Curriculum Vitae-Donna D. Zhang, Ph.D.

Department of Pharmacology and Toxicology, University of Arizona, Tucson, AZ
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EDUCATION:

1997 Ph.D. in Molecular Toxicology, New York University, Nelson Institute of Environmental Medicine, New York, New York.
"*Molecular Cloning and Characterization of a novel gene, Cap43, that is specifically induced by Ni2+ compounds.*"
Advisor: Dr. Max Costa

1993 M.S. in Molecular Toxicology, New York University, Nelson Institute of Environmental Medicine, New York, New York.
"*Effect of second-hand smoke in atherosclerosis.*"
Advisor: Dr. Arthur Penn

EMPLOYMENT:

2019-present Associate Director of Superfund Research Program.

2019-present Musil Family Endowed Chair in Drug Discovery.

2013-present Professor, Department of Pharmacology and Toxicology, College of Pharmacy, University of Arizona, Tucson, AZ

2011-2013 Associate Professor, Department of Pharmacology and Toxicology, College of Pharmacy, University of Arizona, Tucson, AZ.

2005-2011 Assistant Professor, Department of Pharmacology and Toxicology, College of Pharmacy, University of Arizona, Tucson, AZ.

1999-2005 Research Assistant Professor, University of Missouri-Columbia, Department of Biochemistry, Columbia, MO.

1997-1999 Post-doctoral Fellow (with Dr. David B. Warheit), DuPont-Haskell Laboratory, Inhalation Toxicology, Newark, DE.

HONORS AND AWARDS:

2019 Dr. James R. Halpert Faculty Research Award
2013 Centennial Top 100 Alumni Achievement Hall of Fame of Ningbo 5th high School (0.1%)
2012 The Society of Toxicology Achievement Award
2006 NIH/NIEHS Outstanding New Environmental Health Scientist Award
1999 DuPont Young Investigator Award

PATENTS:

Compositions and methods for treatment, amelioration, and prevention of diabetes-related skin ulcers
DD Zhang, GT Wondrak
US Patent App. 16/060,742, 2018

Activators of nrf2-dependent photoprotection and related uses thereof
GT Wondrak, DD Zhang
US Patent App. 15/753,514, 2018

Compositions and methods for treating and preventing lung injury
DD Zhang, GT Wondrak, JGN Garcia, T Wang
US Patent App. 15/765,777, 2018

SERVICE/OUTREACH:

Intramural

2019-	The University P&T Committee
2016-2017	Research Affairs Committee
2016	UAHS Space Committee
2016-	College Space Committee
2015-	T32 Training grant executive committee
2014-	Departmental P&T Committee
2009-	College of Pharmacy Research Affairs Committee
2009-	Member, Bio5 Institute
2006-	Member, Cancer Biology Graduate Program
2006-	Member, Biological Chemistry Graduate Program
2006-	Member, Biomedical Engineering Graduate Interdisciplinary Program
2006-	Member, Southwest Environmental Health Sciences Center
2006-	Member, Cancer Prevention and Control Program, Arizona Cancer Center
2006-	Mentor, Keep Engaging Youth in Science (KEYS) research program for K-12 students and high school teachers
2006-2008	Member, College of Pharmacy Computer Committee

Extramural

2019	NIH, Special Emphasis Panel review for SPORE grant, Oncology Translational Clinical IRG
2018	President of Mechanisms Specialty Section of the Society of Toxicology
2018-2022	NIH, Systemic injury by Environmental Exposure (SIEE)-member
2018	National Research Foundation of Korea, reviewer
2018	NIH, Bioengineering Sciences and Technologies (BST), IRG
2017	NIH, Systemic injury by Environmental Exposure (SIEE)
2017	NIH, Special Emphasis Panel review for SPORE grant, Oncology Translational Clinical IRG
2017	NIH, Special Emphasis Panel review, AREA R15
2017	Medical Research Council, reviewer
2017	Editor, “Nrf2-Keap1” forum, Antioxidants & Redox Signaling
2016	NIH, Special Emphasis Panel Members (SEP), reviewer
2016	NIH, Special Emphasis Panel review, AREA R15
2016	NIH, NIEHS Outstanding New Environmental Scientist (ONES) Award
2016	Vice-president of Mechanisms Specialty Section of the Society of Toxicology
2016-2019	Associate Editor, Molecular Carcinogenesis
2015	Medical Research Council, reviewer
2015	NIH, NIEHS Career Award (K99)
2015	External evaluator, faculty P&T process, College of Medicine, Dentistry and Nursing, University of Dundee, Dundee
2015	External evaluator, faculty P&T process, Department of Medicinal Chemistry & Molecular Pharmacology, College of Pharmacy, Purdue University
2015	External evaluator, faculty P&T process, Department of Pharmacy Practice, College of Pharmacy, University of Illinois at Chicago
2015	External evaluator, faculty P&T process, Department of Cell Biology and Physiology in the School of Medicine at UNC-Chapel Hill
2014	NIH, the stage 2 Distinguished Editorial panel for Botanical Dietary Supplement Research Centers (BDSRC) (P50)

2014	NIH, the stage 2 Distinguished Editorial panel for Centers for Advancing Natural Products Innovation and Technology Centers (CANPIT) (U41)
2014	NIH, NIEHS Outstanding New Environmental Scientist (ONES) Award
2014	Cancer Research UK Expert Programme Review Panel
2012-2016	National Institutes of Health review committee, Chemo/Dietary Prevention Study Section (CDP/NIH)-member
2013	NIH, reviewer for the National Center for Complementary and Alternative Medicine (NCCAM/NIH)
2013-	External Advisory Board Member for NIAID P01 Signaling in airway inflammation, UTMB Galveston, PI: Allan Brasier
2013-	Research Funding Committee, Society of Toxicology
2012	Woman in Toxicology, Society of Toxicology
2012	External reviewer, Center in Molecular Toxicology, Vanderbilt University School of Medicine, pilot grant
2012	The Leukemia & Lymphoma Society, Medical Research Council
2011	Reviewer, King Abdulaziz City for Science and Technology, Saudi Arabia
2011	Reviewer, Association for International Cancer Research in the United Kingdom (AICR)
2011	External reviewer, faculty promotion process, Department of Pharmaceutical Sciences, University of Colorado
2011	Organizer and Chair, “New insights into the Nrf2-Keap1 pathway and its impact on human disease” symposium, Society of Toxicology annual meeting
2010-2011	President, Mountain West Regional Chapter, the Society of Toxicology
2010	Reviewer, National Science Foundation, Molecular and Cellular Biosciences Division
2010	Chair, Oxidative Injury and Redox Biology poster session, Society of Toxicology annual meeting
2010	Organizing committee and chair of “Cellular & Molecular Responses to BRIs,” Biological Reactive Intermediates International Conference VIII, Barcelona, Spain
2010	Editor, “Nrf2-Keap1” forum, Antioxidants & Redox Signaling
2009-2013	Editorial board member, Toxicology and Applied Pharmacology
2009	Reviewer, Wellcome Trust, United Kingdom
2009	NIH, National Institute of Environmental Health Sciences, special emphasis panel study section to review P01 and P20 children center grants
2009-2012	NIH, National Institutes of Health review committee, Chemo/Dietary Prevention Study Section
2009-2010	Vice-President, Mountain West Regional Chapter, Society of Toxicology
2009-2010	Organizer, Mountain West Regional Chapter, Society of Toxicology annual meeting
2009	Chair, Reactive Oxygen Species Stimulated Signaling poster session, Society of Toxicology annual meeting
2008	Reviewer, Cancer Research, United Kingdom Science Funding Committee
2008	Reviewer, Portuguese Foundation for Science and Technology, Pharmacology and Pharmaceutical Sciences’ sub-area
2008	Chair, Oxidative Signaling and Redox Biology symposium, Society of Toxicology annual meeting
2007-2011	Member, Career Resource and Development Committee, Society of Toxicology
	Toxicology annual meeting
2006	Reviewer, Italian National Centre for Rare Disease at the Instituto Superiore di Sanità, Italian Public Health Institute of Rome

TEACHING:

Courses

Cell communications and signal transduction (PCOL 630B)

