CURRICULUM VITAE

Xiaoyuan (Shawn) Chen

EDUCATION

Colleges and Universities Attended:

Nanjing University, China	B.Sc.	1993	Chemistry
Nanjing University, China	M.Sc.	1996	Chemistry
University of Idaho (supervisor: Chien M. Wai)	Ph.D.	1999	Chemistry

Postdoctoral Training

Dept of Chemistry, Syracuse University (supervisor: Jon Zubieta)	1999-2000
Dept of Radiology, Washington University in St. Louis (supervisor: Mike Welch)	2000-2001

EMPLOYMENT HISTORY

National University of Singapore	
Nasrat Muzayyin Chair Professor in Medicine and Technology	11/20-present
National Institutes of health	
Senior Investigator and Laboratory Chief	08/09-07/20
Stanford University	
Associate Professor of Radiology	09/08-07/09
Stanford University	
Assistant Professor of Radiology	05/04-08/08
University of Southern California	
Assistant Professor of Radiology Research	02/02-04/04

PUBLIC AND PROFESSIONAL SERVICE

Committee Member:

Director, Nanomedicine Translational Research Program, NUS School of Medicine
Research Director, Clinical Imaging Research Center, NUS School of Medicine
PET Users Committee (NIH, until July 2020)
MRI Research Facility Steering Committee (NIH, until July 2020)
CNRM translational imaging facility steering committee (DOD/NIH, until July 2020)
NIH Earl Stadtman Tenure Track PI Search Committee (until July 2020)
Board Member (2011-2013), the Radiopharmaceutical Science Council, Society of Nuclear Medicine and Molecular Imaging (SNMMI)
President (2013-2015), Chinese American Society of Nuclear Medicine and Molecular Imaging
Immediate-Past President (2015-2017), CASNMMI
Vice-President Elect (2013-2014), Radiopharmaceutical Science Council (RPSC), Society of Nuclear Medicine and Molecular Imaging (SNMMI)
Vice President (2014-2015), RPSC, SNMMI
President (2015-2016), RPSC, SNMMI
Immediate Past President (2016-2017), RPSC, SNMMI
President (2015-2017), Chinese American Society of Nanomedicine and Nanobiotechnology (CASNN)

Affiliated Departments and Programs:

Joint appointment: Depts of Diagnostic Radiology, Surgery (School of Medicine), Chemical and Biomolecular Engineering, Biomedical Engineering (Faculty of Science)
Research Director, Clinical Imaging Research Center (CIRC), NUS
Associate Chair for Research, Department of Diagnostic Radiology, NUS
Director, Nanomedicine Translational Research Program, YYL School of Medicine, NUS
Director, NUS Center for Nanomedicine

Editorial Board:

Theranostics (Founding Editor-in-Chief, IF = 11.556)
Accounts of Chemical Research
ACS Nano
Bioconjugate Chemistry
Amino Acids (Field editor)
Bioengineering and Translational Medicine
Journal of Nuclear Medicine
European Journal of Nuclear Medicine and Molecular Imaging
American Journal of Nuclear Medicine and Molecular Imaging (Founding member)

Book Editor:

- Recent Advances of Bioconjugate Chemistry in Molecular Imaging (Publisher: Research Signpost) ISBN 978-81-308-0210-7
- Nanoplatform-Based Molecular Imaging (Publisher: John Wiley & Sons) ISBN 978-04-705-2115-1
- Molecular Imaging Probes for Cancer Research (Publisher: World Scientific Publishing / Imperial College Press) ISBN 978-98-142-9367-9
- Cancer Theranostics (co-editor: Stephen Wong; Publisher: Elsevier) ISBN 978-0-12-407722-5.

Journal Guest Editor:

- Frontiers in Biosciences (SI: Molecular Imaging)
- Eur J Nucl Med Mol Imaging (SI: Imaging Angiogenesis. Co-editor: Ambros Beer)
- Amino Acids (SI: Peptide probes for molecular imaging)
- Curr Top Med Chem (SI: The Medicinal Chemistry of Targeted Tumor Imaging)
- Q J Nucl Med Mol Imaging (SI: Molecular Imaging of Tumor Environment. Co-editor: Silvana Del Vecchio)
- Acc Chem Res (SI: Theranostic Nanomedicine. Co-editors: Sanjiv S. Gambhir; Jinwoo Cheon)
- Theranostics (SI: Integrin Targeted Imaging and Therapy)
- Bioconjugate Chem (SI: Antibody-Drug Conjugate)
- Advanced Drug Delivery Reviews (SI: Peptides and Peptide-Drug Conjugates)
- Advanced Drug Delivery Reviews (SI: Skin-Assoicated Drug Delivery)
- Theranostics (SI: Progress in Critical Reviews of Immunotheranostics)
- Theranostics (SI: Progress in Gene Editing Nanotheranostics)
- Theranostics (SI: The EPR effect and beyond: Strategies to improve tumor targeting and nanomedicine efficacy)
- Theranostics (SI: Progress in Supramolecular Nanotheranostics)
- Acc Chem Res (SI: Chemistry in Immunotheranostics)

Conference Symposium Organizer

- 11th International Congress on Amino Acids, Peptides and Proteins, August 2009, Vienna, Austria (Symposium: Peptide Probes for Molecular Imaging)
- NIH Research Festival, October 5-6, 2010 (Symposium: Molecular Imaging: Biology, Physics and Chemistry)
- MRS 2012 Spring Meeting, San Francisco, CA (Symposium: Nanomedicine in Molecular Imaging and Therapy)
- 13th *SCBA* International Conference, *Guangzhou*, China July 25-29, 2011 (Symposium: Molecular Imaging in Biology and Medicine)
- 14th SCBA International Conference, Xi'an, China July 18-20, 2013 (Symposium: Nanotheranostics)
- 2014 International Symposium for Translational Theranostics, Shenzhen, China, May 26-27, 2014
- MRS 2014 Fall Meeting, Boston, MA (Symposium: Medical Applications of Noble Metal Nanoparticles (NMNPs))
- MRS 2016 Fall Meeting, Bosotn, MA (Symposium: Spatiotemporally and Morphologically-Controlled Biomaterials for Medical Applications)
- MRS 2019 Spring Meeting, Phoenix, AZ (Symposium: Progress in Supramolecular Nanotheranostics)

