M-A., Li X., Rao L.G., Thiviyanathan V., Volk

- D.E., Rosenblatt K.P., Gorenstein D. G. Development of Thioaptamers and X-aptamers Targeting Human Ovarian Cancer Cells. Principal Investigators Meeting NCI Alliance for Nanotechnology in Cancer. October 1-3, 2014. Rockville, MD.
9. Dehghani M., Gonzalez A.O., Hashemi-Sadraei N., Wachtler C., Floyd K., Rakhade M., **Wang H.**, Luu S., Au D., Zhang S., Rosenblatt K. P.. Correlation between germline and tumor CYP450 2D6 gene polymorphisms. San Antonio Breast Cancer Symposium, 2014.
  10. **Wang H.**, He W., Elizondo-Riojas M-A., Li X., Rao L.G., Thiviyanathan V., Volk D.E., Rosenblatt K.P., Gorenstein D. G. Development of Thioaptamers and X-aptamers Targeting Human Ovarian Cancer Cells. 18th Annual Meeting of American Society of Gene and Cell Therapy (oral presentation), April 2015.
  11. **Wang H.**, Li, X., Volk, D.E., Lokesh, R. L.G., Elizondo-Riojas M-A., Nick, A.M., Sood, A.K., Rosenblatt, K.P., Gorenstein, D.G. Morphologically-Based Tissue Aptamer Selection for Ovarian Cancer Biomarker Discovery. 72nd Annual Southwest Regional ACS Meeting, Galveston Texas, November 2016
  12. **Wang H.**, He W., Elizondo-Riojas M-A., Gorenstein D. G. New Generation CD44-X-aptamers for Targeting Human Ovarian Cancer Cells. 21th Annual Meeting of American Society of Gene and Cell Therapy, May 2018
  13. Alhalawani R.H., Pillai A.K., **Wang H.** Understanding immune checkpoint inhibitors and the potential synergistic role of interventional radiology procedures. World Conference on Interventional Oncology (WCIO) June 2018
  14. **Wang H.**, Li X, Rao LG, Costello A, Thiviyanathan V, Li L, Volk DE. Developing Aptamers, X-aptamers and Biomarkers for Diagnosis and Targeting. NanoX Mini-Symposium, Houston, September 21, 2018
  15. Patel S, Celli F, Guevara C, Bhatti Z, Pillai A, **Wang H.** A Panel of mRNA Molecules as Prognostic Biomarkers for Patients with Hepatocellular Carcinoma. The Society of Interventional Radiology (SIR), Austin March 23-28, 2019.
  16. **Wang H.**, Rao L.G, Volk DE, Li L, Pillai AK, Gorenstein DG. Identification of Proteomic Biomarkers Utilizing a Bead-based X-aptamer Library and Flow Cytometry Sorting. 22nd Annual Meeting of American Society of Gene and Cell Therapy. Washington D.C., April 29 – May 2, 2019.
  17. Costello A, Li X, Volk DE, Pillai AK, **Wang H.** Selection and characterization of Vimentin-binding aptamer motifs for treatment of ovarian cancer. 22nd Annual Meeting of American Society of Gene and Cell Therapy. Washington D.C., April 29 – May 2, 2019.

## B. Refereed Original Articles in Journals

1. **Wang H.**, Ulrichs K, Müller-Ruchholtz W. Down-regulation of xenophile antibodies by specific immunosuppressive protocols to facilitate xenogeneic organ transplantation, *Immunobiology*, 189, 203, 1993.
2. Ulrichs K, **Wang H.**, Müller-Ruchholtz W. Downregulation of xenophile antibodies by 15-deoxyspergualin in an experimental animal model, *Transplantation Proceedings*, 26, 994-996, 1994.