- Course Coordinator
- Required course for Ph.D. and M.S. degrees in Pharmacology and Toxicology

- 15 lectures each fall semester

Seminar (PCOL 696A and 696B)
- Course Coordinator
- Required course for Ph.D. and M.S. degrees in Pharmacology and Toxicology

Science of Pharmacology (PCOL 871A)
- Required course for Pharm. D., Ph.D. and M.S. degree
- 2 lectures each fall semester

Science of Pharmacology (PCOL 871B)
- Required course for Pharm. D., Ph.D. and M.S. degree
- 4 lectures each spring semester

General and Systems Toxicology (PCOL602A)
- Required course for Ph.D. and M.S. degree
- 6 lectures each fall semester

Advanced Toxicology (PCOL 596C)
- Required course for Ph.D. and M.S. degrees in Pharmacology and Toxicology
- 1 lecture each fall and spring semester

Individualized Medicine: Applied Pharmacogenetics (PHPR 887)
- Required course for Ph.D. and M.S. degree in Pharmacology and Toxicology and Pharm. D. students
- 3 lectures each spring semester

Case Study in Biochemical Pharmacology (PCOL 870/871)
- Authored “Holly Beach” case
- Required course for Pharm.D. students
- 3 case studies each fall and spring semester

Ph.D. Graduate Committees

Major advisor:
- Aryatara Shakya, Arizona Biological and Biomedical Sciences (ABBS), majoring in Pharmacology and Toxicology, 2019- (thesis advisor)
- Cody Schmidlin, Arizona Biological and Biomedical Sciences (ABBS), majoring in Cancer Biology, 2016- (thesis advisor)
- Elisa Montserrat Rojo de la Vega Guinea, Arizona Biological and Biomedical Sciences (ABBS), majoring in Cancer Biology, 2013-2018 (thesis advisor)
- Bryan Harder, Pharmacology and Toxicology, 2013-2017 (thesis advisor)
- Tongde Wu, Pharmacology and Toxicology, 2009- 2013 (thesis advisor)
- Alexandra G. Lau, Pharmacology and Toxicology, 2007-2012 (thesis advisor)
- Nicole F. Villeneuve, Pharmacology and Toxicology, 2006-2011 (thesis advisor)
- Zheng Sun, Pharmacology and Toxicology, 2005-2009 (thesis advisor)

- Huihui Wang, Chinese Medical University, China, 2010 (co-thesis advisor)
- Yi Zheng, Chinese Medical University, China, 2010-2012 (co-thesis advisor)
- Yu Du, Pharmaceutical Sciences, Shandong University, China, 2007-2008 (co-thesis advisor)

Ph.D. committee member:

- Argel Islas Robles, Pharmacology and Toxicology 2014-
- Hui Li, Pharmacology and Toxicology 2013-2017
- Shue Wang, Aerospace & Mechanical Engineering Department 2011-2016
- Joseph Tillotson, Pharmacology and Toxicology 2013-2016
- Aram B Cholanians, Pharmacology and Toxicology, 2011-2016
- Anika Dzierlenga, Pharmacology and Toxicology, 2010-2016
- Ryan Canatsey, Pharmacology and Toxicology, 2010-2016
- Jessica Sapiro, Pharmacology and Toxicology, 2010-2016
- Nick Mastrandrea, Pharmacology and Toxicology, 2008-2014
- Kevin Bray, Cell and Developmental Biology, Rutgers University, -2011 (advisor: Dr. Eileen White)
- Fei Zhao, Pharmacology and Toxicology, 2009-2013
- April D. Lake, Pharmacology and Toxicology, 2008-2013
- Parvathi Sinha, Pharmacology and Toxicology, 2008-2010
- Matthew Keane Medeiros, Pharmacology and Toxicology, 2007-2013
- Keika Okamoto, Pharmacology and Toxicology, 2008-2009
- Rhiannon N. Hardwick, Pharmacology and Toxicology, 2007-2012
- Ana Tula Sanchez, Pharmacology and Toxicology, 2006-2013
- Evisabel Arauz Craig, Pharmacology and Toxicology, 2006-2011
- Alicia Marie Bolt, Pharmacology and Toxicology, 2006-2012
- Shawn Michael Wnek, Pharmacology and Toxicology, 2006-2011
- Aaron Goldman, Cancer Biology, 2005-2010
- Ingrid Leal Druwe, Pharmacology and Toxicology, 2005-2012
- Matthew David Merrell, Pharmacology and Toxicology, 2006-2011
- Terence Henry Sy, Pharmacology and Toxicology, 2007-2009
- Christopher M Cabello, IGERT committee, 2007-2012

MEDIA:

- The Daily Widlcat “Six scientific successes that stole the show this year”: http://www.wildcat.arizona.edu/article/2016/10/in-case-you-missed-them-six-scientific-successes-that-stole-the-show-this-year
- Science News: http://www.sciencemag.org/news/2016/04/some-diabetes-drugs-may-help-cancer-spread-mice
- FOCUS newsletter: http://www.allergyresearchgroup.com/focus/201505.htm
- Medical News Today: http://www.medicalnewstoday.com/releases/295410.php
- Health News Digest, Futurity (link is external)
- KVOA (link is external)
- UA News (link is external)
- UA Now (link is external)
- MDLinx (link is external)
- EurekAlert! (link is external)
- MedicalXpress (link is external).
- NBC local news; KVOA Chanel 4; segment Kristi’s Kids http://www.kvoa.com/news/kristi-s-kids-learns-about-new-super-fruit/

PUBLICATIONS:

(Based on Google Scholar as of July 23, 2020: total citations 26654, h-index 63)

Peer-Reviewed Publications:

122: Schmidlin CJ, Zeng T, Liu P, Wei Y, Dodson M, Chapman E, Zhang DD. Chronic arsenic exposure enhances metastatic potential via NRF2-mediated upregulation of SOX9. ***Toxicol Appl Pharmacol***. 2020. PMID:32682831

121: Liu P, Dodson M, Dang D, Chapman E, Zhang DD. NRF2 negatively regulates primary ciliogenesis and hedgehog signalng. ***PLoS Biol.*** 2020. PMID:32053600

120: Rodrigues SD, Santos SS, Meireles T, Romero N, Glorieux G, Pecoits-Filho R, Zhang DD, Nakao LS. Uremic toxins promote accumulation of oxidized protein and increased sensitivity to hydrogen peroxide in endothelial cells by impairing the autophagic flux. ***Biochem Biophys Res Commun***. 2019. PMID:31837804.

119: Liu P, Kerins MJ, Tian W, Neupana D, Zhang DD*, Ooi A*. Differential and overlapping targets of the transcriptional regulators NRF1, NRF2, and NRF3 in human cells. ***J Biol Chem***. 2019. PMID:31628195.

118: Liu P, Tian W, Tao S, Tillotson J, Wijeratne EMK, Gunatilaka AAL, Zhang DD*, Chapman E*. Non-covalent NRF2 Activation Confers Greater Cellular Protection than Covalent Activation. ***Cell Chem Biol***. 2019. PMID:31402317

117: Shi T, Wijeratne EMK, Solano C, Ambrose AJ, Ross AB, Norwood C, Orido CK, Grigoryan T, Tillotson J, Kang M, Luo G, Keegan BM, Hu W, Blagg BSJ, Zhang DD, Gunatilaka AAL, Chapman E. An Isoform-Selective PTP1B Inhibitor Derived from Nitrogen-Atom Augmentation of Radicicol. ***Biochemistry***. 2019. PMID:31298844

116: Kerins MJ, Liu P, Tian W, Mannheim W, Zhang DD*, Ooi A*. Genome wide CRISPR screen reveals autophagy disruption as the convergence mechanism that regulates the NRF2 transcription factor. ***Mol Cell Biol***. 2019. PMID: 31010806

115: Liu P, de la Vega MR, Dodson M, Yue F, Shi B, Fang D, Chapman E, Liu L, Zhang DD. Spermidine confers liver protection by enhancing NRF2 signaling through a MAP1S-mediated non-canonical mechanism. ***Hepatology***. 2019. PMID:30873635

114: Shi T, Kaneko L, Sandino M, Busse R, Zhang M, Mason D, Machulis J, Ambrose AJ, Zhang DD, Chapman E. One-step synthesis of thieno[2,3-*d*]pyrimidin-4(3*H*)-ones via a catalytic four-component reaction of ketones, ethyl cyanoacetate, S8 and formamide. ***ACS Sustain Chem. Eng.*** 2019. 7, 1524-1528.