Grant Review

- Reviewer for NIH study sections (GDD (charter member), RTB, MEDI, CMIP, NANO, SBIR)
- Reviewer for DOD CDMRP (BCRP, PCRP, OCRP)
- Reviewer for National Science Foundation of China (NSFC)
- Reviewer for National Research Council (Canada), European Research Council, Innovation and Technology Commission (ITC, Hong Kong)…

POST-DEGREE HONORS AND AWARDS

- SNMMI Fellow, 2020
- Michael J. Welch, PhD Award, Society of Nuclear Medicine and Molecular Imaging, 2019
- *ACS Nano*, *Bioconjug Chem*, and *Mol Pharm* Selected Highly Prolific Authors, 2017
- AIMBE Fellow, 2017
- Clarivate Analytics highly cited researcher, 2017/2018/2019/2020
- ACS Bioconjugate Chemistry Lectureship Award, 2016
- NIH Director's Award, 2014
- NIBIB Mentor Award, 2012
- EANM Springer Prize 2011 - MOST CITED PAPERS. Cai W, Chen K, Cao Q, Koong A, Chen X. Quantitative PET of EGFR expression in xenograft-bearing mice using ^{64}Cu-labeled cetuximab, a chimeric anti-EGFR monoclonal antibody. *Eur J Nucl Med Mol Imaging* 2007;34:850-858.
- *Eur J Nucl Med Mol Imaging* 2009 Best Basic Science paper "Liu Z, Niu G, Wang F, Chen X. (68)Ga-labeled NOTA-RGD-BBN peptide for dual integrin and GRPR-targeted tumor imaging. *Eur J Nucl Med Mol Imaging*. 2009 Sep;36(9):1483-94."
- *J Nucl Med* 2008 Best Basic Science paper "Lee HY, Li Z, Chen K, Hsu AR, Xu C, Xie J, Sun S, Chen X. PET/MRI dual-modality tumor imaging using arginine-glycine-aspartic (RGD)-conjugated radiolabeled iron oxide nanoparticles. J Nucl Med. 2008 Aug;49(8):1371-9."
- First place award in the Molecular Imaging Abstract track for abstract titled "Trafficking the fate of mesenchymal stem cells in vivo" from the SNM's Molecular Imaging Center of Excellence (55th SNM annual meeting), 2008
- Best Basic Science Abstract Award, 55th, 54th, and 53rd SNM annual meetings (2008, 2007, and 2006).
- *Circulation* Best Basic Science paper "Cao F, Lin S, Xie X, Ray P, Patel M, Zhang X, Drukker M, Dylla SJ, Connolly AJ, Chen X, Weissman IL, Gambhir SS, Wu JC. In vivo visualization of embryonic stem cell survival, proliferation, and migration after cardiac delivery. Circulation. 2006 Feb 21;113(7):1005-14."

Journal Cover Features

- *J Nucl Med* cover feature article "Chen X, Park R, Hou Y, Tohme M, Shahinian AH, Bading JR, Conti PS. microPET and autoradiographic imaging of GRP receptor expression with ^{64}Cu-DOTA-[Lys^3]bombesin in human prostate adenocarcinoma xenografts. J Nucl Med. 2004;45(8):1390-7."
- *J Nucl Med* cover feature article "Xiong Z, Cheng Z, Zhang X, Patel M, Wu JC, Gambhir SS, Chen X. Imaging chemically modified adenovirus for targeting tumors expressing integrin alphavbeta3 in living mice with mutant herpes simplex virus type 1 thymidine kinase PET reporter gene. J Nucl Med. 2006;47(1):130-9."
- *Cancer Res* cover feature article "Liu Z, Chen K, Davis C, Sherlock S, Cao Q, Chen X, Dai H. Drug delivery with carbon nanotubes for in vivo cancer treatment. Cancer Res. 2008;68(16):6652-60."
- *Mol Imaging* cover feature article "Lee S, Chen X. Dual-modality probes for in vivo molecular imaging. Mol Imaging. 2009 Mar-Apr;8(2):87-100."
- *Clin Cancer Res* cover feature article "Niu G, Sun X, Cao Q, Courter D, Koong A, Le QT, Gambhir SS, Chen X. Cetuximab-based immunotherapy and radioimmunotherapy of head and neck squamous cell carcinoma. Clin Cancer Res. 2010 Apr 1;16(7):2095-105."

