

## Zhongbin Deng Ph.D.

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### EDUCATION

07/2003	Ph.D., Immunology School of Medicine, Soochow University, Suzhou, P. R. China
07/1997	M.S. Veterinary Medicine, College of Animal Science and Veterinary Medicine Yangzhou University, Yangzhou, P. R. China
07/1994	Bachelor's degree in Veterinary Medicine, College of Animal Science and Veterinary Medicine, Yangzhou University, Yangzhou, P. R. China

### ACADEMIC APPOINTMENTS

Year	Rank/Title	Institution
11/2019-	Assistant Professor (Tenure Track)	Department of Surgery, Brown Cancer Center University of Louisville
01/2013-11/2019	Assistant Professor (Reserch)	Department of Medicine, Brown Cancer Center University of Louisville
01/2010-01/2013	Instructor	Department of Medicine, Brown Cancer Center University of Louisville
2007-2009	Postdoctoral Fellow	Division of Clinical Immunology and Rheumatology University of Alabama at Birmingham
2004-2006	Postdoctoral Fellow	Center for Biotechnology and Genomic Medicine Medical College of Georgia
2000-2004	Lecturer	Department of Biotechnology School of Life Science, Soochow University, China

1997-2000 Teaching Assistant Suzhou Medical College, Soochow University, China

## **PROFESSIONAL MEMBERSHIPS AND ACTIVITIES**

2009- American Association of Immunologists  
2001- Member of Chinese Association of Immunologists  
2021- Member of the American Association for the Study of Liver disease

## **HONORS AND AWARDS**

2019 AAI Early Career Faculty Travel Grant, San Diego, CA  
2018 AAI Early Career Faculty Travel Grant, Austin, TX  
2017 AAI Early Career Faculty Travel Grant, DC  
2016 AAI Early Career Faculty Travel Grant, Settle, WA  
2015 AAI Early Career Faculty Travel Grant, New Orleans  
2013 AAI Early Career Faculty Travel Grant, HI  
2012 AAI Early Career Faculty Travel Grant, Boston  
2009 Travel Award of Molecular Targets for Cancer Therapy, FL  
2003 Fellowship of Chen Jin-Rong Research, Soochow University

## **PROFESSIONAL ACTIVITIES**

### **A: Teaching Resarch activities/Trainees**

1997 – 2004: Course teaching: Basic Immunology; Molecular and Cellular Biology; Animal Science medical school students, SuZhou University School of Medicine

**Role: Lecturer.**

### **Training Mentor for Ph.D Student and Postdoctoral Research Fellow:**

### **B: Academic Activity**

#### **Peer Reviewer for Manuscripts:**

Molecular therapy; Cancer letter; Journal of Hematology & Oncology; Translational Oncology; The Journal of Nutritional Biochemistry; Molecular and Cellular Biochemistry; BioMed Research International Journal; Molecular Metabolism; Journal of Biomedical Nanotechnology; (Highlighted from 2019-current). International Journal of Immunopathology and Pharmacology; Plos One; Immunology and Immunogenetics Insights; Inflammation; Oncolytic Virotherapy; Drug Design, Development and Therapy; OncoTargets and Therapy; European Journal of Inflammation; African Journal of Microbiology Research; The International Journal of Biochemistry & Cell Biology.

**EDITORIAL SERVICES: International Advisory Review Board** (Translational Oncology)  
Guest Associate Editor (Inflammatory Bowel Diseases)

**Reviewer for Grants:** Shota Rustaveli National Science Foundation-- Tbilisi, Georgia

## GRANTS AND CONTRACTS (Number each grant)

### Current Research Support

1. **NIH/NIDDK R01 DK115406** “CSN8 regulation of S1P-enriched extracellular vesicles to modulate NAFLD by gut-liver axis” 07/20/2018-4/30/2023  
**Role: PI**

The major goals of this application are to investigate how gut microbiota regulate sphingolipid metabolites-rich exosomes biogenesis, and how gut exosomes translocate to liver and promote liver injury in obesity.