113: Ambrose AJ, Zerio C, Schmidlin C, Sivinski J, Shi T, Ross AB, Widrick KJ, Johnson SM, Zhang DD, Chapman E. A high throughput substrate binding assay reveals hexachlorophene as an inhibitor of the ER-resident HSP70 chaperone GRP78. ***Bioorg. Med. Chem. Lett.*** 2019. PMID:31129054.

112: Shi T, Zerio CJ, Sivinski J, Ambrose AJ, Moore KT, Buckley T, Kaneko L, Zhang M, Zhang DD, and Chapman E. A one-step, atom economical synthesis of thieno[2,3-*d*]pyrimidin-4-amine derivatives via a four-component reaction**.** ***Eur. J. Org. Chem***. 2019. PMID:31857792.

111: Xiao Y, Riahi R, Torab P, Zhang DD, Wong PK. Collective Cell Migration in 3D Epithelial Wound Healing. ***ACS Nano***. 2019. PMID:30758172.

110: Liu P, Rojo de la Vega M, Sammani S, Mascarenhas JB, Kerins M, Dodson M, Sun X, Wang T, Ooi A, Garcia JGN, Zhang DD. RPA1 binding to NRF2 switches ARE-dependent transcriptional activation to ARE-NRE-dependent repression. ***Proc Natl Acad Sci U S A***. 2018. PMID:30309964

109: Yang Y, Kong S, Zhang Y, Melo-Cardenas J, Gao B, Zhang Y, Zhang DD, Zhang B, Song J, Thorp E, Zhang K, Zhang J, Fang D. The endoplasmic reticulum-resident E3 ubiquitin ligase Hrd1 controls a critical checkpoint in B cell development in mice. ***J Biol Chem***. 2018. PMID:29907570

108: Wei J, Yuan Y, Xu Y, Chen L, Zhang Y, Wang Y, Yang Y, Peek CB, Diebold L, Yang Y, Gao B, Jin C, Melo-Cardenas J, Chandel NS, Zhang DD, Pan H, Zhang K, Wang J, He F, Fang D. ER-associated ubiquitin ligase HRD1 programs liver metabolism by targeting multiple metabolic enzymes. ***Nat Commun***. 2018. PMID:30201971

107: Ray S, Corenblum MJ, Anandhan A, Reed A, Ortiz FO, Zhang DD, Barnes CA, and Madhavan L. 2018. A role for Nrf2 expression in defining the aging of hippocampal neural stem cells. *Cell transplantation*. ***Cell Transplant***. 2018. PMID:29871525

106: Rojo de la Vega M, Zhang DD*, Wondrak GT*. Topical Bixin Confers NRF2-Dependent Protection Against Photodamage and Hair Graying in Mouse Skin. ***Front Pharmacol***. 2018. PMID:2963669

105: Dodson M, Liu P, Jiang T, Ambrose AJ, Luo G, Rojo de la Vega M, Cholanians AB, Wong PK, Chapman E, Zhang DD. Increased O-GlcNAcylation of SNAP29 drives arsenic-induced autophagic dysfunction. ***Mol Cell Biol.*** 2018. PMID:29507186
104: Dodson M, de la Vega MR, Harder B, Castro-Portuguez R, Rodrigues SD, Wong PK, Chapman E, Zhang DD. Low-level arsenic causes proteotoxic stress and not oxidative stress. ***Toxicol Appl Pharmacol***. 2018. PMID:29408041
103: Wang S, Xiao Y, Zhang DD, Wong PK. Non-Canonical activation of NRF2: A gapmer aptamer nanobiosensor for real-time monitoring of transcription and translation in single cells. ***Biomaterials.*** 2018. PMID:29190498.
102: Tian W, Rojo de la Vega M, Schmidlin CJ, Ooi A, Zhang DD. Kelch-like ECH-associated protein 1 (KEAP1) differentially regulates nuclear factor erythroid-2-related factors 1 and 2 (NRF1 and NRF2). ***J Biol Chem***. 2018. PMID:29255090.
101: Wang S, Sun J, Xiao Y, Lu Y, Zhang DD, Wong PK. Intercellular Tension Negatively Regulates Angiogenic Sprouting of Endothelial Tip Cells via Notch1-Dll4 Signaling. ***Advanced Biosystems.*** 2017. PMID:30662935.
100: Tao S, de la Vega MR, Chapman E, Ooi A, Zhang DD. The effects of NRF2 modulation on the initiation and progression of chemically and genetically induced lung cancer. ***Mol Carcinog.*** 2018. PMID:28976703.
99: Tillotson J, Kedzior M, Guimarães L, Ross AB, Peters TL, Ambrose AJ, Schmidlin CJ, Zhang DD, Costa-Lotufo LV, Rodríguez AD, Schatz JH, Chapman E. ATP-competitive, marine derived natural products that target the DEAD box helicase, eIF4A. ***Bioorg Med Chem Lett.*** 2017. PMID:28757063.
98: Tillotson J, Zerio CJ, Harder B, Ambrose AJ, Jung KS, Kang M, Zhang DD*, Chapman E*. Arsenic Compromises Both p97 and Proteasome Functions. ***Chem Res Toxicol.*** 2017. PMID:28636814.
97: Bao L, Wu J, Dodson M, Rojo de la Vega EM, Ning Y, Zhang Z, Yao M, Zhang DD, Xu C, Yi X. ABCF2, an Nrf2 target gene, contributes to cisplatin resistance in ovarian cancer cells. ***Mol Carcinog.*** 2017. PMID:28112439.
96: Gao B, Kong Q, Zhang Y, Yun C, Dent SYR, Song J, Zhang DD, Wang Y, Li X, Fang D. The Histone Acetyltransferase Gcn5 Positively Regulates T Cell Activation. ***J Immunol.*** 2017. PMID:28424240.
95: Harder B, Tian W, La Clair JJ, Tan AC, Ooi A, Chapman E, Zhang DD. Brusatol overcomes chemoresistance through inhibition of protein translation. ***Mol Carcinog.*** 2017. PMID:28019675
94: Tao S, Liu P, Luo G, Rojo de la Vega M, Chen H, Wu T, Tillotson J, Chapman E, Zhang DD. p97 Negatively Regulates NRF2 by Extracting Ubiquitylated NRF2 from the KEAP1-CUL3 E3 Complex***. Mol Cell Biol.*** 2017. PMID:28115426.
93: Wang S, Sun J, Zhang DD, Wong PK. A nanobiosensor for dynamic single cell analysis during microvascular self-organization. ***Nanoscale.*** 2016. PMID:27547924
92: Kong S, Yang Y, Xu Y, Wang Y, Zhang Y, Melo-Cardenas J, Xu X, Gao B, Thorp EB, Zhang DD, Zhang B, Song J, Zhang K, Zhang J, Zhang J, Li H, Fang D. Endoplasmic reticulum-resident E3 ubiquitin ligase Hrd1 controls B-cell immunity through degradation of the death receptor CD95/Fas. ***Proc Natl Acad Sci U S A.*** 2016. PMID:27573825
91: Xu Y, Zhao F, Qiu Q, Chen K, Wei J, Kong Q, Gao B, Melo-Cardenas J, Zhang B, Zhang J, Song J, Zhang DD, Zhang J, Fan Y, Li H, Fang D. The ER membrane-anchored ubiquitin ligase Hrd1 is a positive regulator of T-cell immunity. ***Nat Commun.*** 2016. PMID:27417417
90: Sun J, Hoying JB, Deymier PA, Zhang DD, Wong PK. Cellular Architecture Regulates Collective Calcium Signaling and Cell Contractility. ***PLoS Comput Biol.*** 2016. PMID:27196735
89: Corenblum MJ, Ray S, Remley QW, Long M, Harder B, Zhang DD, Barnes CA, Madhavan L. Reduced Nrf2 expression mediates the decline in neural stem cell function during a critical middle-age period. ***Aging Cell.*** 2016. PMID:27095375
88: Tang Q, Liang M, Lu Y, Wong PK, Wilmink GJ, Zhang DD, Xin H. Microfluidic Devices for Terahertz Spectroscopy of Live Cells Toward Lab-on-a-Chip Applications. ***Sensors (Basel).*** 2016. PMID:27049392
87: Wang H, Liu X, Long M, Hunag Y, Zhang L, Zhang R, Zheng Y, Liao X, Wang Y, Liao Q, Li W,

