

**Jun Cai, M.D., Ph.D.**

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**EDUCATION**

07/1985 – 06/1988 Biology, Nankai University, Tianjin, P.R. China  
07/1988 – 06/1993 M.D., Tianjin Medical College, Tianjin, P.R. China  
07/1993 – 09/1995 Residency, Internal Medicine, General Hospital of Tianjin Medical University, Tianjin, P.R. China  
07/1994 – 06/1997 Ph.D. in Biochem. & Mol. Biol., Tianjin Medical University, Tianjin, P.R. China  
07/1998 – 06/2003 Postdoc. in Dev. Neurobiol., University of Louisville School of Medicine, Louisville, KY

**ACADEMIC APPOINTMENTS**

07/1993 - 09/1995 Research Associate, Division of Biochemistry and Molecular Biology, Institute of Endocrinology, Tianjin Medical University, Tianjin, P.R. China  
10/1995 - 06/1998 Assistant Professor, Key Laboratory of Hormone and Development (Ministry of Public Health), Division of Biochemistry and Molecular Biology, Institute of Endocrinology, Tianjin Medical University, Tianjin, P.R. China  
07/2003 - 06/2007 Instructor, Department of Anatomical Sciences and Neurobiology, University of Louisville School of Medicine, Louisville, KY  
07/2007 - 10/2009 Assistant Professor of Pediatrics (term-track), Kosair Children's Hospital Research Institute, Department of Pediatrics, University of Louisville School of Medicine, Louisville, KY  
11/2009 - 12/2013 Assistant Professor of Pediatrics (tenure-track), Kosair Children's Hospital Research Institute, Department of Pediatrics, and Department of Anatomical Sciences and Neurobiology, University of Louisville School of Medicine, Louisville, KY  
01/2014 – 06/2017 Associate in Anatomical Sciences and Neurobiology, Department of Anatomical Sciences and Neurobiology, University of Louisville School of Medicine, Louisville, KY  
01/2014 – 06/2017 Assistant Professor of Pediatrics (tenure-track), Pediatric Research Institute, Department of Pediatrics, University of Louisville School of Medicine, Louisville, KY  
07/2017 – 06/2019 Assistant Professor of Pediatrics (term-track), Pediatric Research Institute, Department of Pediatrics, University of Louisville School of Medicine, Louisville, KY  
06/2018 - present Associate in Pharmacology & Toxicology, Department of Pharmacology & Toxicology, University of Louisville School of Medicine, Louisville, KY  
07/2019 – present Associate Professor of Pediatrics (term-track), Pediatric Research Institute, Department of Pediatrics, University of Louisville School of Medicine, Louisville, KY

**OTHER POSITIONS AND EMPLOYMENT**

1994 - 1996 Advisor, Tianjin Hetian Science and Technology Development Co. Ltd.  
1995 - 1997 Advisor, Gene Co. Ltd.  
1996 - 1998 Consultant, Tianjin HW Science and Technology Development Co. Ltd.  
05/2009 – 04/2012 Visiting Professor, Metabolic Disease Hospital, Key Laboratory of Hormone and Development affiliated with Ministry of Public Health, Tianjin Medical University, Tianjin, P. R. China.

- 11/2015 – 10/2019 Visiting Professor, The 2<sup>nd</sup> Affiliated Hospital of Jilin University, Changchun, Jilin, P. R. China. Ph.D. student mentor of a collaborative research program approved by Jilin University of China and the University of Louisville.
- 10/2015 – 09/2020 Consultant, Pediatric Sleep Medicine, The 2<sup>nd</sup> Affiliated Hospital and Yuying Children's Hospital of Wenzhou Medical University, Wenzhou, Zhejiang, P. R. China. M.S. student mentor of a collaborative research program approved by Yuying Children's Hospital of Wenzhou Medical University of China and the University of Louisville.