2. **NIH/NIAAA R21 AA025724** Gut extracellular vesicles promote alcohol-induced liver injury via TLR4-regulated miRNAs, 08/01/2018-7/31/2022 **No cost extension**  
**Role: PI**

3. **Supplement award for NIH/NIAAA R21 AA025724: \$154,000**  
08/25/2019-7/31/2022

**Role: PI**

4. **NIH/NIAID R21AI159194** Defining the role of S1p and myeloid cells during enterotoxigenic B. fragilis infection. 09/22/2021 – 08/31/2023

**Role: PI**

Major Goals: Determine if ETBF infection disrupts sphingolipid metabolism and results in the accumulation of proinflammatory myeloid cells (iMCs) in the gut. This award is investigating the S1p-specific gene sets in iMCs associated with potent pro-inflammatory responses.

5. **NIH/NHLBI R01HL160927** Fibroblast growth factor 1 prevents hyperlipidemia and atherosclerosis  
12/01/2021 – 11/31/2026

**Role: Co-I. (PI: Yi Tan) (**

6. **Veterans Affairs I01BX003274** The Vagus Nerve in Lung Disease 04/01/2018 – 03/31/2024

**Role: Collaborator. (PI: Jerry Yu)**

7. **NIH/NIGMS 1P20GM113226-06 (Parent PI: Craig McClain)**  
HEPATOBIOLGY AND TOXICOLOGY COBRE 04/01/2021– 03/31/2026

Biorepository and Animal Core (**Role: Co-I**)

### Completed Research Support

1. **NIH/NIAID 1R21 AI128206** “Intestinal epithelial cells-derived exosomal miRNAs regulate liver inflammation in obesity”. 07/14/17-6/30/19 **Role: PI**

**2. NIH/NIGMS 1P20GM113226-01 Sub: 6174 (Role: ----PI) (Parent PI: Craig McClain)**

HEPATOBIOLOGY AND TOXICOLOGY COBRE 06/10/2016-- 03/31/2021  
Sub-Project ID: 6174: "HIGH FAT DIET INDUCED HEPATOCYTE EXOSOMES-PROMOTED HEPATIC INFLAMMATION AND TUMORIGENESIS"

Role: **PI**

**3. NIH/NCI 1UH2TR000875** "Fruit exosome-like particles for therapeutic delivery of extracellular miRNAs".  
08/01/13-7/31/18

Role: **Co-Investigator** (PI: Huang-ge Zhang) **50% effort**

**4. NIH/NCCIH R01AT008617** "Plant exosomes non-coding RNA-mediated anti-inflammatory mechanisms".  
12/01/15-11/30/20

Role: **Co-Investigator** (PI: Huang-ge Zhang)

**5. National Natural Science Foundation of China** (No. 30471609), 2005-2008.

Studies on ICOS/GL50 signal in the immune pathological response and its mechanism in Graves.

Role: **Principal Investigator**.

**6. Natural Science Foundation of JiangSu, China** (No. 04KJB310124). 2005-2007.

The role of ICOS/GL50 signal in the immune pathological response in Graves.

Role: **Principal Investigator**.

**7. Junior Faculty Medicine Research Award of Soochow University** 2003 -2004.

Studies on ICOS/GL50 signal in the specific immune tolerance and its mechanism.

Role: **Principal Investigator**.

**Research Description:**

My research interest is in understanding the regulation of gut immune cells and microbiota in colitis and its related cancer development, especially colon cancer. IBD is strongly associated with inflammation accompanied by increased infiltration of leukocytes. We are investigating the mechanisms involved in maintaining balance between the good vs bad inflammatory conditions in gut. The complex nature of the human gut microbiota and its relevance to human health and disease is at a very early stage of investigation. It is becoming very clear that changes in the environment, diet and genetic factors greatly influence human microbiota contributing to the modulation of disease progression. Our research also focuses on the role that diet and nutrition play in the prevention and treatment of various cancers such as liver cancer and colon cancer. We put an emphasis on investigating the mechanisms of action of active dietary and nutritional nanoparticles. Our lab uses clinically relevant animal models and an integrated research system to identify effective dietary and nutritional nanoparticles for cancer prevention in vitro and in vivo, evaluate the efficacies of dietary and nutritional regimens, elucidate underlying cellular, molecular, and epigenetic mechanisms of action, identify novel anti-cancer components, and define risk factors of cancer development. We utilize several genetically altered transgenic/compound (knockout/conditional expression of interested genes) pre-clinical mouse models, cellular and molecular models and next generation sequencing methods to understand the IBD and colon cancer progression.

