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# CURRICULUM VITA

## **Personal Data:**

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## **Current Appointments:**

Professor of Radiology

Chief Physician of Radiology

Chairman, Department of Radiology

Vice President, Shanghai General Hospital, Shanghai Jiao Tong University School of Medicine.

## **Education and Training**

M.D. 1995 – 2000

Southeast University School of Medicine Nanjing, Jiangsu, China.

M.H.S. 2000 – 2003

Southeast University School of Medicine Nanjing, Jiangsu, China.

Ph.D. 2007 – 2010

Shanghai Jiao Tong University School of Medicine, Shanghai, China.

Resident 2003-2007

Radiology, Shanghai General Hospital, Shanghai Jiao Tong University School of Medicine

Post-Doctorial Fellow 2011-2012

Radiology, University of Washington School of Medicine, Seattle, Washington, USA

**Professional Experience:**

Attending Physician 2007-2011

Radiology, Shanghai General Hospital, Shanghai Jiao Tong University School of Medicine

Vice chief Physician, Associate Professor 2012-2017

Radiology, Shanghai General Hospital, Shanghai Jiao Tong University School of Medicine

Visiting Associate Professor 2015-2016

Radiology, University Hospital, Sapienza University of Rome

Chief Physician, Professor 2018-to date

Radiology, Shanghai General Hospital, Shanghai Jiao Tong University School of Medicine

**Professional Membership:**

1. Vice Chairman of Molecular Imaging Section, Chinese Society of Radiology, Chinese Medical Association 2018-2020
2. Secretary General, Society of Radiology, Shanghai Medical Association 2018-2020

**Peer-Reviewed Scientific Articles:**

*SCI - articles*

1. Li Z, Li H, Wang S, Dong D, Yin F, Chen A, Wang S, Zhao G, Fang M, Tian J\*, Wu S\*, **Wang H\***. MR-based radiomics nomogram of cervical cancer in prediction of the lymphovascular space invasion preoperatively. *J Magn Reson Imaging*. 2019; 49(5): 1420-1426.
2. Zhang Q, Chen J, Ma M, **Wang H\***, Chen H\*. A bioenvironment-responsive versatile nanoplatfrom enabling rapid clearance and effective tumor homing for oxygen-enhanced radiotherapy. *Chem Mater*. 2018; 30(24): 5412-5421.
3. Wu F, Chen J, Li Z, Su H\*, Leung K CF, **Wang H\***, Zhu X\*. Red/near-infrared emissive metalloporphyrin-based nanodots for magnetic resonance imaging-guided photodynamic therapy in vivo. *Part Part Syst Char*. 2018; 35(9): 201800208.
4. He Y, Wang J, Du L, Yang F, Ding X, **Wang H\***. MRI assessment of the bone adjacent to giant cell tumours and its association with local recurrence after intralesional curettage. *Clin Radiol*. 2018; 73(11): 984.e19.
5. Macharia DK, Tian Q, Chen L, Sun Y, Yu N, He C, **Wang H\***, Chen Z\*. PEGylated  $(\text{NH}_4)_x\text{WO}_3$  nanorods as efficient and stable multifunctional nanoagents for simultaneous CT imaging and photothermal therapy of tumor. *J Photochem Photobiol B*. 2017; 174: 10-17.
6. Ma D, Chen J, Luo Y, **Wang H\***, Shi X\*. Zwitterion-coated ultrasmall iron oxide nanoparticles for enhanced T1-weighted magnetic resonance imaging applications. *J Mater Chem B*. 2017; 5(8): 7267-7273.
7. Chen J, Sun Y, Chen Q, Wang L, Wang S, Tang Y, Shi X, **Wang H\***. Multifunctional gold nanocomposites designed for targeted CT/MR/optical trimodal imaging of human non-small cell lung cancer cells. *Nanoscale*. 2016; 8(28): 13568-13573.
8. Wei P, Chen J, Hu Y, Li X, **Wang H\***, Shen M\*, Shi X\*. Dendrimer-Stabilized Gold Nanostars as a Multifunctional Theranostic Nanoplatfrom for CT Imaging, Photothermal Therapy, and Gene Silencing of Tumors. *Adv Healthc Mater*. 2016; 5(24): 3203-3213.
9. Mustafa R, Hu Y, Yang J, Chen J, **Wang H\***, Zhang G\*, Shi X\*. Synthesis of diatrizoic acid-modified LAPONITE® nanodisks for CT imaging applications. *RSC Adv*. 2016; 6: 57490-57496.
10. **Wang H**, Zheng L, Peng C, Guo R, Shen M, Shi X, Zhang G. Folic acid-modified dendrimer-entrapped gold nanoparticles as nanoprobos for targeted CT imaging of human lung adenocarcinoma. *Biomaterials*. 2013; 34(2): 470-480.
11. **Wang H**, Zhang F, Meng Y, Zhang T, Willis P, Le T, Soriano S, Ray E, Valji K, Zhang, Yang X. MRI-monitored Intra-shunt Local Agent Delivery of Motexafin Gadolinium: Towards Improving Long-Term Patency of TIPS. *PLos One*. 2013; 8(2): e57419.