## **CERTIFICATION AND LICENSURE**

1. Intermediate Professional Rank Certificate (No.026483):  
Profession: Nature Science  
Professional Title: Assistant Professor  
Date of Accreditation: October, 1995  
Issued by: Tianjin Municipal Personnel Bureau, Tianjin, P. R. China.
2. Teaching License (No. 971210071012180)  
Content: Qualified for teaching at any University or College in P. R. China  
Date of Accreditation: August 20, 1997  
Issued by: State Education Commission, P. R. China

## **PROFESSIONAL MEMBERSHIPS AND ACTIVITIES**

- 1993 - 2000 member, Chinese Medical Association  
1995 - 2000 member, Chinese Society of Biochemistry and Molecular Biology  
1999 - present member, Society for Neuroscience, U.S.  
2008 - present member, Sleep Research Society, U.S.  
2008 - present member, World Federation of Sleep Research Societies  
2018 - present member, National Neurotrauma Society, U.S.  
2019 - present member, Society for Experimental Biology and Medicine, U.S.  
2020 - present full member, Sigma Xi The Scientific Research Honor Society, U.S.

## **HONORS AND AWARDS**

- 1995 National Scientific and Technological Achievement Certificate (No. 051514), State Science and Technology Commission of China.
- 1997 Award of Excellent Academic Thesis - "Cloning and Expression of Recombinant Human Parathyroid Hormone Gene in vitro", Tianjin Medical University, Tianjin, P. R. China.
- 1997 Award of Excellent Academic Thesis – "Expression of Recombinant Human Calcitonin Gene in vitro", Chinese Medical Association at 2nd National Youth Conference of Endocrinology and Metabolism, Fifth National Congress of Endocrinology and Metabolism held by Chinese Medical Association. Hangzhou, P. R. China.
- 1997 Xuhuacheng-Osteoporosis Research Award, Endocrinology Society of Chinese Medical Association, P. R. China.
- 1998 Excellent Ph. D. Dissertation of Tianjin Medical University in 1997, Tianjin Medical University, Tianjin, P. R. China
- 1998 Award of Excellent Academic Thesis (Certificate No. 9800040) – "An Experimental Study of Recombinant Human and Salmon Calcitonin", Tianjin Municipal Commission of Science and Technology of Tianjin Science and Technology Association at Satellite Meeting of 3rd National Youth Academic Conference, Tianjin, P. R. China.
- 1998 Award of Excellent Study on Geriatrics – "Cloning and Expression of Glutamic Acid Decarboxylase and Preliminary Application in Type I Diabetes Mellitus", Korean Geriatrics Society of Korean Medical Association, Korea.

- 1999 Trans-century scientist with outstanding academic achievement in 1997~1998, Tianjin Medical University, Tianjin, P. R. China
- 1999 Tianjin Scientific and Technological Achievement Certificate (No. 99302/No. 99303) issued by Tianjin Municipal Commission of Science and Technology, Tianjin, P. R. China.
- 2000 Advanced Postdoctoral Fellowship Award, National Multiple Sclerosis Society, U.S.A.
- 2004 Award for the first place of “Most Promising Basic Science Research”, Research! Louisville, U.S.A.
- 2007 Outstanding Health Professionals Worldwide 2007 in the Arena of Developmental Neuroscience, International Biographical Center, Cambridge, England.
- 2009 J. Christian Gillin, M.D. Research Award, Sleep Research Society Foundation, U.S.A.
- 2014 Ad hoc expert panelist, Journal Club of Sleep and Respiratory Neurobiology, American Thoracic Society.
- 2014 Outstanding Contribution in Reviewing. In recognition of the contributions made to the quality of the journal - Brain Research. The Editors of BRAIN RESEARCH, Elsevier, Amsterdam, Netherlands.
- 2020 Full membership nominated by the Committee on Qualifications and Membership of Sigma Xi The Scientific Research Honor Society, U.S.
- 2021 The EBM Outstanding Reviewer Award. In recognition of the exceptional reviewers. The Editors of Experimental Biology and Medicine, Society for Experimental Biology and Medicine, U.S.