<http://louisville.edu/medicine/research/cancer/z0deng01>

## ABSTRACTS AND PRESENTATIONS

### Oral/Invited Presentations: National/International Meetings

1. Rui Sun, Chao Lei, **Zhongbin Deng**. Neutral ceramidase-dependent signaling balances the accumulation and function of Th17 cells in alcohol-associated liver disease. AASLD, NOV, 2021.
2. Warner, J.B., Larsen, I.S., Warner, D.R., Hardesty, J.E., Song, Y.L., Sun, R., **Deng, Z.**, Nordkild, P., McClain, C.J., Jensen, B.A.H., Kirpich, I.A. Human beta defensin 2 as a potential beneficial agent to mitigate alcohol-induced alterations in the intestine and liver: multiple underlying mechanisms. Digestive Disease Week Meeting. May 2-5, 2020.
3. **Deng Z**, Chu S, Sun R, Gu X, Chen L. Targeting Sphingolipids inhibits alcohol-induced liver disease. AAI meeting 2020, HI. (Poster presentation).
4. Kai Wang, Xiaozhen Dai, Junhong He, Chengkui Yang, Jing Chen, Jianxiang Xu, **Zhongbin Deng**, Edward C. Carlson, Kupper A. Wintergerst, Paul N. Epstein, Lu Cai, Yan Qian, **Yi Tan**. Metallothionein Improves Angiogenic Function of Endothelial Progenitor Cells Via Hif-1 $\alpha$ /sdf-1/Akt Pathway in Diabetic Limb Ischemia. The SOT 58th Annual Meeting and ToxExpo, March 10–14, 2019, Baltimore, Maryland.
5. **Deng Z**, Chu S, Gu X, Liu M, Feng W. Targeting gut inflammation inhibits alcohol-induced liver disease. AAI meeting 2019, San Diego. (Poster presentation).
6. **Deng Z**, Rong Y, Mu J, Jala VR, Tseng M, Teng Y, Kumar A, Zhang HG. CSN8 Promotes Intestinal Tumorigenesis. AAI meeting 2018, Austin, TX. (Poster presentation).
7. **Deng Z**. COP9 signalosome, Colitis and Colon cancer. Annual Meeting--Chinese Association of young Immunologists, Suzhou, China. 2017. (Oral presentation).
8. **Deng Z**, Rong Y, Teng Y, Mu J, Miller D, Suttles J, and Zhang HG. Broccoli-derived nanoparticle inhibits mouse colitis by activating dendritic cell AMP-activated protein kinase. J Immunol 2017: (1 Supplement). AAI meeting 2017, DC. (Poster presentation).
9. Teng Y, Ren Y, Hu X, Mu J, Samykutty A, Zhuang X, **Deng Z**, Zhang L, Merchant M, Yan J, Miller DM and Zhang HG. Major vault protein (MVP) dependent sorting tumor suppressor miR-193a into tumor exosomes promotes colon cancer progression. NIH UH3 annual meeting, 4/1/2017. (Oral presentation).
10. **Deng Z**, Mu J, Zhuang X, Zhang L, Haribabu B, Miller D and Zhang HG. Enterobacteria-mediated the overproduction of intestinal exosomes S1P to drive Th17-mediated colon tumor growth. J Immunol 2016 196: (1 Supplement) 73.20. AAI meeting 2016, Seattle. (Poster presentation).
11. **Deng Z-B** and Zhang H-G. Overproduction of intestinal mucus exosomal S1P drives Th17-mediated colon tumor growth. Annual Meeting--Chinese Association of Immunologists, Suzhou, China. 2014. (Oral presentation).
12. **Deng Z**, Teng Y, Rong Y, Zhuang X, Mu J, Zhang L, Samykutty A, and Zhang HG Exosomes released from Doxorubicin-treated breast tumor promote lung metastasis through miR126 mediated induction of MDSCs. J Immunol 2015 194:211.41. AAI meeting 2015, New Orleans. (Poster presentation).
13. **Deng ZB**, Wang B, Zhuang X, Jiang H, Wang Q, Zhang L and Huang-Ge Zhang HG. The role of intestinal epithelial exosomes in the progression of colon cancer. J Immunol 2014 192:203.34. AAI meeting 2014, Pittsburgh. (Poster presentation).
14. **Deng ZB**, Zhuang X, Xiang X, Jiang H, Wang Q, Miller D and Huang-Ge Zhang HG. Intestinal mucus-derived nanoparticles carry prostaglandin E2 and suppress liver inflammation through Wnt/ $\beta$ -catenin signaling. J Immunol 2013 190:136.29. AAI meeting 2013, HI. (Poster presentation).
15. **Deng Z**, Ju S, Zhuang X, Xiang X, Miller D and Huang-ge Zhang. Intestinal epithelial cells-derived exosomes provide a bridge between the gut and the liver that prevents liver inflammation through prostaglandin E2 induction of NK T cell anergy. The Journal of Immunology, 2012, 188, 49.11. AAI