- *J Control Release* cover feature article "Zhu L, Wang H-L, Wang L, Wang Y, Jiang K, Li Cheng, Ma Q, Gao S, Wang L, Li W, Cai M-J, Wang D-H, Niu G, Lee S, Yang W, Fang XX, Chen X. High-affinity peptide against MT1-MMP for in vivo tumor imaging. J Control Release, 2011; 150(3):248-55"
- *Small* cover feature article "Liu G, Xie J, Zhang F, Wang Z, Luo K, Zhu L, Quan Q, Lee S, Ai H, Chen X. N-Alkyl-PEI Functionalized Iron Oxide Nanocluster for Efficient siRNA Delivery. *Small*, 2011;7(19):2742-9."
- *Angew Chem Int Ed Engl* back cover article "Liu G, Choi K-Y, Bhirde A, Swierczewska M, Yin J, Lee SW, Park JH, Hong JI, Niu G, Lee S, Chen X. Sticky Nanoparticles: A New Platform for siRNA Delivery by Bis(Zinc(II)-Dipicolyamine)-Functionalized, Self-Assembled Nanoconjugate. *Angew Chem Int Ed Engl*, 2012;51(2):445-9."
- *Theranostics* cover article "Choi KY, Swierczewska M, Lee S, Chen X. Protease-Activated Drug Development. *Theranostics* 2012; 2(2): 156-179."
- *Advanced Materials* front cover article "Wang S, Huang P, Nie L, Xing R, Liu D, Wang Z, Lin J, Chen S, Niu G, Lu G, Chen X. Single Continuous Wave Laser Induced Photodynamic/Plasmonic Photothermal Therapy Using Photosensitizer-Functionalized Gold Nanostars. *Adv Mater*. 2013; 25(22):3055-61."
- *Theranostics* cover article "Niu G, Zhu L, Ho DN, Zhang F, Gao H, Quan Q, Hida N, Ozawa T, Liu G, Chen X. Longitudinal bioluminescence imaging of the dynamics of Doxorubicin induced apoptosis. *Theranostics*. 2013;3(3):190-200."
- *Theranostics* cover article "Wu C, Li F, Niu G, Chen X. PET Imaging of Inflammation Biomarkers. *Theranostics* 2013; 3(7): 448-466."
- *Small* back cover article "Wang X, Wang G, Li W, Zhao B, Xing B, Leng Y, Dou H, Sun K, Shen L, Yuan X, Li J, Sun K, Han J, Xiao H, Li Y, Huang P, Chen X. NIR-Emitting Quantum Dot-Encoded Microbeads through Membrane Emulsification for Multiplexed Immunoassays. *Small*. 2013;9(19):3327-35"
- *Angew Chem Int Ed Engl* back cover article "Liu D, Wang Z, Jin A, Huang X, Sun X, Wang F, Yan Q, Ge S, Xia N, Niu G, Liu G, Hight Walker AR, Chen X. Acetylcholinesterase-catalyzed hydrolysis allows ultrasensitive detection of pathogens with the naked eye. Angew Chem Int Ed Engl. 2013;52(52):14065-9."
- *Angew Chem Int Ed Engl* frontispiece article "Huang P, Lin J, Li W, Rong P, Wang Z, Wang S, Wang X, Sun X, Aronova M, Niu G, Leapman RD, Nie Z, Chen X. Biodegradable Gold Nanovesicles with an Ultrastrong Plasmonic Coupling Effect for Photoacoustic Imaging and Photothermal Therapy. Angew Chem Int Ed Engl. 2013;52(52):13958-64."
- *Angew Chem Int Ed Engl* back cover article "Wang Z, Wang Z, Liu D, Yan X, Wang F, Niu G, Yang M, Chen X. Biomimetic RNA-Silencing Nanocomplexes: Overcoming Multidrug Resistance in Cancer Cells. Angew Chem Int Ed Engl. 2014;53(7):1997-2001."
- *Small* front cover article "Nie L, Wang S, Wang X, Rong P, Ma Y, Liu G, Huang P, Lu G, Chen X. In Vivo Volumetric Photoacoustic Molecular Angiography and Therapeutic Monitoring with Targeted Plasmonic Nanostars. Small. 2014;10(8):1585-93."
- *Adv Healthc Mater* back cover article "Wang L, Wang X, Bhirde A, Cao J, Zeng Y, Huang X, Sun Y, Liu G, Chen X. Carbon-Dots-based Two-Photon Visible Nanocarriers for Safe and Highly Efficient Delivery of siRNA and DNA. Adv Healthc Mater. 2014; 3(8):1203-9.
- Small Inside Front Cover article "Wang S, Teng Z, Huang P, Liu D, Liu Y, Tian Y, Sun J, Li Y, Ju H, Chen X, Lu G. Reversibly Extracellular pH Controlled Cellular Uptake and Photothermal Therapy by PEGylated Mixed-Charge Gold Nanostars. Small. 2015 Apr;11(15):1801-1810."