## **COMMITTEE ASSIGNMENTS AND ADMINISTRATIVE SERVICES**

### Grant review

- 1998 *Ad hoc* reviewer, Division of Neuroscience, Department of Life Sciences, National Natural Science Foundation of China (NSFC)
- 2012 *Ad hoc* reviewer, projects for the Blue-Sky program of the French National Research Agency (ANR)
- 2016 *Ad hoc* reviewer, SBIR/STTR program, Kentucky Science and Engineering Foundation (KSEF)
- 2018 Panel member for Career Development Award, Sleep Research Society Foundation, Jan. 26, 2018.
- 2019 Panel member for Career Development Award, Sleep Research Society Foundation, Feb. 12, 2019.
- 2019 ORD Special Emphasis Panel member for Council ZRD1 NURA-J (01) Neurobiology-A, Department of Veterans Affairs, Dec. 6, 2019.
- 2020 Panel member for Career Development Award, Sleep Research Society Foundation, Feb. 27, 2020.

### Committee assignments

- 2009 – 2010 Committee member of five-year chair review for the University of Louisville School of Dentistry.
- 07/2017- 06/2020 Member of the Scientific Review Committee for the Sleep Research Society.

### Other professional activities

- 2010 Member of the Science Advisory Board, BIT's 1<sup>st</sup> Annual World Congress of NeuroTalk 2010.
- 2010 Organizing 2010~2011 COBRE seminar series.
- 2011 Faculty recruitment interview for the Department of Molecular, Cellular, and Craniofacial Biology at the University of Louisville School of Dentistry.
- 2011 Faculty recruitment interview of Sleep Medicine for the Department of Pediatrics at the University of Louisville School of Medicine.

- 2012 Committee member of scientific director recruitment for the KCH Research Institute at the University of Louisville School of Medicine.
- 2012 Interviewer of prospective graduate students (M.S. and Ph.D. programs) for the Department of Anatomical Sciences and Neurobiology at the University of Louisville School of Medicine.
- 2013 Faculty recruitment interview for the Department of Anatomical Sciences and Neurobiology at the University of Louisville School of Medicine.
- 2013 Organizing 2013~2014 KCHRI seminar series.
- 2014 *Ad hoc* expert panelist, Journal Club of Sleep and Respiratory Neurobiology, American Thoracic Society.
- 2014 Organizing 2014~2015 PRI seminar series.
- 2015 Organizing 2015~2016 PRI seminar series.
- 10/30/2015 – 11/07/2015 Member and interpreter of the academic visiting delegation of the Department of Pediatrics to China.
- 2016 Organizing Committee member, Midwest Regenerative Medicine Meeting.
- 2016 Organizing 2016~2017 PRI seminar series.
- 2017 Organizing 2016~2017 PRI seminar series.
- 2018 Panel member for Outstanding Early Investigator Award, Sleep Research Society Foundation, March 28, 2018.
- 2019 Panel member for Outstanding Early Investigator Award, Sleep Research Society Foundation, March 25, 2019.
- 2020 Panel member for Outstanding Early Investigator Award, Sleep Research Society Foundation, March 18, 2020.

## EDUCATIONAL ACTIVITIES

### Graduate courses, continuing and professional education (China)

Molecular Biology for Graduate Students  
Experimental Technology of Modern Molecular Biology for Graduate Students  
Biochemistry for Graduate Students  
Molecular Endocrinology for Physician and Specialist

### Mentor for high school students, undergraduates, graduates and post-doctoral fellows (China)

04/1994 – 07/1994 Weiming Ouyang, BS candidate, Dept. Biology, Nankai Univ.  
04/1995 – 07/1995 Yue Zhang, BS candidate, Dept. Biology, Nankai Univ.  
04/1996 – 07/1996 Linfeng Chen, BS candidate, Dept. Biology, Nankai Univ.  
04/1997 – 07/1997 Zhiyong Ren, BS candidate, Dept. Biology, Nankai Univ.  
07/1997 – 06/1998 Gong Feng, MS candidate, Inst. of Endocrinology, Tianjin Medical Univ.  
07/1997 – 06/1998 Naiping Huang, MS candidate, Inst. of Endocrinology, Tianjin Medical Univ.  
07/1994 – 06/1995 Fang Cai, MS candidate, Inst. of Endocrinology, Tianjin Medical Univ.  
07/1995 – 06/1996 Xu Li, MS candidate, Inst. of Endocrinology, Tianjin Medical Univ.  
07/1995 – 06/1996 Jianming Han, MS candidate, Inst. of Endocrinology, Tianjin Medical Univ.  
07/1995 – 06/1996 Rui Wu, PhD candidate, Dept. of Endocrinology, Tianjin General Hospital  
07/1996 – 06/1997 Xinyan Yang, MS candidate, Dept. of Digestion, Tianjin General Hospital  
07/1997 – 06/1998 Yan Xing, MS candidate, Inst. of Endocrinology, Tianjin Medical Univ.  
07/1997 – 06/1998 Xin Li, PhD candidate, Dept. of Neurology, 2<sup>nd</sup> Affiliated Hospital of Tianjin Medical Univ.