- meeting 2012. Boston. (Poster presentation).
16. Huang-ge Zhang, **Zhongbin Deng**. Cell cross-talk with tumor-associated leukocytes leads to induction of tumor exosomal fibronectin and promotes tumor progression. AACR 103rd Annual Meeting 2012-- Mar 31-Apr 4, 2012; Chicago, IL
  17. **Deng ZB**, Xiang X, Liu C, Liu Y, Wang J, Cheng Z, Shah SV, Zhang L, Michalek S, Grizzle WE, and Zhang HG. Induction of inflammatory immature myeloid cells contributes to liver damage in obese mouse model. Temple, FL 2009 (Poster presentation).
  18. Liping Song, Tasnim Ara, Jill Salo, **Zhong-bin Deng**, Shahab Asgharzadeh, Lingyun Ji, Richard Sposto, Yves A DeClerck, Robert C Seeger and Leonid S Metelitsa. The role of paracrine IL-6 and IL-10 in neuroblastoma progression. *The Journal of Immunology*, 2007, 178, 49

## PUBLICATIONS:

### Complete List of Published Work in My Bibliography:

[http://www.ncbi.nlm.nih.gov/pubmed?term=\(zhongbin%20deng%5BAuthor%5D\)%20OR%20zhongbin%20deng%5BAuthor%5D](http://www.ncbi.nlm.nih.gov/pubmed?term=(zhongbin%20deng%5BAuthor%5D)%20OR%20zhongbin%20deng%5BAuthor%5D)