3. Goodell MA, Jackson KJ, Majka SM, Mi T, **Wang H**, Pocius J, Hartley CJ, Majeski MW, Entman ML, Michael LH, and Hirshci KK. Stem Cell Plasticity in Muscle and Bone Marrow, *Annals of the New York Academy of Sciences*, 938, 208-218, 2001. PubMed PMID: 11458510.
4. Jackson KJ, Majka S, **Wang H**, Pocius J, Hartley C, Majeski M, Entman M, Lloyd M, Hirschi K, and Goodell MA. Regeneration of Ischemic Cardiac Muscle and Vascular Endothelium by Adult Stem Cells. *Journal of Clinical Investigation*, 107, 1395-1402, 2001. PubMed PMID: 11390421.
5. Cao G, Yang G, Timme TL, Saika T, Truong LD, Satoh T, Goltsov A, Park SH, Men T, Kusaka N, Tian W, Ren C, **Wang H**, Kadmon D, Cai WW, Chinault AC, Boone TB, Bradley A, Thompson TC. Disruption of the Caveolin-1 Gene Impairs Renal Calcium Reabsorption and Leads to Hypercalciuria and Urolithiasis, *American Journal of Pathology*, 162, 1241-1248, 2003. PubMed PMID: 12651616.
6. Timme TL, Satoh T, Tahir SA, **Wang H**, Teh BS, Butler EB, Miles BJ, Amato RJ, Kadmon D, Thompson TC. Therapeutic Targets for Metastatic Prostate Cancer, *Current Drug Targets*, 4, 251-261, 2003. PubMed PMID: 12643475.
7. **Wang H**, Yang G, Satoh T, Kusaka N, Ji X, Timme TL, Fujita T, Men T, Thompson TC, Antimetastatic Effects of IL-12 Gene-modified Bone Marrow Cells in a Mouse Model of Metastatic Prostate Cancer, *Molecular Therapy*, 7(5), S119, 2003.
8. **Wang H**, Yang G, Timme TL, Fujita T, Naruishi K, Ji X, Brenner MK, Kadmon D, Thompson TC. IL-12 Transduced Bone Marrow Cells Home to Bone and Generate Anti-Metastatic Activities in a Mouse Prostate Cancer Model, *Molecular Therapy*, 9 (S1), S136, 2004.
9. **Wang H**, Abdelfattah EM, Tahir SA, Yang G, Goltsov A, Tian W, Ren CZ, Ren CH, Timme TL, Thompson TC. RTVP-1 Protein Stimulates Markers of Maturation in Mouse and Human Dendritic Cells, *Molecular Therapy*, 11 (S1), S108, 2005.
10. Timme TL, Fujita T, **Wang H**, Naruishi K, Kadmon D, Amato RJ, Miles BJ, Ayala G, Wheeler TM, Teh B, Butler B, Thompson TC. Cytokine Gene Therapy for Genitourinary Cancer, in "Gene Therapy for Cancer", editor: Hunt KK, Totowa, N.J.: Humana Press, 2007.
11. Fujita T, Timme TL, Tabata K, Naruishi K, Kusaka N, Watanabe M, Abdelfattah E, Zhu JX, Ren C, Ren C, Yang G, Goltsov A, **Wang H**, Vlachaki MT, Teh BS, Butler EB, Thompson TC. Cooperative Effects of Adenoviral Vector-Mediated IL-12 Gene Therapy with Radiotherapy in a Preclinical Model of Metastatic Prostate Cancer. *Gene Therapy*; Feb; 14(3):227-36, 2007. PubMed PMID: 17024109.
12. **Wang H**, Yang G, Timme TL, Fujita T, Naruishi K, Ji X, Brenner MK, Kadmon D, Thompson TC. IL-12 Gene Modified Bone Marrow Cell Therapy Suppresses the Development of Experimental Metastatic Prostate Cancer. *Cancer Gene Ther.* Oct; 14(10):819-27, 2007. PubMed PMID: 17627292.
13. **Wang H**, Thompson TC. Gene-modified bone marrow cell therapy for prostate cancer. *Gene Ther.* 2008 May;15(10):787-96. PubMed PMID: 18385769.

14. Wenderfer SE, **Wang H**, Ke B, Wetsel RA, Braun MC. C3a receptor deficiency accelerates the onset of renal injury in the MRL/lpr mouse. *Mol Immunol.* Apr; 46(7):1397-404, 2009. PubMed PMID: 19167760.
15. \*Mangala, L.S., \***Wang H.**, Jiang, D., Wu, S.Y., Somasunderam, A., Volk, D.E., Lokesh, R. L.G., Li, X., Pradeep, S., Yang, X., Haemmerle M., Rodriguez-Aguayo, C., Nagaraja A.S., Rupaimoole R., Bayraktar E., Bayraktar R., Li, L., Tanaka, T., Hu, W., Ivan C., Gharpure, K.M., McGuire, M.H., Thiviyanathan, V., Zhang, X., Maiti, S.N., Bulayeva N., Choi, H.-J., Dorniak, P.L., Cooper, L.J.N., Rosenblatt, K.P., Lopez-Berestein, G., Gorenstein, D.G., and Sood, A.K. Improving vascular maturation using non-coding RNAs increases anti-tumor effect of chemotherapy. *Journal of Clinical Investigation Insight* 2016; Oct 20; 1(17): e87754. PubMed PMID: 27777972. (\*equal contributions)
16. **Wang H.**, Li, X., Volk, D.E., Lokesh, R. L.G., Elizondo-Riojas M-A., Nick, A.M., Sood, A.K., Rosenblatt, K.P., Gorenstein, D.G. Morph-X-Select, a Morphologically-Based Aptamer Tissue Selection for Personalized Ovarian Cancer Biomarker Discovery. *Biotechniques.* 2016 Nov 1;61(5):249-259. PubMed PMID: 27839510.
17. Mu Q, Annapragada A, Srivastava M, Li X, Wu J, Thiviyanathan V, **Wang H**, Williams A, Gorenstein D, Annapragada A, Vigneswaran N. Conjugate-SELEX: A high-throughput screening of aptamer-liposomal nanoparticle conjugates for targeted intracellular delivery of anticancer drugs. *Molecular Therapy Nucleic Acids* (2016) 5, e382. PubMed PMID: 27802264.
18. **Wang H**, Lam CH, Li X, West DL, Yang X. Selection of PD1/PD-L1 X-Aptamers. *Biochimie.* 2017 Sep 11. pii: S0300-9084(17)30230-4. doi: 10.1016/j.biochi.2017.09.006. [Epub ahead of print]. PubMed PMID: 28912094.
19. Helen Wang, Maurice Sorolla, Xiqu Wang, Allan J. Jacobson, **Hongyu Wang**, Anil. K. Pillai. Synthesis, Crystal structures and *in vitro* Anticancer Activity of Two New Cu(II) Coordination Compounds. *Transit Met Chem* (2018) 44:237-245.
20. Kuruc JC, Durant-Archibold AA, Motta J, Rao KS, Trachtenberg B, Ramos C, **Wang H**, Gorenstein D, Vannberg F, Jordan K. Development of anthracycline-induced dilated cardiomyopathy due to mutation on LMNA gene in a breast cancer patient: a case report. *BMC Cardiovasc Disord.* 2019 Jul 16;19(1):169. doi: 10.1186/s12872-019-1155-7. PMID: 31311496.