Tang Z, Tong Q, Wang X, Fang F, Long M, Rojo de la Vega M, Ouyang Q, Zhang DD*, Yu S*, and Zheng H*. NRF2 activation by anti-diabetic agents accelerates tumor metastasis. ***Sci Transl Med***. 2016. PMID:27075625

86: Melo-Cardenas J, Zhang Y, Zhang DD, Fang D. Ubiquitin-specific peptidase 22 functions and its involvement in disease. ***Oncotarget.*** 2016. PMID:27057639

85: Wang Y, Wang Y, Zhang Z, Park JY, Guo D, Liao H, Yi X, Zheng Y, Zhang DD, Chambers SK, Zheng W. Mechanism of progestin resistance in endometrial precancer/cancer through Nrf2-AKR1C1 pathway. ***Oncotarget.*** 2016. PMID:26824415

84: Chen W, Li S, Li J, Zhou W, Wu S, Xu S, Cui K, Zhang DD, Liu B. Artemisitene activates the Nrf2-dependent antioxidant response and protects against bleomycin-induced lung injury. ***FASEB J***. 2016. PMID:27006451

83: Tao S, Rojo de la Vega M, Quijada H, Wondrak GT, Wang T, Garcia JG, Zhang DD. Bixin protects mice against ventilation-induced lung injury in an NRF2-dependent manner. ***Sci Rep.*** 2016. PMID:26729554

82: Long M, Rojo de la Vega M, Wen Q, Bharara M, Jiang T, Zhang R, Zhou S, Wong PK, Wondrak GT, Zheng H, Zhang DD. An Essential Role of NRF2 in Diabetic Wound Healing. ***Diabetes.*** 2016. PMID:26718502

81: Yin YW, Jin HJ, Zhao W, Gao B, Fang J, Wei J, Zhang DD, Zhang J, Fang D. The Histone Acetyltransferase GCN5 Expression Is Elevated and Regulated by c-Myc and E2F1 Transcription Factors in Human Colon Cancer. ***Gene Expr.*** 2015. PMID:26637399

80: Qian Z, Zhou T, Gurguis CI, Xu X, Wen Q, Lv J, Fang F, Hecker L, Cress AE, Natarajan V, Jacobson JR, Zhang DD, Garcia JG, Wang T. Nuclear factor, erythroid 2-like 2-associated molecular signature predicts lung cancer survival. ***Sci Rep.*** 2015. PMID:26596768

79: Tao S, Park SL, de la Vega MR, Zhang DD, Wondrak GT. Systemic administration of the pocarotenoid bixin protects skin against solar UV-induced damage through activation of NRF2. ***Free Radic Biol Med***. 2015. PMID:26456052

78: Wang S, Riahi R, Li N, Zhang DD, Wong PK. Biosensors: Single Cell Nanobiosensors for Dynamic Gene Expression Profiling in Native Tissue Microenvironments (Adv. Mater. 39/2015). ***Adv Mater***. 2015. PMID:26466935

77: Tao S, Tillotson J, Wijeratne EM, Xu YM, Kang M, Wu T, Lau EC, Mesa C, Mason DJ, Brown RV, La Clair JJ, Gunatilaka AA, Zhang DD* and Chapman E*. Withaferin A Analogs That Target the AAA+ Chaperone p97. ***ACS Chem Biol***. 2015. PMID:26006219

76: Shen T, Jiang T, Long M, Chen J, Ren D, Wong PK, Chapman E, Zhou B and Zhang DD. A curcumin derivative that inhibits vinyl carbamate-induced lung carcinogenesis via activation of the Nrf2 protective response. ***Antioxid Redox Signal***. 2015. PMID:25891177

75: Riahi R, Sun J, Wang S, Long M, Zhang DD, Wong PK. Notch1-Dll4 signalling and mechanical force regulate leader cell formation during collective cell migration. ***Nat Commun***. 2015. PMID:25766473

74: Long M, Tao S, Rojo de la Vega M, Jiang T, Wen Q, Park SL, Zhang DD*, Wondrak GT*. Nrf2-dependent suppression of azoxymethane/dextran sulfate sodium-induced colon carcinogenesis by the cinnamon-derived dietary factor cinnamaldehyde. ***Cancer Prev Res***. 2015. PMID:25712056

73: Bao L, Jaramillo MC, Zhang Z, Zheng Y, Yao M, Zhang DD, Yi X. Induction of autophagy contributes to cisplatin resistance in human ovarian cancer cells. ***Mol Med Rep***. 2015. PMID:25322694

72: Canet MJ, Merrell MD, Harder BG, Maher JM, Wu T, Lickteig AJ, Jackson JP, Zhang DD, Yamamoto M, Cherrington NJ. Identification of a functional antioxidant response element within the eighth intron of the human ABCC3 gene. ***Drug Metab Dispos***. 2015. PMID:25349122

71: Tao S, Wang S, Moghaddam SJ, Ooi A, Chapman E, Wong PK, Zhang DD. Oncogenic KRAS confers chemoresistance by upregulating NRF2. ***Cancer Res***. 2014. PMID:25339352.

70: Nam KH, Jamilpour N, Mfoumou E, Wang FY, Zhang DD, Wong PK. Probing mechanoregulation of neuronal differentiation by plasma lithography patterned elastomeric substrates. ***Sci Rep***. 2014. PMID:25376886

69: Kang MJ, Wu T, Wijeratne EM, Lau EC, Mason DJ, Mesa C, Tillotson J, Zhang DD, Gunatilaka AA, La Clair JJ, Chapman E. Functional chromatography reveals three natural products that target the same protein with distinct mechanisms of action. ***Chembiochem***. 2014. PMID:25125376

68: Wu T, Harder BG, Wong PK, Lang JE, Zhang DD. Oxidative stress, mammospheres and Nrf2-new implication for breast cancer therapy? ***Mol Carcinog***. 2014. PMID:25154499.

67: Riahi R, Wang S, Long M, Li N, Chiou PY, Zhang DD, Wong PK. Mapping photothermally induced gene expression in living cells and tissues by nanorod-locked nucleic acid complexes. ***ACS Nano***. 2014. PMID:24645754

66: Wu T, Zhao F, Gao B, Tan C, Yagishita N, Nakajima T, Wong PK, Chapman E, Fang D, Zhang DD. Hrd1 suppresses Nrf2-mediated cellular protection during liver cirrhosis. ***Genes Dev***. 2014. PMID:24636985

65: Shen T, Chen XM, Harder B, Long M, Wang XN, Lou HX, Wondrak GT, Ren DM, Zhang DD. Plant extracts of the family Lauraceae: a potential resource for chemopreventive agents that activate the nuclear factor-erythroid 2-related factor 2/antioxidant response element pathway. ***Planta Med***. 2014. PMID:24585092

64: Riahi R, Long M, Yang Y, Dean Z, Zhang DD, Slepian MJ, Wong PK. Single cell gene expression analysis in injury-induced collective cell migration. ***Integr Biol*** *(Camb).* 2014. PMID:24336811

63: Wu T, Wang XJ, Tian W, Jaramillo MC, Lau A, Zhang DD. Poly(ADP-ribose) polymerase-1 modulates Nrf2-dependent transcription. ***Free Radic Biol Med***. 2014. PMID:24140708

62: Jiang T, Tian F, Zheng H, Whitman SA, Lin Y, Zhang Z, Zhang N, Zhang DD. Nrf2 suppresses lupus nephritis through inhibition of oxidative injury and the NF-κB-mediated inflammatory response. ***Kidney Int.*** 2014. PMID:24025640