### Graduate courses, continuing and professional education (USA)

2018: PHTX-643-01-4183: Toxicology I – Fall 2018; 1.5 hours of contact time; lecture on “Neurotoxicity: Toxic responses of the nervous system”, 3 hours.

2019: PHTX-643-01-4183: Toxicology I – Fall 2019; 1.5 hours of contact time; lecture on “Neurotoxicity: Toxic responses of the nervous system”, 2 hours.

2021: PHTX-643-01-4183: Toxicology I – Spring 2021; 1.5 hours of contact time; lecture on “Neurotoxicity: Toxic responses of the nervous system”, 4 hours.

Mentor for high school students, undergraduates, graduates, post-doctoral fellows, and lab staff (USA)

03/2008 - 07/2013	Chiminh Tuong, technologist II, University of Louisville School of Medicine
10/2010 – 09/2011	Xin Lin, postdoctoral fellow, Department of Neurosurgery, Tianjin Huanhu Hospital, China. Current position: <b>Associate Professor</b> , Tianjin Medical University.
10/2011 - 12/2012	Zhongwen Gao, MD/PhD candidate, Jilin University of China / University of Louisville School of Medicine. Current position: <b>Associate Professor</b> , Jilin University
05/2012 – 6/2012	Kshitij (Ken) Thapa, summer student, Worcester Polytechnic Institute (WPI)
08/2012 – 07/2017	Qiang Fu, research scholar, University of Louisville School of Medicine
10/2012 – 9/2013	Fang Li, MD, postdoctoral fellow, Department of Neurosurgery, China-Japan Friendship Hospital, Peking University, China. Current position: <b>Neurosurgeon</b> .
12/2012 – 12/2013	Xiaomei Li, MD, postdoctoral fellow, Neonatal Department, Qilu Children’s Hospital, Shandong University, China. Current position: <b>Associate Professor</b> .
06/2013 – 05/2015	Joy Li, high school student, DuPont Manual High School, Louisville, Kentucky
10/2013 – 01/2015	Guoxiang Wang, MD/PhD candidate, Jilin University of China / University of Louisville School of Medicine. Current position: <b>Oncologist</b> , Jilin University.
10/2013 – 12/2014	Yuanyi Wang, MD/PhD candidate, Jilin University of China / University of Louisville School of Medicine. Current position: <b>Associate Professor</b> , Jilin University.
02/2014 – 07/2014	Serve on Graduate Student Advisory Committee for Lingbin Meng (Mentor - Dr. Robin Krimm, Department of Anatomical Sciences and Neurobiology).
04/2014 – 06/2014	Xiaoyu Yang, MD, advanced visiting scholar, Professor, Head of Spine Groups, China-Japan Union Hospital, Jilin University, China
05/2014 – 10/2014	Xiaohong Cai, MD/PhD, advanced visiting scholar, Professor, Chair of the Department of Pediatrics, Yuying Children’s Hospital, Wenzhou Medical University, China
10/2014 – 01/2016	Yulong Liu, MD/PhD candidate, Jilin University of China / University of Louisville School of Medicine. Current position: <b>Orthopedist</b> , Jilin University.
06/2014 – 05/2017	Serve on Graduate Student Advisory Committee for Tao Tang (Mentor - Dr. Robin Krimm, Department of Anatomical Sciences and Neurobiology).
06/2014 – 05/2015	Aisha Thapa, high school student, DuPont Manual High School, Louisville, Kentucky
10/2014 – 03/2015	Lingbin Meng, MD/PhD, Optional Practical Training (OPT) at the PRI, University of Louisville School of Medicine. Current position: <b>Fellow physician</b> , Moffitt Cancer Center.
12/2014 – 07/2015	Tianci Chu, MD candidate, Tianjin Medical University, China
09/2015 – 12/2015	Shiqing Feng, MD/PhD, advanced visiting scholar, Professor, Chair of the Department of Orthopedic Surgery, Tianjin Medical University, China
07/2015 – present	Tianci Chu, MD, research fellow/postdoctoral fellow, Pediatric Research Institute, Department of Pediatrics, University of Louisville School of Medicine.
06/2015 – 09/2015	Amy Cai, high school student, North Oldham High School, Louisville, Kentucky
07/2015 – 06/2018	Rahul Oberoi, MD, NICU fellow, Department of Pediatrics, University of Louisville School of Medicine. Current position: <b>Neonatologist</b> , University of Pittsburgh Medical Center.
07/2015 – 06/2018	Serve on Fellow’s Scholarship Oversight Committee/The American Board of Pediatrics for Dr. Rahul Oberoi, NICU fellow program, Department of Pediatrics, University of Louisville School of Medicine.