- *Bioconjugate Chem* Cover article "Jacobson O, Yan X, Ma Y, Niu G, Kiesewetter DO, Chen X. Novel Method for Radiolabeling and Dimerizing Thiolated Peptides Using 18F-Hexafluorobenzene. Bioconjug Chem. 2015;26(10):2016-20."
- *Advanced Materials* Front Cover article "Song J, Yang X, Jacobson O, Huang P, Sun X, Lin L, Yan X, Niu G, Ma Q, Chen X. Ultrasmall Gold Nanorod Vesicles with Enhanced Tumor Accumulation and Fast Excretion from the Body for Cancer Therapy. *Adv Mater*. 2015;27(33):4910-7."
- *Advanced Materials* Front Cover article "He Q, Kiesewetter DO, Qu Y, Fu X, Fan J, Huang P, Liu Y, Zhu G, Liu Y, Qian Z, Chen X. NIR-Responsive On-Demand Release of CO from Metal Carbonyl-Caged Graphene Oxide Nanomedicine. Adv Mater. 2015;27(42):6741-6."
- *Bioconjugate Chemistry* Front cover for special issue "Antibody-Drug Conjugates. Bioconjug Chem. 2015;26(11):2169.".
- *Nanoscale* Front cover article "Temporal-spatially transformed synthesis and formation mechanism of gold bellflowers" *Nanoscale* 2016;8:7430-4."
- *Angew Chem Int Ed* Back cover article "Liu Y, He J, Yang K, Yi C, Liu Y, Nie L, Khashab NM, Chen X, Nie Z. "Folding Up of Gold Nanoparticle Strings into Plasmonic Vesicles for Enhanced Photoacoustic Imaging". *Angew Chem Int Ed Engl*. 2015;54:15809–15812."
- *Adv Mater* Front cover article "Lin J, Wang M, Hu H, Yang X, Wen B, Wang Z, Jacobson O, Song J, Zhang G, Niu G, Huang P, Chen X. Multimodal-Imaging-Guided Cancer Phototherapy by Versatile Biomimetic Theranostics with UV and γ-Irradiation Protection". *Adv Mater*. 2016; 28(17):3273-9.
- *Polymer Chem* Back Cover article "Yu G, Zhao R, Wu D, Zhang F, Shao L, Zhou J, Yang J, Tang G, Chen X, Huang F. Pillar[5]arene-based amphiphilic supramolecular brush copolymers: fabrication, controllable self-assembly and application in self-imaging targeted drug delivery. *Polymer Chem*, 2016;7:6178-6188."
- *Chem Soc Rev* Back Inside Cover article "Fan W, Huang P, Chen X. Overcoming the Achilles' heel of photodynamic therapy. *Chem Soc Rev*. 2016 Nov 21;45(23):6488-6519."
- *Angew Chem Int Ed* Back cover article "Fan W, Lu N, Huang P, Liu Y, Yang Z, Wang S, Yu G, Liu Y, Hu J, He Q, Qu J, Wang T, Chen X. Glucose-Responsive Sequential Generation of Hydrogen Peroxide and Nitric Oxide for Synergistic Cancer Starving-Like/Gas Therapy. *Angew Chem Int Ed Engl*. 2017;56(5):1229-1233."
- *J Nucl Med* cover article "Zhang J, Niu G, Lang L, Li F, Fan X, Yan X, Yao S, Yan W, Huo L, Chen L, Li Z, Zhu Z, Chen X. Clinical translation of a dual integrin αvβ3 and GRPR targeting PET radiotracer ^{68}Ga-NOTA-BBN-RGD. *J Nucl Med*. 2017 Feb;58(2):228-234"
- *Chem Soc Rev* Inside Front Cover article "Shen Z, Wu A, Chen X. Current detection technologies for circulating tumor cells. *Chem Soc Rev*. 2017;46:2038-2056."
- *Adv Funct Mater* Front Cover article "Zhang R, Gao S, Wang Z, Han D, Liu L, Ma Q, Tan W, Tian J, Chen X. Multifunctional Molecular Beacon Micelles for Intracellular mRNA Imaging and Synergistic Therapy in Multidrug-Resistant Cancer Cells. *Adv Funct Mater*. 2017;27:1701027."
- *Adv Mater* Inside Back Cover article "Chu C, Lin H, Liu H, Wang X, Wang J, Zhang P, Gao H, Huang C, Zeng Y, Tan Y, Liu G, Chen X. Tumor Microenvironment-Triggered Supramolecular System as an In Situ Nanotheranostic Generator for Cancer Phototherapy. Adv Mater. 2017;29: 1605928."
- *Adv Mater* Frontispiece article "Shen Z, Song J, Yung BC, Zhou Z, Wu A, Chen X. Emerging Strategies of Cancer Therapy Based on Ferroptosis. Adv Mater. 2018;30: 1704007."

- *Adv Mater* Inside Cover article "Ni Q, Zhang F, Zhang Y, Zhu G, Wang Z, Teng Z, Wang C, Yung BC, Niu G, Lu G, Zhang L, Chen X. In Situ shRNA Synthesis on DNA-Polylactide Nanoparticles to Treat Multidrug Resistant Breast Cancer. Adv Mater. 2018;30:1705737"
- *Theranostics* Inside Back Cover article "Yang Z, Song J, Tang W, Fan W, Dai Y, Shen Z, Lin L, Cheng S, Liu Y, Niu G, Rong P, Wang W, Chen X. Stimuli-Responsive Nanotheranostics for Real-Time Monitoring Drug Release by Photoacoustic Imaging. *Theranostics* 2019; 9(2):526-536."
- *Chem Soc Rev* Back Cover article "Sang W, Zhang Z, Dai Y, Chen X. Recent advances in nanomaterial-based synergistic combination cancer immunotherapy. *Chem Soc Rev*. 2019; 48(14): 3771-3810."
- *Theranostics* Cover article "Yu G, Chen X. Host-Guest Chemistry in Supramolecular Theranostics. *Theranostics* 2019; 9(11): 3041-3074."
- *Adv Mater* Back Cover article "Tian R, Ma H, Zhu S, Lau J, Ma R, Liu Y, Lin L, Chandra S, Wang S, Zhu X, Deng H, Niu G, Zhang M, Antaris AL, Hettie KS, Yang B, Liang Y, Chen X. Multiplexed NIR-II Probes for Lymph Node-Invaded Cancer Detection and Imaging-Guided Surgery. Adv Mater 2020;32:1907365"
- *PNAS* Cover article "Rao L, Xia S, Xu W, Tian R, Yu G, Gu C, Pan P, Meng QF, Cai X, Qu D, Lu L, Xie Y, Jiang S, Chen X. Decoy nanoparticles protect against COVID-19 by concurrently adsorbing viruses and inflammatory cytokines. Proc Natl Acad Sci U S A. 2020 Oct 6:202014352"
- *Matter* Cover article "Chen W, Cai B, Cheng Z, Chen F, Wang Z, Wang L, Chen X. Reducing false negatives in COVID-19 testing by using microneedle-based oropharyngeal swabs. Matter, 2020 Oct 5. doi: 10.1016/j.matt.2020.09.021"

SOCIETY MEMBERSHIPS

Society of Nuclear Medicine (SNM)	2000-
American Chemical Society (ACS)	1996-
Society of Radiopharmaceutical Sciences	2008-

Scholarly Publications (in chronological order, Total Citations > 93,000, **H-index = 159**)

Some representative papers uner revision

Tian R, Feng X, Wei L, Dao D, Ma Y, Ke C, Liu Y, Lang L, Zhu S, Sun H, Yu Y, Chen X
A genetic engineering strategy for editing near-infrared-II fluorophores
Nat Commun, in revision

Lin X, He J, Li W, Qi Y, Hu H, Zhang D, Xu F, Chen X, Zhou M
Lung targeting protein microspheres for lethal MRSA pneumonia and related biofilms management"
ACS Nano, in revision

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896. Zou J, Li L, Zhu J, Li X, Yang Z, Huang W, Chen X.
Singlet Oxygen "Afterglow" Therapy with NIR-II Fluorescent Molecules
Adv Mater. 2021 Sep 13:e2103627.