1. Sun R, Gu X, Chen L, Lei C, Chu S, Xu G, Doll M, Feng W, Siskind L, McClain CJ, **Deng Z**. Neutral ceramidase-dependent regulation of macrophage metabolism directs intestinal immune homeostasis and controls enteric infection. **Cell Reports**. 2022. March 29; 38 (13).
2. Sun R, Lei C, Chen L, He L, Guo H, Zhang X, Feng W, Yan J, McClain CJ, **Deng Z**. Alcohol-driven metabolic reprogramming promotes development of ROR $\gamma$ t-deficient thymic lymphoma. **Oncogene**. 2022 Mar 4. Online ahead of print. PMID: 35246617
3. Sriwastva M<sup>#</sup>, **Deng Z<sup>#</sup>**, Wang B, Teng Y, Kumar A, Sundaram K, Mu J, Lei C, Dryden GW, Xu F, Zhang L, Yan J, Zhang X, Park JW, Merchant M, Egilmez NK, Zhang HG. Mulberry exosomes-like nanoparticles prevent DSS-induced colitis via AhR/COPS8 signalling pathway. **EMBO Reports**. 2022 Jan 7: e53365. Online ahead of print. PMID: 34994476. #: **Co-First Author**.
4. Gu X, Sun R, Chen L, Chu S, Liu M, Doll M, Li X, Feng W, Siskind L, McClain CJ, **Deng Z**. Neutral ceramidase mediates nonalcoholic steatohepatitis by regulating monounsaturated fatty acids and gut IgA+ B cells. **Hepatology**. 2021 Mar;73(3):901-919. PMID: 33185911
5. Chu S, Sun R, Gu X, Chen L, Liu M, Guo H, Ju S, Vatsalya V, Feng W, McClain CJ, **Deng Z**. Inhibition of sphingosine-1-phosphate-induced Th17 cells ameliorates alcoholic steatohepatitis in mice. **Hepatology**. 2020 May 17. doi: 10.1002/hep.31321. Online ahead of print. PMID: 32418220
6. Warner J., Larsen I., Hardesty J., Song Y., Warner D., McClain C., Sun R., **Deng Z.**, Jensen B., Kirpich I.\* Human Beta Defensin 2 Ameliorated Experimental Alcohol-Associated Liver Disease in Mice. **Frontiers in Physiology**, 27 January 2022.
7. Li F, Chen J, Liu Y, Gu Z, Jiang M, Zhang L, Chen SY, **Deng Z**, McClain CJ, Feng W. Deficiency of Cathelicidin Attenuates High-Fat Diet Plus Alcohol-Induced Liver Injury through FGF21/Adiponectin Regulation. **Cells**. 2021 Nov 27;10(12):3333.
8. Warner J., Hardesty J., Song Y., Sun R., **Deng Z.**, Xu R., Yin X., Zhang X., McClain C., Warner D., Kirpich I. Fat-1 transgenic mice with augmented n3-polyunsaturated fatty acids are protected from liver

- injury caused by acute-on-chronic ethanol administration. **Front. Pharmacol.**, **2021**, 12:711590. PMID: 34531743, PMCID: PMC8438569
9. Gu Z, Li F, Liu Y, Jiang M, Zhang L, He L, Wilkey DW, Merchant M, Zhang X, **Deng ZB**, Chen SY, Barve S, McClain CJ, **Feng W**. Exosome-Like Nanoparticles from *Lactobacillus rhamnosus* GG Protect Against Alcohol-Associated Liver Disease Through Intestinal Aryl Hydrocarbon Receptor in Mice. **Hepato Comm.** **2021** Feb 5;5(5):846-864. PMID: 34027273.