C. Invited Articles (Reviews, Editorials, etc.) in Journals

- **Wang H**, Thompson TC. Gene-modified Bone Marrow Cell Therapy for prostate Cancer. *Gene Therapy.* May; 15(10):787-96, 2008.

D. Chapters

1. **Wang H**, Ulrichs K, Eckstein V, Breitkreuz A, Müller-Ruchholtz W.

Immunosuppressive effects of 15-deoxyspergualin (DOS) on natural and induced xenoreactive antibodies, in "The Four Ts: T-Cell, Tolerance, Transplantation and Tumor-A Challenge for the Immunologist", editor: Zavazava N, Pabst Science Publishers, Berlin, 192-201, 1995.

2. Timme T, Fujita T, **Wang H.** Cytokine Gene Therapy for Genitourinary Cancer. USA: Humana Press; Gene Therapy for Cancer, 223-242, 2007.
3. Lokesh, G.L., **Wang, H.**, Lam, C.H., Thiviyathan, V., Ward, N., Gorenstein, D.G. and Volk, D.E. in RNA Nanostructures: Methods and Protocols, Eckart Bindewald and Bruce A. Shapiro (Eds), Methods in Molecular Biology, Volume 1632, Elsevier, 2017 (in press)  
ISBN: 978-1-4939-7137-4

#### E. Other Professional Communications

1. Presentations (by local, regional, national, international)
  - **Wang H.** Selection and Identification of DNA Thioaptamers Targeting Human Ovarian Cancer Endothelial Cells. IMM Postdoc seminar series, September 10, 2012, Houston TX.
  - **Hongyu Wang**, Lokesh G L Rao, David E. Volk, Kevin P. Rosenblatt, David G. Gorenstein. Morph-X-Select of Nanobead Aptamers. TCCN annual NCI site visit poster presentation 2012, Houston TX.
  - Ryan Huschka, Nrusingh C. Biswal, Wenxue Chen, **Hongyu Wang**, David E. Volk, Amit Joshi, Naomi Halas, David G. Gorenstein. Multiplexed Molecularly Targeted Theranostics of Aberrant Vasculature in Pancreatic Cancer. TCCN annual NCI site visit poster presentation 2012, Houston TX.
  - Weiguo He, Lokesh G. Rao, Miguel A. Elizondo Riojas, Anoma Somasunderam, Varathasa Thiviyathan, **Hongyu Wang**, David E. Volk, Kevin P. Rosenblatt, David G. Gorenstein. Next Generation Aptamers: X-Aptamers, Morph-X-Select and NanoBead Methods. TCCN annual NCI site visit poster presentation 2012, Houston TX.
  - **Hongyu Wang**, Weiguo He, Miguel A. Elizondo Riojas, Anoma Somasunderam, Sherry Y. Wu, Xin Li, Lokesh G. Rao, Varathasa Thiviyathan, David E. Volk, Li Li, Kevin P. Rosenblatt, Anil K. Sood and David G. Gorenstein. Cell Based Selection of Thioaptamers Targeting Ovarian Tumor Endothelial Cells. TCCN annual NCI site visit poster presentation 2013, Houston TX.
  - **Wang H.**, He W., Elizondo-Riojas M-A., Li X., Rao L.G., Thiviyathan V., Volk D.E., Rosenblatt K.P., Gorenstein D. G. Wang H. New generation CD44-X-aptamers targeting human ovarian cancer cells. TCCN annual NCI site visit; 2014; Houston, Texas, USA. TCCN annual NCI site visit poster presentation 2013, Houston TX.
  - **Wang H.** Selection and Identification of DNA Thioaptamers Targeting Human Ovarian Cancer Endothelial Cells. IMM Postdoc seminar series, February 2, 2015, Houston TX.
  - **Wang H.** Morphologically-Based Tissue Aptamer Selection and Mass Spectrometry for Ovarian Cancer Biomarker Discovery. University of Texas System Proteomics Network meeting, Houston Texas, March 2017.



2. Other:

**Patent Application.**

Rosenblatt K. P., Gorenstein, D.G., **Wang, H.** BIOMARKERS AND MORPHOLOGY BASED APTAMER SELECTION OF SAME. COMDX.029WO, July 28, 2015.