12. **Wang H**, Zheng L, Peng C, Guo R, Shen M, Shi X, Zhang G. Computed tomography imaging of cancer cells using acetylated dendrimer-entrapped gold nanoparticles. *Biomaterials*. 2011; 32(11): 2979-2988.
13. **Wang H**, Zheng LF, Feng Y, Xie XQ, Zhao JL, Wang XF, Zhang GX. A Comparison of 3D-CTA and 4D-CE-MRA for the Dynamic Monitoring of Angiogenesis in a Rabbit VX2 Tumor. *Eur J Radiol*. 2012; 81(1): 104-110.
14. **Wang H**, Zheng L, Guo R, Peng C, Shen M, Shi X, Zhang G. Dendrimer-entrapped gold nanoparticles as potential CT contrast agents for blood pool imaging. *Nanoscale Res Lett*. 2012; 7(1): 190.
15. **Wang H**, Zheng LF, Feng Y, Xie XQ, Yang XM, Zhang GX. CTA combined with CT perfusion for assessing the efficacy of anti-angiogenic therapy in rabbit VX2 tumors. *Acad Radiol*. 2012; 19(3): 358-365.
16. Chen Q#, **Wang H#**, Liu H, Wen S, Peng C, Shen M, Zhang G, Shi X. Multifunctional dendrimer-entrapped gold nanoparticles modified with RGD peptide for targeted CT/MR dual modal imaging of tumors. *Anal Chem*. 2015; 87(7): 3949-3956. (# Contributed to the work equally)
17. Liu H#, **Wang H#**, Xu Y, Shen M, Zhao J, Zhang G, Shi X. Synthesis of PEGylated low generation dendrimer- entrapped gold nanoparticles for CT imaging applications. *Nanoscale*. 2014; 6: 4521-26. (# Contributed to the work equally)
18. Liu H#, **Wang H#**, Xu Y, Guo R, Wen S, Huang Y, Liu W, Shen M, Zhao J, Zhang G, Shi X. Lactobionic Acid-Modified Dendrimer-Entrapped Gold Nanoparticles for Targeted Computed Tomography Imaging of Human Hepatocellular Carcinoma. *ACS Appl Mater Inter*. 2014; 6: 6944-6953. (# Contributed to the work equally)
19. Guo R#, **Wang H#**, Peng C, Shen M, Pan M, Cao X, Zhang G, Shi X. X-ray Attenuation Property of Dendrimer-Entrapped Gold Nanoparticles. *J Phys Chem C*. 2010; 114(1): 50-56. (# Contributed to the work equally)
20. Guo R, **Wang H#**, Peng C, Shen M, Zhang G, Shi X. Enhanced x-ray attenuation property of dendrimer-entrapped gold nanoparticles complexed with diatrizoic acid. *J Mater Chem*. 2011; 21(13): 5120-5127. (# Contributed to the work equally)
21. Peng C#, **Wang H#**, Guo R, Shen M, Cao X, Zhang G, Shi X. Acetylation of dendrimer-entrapped gold nanoparticles: synthesis, stability, and x-ray attenuation property. *J Appl Polym Sci*. 2011; 119(3): 1673-1682. (# Contributed to the work equally)
22. Liu H#, **Wang H#**, Peng C, Cao X, Zhao J, Luo Y, Shen M, Zhang G, Shi X. Size-controlled synthesis of dendrimer-stabilized silver nanoparticles for x-ray computed

tomography imaging applications. *Polym Chem.* 2010; 1(1): 1677-1683. (# Contributed to the work equally)