  10. Song M, Yuan F, Li X, Ma X, Yin X, Rouchka EC, Zhang X, **Deng Z**, Prough RA, McClain CJ. Analysis of sex differences in dietary copper-fructose interaction-induced alterations of gut microbial activity in relation to hepatic steatosis. **Biol Sex Differ.** **2021** Jan 6;12(1):3.
  11. Li F, Zhao C, Shao T, Liu Y, Gu Z, Jiang M, Li H, Zhang L, Gillevet P, Puri P, **Deng Z**, Chen S, Barve S, Gobejishvili L, Vatsalya V, McClain CJ, Feng W. Cathelicidin - related antimicrobial peptide alleviates alcoholic liver disease through inhibiting inflammasome activation. **The Journal of Pathology.** 15 August **2020**. Dec;252(4):371-383.
  12. Wang K, Dai X, He J, Yan X, Yang C, Fan X, Sun S, Chen J, Xu J, **Deng Z**, Fan J, Yuan X, Liu H, Carlson EC, Shen F, Wintergerst KA, Conklin DJ, Epstein PN, Lu C, Tan Y. Endothelial Overexpression of Metallothionein Prevents Diabetes-Induced Impairment in Ischemia Angiogenesis Through Preservation of HIF-1 $\alpha$ /SDF-1/VEGF Signaling in Endothelial Progenitor Cells. **Diabetes.** 2020 Aug;69(8):1779-1792. doi: 10.2337/db19-0829. Epub **2020** May 13. PMID: 32404351
  13. Ma Y, Wang R, Lu H, Li X, Zhang G, Fu F, Cao L, Zhan S, Wang Z, **Deng Z**, Shi T, Zhang X, Chen W. B7-H3 promotes the cell cycle-mediated chemoresistance of colorectal cancer cells by regulating CDC25A. **J Cancer.** **2020** Feb 3;11(8):2158-2170.
  14. Liu X, Zhang H, Cheng R, Gu Y, Yin Y, Sun Z, Pan G, **Deng Z**, Yang H, Deng L, Cui W, Santos HA, Shi Q. An immunological electrospun scaffold for tumor cell killing and healthy tissue regeneration. **Materials Horizons.** **2018** Nov 1;5(6):1082-1091.
  15. Teng Y, Ren Y, Sayed M, Hu X, Lei C, Kumar A, Hutchins E, Mu J, **Deng Z**, Luo C, Sundaram K, Sriwastva MK, Zhang L, Hsieh M, Reiman R, Haribabu B, Yan J, Jala VR, Miller DM, Van Keuren-Jensen K, Merchant ML, McClain CJ, Park JW, Egilmez NK, Zhang HG. (2018) Plant-Derived Exosomal MicroRNAs Shape the Gut Microbiota. **Cell Host & Microbe**, 24(5):637-652. PMID: 30449315. PMCID: N/A.
  16. Wang QL, Zhuang X, Sriwastva MK, Mu J, Teng Y, **Deng Z**, Zhang L, Sundaram K, Kumar A, Miller D, Yan J, Zhang HG. Blood exosomes regulate the tissue distribution of grapefruit-derived nanovector via CD36 and IGFR1 pathways. **Theranostics.** 2018 Sep 9;8(18):4912-4924.
  17. **Deng Z**<sup>#</sup>, Rong Y<sup>#</sup>, Teng Y, Mu J, Zhuang X, Tseng M, Samykutty A, Zhang L, Yan J, Miller D, Suttles J, Zhang HG\*. Broccoli-derived nanoparticle inhibits mouse colitis by activating dendritic cell AMP-activated protein kinase. **Molecular Therapy.** **2017**, Jul 5;25(7):1641-1654. PMID:28274798.
  18. Teng Y, Ren Y, Xu X, Mu J, Samykutty A, Zhuang X, **Deng Z**, Zhang L, Merchant M, Yan J, Miller D, Kumar A, Zhang HG. Major vault protein (MVP) dependent sorting tumor suppressor miR-193a into