895. Zhang M, Ye J, Xie Z, Yan Y, Wang J, Chen X.
Optimization of Enzymolysis Clearance Strategy To Enhance Renal Clearance of Radioligands
Bioconjug Chem. 2021 Sep 6. doi: 10.1021/acs.bioconjchem.1c00392.

894. Fan W, Song M, Li L, Niu L, Chen Y, Han B, Sun X, Yang Z, Lei Y, Chen X.
Endogenous dual stimuli-activated NO generation in the conventional outflow pathway for precision glaucoma therapy
Biomaterials. 2021;277:121074.

893. Tong L, Hao H, Zhang Z, Lv Y, Liang X, Liu Q, Liu T, Gong P, Zhang L, Cao F, Pastorin G, Lee CN, Chen X, Wang JW, Yi H.
Milk-derived extracellular vesicles alleviate ulcerative colitis by regulating the gut immunity and reshaping the gut microbiota
Theranostics. 2021;11(17):8570-8586.

892. Wang S, Ren WX, Hou JT, Won M, An J, Chen X, Shu J, Kim JS. Fluorescence imaging of pathophysiological microenvironments. Chem Soc Rev. 2021 Jul 1. doi: 10.1039/d1cs00083g.

891. Zhou Z, Du C, Zhang Q, Yu G, Zhang F, Chen X. Exquisite vesicular nanomedicine by paclitaxel mediated co-assembly with camptothecin prodrug. Angew Chem Int Ed Engl. 2021 Jul 18. doi: 10.1002/anie.202108658.

890. Jiang Z, He L, Yu X, Yang Z, Wu W, Wang X, Mao R, Cui D, Chen X, Li W.
Antiangiogenesis Combined with Inhibition of the Hypoxia Pathway Facilitates Low-Dose, X-ray-Induced Photodynamic Therapy
ACS Nano. 2021 Jun 25. doi: 10.1021/acsnano.1c01063.

889. Huang D, Wang G, Mao J, Liu C, Fan Z, Zhang Y, Zhang B, Zhao Y, Dai C, He Y, Ma H, Liu G, Chen X, Zhao Q.
Intravital Whole-Process Monitoring Thermo-Chemotherapy Via 2D Silicon Nanoplatform: A Macro Guidance and Long-Term Microscopic Precise Imaging Strategy
Adv Sci (Weinh). 2021 Jun 24:e2101242.

888. Ding D, Feng Y, Qin R, Li S, Chen L, Jing J, Zhang C, Sun W, Li Y, Chen X, Chen H.
Mn3+-rich oxide/persistent luminescence nanoparticles achieve light-free generation of singlet oxygen and hydroxyl radicals for responsive imaging and tumor treatment
Theranostics. 2021 May 25;11(15):7439-7449.

887. Liu X, Wu W, Cui D, Chen X, Li W.
Functional Micro-/Nanomaterials for Multiplexed Biodetection
Adv Mater. 2021 Jun 17:e2004734.

886. Hou G, Jiang Y, Xu W, Zhu Z, Huo L, Chen X, Li F, Xu KF, Cheng W.
68Ga-NOTA-Evans Blue PET/CT findings in lymphangioleiomyomatosis compared with 99mTC-ASC lymphoscintigraphy: a prospective study.
Orphanet J Rare Dis. 2021 Jun 16;16(1):279

885. Ding C, Huang Y, Shen Z, Chen X
Synthesis and Bioapplications of Ag2S Quantum Dots with Near-Infrared Fluorescence
Adv Mater. 2021 Jun 12:e2007768.

884. Zhu X, Tang X, Lin H, Shi S, Xiong H, Zhou Q, Li A, Wang Q, Chen X, Gao J.
A Fluorinated Ionic Liquid-Based Activatable 19F MRI Platform Detects Biological Targets
Chem. 2020 May 14;6(5):1134-1148.

883. Yang K, Yue L, Yu G, Rao L, Tian R, Wei J, Yang Z, Sun C, Zhang X, Xu M, Yuan Z, Chen X, Wang R.
A hypoxia responsive nanoassembly for tumor specific oxygenation and enhanced sonodynamic therapy
Biomaterials. 2021 May 3;275:120822.

882. Yang K, Yang Z, Yue L, Yu G, Zhang X, Sun C, Wei J, Rao L, Chen X, Wang R.
Supramolecular Polymerization-Induced Nanoassemblies for Self-Augmented Cascade Chemotherapy and Chemodynamic Therapy of Tumour
Angew Chem Int Ed Engl. 2021 May 26. doi: 10.1002/anie.202103721.

881. Wang S, Yu G, Yang W, Wang Z, Jacobson O, Tian R, Deng H, Lin L, Chen X.
Photodynamic-Chemodynamic Cascade Reactions for Efficient Drug Delivery and Enhanced Combination Therapy
Adv Sci (Weinh). 2021 Apr 8;8(10):2002927.

880. Escudé Martinez de Castilla P, Tong L, Huang C, Marios Sofias A, Pastorin G, Chen X, Storm G, Schiffelers RM, Wang JW.
Extracellular vesicles as a drug delivery system:A systematic review of preclinical studies
Adv Drug Deliv Rev. 2021 May 18:S0169-409X(21)00175-7. doi: 10.1016/j.addr.2021.05.011.

879. Wang S, Tian R, Zhang X, Cheng G, Yu P, Chang J, Chen X.
Beyond Photo: Xdynamic Therapies in Fighting Cancer.
Adv Mater. 2021:e2007488.

878. Kim J, Kim JS, Min KH, Kim YH, Chen X
Bombesin-Tethered Reactive Oxygen Species (ROS)-Responsive Nanoparticles for Monomethyl Auristatin F (MMAF) Delivery
Bioengineering (Basel). 2021 Mar 29;8(4):43.