61: Bao LJ, Jaramillo MC, Zhang ZB, Zheng YX, Yao M, Zhang DD, Yi XF. Nrf2 induces cisplatin resistance through activation of autophagy in ovarian carcinoma. ***Int J Clin Exp Pathol***. 2014. PMID:24817946

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(Beginning of the independent position at University of Arizona)

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**Co-corresponding author*

[#]Zhou D. is the former name of Zhang DD

Reviews, Perspectives and Commentaries:

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26: Anandhan A, Dodson M, Schmidlin CJ, Liu P, Zhang DD. Breakdown of an Ironclad Defense System: The Critical Role of NRF2 in Mediating Ferroptosis. ***Cell Chem Biol.*** 2020. PMID:32275864

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21: Rojo de la Vega M, Chapman E, Zhang DD. NRF2 and the Hallmarks of Cancer. ***Cancer Cell***. 2018. PMID:29731393

20: Rojo de la Vega M, Zhang DD. NRF2 Induction for NASH Treatment: A New Hope Rises. ***Cell Mol Gastroenterol Hepatol***. 2018. PMID:29675456

19: Rojo de la Vega M, Krajisnik A, Zhang DD, Wondrak GT. Targeting NRF2 for Improved Skin Barrier Function and Photoprotection: Focus on the Achiote-Derived Apocarotenoid Bixin. ***Nutrients.*** 2017. Review. PMID:29258247

18: Stockwell BR, Friedmann Angeli JP, Bayir H, Bush AI, Conrad M, Dixon SJ, Fulda S, Gascón S, Hatzios SK, Kagan VE, Noel K, Jiang X, Linkermann A, Murphy ME, Overholtzer M, Oyagi A, Pagnussat GC, Park J, Ran Q, Rosenfeld CS, Salnikow K, Tang D, Torti FM, Torti SV, Toyokuni S, Woerpel KA, Zhang DD. Ferroptosis: A Regulated Cell Death Nexus Linking Metabolism, Redox Biology, and Disease. ***Cell.*** 2017. PMID:28985560.

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13: de la Vega MR, Dodson M, Gross C, Manzour H, Lantz RC, Chapman E, Wang T, Black SM, Garcia JG, Zhang DD. Role of Nrf2 and Autophagy in Acute Lung Injury. ***Curr Pharmacol Rep.*** 2016. PMID:27313980

12: Klionsky DJ, Abdelmohsen K, Abe A, et. al. Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition). ***Autophagy***. 2016. PMID:26799652

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9: Jaramillo MC, Zhang DD. The emerging role of the Nrf2-Keap1 signaling pathway in cancer. ***Genes Dev***. 2013. PMID:24142871

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7: Lau A, Whitman SA, Jaramillo MC, Zhang DD. Arsenic-mediated activation of the Nrf2-Keap1 antioxidant pathway. ***J Biochem Mol Toxicol***. 2013. PMID:23188707

6: Lau A, Tian W, Whitman SA, Zhang DD. The predicted molecular weight of Nrf2: it is what it is not. ***Antioxid Redox Signal***. 2013. PMID:22703241

5: Villeneuve NF, Lau A, Zhang DD. Regulation of the Nrf2-Keap1 antioxidant response by the ubiquitin proteasome system: an insight into cullin-ring ubiquitin ligases. ***Antioxid Redox Signal***. 2010. PMID:20486766

4: Zhang DD. The Nrf2-Keap1-ARE signaling pathway: The regulation and dual function of Nrf2 in cancer. ***Antioxid Redox Signal***. 2010. PMID:20486759

3: Villeneuve NF, Sun Z, Chen W, Zhang DD. Nrf2 and p21 regulate the fine balance between life and death by controlling ROS levels. ***Cell Cycle***. 2009. PMID:19806015

2: Lau A, Villeneuve NF, Sun Z, Wong PK, Zhang DD. Dual roles of Nrf2 in cancer. ***Pharmacol Res***. 2008. PMID:18838122

1: Zhang DD. Mechanistic studies of the Nrf2-Keap1 signaling pathway. ***Drug Metab Rev***. 2006. PMID:17145701

Book chapters:

3: **Comprehensive Toxicology, 3rd Edition**. Elsevier.
Editor-in-Chiefs: Charlene McQueen. ISBN: 9780081006016
Chapter: Oxidative Signaling. de la Vega MR, Dodson M, Zhang DD. 2017

2: Johnson J, Puga A, Wallace KB, and Zhang DD. Editorial Overview: Nrf2 in Toxicology: An Update. ***Curr Opin Toxicol.*** 2016,1.
Chapter:
de la Vega MR, Dodson M, Chapman E, Zhang DD. NRF2-targeted therapeutics: New targets and modes of NRF2 regulation. ***Curr Opin Toxicol.*** 2016 Dec;1:62-70.

1: Zhang DD. 2010. The Nrf2-Keap1-ARE signaling pathway: The regulation and dual function of Nrf2 in cancer. ***Antioxid Redox Signal***.
Chapter:
Villeneuve NF, Lau A, Zhang DD. Regulation of the Nrf2-Keap1 antioxidant response by the ubiquitin proteasome system: an insight into cullin-ring ubiquitin ligases. ***Antioxid Redox Signal***. 2010 Dec 1;13(11):1699-712.

SCHOLARLY PRESENTATIONS: (In the current position)
Invited symposiums:

Sept. 2019 Twenty-Third Heidelberger Symposium on Cancer Research, Stintino, Sardinia, Italy.
Talk: "The intricacies of NRF2 regulation in cancer"

Sept. 2019 International Symposium, "Molecular mechanisms of the environmental response to food and oxygen V" Sendai, Japan.
Talk: "The NRF2 signaling network: crosstalk with ferroptosis and hedgehog signaling pathways"

July 2019 ICTXV, Society of Toxicology, Honolulu, Hawaii.
Section: "Recent trends in research on arsenic toxicity"
Talk: "Arsenic in oxidative stress vs. proteotoxic stress."

June 2019 Symposium "Araucária Symposium of Cell Biology", Curitiba, Brizil
Talk: "The NRF2-KEAP1-ARE signaling pathway: regulation and dual role in cancer."

May 2019 University of Iowa, Carver College of Medicine.
The Fourth Forum "Signaling pathways and non-coding RNAs in carcinogenesis, prevention and therapy of malignant tumors".
Talk: "The NRF2-KEAP1-ARE signaling pathway in cancer prevention and treatment."

Mar. 2019 The Society of Toxicology annual meeting, Baltimore, US.
Section: "Role of oxidative stress in health and disease: mechanism, methods of detection, and biomarkers"
Talk: "NRF2, oxidative stress, and inflammatory lung injury?"

Nov. 2018 Cold Spring Harbor Conference Asia, Suzhou, China
"NRF2, ROS, and Ferroptosis in human disease."

Nov. 2018 The Gerontological Society of America (GSA) 2018 Annual Scientific Meeting
Biological Sciences Presidential Symposium: Free Radicals and Redox Regulation in Aging
"Reactive oxygen species and NRF2 signaling in human aging and diseases"

April. 2018 ASPET Annual Meeting at EB-2018
"Canonical and Non-Canonical Pathways of NRF2 activation."

March. 2018 Cancer Colloquium 2018, St Andrews
"Nrf2, Primary Cilia and Hedgehog Signaling in Cancer."

Nov. 2017 GSK Sponsored NRF2 Symposium in Suburban Philadelphia
"The Role of Nrf2 in disease prevention and intervention."

June 2017 4th Red House Forum, International Obstetrics & Gynecology Summit. Shanghai, China.
"The Dual Role of Nrf2 in Cancer."

April 2017 Better Cancer Therapy from Redox Biology. The Bunbury Center, Cold Spring Harbor Laboratory, NY.
"Role of Nrf2 in Cancer initiation, progression and metastasis."

April 2017 Ferroptosis: A Critical Review. The Banbury Center, Cold Spring Harbor Laboratory, NY.
"Nrf2: an integrator of cellular iron and redox signaling."

Oct. 2016 9th conference on metal toxicity and carcinogenesis, Lexington, Kentucky, US.
"Arsenic blocks autophagy by interfering with the autophagosome-lysosome fusion."