23. Xiao T#, Wen S#, **Wang H**#, Liu H, Shen M, Zhao J, Zhang G, Shi X. Facile synthesis of acetylated dendrimer-entrapped gold nanoparticles with enhanced gold loading for CT imaging applications. *J Mater Chem B.* 2013; 21(1): 2773-2780. (# contributed equally to the work)
24. An X, Wang J, **Wang H**. Treatment of intravenous leiomyoma with transcatheter arterial embolization. *Int J Gynaecol Obstet.* 2010; 110(1): 71-73.
25. Zhang F, Le T, Wu X, **Wang H**, Zhang T, Meng Y, Wei B, Soriano SS, Willis P, Kolokythas O, Yang X. Intrabiliary RF heat-enhanced local chemotherapy of a cholangiocarcinoma cell line: monitoring with dual-modality imaging--preclinical study. *Radiology.* 2014; 270(2): 400-408.
26. Zhang T, Zhang F, Meng Y, **Wang H**, Le T, Wei B, Lee D, Willis P, Shen B, Yang X. Diffusion-weighted MRI monitoring of pancreatic cancer response to radiofrequency heat-enhanced intratumor chemotherapy. *NMR Biomed.* 2013; 26(12): 1762-1767.
27. Zhen LF, Wang R, Yu QP, **Wang H**, Yi XN, Wang QB, Zhang JW, Zhang GX, Xu YZ. Expression of HGF/c-Met is dynamically regulated in the dorsal root ganglions and spinal cord of adult rats following sciatic nerve ligation. *Neurosignals.* 2010; 18(1): 49-56.
28. Zheng LF, Li YJ, **Wang H**, Zhao JL, Wang XF, Hu YS, Zhang GX. Combination of vascular endothelial growth factor antisense oligonucleotide therapy and radiotherapy increases the curative effects against maxillofacial VX2 tumors in rabbits. *Eur J Radiol.* 2011; 78(2): 272-276.
29. Wang Z, Qiao R, Tang N, Lu Z, **Wang H**, Zhang Z, Xue X, Huang Z, Zhang S, Zhang G, Li Y\*. Active targeting theranostic iron oxide nanoparticles for MRI and magnetic resonance-guided focused ultrasound ablation of lung cancer. *Biomaterials.* 2017 May; 127: 25-35.
30. Otis JB, Zong H, Kotylar A, Yin A, Bhattacharjee S, **Wang H**, Baker JR Jr, Wang SH\*. Dendrimer antibody conjugate to target and image HER-2 overexpressing cancer cells. *Oncotarget.* 2016; 7(24): 36002-36013.
31. Shi QS, Xing LX, Jin LF, **Wang H**, Lv XH, Du LF\*. Imaging findings of bile duct hamartomas: a case report and literature review. *Int J Clin Exp Med.* 2015; 8(8): 13145-13153.

32. Liu WN, Wen SH, Jiang LY, An X, Zhang MX, **Wang H**, Zhang ZJ, Zhang GX, Shi XY\*. PLGA hollow microbubbles loaded with iron oxide nanoparticles and doxorubicin for dual-mode US/MR imaging and drug delivery. *Curr Nanosci.* 2014; 10(4): 543-552.
33. Zheng LF, Zhang GX\*, Zhao JL, **Wang H**, Li KA, Zhang L, Wang XF, Sun PP, Hu YS. Magnetic resonance imaging characteristics of postoperative intracranial dissemination of recurrent gliomas. *Neural Regeneration Research.* 2011; 6(33): 2610-2616.
34. Yang J, Luo Y, Xu Y, Li J, Zhang Z, **Wang H**, Shen M, Shi X, Zhang G. Conjugation of iron oxide nanoparticles with RGD-modified dendrimers for targeted tumor MR imaging. *ACS Appl Mater Interfaces.* 2015; 7(9): 5420-5428.
35. Peng C, Zheng L, Chen Q, Shen M, Guo R, **Wang H**, Cao X, Zhang G, Shi X. PEGylated dendrimer-entrapped gold nanoparticles for in vivo blood pool and tumor imaging by computed tomography. *Biomaterials.* 2012; 33(4): 1107-1119.
36. Meng Y, Wang J, Sun J, Zhang F, Willis P, Li J, **Wang H**, Zhang T, Soriano S, Qiu B, Yang X. 3.0-T MR imaging of intracoronary local delivery of motexafin gadolinium into coronary artery walls. *Radiology.* 2013; 268(2): 556-562.
37. Zhang ZX, Yang J, Zhang CZ, Li KA, Quan QM, Wang XF, **Wang H**, Zhang GX. The value of magnetic resonance imaging in the detection of prostate cancer in patients with previous negative biopsies and elevated prostate-specific antigen levels: a meta-analysis. *Acad Radiol.* 2014; 21(5): 578-589.