877. Meng QF, Tian R, Long H, Wu X, Lai J, Zharkova O, Wang JW, Chen X, Rao L.
Capturing Cytokines with Advanced Materials: A Potential Strategy to Tackle COVID-19 Cytokine Storm
Adv Mater. 2021 Apr 10:e2100012. doi: 10.1002/adma.202100012.

876. Chen T, Hou P, Zhang Y, Ao R, Su L, Jiang Y, Zhang Y, Cai H, Wang J, Chen Q, Song J, Lin L, Yang H, Chen X.

Singlet Oxygen Generation in Dark-Hypoxia by Catalytic Microenvironment-Tailored Nanoreactors for NIR-II Fluorescence-Monitored Chemodynamic Therapy
Angew Chem Int Ed Engl. 2021 Apr 19. doi: 10.1002/anie.202102097.

875. Guo Y, Sun Q, Wu FG, Dai Y, Chen X.
Polyphenol-Containing Nanoparticles: Synthesis, Properties, and Therapeutic Delivery
Adv Mater. 2021 Apr 19:e2007356.

874. He L, Mu J, Gang O, Chen X.
Rationally Programming Nanomaterials with DNA for Biomedical Applications
Adv Sci (Weinh). 2021 Feb 24;8(8):2003775.

873. Cheng Y, Jiao X, Wang Z, Jacobson O, Aronova MA, Ma Y, He L, Liu Y, Tang W, Deng L, Zou J, Yang Z, Zhang M, Wen Y, Fan W, Chen X
Biphasic synthesis of biodegradable urchin-like mesoporous organosilica nanoparticles for enhanced cellular internalization and precision cascaded therapy
Biomater Sci. 2021 Feb 17. doi: 10.1039/d1bm00015b.

872. Ji Q, Hou J, Yong X, Gong G, Muddassir M, Tang T, Xie J, Fan W, Chen X
Targeted Dual Small Interfering Ribonucleic Acid Delivery via Non-Viral Polymeric Vectors for Pulmonary Fibrosis Therapy
Adv Mater. 2021:e2007798.

871. Zhou J, Rao L, Yu G, Cook TR, Chen X, Huang F.
Supramolecular cancer nanotheranostics.
Chem Soc Rev. 2021 Feb 1. doi: 10.1039/d0cs00011f.

870. Yu X, Liu X, Yang K, Chen X, Li W.
Pnictogen Semimetal (Sb, Bi)-Based Nanomaterials for Cancer Imaging and Therapy: A Materials Perspective
ACS Nano. 2021 Jan 23. doi: 10.1021/acsnano.0c07899.

869. Tang W, Yang Z, He L, Deng L, Fathi P, Zhu S, Li L, Shen B, Wang Z, Jacobson O, Song J, Zou J, Hu P, Wang M, Mu J, Cheng Y, Ma Y, Tang L, Fan W, Chen X
A hybrid semiconducting organosilica-based O2 nanoeconomizer for on-demand synergistic photothermally boosted radiotherapy
Nat Commun. 2021;12(1):523.

868. Thakur S, Daley B, Millo C, Cochran C, Jacobson O, Lu H, Wang Z, Kiesewetter D, Chen X, Vasko V, Klubo-Gwiezdzinska J.
177Lu-DOTA-EB-TATE, a Radiolabeled Analogue of Somatostatin Receptor Type 2, for the Imaging and Treatment of Thyroid Cancer
Clin Cancer Res. 2020 Dec 22. doi: 10.1158/1078-0432.CCR-20-3453.

867. Fu Q, Li Z, Fu F, Chen X, Song J, Yang H.
Stimuli-Responsive Plasmonic Assemblies and Their Biomedical Applications.

Nano Today. 2021;36:101014.

866. Luo Y, Chen X
Imaging of Insulinoma by Targeting Glucagonlike Peptide-1 Receptor.
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RESEARCH GRANTS:

Source:	MedImmune, Inc.
Title:	Development of novel internalization-sensitive molecular imaging methods for non-invasive visualization of the behavior of antibody-drug-conjugate in vivo
Role:	PI
Period:	10/1/14 to 9/30/17
Goal:	To develop novel methods for non-invasive monitoring of ADC internalization and lysosomal catabolism in vivo, identify ADC leads and study ADC using in vivo imaging methods.

Source:	National Science Foundation of China Oversea Collaboration Program
Title:	Non-invasive Imaging of Tumor Response to Anti-angiogenic Therapeutics
Role:	PI
Period:	10/1/10 to 9/30/16
Goal:	To develop novel positron emission tomography (PET) imaging technique to visualize and quantify antiangiogenic cancer therapeutics.

Source:	CNRM Neuroregeneration Program, DOD
Title:	Imaging NSC neuronal differentiation and therapeutic effect in TBI
Role:	PI
Period:	7/1/2012-6/30/2014 (no-cost extension)
Goal:	To apply multimodal imaging techniques to follow the distribution, fate and differentiation potential of neural stem cells after transplantation to ameliate TBI defects.

Source	NIH Intramural Research Program
Title:	Establishment of Laboratory of Molecular Imaging and Nanomedicine
Role:	PI
Period covered:	08/01/09 to -07/31/2020
Goal:	To develop molecular imaging toolbox for better understanding of biology, early diagnosis of disease, monitoring therapy response, and guiding drug discovery/development.

Source:	CNRM Neuroregeneration Program, DOD
Title:	Mesenchymal Stem Cell-based Traumatic Brain Injury Treatment and Therapy Effect Monitoring
Role:	PI
Period:	7/1/11 to 6/30/12 (no cost extension to 12/31/2012)
Goal:	To test the idea that the TBI homing capacity of MSCs can be monitored and improved by genetically modifying the cells and tracking them in vivo.

Source:	NIH Bench-to-Bedside Award
Title:	Clinical translation of ^{64}Cu-AMD3100
Role:	Co-Investigator
Period covered:	10/1/09 to 9/30/11

Goal: To perform preparative experiments and apply for eIND for ^{64}Cu-AMD3100.