Oct. 2016 International Union of Toxicologists (IUTOX)/XIV International Congress of Toxicology, Merida, Maxico.
Section: Molecular Toxicology
Talk: "Arsenic blocks autophagy by interfering with the autophagosome-lysosome fusion"

Aug. 2016 Pioneer Century Science (PCS) Global Diabetes Conference.
Theme: Innovation, Collaboration, Intergration, Globalization. Moscow, Russia.
Talk: "The Role of Nrf2 in Diabetic Diseases"

Apr. 2016 American Society for Pharmacology and Experimental Therapeutics (ASPET), Federation of American Societies For Experimental Biology 2013 annual meeting, San Diego, CA.
Section: "Advances in Toxicogenetics of Metals."
Talk: "A Novel Mechanism of Arsenic in Modulating Autophagy and Nrf2 Stress Responses."

Mar. 2016 The Society of Toxicology annual meeting, New Orleans, Louisiana, US.
Section: "Novel roles of reactive oxygen species (ROS) in human diseases: Why ROS never gets stale?"
Talk; "Nrf2: Tumor suppressor or oncogene?"

Feb. 2016 6th International Conference on Metals in Genetics, Chemical Biology and Therapeutics (ICMG-2016). Bangalore, India.
Session VIA:
Talk; "Nrf2 in arsenic toxicity and carcinogenicity"

Mar. 2015 The Society of Toxicology annual meeting, San Diego, CA.
Section: "Nrf2 signaling pathways in model systems: a master regulator of neurotoxicity and a potential therapeutic target."
Talk; "The molecular mechanisms of Nrf2 regulation beyond Keap1: developing therapeutics targeting the "correct" E3 ubiquitin ligase for Nrf2 activation"

Jan. 2015 International symposiums The Keap1/Nrf2 pathway in Health and Disease, Robinson College, Cambridge, UK
"Nrf2: Molecular regulatory mechanisms and chemical modulation"

Nov. 2014 SFRBM Annual Meeting, Seattle, WA

Plenary Session: The Keap1-Nrf2 signaling pathway: Role in disease and pharmacological approaches
Talk “Nrf2 regulation and its dual role in cancer.”

Oct. 2014 ROS in Biology and Cancer. The Banbury Center, Cold Spring Harbor Laboratory, NY
Talk: “Nrf2 regulation and its dual role in cancer.”

Feb. 2014 International Symposium, "Molecular mechanisms of the environmental response to food and oxygen IV" Sendai, Japan.
Talk: “The molecular mechanisms of Nrf2 regulation beyond Keap1”

Nov. 2013 Boston U. Pharmacology & Experimental Therapeutics-Pfizer Symposium, Boston, MA
Therapeutic Innovation: Oxidative Stress and The Next Generation of Discovery
Talk: “The Nrf2-Keap1-ARE pathway and its dual roles in cancer.”

Aug. 2013 Gordon Research Conferences on Cellular & Molecular Mechanisms of Toxicity, Andover, NH.
Section: “Nuclear Factor (Erythroid-derived 2) – Like 2 (Nrf2): is it all Good?”
Talk: “The regulation of Nrf2 and its dual role in cancer.”

Jul. 2013 The 14th SCBA International Symposium
Section: “Autophagy in Development and Disease”
Talk: "The role of autophagy in modulating the Nrf2-Keap1-ARE pathway”

Apr. 2013 The American Physiological Society, Federation of American Societies For Experimental Biology 2013 annual meeting, Boston, MA.
Section: “Nrf2 Signal Pathway in Human Diseases as Novel Therapeutics.”
Talk: “The Nrf2-Keap1-ARE pathway and the dual roles of Nrf2 in cancer.”

Oct. 2012 7th conference on metal toxicity and carcinogenesis, Albuquerque, New Mexico, US.
“The Distinct Mechanism of Nrf2 Activation by Arsenic.”

Jul. 2012 The 1st international Chinese Symposium on Free Radical, Lanzhou, China.
“The Nrf2-Keap1-ARE pathway and the dual role of Nrf2 in cancer.”

Jun. 2012 International Society for the Study of Xenobiotics (MDO-ISSX), Noordwijk aan Zee, Netherlands.
“The Nrf2-Keap1-ARE pathway and the dual role of Nrf2 in cancer.”

Oct. 2011 International Society for Trace Element Research in Humans (ISTERH), Antalya (Belek), Turkey.
“Arsenic and the Nrf2-Keap1 pathway.”

Jul. 2011 Outstanding New Environmental Health Scientist Forum, Research Triangle Park, North Carolina, US.
“The protective role of Nrf2 against arsenic-induced toxicity and carcinogenicity.”

Mar. 2011 50th Anniversary of Society of Toxicology annual meeting, Washington, D. C., US.
Chair: “New insights into the Nrf2-Keap1 pathway and its impact on human disease.”
Talk: “Getting caught in the web of Nrf2-Keap1.”

Jul. 2010 Biological Reactive Intermediates International Conference VIII, Barcelona, Spain.
Talk 1: “The role of the Keap1-Nrf2-Cul3 system in cancer chemoprevention by natural

products."
Talk 2: "The Nrf2-Keap1-ARE signaling pathway and its dual role in cancer."

May. 2010 International Conference on Biomedical and Environmental Sciences and Technology, Beijing, China.
"Regulation of the Nrf2-mediated antioxidant response by Keap1: The protective role of Nrf2 against arsenic induced toxicity and carcinogenicity"

Nov. 2009 International Symposium, "Inflammation and Redox signaling," Seoul, Korea.
"The role of Nrf2 in cancer: the dark side"

Aug. 2009 Federation of American Societies for Experimental Biology annual meeting, "Histone deacetylases and reversible acetylation in signaling and disease," Lucca, Italy.
"Regulation of the Nrf2-dependent antioxidant response."

Feb. 2009 International Symposium, "Molecular mechanisms of the environmental response to food and oxygen III," Sendai, Japan.
"Direct interaction between Nrf2 and $p21^{Cip1/WAF1}$ upregulates the Nrf2-mediated antioxidant response & acetylation in modulating the Nrf2 dependent antioxidant response."

Nov. 2008 American College of Toxicology annual meeting, Tucson, Arizona, US.
"The Nrf2-dependent cellular defense mechanism in arsenic toxicity."

Jan. 2008 International Conference on Nano/Micro Engineered and Molecular Systems annual meeting, Sanya, China.
"High-throughput screening of chemopreventive compounds that activates the Nrf2-dependent signaling transduction pathway."

Jan. 2006 Biological Reactive Intermediates International Conference VII, Tucson, Arizona, US.
"The Nrf2/Keap1 signaling pathway, oxidative stress, and chemoprevention."

Invited seminars:

Nov. 2019 John H. Blaffer lecture Series at MD Anderson
"The role of NRF2 in cancer prevention and intervention"

May. 2019 Cancer Prevention and Control (CPC), UA cancer Center
"NRF2, oxidative stress, and inflammatory lung injury"

Nov. 2018 Biology and Medical Sciences, Suzhou University, Suzhou, China
"The NRF2-KEAP1-ARE Signal Pathway: Regulation and Dual Role in Cancer"

Oct. 2018 The University of Arkansas for Medical Sciences (UAMS) Cancer Institute Forum, Little Rock, AR
"The intriguing role of NRF2 in cancer"

July 2018 GSK Partnerships, College of Pharmacy, University of Arizona
"The dual role of NRF2 in cancer: development of NRF2 inhibitors"

Feb. 2018 BCP Journal Club Seminar, Department of Chemistry & Biochemistry, University of Arizona
"Targeting Nrf2 for disease prevention and intervention"

Jan. 2018 Department of Chemistry & Chemical Biology, University of New Mexico
"Targeting Nrf2 for disease prevention and intervention"

Dec. 2017 UAHS Pathobiology Lung Seminar
"Targeting Nrf2 for disease prevention and intervention"

Nov. 2017 Department of Cell Biology, Albert Einstein College of Medicine
"The role of Nrf2 in cancer prevention and intervention"

Oct. 2017 Basic Medical Sciences, College of Medicine, UA Phoenix.
"The role of Nrf2 in cancer prevention and intervention."