***In Chinese:***

1. Wang H\*, Zhang GX. Image-guided noninvasive treatment as an effective composition in the treatment methods for orthopedic diseases (Expert Comments). *Chinese Journal of Bone and Joint.* 2017; 6(6): 481-482.
2. Li Z, **Wang H\***. Mechanism and application of ultrasound for opening blood brain barrier (Review). *Chinese Journal of Biomedical and Engineering.* 2017; 23(12):371-374.
3. Gu JJ, **Wang H\***, Tang N, Hua YQ, Yang Y, Qiu YM, GE RB, Zhou Y, Wang WW, Zhang GX. Magnetic resonance guided focused ultrasound surgery for pain palliation of bone metastases: early experience of clinical application in China. *Chinese Journal of Medicine.* 2015;95(41):3328-3332.
4. Chen J, **Wang H\***. Advances in nanomaterials for photothermal therapy of cancer (Review). *Chinese Journal of Biomedical and Engineering.* 2015; 21(4): 369-372.

5. Gu JJ, **Wang H\***, Zhang GX. Progress of CT venography for the diagnosis of deep venous thrombosis in lower limb (Review). *Chinese Journal of Medical Imaging and Technology*. 2015; 31(9): 38-41.
6. **Wang H**, Zhang GX, Feng Y, Zhang F, Wang XF, Shen C. 3D-CTA and 4D-CE-MRA for dynamic monitoring tumor angiogenesis in a rabbit VX2 tumor. *Chinese Journal of Medicine*. 2010; 90(19): 1337-1341.
7. **Wang H**, Zhang GX, Zheng LF, Wang XF, Li KA, Shen C. Dynamic monitoring tumor growth and angiogenesis by time resolved imaging of contrast kinetics and diffusion weighted imaging technique in VX2 muscle tumor of rabbits in vivo. *Progress in Modern Biomedicine*. 2010; 10(6): 1056-1060.
8. **Wang H**, Guo R, Zhang GX, Shi XY, Zhao JL, Zheng LF, Xie XQ. Preliminary research on dendrimer entrapped gold nanoparticles as a CT molecular probe. *Chinese Journal of Biomedical Engineering*. 2010; 16(1): 10-14.
9. **Wang H**, Zheng LF, Zhang GX. Progress in molecular imaging research on angiogenesis and anti-angiogenesis of tumor (Review). *Chinese Journal of Biomedical Engineering*. 2009; 9(24): 4775-4777.
10. **Wang H**, Wang JB, Zhang GX, Wang LC. Cerebral infarction after transarterial chemoembolization for hepatocellular carcinoma: a case report. *Journal of Interventional Radiology*. 2005; 14(4): 442-443.
11. **Wang H**, Teng GJ, Miao JT, Zhang GX. Effects of aFGF and HGF on differentiation of murine hepatic stem cells. *Chinese Journal of Radiology*. 2004; 38(2): 124-128.
12. **Wang H**, Teng GJ. Progress in liver cell transplantation (Review). *World Chinese Journal of Digestology*. 2002; 10(8): 966-968.

#### **Research Program and Funding**

1. **National Natural Science Foundation of China, 81871400, 2019-2022 (PI: Han Wang)**  
Title: MR-guided ultrasound opening BBTB for synergistic enhancement of VEGF / SLUG dual targeted gene therapy for glioblastoma multiforme.
2. **National Key R & D Program of China, 2016YFC0107108, 2016-2018 (PI: Han Wang)**  
Title: Multi-center clinical assess and application of MRI system
3. **National Natural Science Foundation of China, 81671740, 2017-2020 (PI: Han Wang)**  
Title: CT / optical imaging in vivo monitoring for ErbB2/HER2 and SLUG targeted gene therapy and photo thermal ablation of non-small cell lung cancer
4. **National Natural Science Foundation of China, 81270032, 2013-2016 (PI: Han Wang)**

Title: CT/optical dual-mode molecular imaging research on angiogenesis and hypoxia regulation of lung adenocarcinoma.

5. **National Natural Science Foundation of China, 18441905000, 2018-2020 (PI: Han Wang)**

Title: Developing of the MR-guided phased high intensive focused ultrasound ablation system for prostate cancer

6. **Shanghai Academic / Technology Research Leader Program, 17XD1424200, 2017-2019 (PI: Han Wang)**

Title: Cells as ‘homing pigeons’ for the delivery of drugs to the brain: development of a hybrid system for delivery and release of drugs on-demand.