Source: NCI/NIH R01
Title: VEGFR-2 Targeted Imaging
Role: Principal Investigator
Period covered: 4/1/09 to 3/31/12
Goal: To develop VEGFR-2 specific protein mutants for site-specific labeling and multimodlaity imaging of tumor angiogenesis.

Source: NIH SBIR/STTR
Title: Iron oxide nanoparticle probes for target specific MR molecular imaging
Role: Principal Investigator (contact PI: Andrew Wang, Ocean Nanotechnology)
Period Covered: 1/1/09 to 12/31/10
Goal: This NIH STTR project intends to develop a new generation of iron oxide nanoparticles as target specific MRI contrast agents for early detection of breast cancer.

Source: NIH R01
Title: Single-Walled Carbon Nanotubes as Delivery Vehicle for Cancer Therapy
Role: Principal Investigator (contact PI: Hongjie Dai)
Period Covered: 07/01/08 to 06/30/13
Goal: To develop biocompatible single-walled nanotubes (SWNT) for tumor vascular specific delivery of chemotherapeutics and apply the state-of-the-art molecular imaging techniques to monitor the delivery and efficacy of drug loaded biocompatible SWNT.

Source: NCI/NIH R01
Title: Radiolabeled RGD Peptides for Breast Cancer Imaging and Therapy
Role: Principal Investigator
Period Covered: 9/30/07 to 8/31/11
Goal: To develop multimeric RGD peptides for imaging and therapy based upon integrin αvβ3 recognition.

Source: NCI/NIH R01
Title: Integrin αvβ3 Targeted Drug Design, Delivery, and Imaging
Role: Subcontractor (PI: Nouri Neamati, USC)
Period Covered: 12/1/07 to 11/30/12
Goal: To develop peptide and non-peptide antagonists for integrin αvβ3 targeted delivery of chemotherapeutics and to evaluate the anti-cancer treatment efficacy with non-invasive imaging techniques.

Source: NCI/NIH R21
Title: Graphene-FeCo Nanocrystals for Highly Sensitive MRI, Cancer Imaging and Therapy
Role: Co-Investigator (PI: Hongjie Dai)
Period covered: 3/1/08 to 2/28/10

Goal: To develop FeCo nanoparticles for both T1 and T2 weighted MR imaging and as delivery vehicle for cancer therapy.

Source: NCI/NIH R21
Title: Quantum Dots for NIR Fluorescence Imaging of Tumor Angiogenesis
Role: Principal Investigator
Period Covered: 7/1/07 to 6/30/10
Goal: The application focuses on preparing RGD-conjugated quantum dots for NIR fluorescence imaging of in vivo integrin expression.

Source: DOD BCRP IDEA
Title: Mesenchymal Stem Cell as Targeted-Delivery Vehicle in Breast Cancer
Role: Principal Investigator
Period Covered: 2/1/07 to 1/31/10
Goal: To determine the effect of msenchymal stem cell to target delivery of RGD4C-rmhTNF fusion protein to breast cancer lung metastasis with reduced toxicity.

Source: NCI/NIH R01
Title: ^{99m}Tc-Labeled Cyclic RGD Peptide Tetramers for Breast Cancer Imaging
Role: Subcontractor (PI: Shuang Liu, Purdue University)
Period Covered: 12/1/06 to 11/30/11
Goal: This project is related to the use of ^{99m}Tc-labeled cyclic RGDfK tetramers as radiopharmaceuticals for breast cancer imaging.

Source : NCI U54
Title : Center for Cancer Nanotechnology Excellence at Stanford
Role : Co-investigator of RP5
Period Covered : 12/1/05 to 11/30/10
Goal : To develop a highly interactive and cohesive program that will produce breakthroughs towards developing and validating nanotechnologies for anti-cancer therapy response.

Source : NCI/NIH R21
Title: Imaging alpha(v)beta(3) Integrin Expression
Role: Principal Investigator
Period Covered: 9/30/05 to 8/31/08 (no cost extension)
Goal: The goal of this proposal is to develop copper-64 ($t_{1/2}$ = 12.7 h) labeled RGD peptide antagonists of alpha(v)beta(3) integrin for positron emission tomography (PET) imaging of breast cancer tumor angiogenesis.

Source : Department of Defense OCRP
Title: Molecular Imaging of Ovarian Carcinoma Angiogenesis
Role: Principal Investigator
Period Covered: 2/1/06 to 1/31/09 (no cost extension)
Goal: The focus of this project is to develop novel radiopharmaceuticals that specifically home to integrin $\alpha_v\beta_3$, which is usually aberrantly up-regulated in ovarian cancer tumors.

Source:	NCI P50 CA114747 Gambhir (PI)
Title:	Stanford ICMIC
Role:	PI on RP4 and Specialized Resource 1 (Chemistry/Radiochemistry)
Period Covered:	07/01/05 to 06/30/10
Goal:	The goal of the program is to develop multidisciplinary multimodality molecular imaging strategies and incorporate projects that have a high potential for linking pre-clinical imaging models with clinical imaging for improved cancer patient care.

Source:	Department of Defense PCRP
Title:	Imaging Heat Shock Protein 90 (Hsp90) Activity in Hormone-Refractory Prostate Cancer
Role:	Mentor (Prostate Cancer Training Award for Gang Niu)
Period Covered:	2/1/08 to 1/31/10
Goal:	To assess Hsp90 chaperone expression and activity non-invasively and in a real-time manner.

Source:	TRDRP
Title:	alpha7-nAChR Targeted Imaging and Therapy of Lung Cancer
Role:	Mentor (postdoctoral fellowship for Qizhen Cao)
Period Covered:	10/1/08 to 9/30/10
Goal:	To develop novel imaging agents to evaluate dynamically the role of nicotine and α7-nAChR on lung cancer progression and tumor angiogenesis.