- tumor exosomes promotes colon cancer progression. **Nature communications**. 2017 Feb 17;8:14448. PMID:28211508.
19. **Deng Z\***, Rong Y, Teng Y, Zhuang X, Samykutty A, Mu J, Zhang L, Cao P, Yan J, Miller D, Zhang HG\*. Exosomes miR-126a released from MDSC induced by DOX treatment promotes lung metastasis. **Oncogene**. 2017 Feb 2;36(5):639-651. PMID: 27345402; PMCID: PMC5419051. (\*: **Corresponding author**)
  20. Teng Y, Mu J, Hu X, Samykutty A, Zhuang X, **Deng Z**, Zhang L, Cao P, Yan J, Miller D, Zhang HG. Grapefruit-derived nanovectors deliver miR-18a for treatment of liver metastasis of colon cancer by induction of M1 macrophages. **Oncotarget**. 2016 Mar 25. doi: 10.18632/oncotarget.8361. [Epub ahead of print]. PMID: 27028860
  21. Zhang HG, Cao P, Teng Y, Hu X, Wang Q, Yeri AS, Zhuang X, Samykutty A, Mu J, **Deng ZB**, Zhang L, Mobley JA, Yan J, Van Keuren-Jensen K, Miller D. Isolation, identification, and characterization of novel nanovesicles. **Oncotarget**. 2016 May 12. doi: 10.18632/oncotarget.9325. [Epub ahead of print]. PMID: 27191656
  22. **Deng Z\***, Mu J, Tseng M, Wattenberg B, Zhuang X, Egilmez NK, Wang Q, Zhang L, Norris J, Guo H, Yan J, Bodduluri H, Miller D, Zhang HG\*. Enterobacteria-secreted particles induce production of exosome-like S1P-containing particles by intestinal epithelium to drive Th17-mediated tumorigenesis. **Nature communications**. 2015 Apr 24; PMID: 25907800. PMCID: PMC4410277. (\*: **Corresponding author**)
  23. Zhuang X, Teng Y, Samykutty A, Mu J, **Deng Z**, Zhang L, Cao P, Rong Y, Yan J, Miller D, Zhang HG. Grapefruit-derived Nanovectors Delivering Therapeutic miR17 Through an Intranasal Route Inhibit Brain Tumor Progression. **Mol Ther**. 2015 Oct 7. doi: 10.1038/mt.2015.188. [Epub ahead of print] PMID: 26444082.
  24. Zhuang X, **Deng ZB**, Mu J, Zhang L, Yan J, Miller D, Feng W, McClain CJ, Zhang HG. Ginger-derived nanoparticles protect against alcohol-induced liver damage. **J Extracell Vesicles**. 2015 Nov 25;4:28713. doi: 10.3402/jev.v4.28713. eCollection 2015. PMID: 26610593
  25. Wang Q, Ren Y, Mu J, Egilmez NK, Zhuang X, **Deng Z**, Zhang L, Yan J, Miller D, Zhang HG. Grapefruit-derived nanovectors use an activated leukocyte trafficking pathway to deliver therapeutic agents to inflammatory tumor sites. **Cancer Research**. 2015 Jun 15;75(12):2520-9.
  26. Zhuang X, Teng Y, Samykutty A, Mu J, **Deng Z**, Zhang L, Cao P, Rong Y, Yan J, Miller D, Zhang HG. Grapefruit-derived Nanovectors Delivering Therapeutic miR17 Through an Intranasal Route Inhibit Brain Tumor Progression. **Mol Ther**. 2015 Oct 7. doi: 10.1038/mt.2015.188. [Epub ahead of print]
  27. **Deng ZB\***, Zhuang X, Ju S, Xiang X, Mu J, Wang Q, Hong J, Zhang L, Kronenberg M, Yan J, Miller D, Zhang HG\*. Intestinal mucus-derived nanoparticles mediate activation of Wnt/ $\beta$ -catenin signaling plays a role in induction of liver NKT cell anergy. **Hepatology**, 2013 Mar;57(3):1250-61. (\*: **Corresponding author**)
  28. **Deng ZB\***, Zhuang X, Ju S, Xiang X, Mu J, Hong J, Zhang L, Mobley J, McClain C, Grizzle W, Yan J,