7. **Key Program of Science and Technology Commission of Shanghai Municipality, 3NM1401700, 2013-2016 (PI: Han Wang)**

Title: Molecular imaging research on angiogenesis and EMT of cancer stem cell of lung adenocarcinoma using targeting nano-probes.

8. **Pujiang Program of Shanghai Municipality, 13PJD026, 2013-2016 (PI: Han Wang)**

Title: Multi-mode molecular imaging research on angiogenesis and hypoxia regulation of lung cancer stem cell.

9. **Shanghai Municipal Education Commission -- Gaofeng Clinical Medicine Grant Support, 20152230, 2015-2017 (PI: Han Wang)**

Title: MRgFUS for the non-invasive treatment of tumors.

10. **Collaboration Research Program of Shanghai Jiao Tong University and University of Michigan, 201406, 2014-2016 (Co-PI: Han Wang [SJTU] and Suhe Wang [UM])**

Title: Development of multifunctional dendrimer-entrapped gold nanoparticles to specifically image and target lung adenocarcinoma stem cells.

11. **Intersection of Biomedical and Engineering Research Fund of Shanghai Jiao Tong University, YG2012MS10, 2012-2014 (PI: Han Wang)**

Title: CT / MRI / optical tri-mode molecular imaging studies for the proliferation, formation and angiogenesis of human lung adenocarcinoma stem cell.

12. **Research Programme of Health Administration Bureau of Shanghai Municipality, 2008Y108, 2008-2010 (PI: Han Wang)**

Title: MRI assessing of angiogenesis and antiangiogenic therapy on soft tissue tumor.

13. **“Morning Star” Youth Scholar Project of Shanghai Jiao Tong University, 2010-2012 (PI: Han Wang)**

Title: FA and VEGF-siRNA ligand-modified dendrimer-entrapped gold nanoparticles (Au



DENPs) for targeted CT imaging of human lung adenocarcinoma.

14. **“Top 100” Youth Scholar Project of Shanghai Jiao Tong University School of Medicine, 2011-2013 (PI: Han Wang)**

Title: CT molecular imaging for human lung adenocarcinoma.

**Awards & Honors (title, sponsor, place, date):**

1. **Wang H.** Non-invasive diagnosis and treatment for cancer. the First Class Prize of Shanghai Science and Technology Progress Award, Shanghai Municipality, 2017.
2. **Wang H.** Outstanding Shanghai Academic / Technology Research Leaders, Science and Technology Commission of Shanghai Municipality, 2017.
3. **Wang H.** Shanghai Outstanding Disciplines Leaders of Medicine and Health Science, Shanghai Municipal Health Bureau, 2017.
4. **Wang H.** New imaging technique using for the monitoring and treatment of brain and meningeal metastasis. the Second Class Prize of HUAXIA Medical Technology Award, Chinese Medical Association, 2016.
5. **Wang H.** Silver Snake Prize (the highest honor award for best youth physicians of Shanghai). Shanghai Municipal Health Bureau, 2015.
6. **Wang H.** Clinic value of molecular imaging in early monitoring and treatment for brain and meningeal metastasis. the First Class Prize of Shanghai Science and Technology Progress Award, Shanghai Municipality, 2014.
7. **Wang H.** Targeted CT/MR dual mode imaging of tumor cells using multifunctional RGD conjugated dendrimer- entrapped gold nanoparticles. RSNA Molecular Imaging Travel Award, the Academic Committee of RSNA, Chicago, IL, USA, November 2014.
8. **Wang H.** Clinic value of molecular imaging in early monitoring and treatment for brain and meningeal metastasis. Shanghai Medical Technology Award, Shanghai Medical Association, 2012.
9. **Wang H.** “MRI-monitored intraTIPS local agent delivery using Motexafin Gadolinium: towards improving long-term patency of TIPS.” RSNA Trainee Reserch Prize, the Academic Committee of RSNA, Chicage, IL, USA, November 2012.
10. **Wang H.** “CTA combined with CT perfusion for assessing the efficacy of anti-angiogenic therapy in rabbit VX2 tumors.” The best presentations, the Academic Committee of Molecular Imaging Section, CSR, Chengdu, Sichuan Province, China, October 2012.
11. **Wang H.** An award for the “Top 100” youth scholars of Shanghai Jiao Tong University School of Medicine, Shanghai, China, June 2011.

12. **Wang H.** An award for the best youth scholars (“Morning Star” Youth Scholar) of Shanghai Jiaotong University. the President Office of Shanghai Jiao Tong University, Shanghai, China, December 2010.
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