Sept. 2017 Integrative Biosciences & Department of Pharmaceutical Sciences, Wayne State University.
"Nrf2 in Environmental Response and Disease Intervention."

May 2017 Department of Cell Systems & Anatomy, UT Health.
"Nrf2 in Environmental Response and Disease Intervention."

April 2017 Department of Toxicology & Cancer Biology, University of Kentucky.
"Nrf2 in Environmental Response and Disease Intervention."

Feb. 2017 Cancer Center, Medical College of Wisconsin.
"Nrf2 in Environmental Response and Disease Intervention."

June 2016 ICIMED Investigación en Ciencias Médicas, Universidad de Ciencias Médicas, Costa Rica.
"The dual role of Nrf2 in cancer: chemical modulation of Nrf2 for cancer intervention."

March 2016 Department of Pharmaceutical Sciences, School of Pharmacy, University of Connecticut
"Nrf2 in Environmental Response and Disease Intervention."

Jan. 2016 Pharmacy and Pharmaceutical Sciences, University of Colorado
"Nrf2 in Environmental Response and Disease Intervention."

Jan. 2016 Cancer Biology, the University of Arizona Cancer Center
"Nrf2 in Environmental Response and Disease Intervention."

Jan. 2016 Cancer Prevention and Control Program, the University of Arizona Cancer Center
"Nrf2 in Environmental Response and Disease Intervention."

Dec. 2015 The University of Arizona Cancer Center
"Harnessing Nrf2 for Cytoprotection: From the Inside to the Outside."

Nov. 2015 Department of Pharmacology & Chemical Biology, University of Pittsburgh
"The dual role of Nrf2 in cancer."

Nov. 2014 University of Nebraska-Lincoln, the Biochemistry Department, Redox Biology Center
"The dual role of Nrf2 in cancer: Nrf2 modulators as a novel anti-cancer therapeutics."

Sep. 2014 University of Arizona Cancer Center, Cancer Biology Seminar
"The dual role of Nrf2 in cancer: Modulators of the Nrf2-Keap1-ARE pathway as a novel anti-cancer therapeutics."

Aug. 2014 Ventana medical systems, Inc. Tucson, Arizona

"The dual role of Nrf2 in cancer: Modulators of the Nrf2-Keap1-ARE pathway as a novel anti-cancer therapeutics."

Jul. 2014 Natural Products Affinity Group (NPAG), San Diego, CA
"Modulators of the Nrf2-Keap1-ARE pathway as novel therapeutics."

Apr. 2014 Xinqiao Hospital Medical School, Third Military Medical University, Chongqing, China.
"Modulators of the Nrf2-Keap1-ARE pathway as novel therapeutics."

Apr. 2014 College of Pharmacy, Zhejiang Ocean University, Zhoushan, Zhejiang, China
"Modulators of the Nrf2-Keap1-ARE pathway as novel therapeutics."

Mar. 2014 The University of Southern California, Free Radical Institute, Los Angeles, CA.
"The regulation of Nrf2 and its dual role in cancer."

Nov. 2013 Sanofi, Tucson Research Center, Oro valley, AZ
"Modulators of the Nrf2-Keap1-ARE pathway as novel therapeutics."

Nov. 2013 Pfizer, Boston, MA
"Modulators of the Nrf2-Keap1-ARE pathway as novel therapeutics."

Jul. 2013 School of Pharmaceutical Sciences, Shandong University, Jinan, Shandong, China.
"The Nrf2-Keap1 pathway and its dual role in cancer."

May. 2013 Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill, Chapel Hill, NC.
"The Nrf2-Keap1 pathway and its dual role in cancer."

Apr. 2013 Department of Pharmacology and Toxicology, School of Pharmacy, University of Missouri-Kansas City, Kansas, MO.
"The Nrf2-Keap1-ARE pathway and its dual role in cancer."

Feb. 2013 Van Andel Research Institute, Grand Rapids, MI.
"The Nrf2-Keap1-ARE pathway and the dual role of Nrf2 in cancer."

Aug. 2012 Department of Gynecology, Hospital of OB/GYN, Fudan University, Shanghai, China
"The dual role of Nrf2 in cancer."

Mar. 2012 Cancer Prevention and Control, University of Arizona cancer Center, Tucson, Arizona, US.
"The Nrf2-Keap1-ARE pathway and the dual role of Nrf2 in cancer."

Feb. 2012 Department of Pulmonary Medicine, the University of Texas MD Anderson Cancer Center, Houston, TX, US.
"The Nrf2-Keap1-ARE pathway and the dual role of Nrf2 in cancer."

Feb. 2012 Department of Pathology & Laboratory Medicine, Brown University, Providence, RI, US.
"The Nrf2-Keap1-ARE pathway and a novel mechanism of Nrf2 induction by arsenic."

Feb. 2012 College of Medicine-Phoenix, University of Arizona, Phoenix, Arizona, US.
"The Nrf2-Keap1-ARE pathway and the dual role of Nrf2 in cancer."

Jan. 2012 Cellular and Molecular Basis of Disease (CMBD) series, School of Medicine, The University of New Mexico, Albuquerque, New Mexico, US.

"The Nrf2-Keap1-ARE pathway and it dual role in cancer."

Jan. 2012 NYU Langone Medical Center/Cancer Institute, New York University, New York. US.
"The Nrf2-Keap1-ARE pathway and the dual role of Nrf2 in cancer."

Jan. 2012 Nelson Institute of Environmental Medicine, New York University, New York. US.
"The protective role of Nrf2 in arsenic-induced toxicity and carcinogenicity."

Dec. 2011 King Abdullah University of Science and Technology, Jeddah, Saudi Arabia.
"Cellular stress response and human disease."

Nov. 2011 Barshop Institute for Longevity and Aging Studies, San Antonio, Texas, US.
"Dual role of Nrf2 in human disease."

Sep. 2011 Department of Chemical and Environmental Engineering, University of Arizona, Tucson, Arizona, US.
"Cell-based high throughput screening of environmental pollutants."

Feb. 2011 Public Health, Chinese Medical University, Shenyang, China.
"The Nrf2-mediated defense system."

Jan. 2011 Department of Pathology, Northwestern University Feinberg School of Medicine, Chicago, Illinois, US.
"The Nrf2-Keap1-ARE signaling pathway and its dual role in cancer."

May. 2010 Xinqiao Hospital Medical School, Third Military Medical University, Chongqing, China.
"The Nrf2-Keap1-ARE signaling pathway and human diseases."

Mar. 2010 Department of Pharmacology, School of Medicine, Tucson, Arizona, US.
"Molecular program of cellular defense."

Jan. 2010 Cancer Prevention and Control, Arizona Cancer Center, Tucson, Arizona, US.
"Dual Role of Nrf2 in Cancer: The Nrf2-Keap1-ARE signaling pathway."

Dec. 2009 University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma, US.
"Dual role of Nrf2 in cancer: The Nrf2-Keap1-ARE signaling pathway."

Nov. 2009 College of Pharmacy, Seoul National University, Seoul, Korea.
"Regulation of Nrf2-mediated antioxidant response."

Oct. 2009 The Cancer Institute of New Jersey (UMDNJ/CINJ), New Brunswick, New Jersey, US.
"Dual role of Nrf2 in cancer: The Nrf2-Keap1-ARE signaling pathway."

Sep. 2009 Department of Pharmacology and Toxicology, College of Pharmacy, Tucson, Arizona, US.
"The Regulation of an Antioxidant Response Mediated by The Nrf2-Keap1-ARE signaling pathway."

Apr. 2009 Nelson Institute of Environmental Medicine, New York University Medical School, New York, New York, US.
"The Nrf2-dependent antioxidant response: the antioxidant function of $p21^{Cip1/WAF1}$ is mediated by Nrf2."

Nov. 2008 Biological Chemistry Graduate Program, Tucson, Arizona, US.

"Acetylation of Nrf2 by p300/CBP augments promoter-specific DNA binding of Nrf2 during antioxidant response."