Miller DM, Kronenberg M, Zhang HG\*. Intestinal Mucus Exosome-like Nanoparticles Carry Prostaglandin E2 and Suppress Activation of Liver Natural Killer T Cells. **J Immunol**. 2013 Apr 1;190(7):3579-89. (\*: **Corresponding author**)

29. Wang Q, Zhuang X, Mu J, **Deng ZB**, Jiang H, Xiang X, Wang B, Yan J, Miller D, Zhang HG. Delivery of therapeutic agents by nanoparticles made of grapefruit-derived lipids. **Nature Communications**. 2013;4:1867.
30. Tseng MT, Fu Q, Lor K, Fernandez-Botran GR, Deng ZB, Graham U, Butterfield DA, Grulke EA, Yokel RA. Persistent hepatic structural alterations following nanoceria vascular infusion in the rat. **Toxicol Pathol**. 2014 Aug;42(6):984-96. PMID: 24178579
31. Jiang H, Wang P, Li X, Wang Q, **Deng ZB**, Zhuang X, Mu J, Zhang L, Wang B, Yan J, Miller D, Zhang HG. Restoration of miR17/20a in solid tumor cells enhances the natural killer cell antitumor activity by targeting Mekk2. **Cancer Immunol Res**. 2014 Aug; 2(8):789-99.
32. Wang B, Zhuang X, **Deng ZB**, Jiang H, Mu J, Wang Q, Xiang X, Guo H, Zhang L, Dryden G, Yan J, Miller D, Zhang HG. Targeted drug delivery to intestinal macrophages by bioactive nanovesicles released from grapefruit. **Mol Ther**. 2013 Aug 13. doi: 10.1038/mt.2013.190. [Epub ahead of print]
33. Mu J, Zhuang X, Wang Q, Jiang H, **Deng ZB**, Wang B, Zhang L, Kakar S, Jun Y, Miller D, Zhang HG. Interspecies communication between plant and mouse gut host cells through edible plant derived exosome-like nanoparticles. **Mol Nutr Food Res**. 2014 Jul;58(7):1561-73. doi: 10.1002/mnfr.201300729. Epub 2014 May 19. PMID: 24842810
34. Tseng MT, Fu Q, Lor K, Fernandez-Botran GR, **Deng ZB**, Graham U, Butterfield DA, Grulke EA, Yokel RA. Persistent Hepatic Structural Alterations Following Nanoceria Vascular Infusion in the Rat. **Toxicol Pathol**. 2013 Oct 31. [Epub ahead of print]
35. Ju S, Mu J, Dokland T, Zhuang X, Wang Q, Jiang H, Xiang X, **Deng ZB**, Wang B, Zhang L, Roth M, Welti R, Mobley J, Jun Y, Miller D, Zhang HG. Grape Exosome-like Nanoparticles Induce Intestinal Stem Cells and Protect Mice From DSS-Induced Colitis. **Mol Ther**. 2013 Jul;21(7):1345-57.
36. **Deng Z**, Cheng Z, Xiang X, Yan J, Zhuang X, Liu C, Jiang H, Ju S, Zhang L, Grizzle W, Mobley J, Roman J, Miller D, Zhang HG. Tumor Cell Cross Talk with Tumor-Associated Leukocytes Leads to Induction of Tumor Exosomal Fibronectin and Promotes Tumor Progression. **Am J Pathol**. 2012 Jan; 180(1):390-8.
37. Sun D, Zhuang X, Zhang S, **Deng ZB**, Grizzle W, Miller D, Zhang HG. Exosomes are endogenous nanoparticles that can deliver biological information between cells. **Adv Drug Deliv Rev**. 2012 Jul 6. [Epub ahead of print]
38. Xiang X, **Deng Z**, Zhuang X, Jiang H, Ju S, Zhang L, Zhang HG. Grainyhead transcription factor, Grhl2, determines the epithelial phenotype of breast cancer cells and plays a crucial role during tumor progression. **PLoS One**. 2012;7(12):e50781.
39. **Deng Z**, Pardi R, Cheadle W, Xiang X, Zhang S, Shah SV, Grizzle W, Miller D, Mountz J, Zhang HG\*. Plant homologue constitutive photomorphogenesis 9 (COP9) signalosome subunit CSN5 regulates

innate immune responses in macrophages. **Blood**. 2011 May, 117(18):4796-804. (\*: **Corresponding author**)

40. **Deng ZB**, Liu Y, Liu C, Xiang X, Wang J, Cheng Z, Shah SV, Zhang L, Michalek S, Grizzle WE, and Zhang HG. Immature myeloid cells induced by a high fat diet contribute to liver inflammation. **Hepatology**. 2009, 50(5):1412-20
41. **Deng ZB**, Poliakov A, Hardy RW, Clements R, Liu C, Liu Y, Wang J, Xiang X, Zhang S, Michalek S, Grizzle WE, Garvey T, Mobley J and Zhang HG Adipose tissue exosome-like vesicles mediate activation of macrophage-induced insulin resistance. **Diabetes**. 2009, 58(11):2498-505
42. Liu Y, Shah SV, Xiang X, Wang J, **Deng ZB**, Liu C, Zhang L, Wu J, Edmonds T, Jambor C, Kappes JC, Zhang HG. COP9-associated CSN5 regulates exosomal protein deubiquitination and sorting. **Am J Pathol**. 2009 Apr;174(4):1415-25
43. Xiang X, Poliakov A, Liu C, Liu Y, **Deng ZB**, Wang J, Cheng Z, Shah SV, Wang GJ, Zhang L, Grizzle WE, Mobley J, Zhang HG. Induction of myeloid-derived suppressor cells by tumor exosomes. **Int J Cancer**. 2009 Jun 1;124(11):2621-33
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