Source:	Society of Nuclear Medicine
Title:	Tumor Vasculature Targeted Imaging and Therapy
Role:	Mentor (Cassen Postdoctoral Fellowship for Weibo Cai)
Period Covered:	4/1/06 to 3/31/08
Goal:	To develop novel radiolabeled peptides, proteins, and antibodies for molecular cancer imaging

Source:	DOD BCRP Concept
Title:	VEGF-Iron Oxide Conjugate for Dual MR and PET Imaging of Breast Cancer Angiogenesis
Role:	Principal Investigator
Period Covered:	1/1/07 to 12/31/07
Goal:	To label biocompatible iron oxide nanoparticle with VEGF and 64Cu for dual PET/MRI imaging of breast cancer vascular Flt-1 and Flk-1/KDR status.

Source :	MedImmune, Inc.
Title :	In Vivo Imaging at Stanford
Role :	Principal Investigator
Perior Covered :	12/1/05 to 11/30/07
Goal :	To evaluate the in vivo pharmacokinetics and tumor targeting efficacy of antibodies developed by MedImmune, Inc through multimodality radioimmunoimaging.

Source:	Department of Defense BCRP
Title:	Alpha-v Integrin Targeted PET Imaging of Breast Cancer Angiogenesis and Low-Dose Metronomic Anti-Angiogenic Chemotherapy Efficacy
Role:	Principal Investigator
Period Covered:	09/01/04 to 08/31/07
Goal:	To use high-resolution microPET technology to image breast cancer angiogenesis and anti-angiogenic therapy efficacy.

Source:	Stanford
Title:	VEGFR Targeted Imaging and Therapy of Glioblastoma Multiforme
Role:	Principal Investigator (Dean's fellowship for Zibo Li)
Period Covered:	07/01/06 to 06/30/07
Goal:	To combine targeted pro-apoptotic treatment approach with non-invasive PET imaging to evaluate brain tumor treatment efficacy.

Source :	Stanford
Title :	Tumor-Targeted Delivery of Small Interfering RNA (siRNA) Using Nanoparticles
Role:	PI (Dean's fellowship for Weibo Cai)
Period Covered:	07/01/05 to 06/30/06
Goal:	To validate and optimize the nanoparticle siRNA delivery system for specific tumor-targeting in vivo through a combinational approach of chemistry, biology and molecular imaging.

Source :	Stanford
Title :	Combined Integrin siRNA Therapy and Radiotherapy of Breast Cancer
Role:	PI (Dean's fellowship for Qizhen Cao)
Period Covered:	01/01/06 to 12/31/06
Goal:	To increase breast cancer sensitivity to radiation by siRNA ablation of integrin expression.

Source:	NIBIB/NIH R21
Title:	MicroPET and NIR Fluorescence Imaging Tumor Angiogenesis
Role:	Principal Investigator
Period Covered:	09/15/03 to 08/31/06
Goal:	To image and quantify *in vivo* expression of the vitronectin receptor $\alpha_v\beta_3$ integrin on human malignant tumor cells, as well as activated endothelial cells during neovascularization, by means of both radionuclide imaging (such as PET) and biomedical optical imaging (such as near-infrared (NIR) fluorescence imaging) techniques.

Source:	Department of Defense PCRP
Title:	Imaging Primary Prostate Cancer and Bone Metastasis
Role:	Principal Investigator
Period Covered:	04/01/03 to 03/31/06

Goal: To develop radiolabeled bombesin analogs for microPET imaging of both androgen independent and androgen dependent prostate cancer tumors in preclinical animal models.

Source: Department of Defense
Title: Development of Quantum Dot Probes for Near-Infrared Fluorescence Imaging of Breast Cancer Angiogenesis
Role: Principal Investigator
Period Covered: 10/01/03 to 9/30/04
Goal: To develop semiconductor nanoparticles tagged RGD peptides and evaluate their in vivo kinetics and tumor targeting efficacy by optical imaging means.

Source: American Lung Association of California
Title: Vasoactive Intestinal Peptide Receptor Targeted Imaging of Lung Cancer
Role: Principal Investigator
Period Covered: 07/01/03 to 06/30/05
Goal: To perform 3D pharmacophore search to develop metabolically stable VIP peptide analogs and label with F-18 for PET imaging of lung cancer.

Source: The Wright Foundation
Title: PEGylated RGD Peptide for PET Imaging of Tumor Angiogenesis
Role: Principal Investigator
Period Covered: 07/01/03 to 06/30/04
Goal: To optimize RGD peptide with poly(ethylene glycol) and label the RGD-PEG conjugate with F-18 and Cu-64 for PET imaging of $\alpha_v\beta_3$ integrin positive tumors.

Source: SNM Education and Research Education Foundation
Title: PET Imaging of EGF Receptor
Role: Principal Investigator
Period Covered: 07/01/03 to 06/30/04
Goal: To Label human and rodent epidermal growth factors with fluorine-18 for PET imaging of both estrogen-dependent and estrogen-independent breast cancer tumors.

Source: American Cancer Society
Title: Imaging urokinase-receptor/integrin complexes in human breast cancer angiogenesis
Role: Principal Investigator
Period Covered: 07/01/02 to 06/30/03
Goal: To design heterobifunctional ligands for $\alpha_v\beta_3$ integrin/uPAR for tumor angiogenesis targeting.

Source: National Cancer Institute
Title: Development of a cellular and molecular-based cancer imaging center
Role: Co-Investigator (PI: Peter S. Conti)
Period Covered: 07/01/01 to 06/30/04

Goal:	To develop a cellular and molecular-based cancer imaging center at USC.
Source:	MedActinium, Inc.
Title:	Development and Evaluation of Bioconjugates with Actinium for Radiotherapy Applications
Role:	Principal Investigator
Period Covered:	01/01/03 to 11/30/03
Goal:	To determine the stability of bifunctional chelating agents with actinium-227 in biological media.