Jan. 2008 School of Pharmaceutical Sciences, Shandong University, Jinan, Shandong, China.
"The Nrf2-mediated endogenous antioxidant response."

Jan. 2008 Fudan Medical School, Fudan University, China .
"The Nrf2-Keap1 signaling pathway and the endogenous antioxidant response."

Oct. 2007 National Institute of Environmental Health Science center director annual meeting, Corvallis, Oregon, US.
"The protective role of Nrf2 in arsenic-induced toxicity and carcinogenicity."

Mar. 2007 Department of Pathology, University of California, Irvine, California, US.
"The Nrf2-Keap1 signaling pathway and the endogenous antioxidant response."

Feb. 2007 Biodesign Institute, Arizona State University, Tempe, Arizona, US.
"The Nrf2-Keap1 signaling pathway and the endogenous antioxidant response"

Nov. 2006 Biological Chemistry Graduate Program, Tucson, Arizona, US.
"The Nrf2 signaling pathway."

Oct. 2006 National Institute of Environmental Health Science
"The protective role of Nrf2 in arsenic-induced toxicity and carcinogenicity."

Sep. 2006 Cancer Biology Graduate Program, Arizona Cancer Center, Tucson, Arizone, US.
"The Nrf2/Keap1 signaling pathway."

Sep. 2006 Superfund Colloquium, Tucson, Arizona, US
"The protective role of Nrf2 in arsenic-induced toxicity and carcinogenicity."

PROFESSIONAL SOCIETIES

1996-present Society of Toxicology

GRANT SUPPORT

CURRENT

R35ES031575 (Zhang) 06/01/2020-02/29/2028 6.00 Person Months
NIH/NIEHS $606,023 direct/year
The major goals of this project include in-depth mechanistic investigations of arsenic pathogenesis/NRF signaling and the translation of basic mechanistic knowledge into preclinical drug development.
Role: PI

P42ES004940 (Maier) 04/01/2020-01/31/2025 2.35 Person Months
NIH/NIEHS $1,536,643
Exposures, Health Impacts, and Risk for Mine Waste Contamination
The goal is to build a mechanistic model of the contributions of chronic mine waste-arsenic exposure to the development of diabetes and associated metabolic disease to inform risk assessment tools that can be used to predict exposures and associated health outcomes and to inform public health prevention and interventions in communities that neighbor mine waste sites.
Role: Associate Director/PI (Project 1)

R01DK109555 (Zhang) 07/15/2016-06/30/2021 2.40 Person Months

NIH/NIDDK $230,213
Arsenic, Nrf2 and Autophagy Dysfunction in Type II Diabetes
The goal for this project is to investigate the molecular mechanisms by which arsenic alters the proteotoxic and oxidative stress responses to determine if these alterations aid to the onset and progression of diabetes using cell lines and a high fat diet-induced type II diabetes mouse model.
Role: PI

R01CA226920 (Ooi) 12/24/2018-11/30/2023 0.60 Person Months
NIH/NCI $197,976
Selective Killing of FH-/- Cancer Cells by Targeting Cellular Iron Homeostasis
This project investigates the feasibility and mechanisms of action of a novel rational drug combination that can specifically target FH-/- cancer cells while sparing normal cells. This drug combination enhances FH-/- cancer cells' sensitivity to a cell death mechanism that is dependent on redox active iron.
Role: Collaborator

P01HL126609 (Garcia) 06/01/2016-03/31/2021 0.60 Person Months
NIH/NHLBI $1,657,039
Cytoskeletal Regulation of Lung Endothelial Pathobiology
In its 16th-20th year of proposed funding, the PPG will investigate the complex field of inflammatory lung injury, particularly, the spatial regulation of the dynamic actomyosin cytoskeleton (central stress fibers, lamellipodia formation, focal adhesion formation) involving MLCK, cortactin, c-Abl, EVL, and β-integrins.
Role: Co-I

OVERLAP
There is no scientific, budgetary, or commitment overlap.

PENDING
HHMI Investigator Program (Zhang)
NRF-mediated Cellular Responses: mechanisms to therapy
The major goals of this program are to gain a deeper molecular understanding of NRF biology, such as how NRF1, 2, and 3 integrate with other cellular signaling pathways to maintain cellular homeostasis, and how dysregulation of NRF-mediated downstream events lead to human diseases. The research proposed in this application—from mechanistic insights of NRF, into the pathogenesis of NRF dysregulation, to NRF-based therapeutic intervention—will greatly "advance basic biomedical research and science education for the benefit of humanity", a mission of the Howard Hughes Medical Institute.
Role: PI

SUBMITTED
R01 (DMP study section) (Chapman/Zhang) 04/01/2021-01/31/2026 2.4 Person Months
NIH/NCI $400,000
Targeting NRF2 for Cancer Prevention
Lung cancer is the leading cause of cancer related deaths and is often driven by aberrant NRF2 expression - "NRF2 addiction". NRF2 is usually a protective transcription factor, but recently it has been shown to be dysregulated in a number of cancers, especially lung cancer. We aim to develop our lead molecule that targets NRF2 directly to combat lung cancer progression, metastasis, and chemoresistance.
Role: MPI

R01 (XNDA study section) (Chapman) 04/01/2021-01/31/2026 0.6 Person Months
NIH/NIEHS $400,000
Autophagy, NRF2, and PTP1B Connect Arsenic to Type 2 Diabetes
Epidemiological studies have shown a strong correlation between environmental exposure to arsenic and the development of type 2 diabetes, but a true molecular understanding of this process is lacking, preventing the development of a viable treatment strategy. We plan to test a highly innovative mechanistic

hypothesis that reveals a potential treatment strategy. We will simultaneously explore this strategy of treatment as a proof of concept and to further validate our model.
Role: Co-I

COMPLETED

P42 ES004940 Maier (PD)/Zhang (PI) 04/01/2018-03/31/2019
Project 5: Role of Nrf2 in the Pulmonary Response to Inhaled Mine Tailing Dust
This project investigates the mechanism by which arsenic-induced lung inflammation and dysfunction occur, which will enable the development of disease-preventive treatments for the populations at risk of arsenic.

R01 ES026845 Zhang (PI) 07/01/2016-06/30/2020
NRF2, autophagy, and arsenic carcinogenesis
The goal of this project is to investigate the detailed mechanism by which arsenic causes lung cancer. In turn, this will allow us to pinpoint markers of exposure to identify populations at risk of developing arsenic-induced lung cancer as well as to develop tailored therapies for the individuals who have already developed arsenic-induced lung cancer.

R01 ES023758 Chapman/Zhang (MPI) 02/01/2014-10/31/2018
Stress Response, p97, and NRF2 in Arsenic-Mediated Toxicity
This project investigated the biochemical mechanism of arsenic-mediated deregulation of p97, and NRF2, and dissected the interplay between arsenic, p97, autophagy, and NRF2.

R21 CA166926 Zhang/Wondrak (MPI) 01/01/2013-12/31/2014
Targeting colorectal carcinogenesis using a cinnamon-derived food factor
This project is to test the overall hypothesis that the cinnamon-derived food factor cinnamaldehyde represents a potent chemopreventive dietary factor targeting colorectal carcinogenesis through modulation of Nrf2-orchestrated cytoprotective mechanisms.

R01 CA154377 Zhang (PI) 08/15/2011-05/31/2017
Investigation of an anti-cancer phytochemical targeting NRF2
This project characterized the anti-cancer properties of brusatol, an inhibitor of the NRF2 pathway, using a preclinical lung cancer model and delineated the molecular targets and mechanistic actions of brusatol.

RSG-07-154-01-CNE Zhang (PI) American Cancer Society 07/01/2007-06/30/2012
Regulation of the Transcription Factor Nrf2 by Chemopreventive Compounds
The major goals of this project are to define the mechanism of Nrf2 regulation in response to the treatment of chemopreventive compounds

R01 ES015010 (ONES) Zhang (PI) 09/01/2006-01/31/2017
The protective role of NRF2 in arsenic-induced toxicity and carcinogenicity
This project aimed to define the protection of the transcription factor NRF2 against arsenic-induced toxicity and carcinogenicity and the mechanism of arsenic-mediated carcinogenicity.