- 06/2016 – 08/2016 Hong Cheng, MD, Department of Gynecology, Danyang People's Hospital of Nantong University, China. Current position: **Associate Professor, Vice Chair** of the Department of Gynecology.
- 06/2016 – 08/2016 Danhui Kong, MD, Department of Orthopedic Surgery, Danyang People's Hospital of Nantong University, China. Current position: **Associate Professor**.
- 06/2016 – 06/2017 Hezhong Ouyang, MD/MS, Department of Neurology, Jiangsu Province People's Hospital of Nantong University, China. Current position: **Associate Professor**.
- 01/2017 – 07/2018 Zhijie Li, MD, MS candidate, Department of Pediatrics, Yuying Children's Hospital, Wenzhou Medical University, China. Current position: **Pediatrician**, Yuying Children's Hospital.
- 02/2017 – 01/2019 Zhisen Tian, MD/PhD candidate, Jilin University of China / University of Louisville School of Medicine. Current position: **Orthopedist**, Jilin University.
- 05/2017 – 07/2017 Lifang Ding, MD/MS, Department of Oncology, Jiangsu Province People's Hospital of Nantong University, China. Current position: **Associate Professor, Chair** of the Department of Oncology.
- 05/2017 – 04/2019 Chuyuan Ye, MD, MS candidate, Department of Pediatrics, Yuying Children's Hospital, Wenzhou Medical University, China. Current position: **Neurologist**.
- 07/2017 – 12/2019 Jianbo Gao, MD, PhD candidate, Department of Pediatrics, First Hospital of Jinlin University, China. Current position: **Neurologist**.
- 06/2018 – 09/2018 Yuanyi Wang, MD and PhD, advanced visiting scholar, Department of Spine Surgery, The First Hospital of Jilin University, China. Current position: **Associate Professor**, Jilin University.
- 07/2018 – 06/2021 Jennifer M. Gibson, MD, NICU fellow, Department of Pediatrics, University of Louisville School of Medicine. Current position: **Pediatrician**, Children's Hospital of The King's Daughters.
- 07/2018 – 06/2021 Serve on Fellow's Scholarship Oversight Committee/The American Board of Pediatrics for Dr. Jennifer M. Gibson, NICU fellow program, Department of Pediatrics, University of Louisville School of Medicine.
- 07/2018 – 06/2021 Ashley Christian Wethall, MD, NICU resident, Department of Pediatrics, University of Louisville School of Medicine. Current position: **Neonatology fellow**, Nationwide Children's Hospital.
- 02/2019 – 06/2021 Serve on Graduate Student Advisory Committee for George Z. Wei (Mentor - Dr. Scott Whittemore, Department of Pharmacology & Toxicology).
- 03/2019 – 04/2019 Serve on Postdoctoral Candidate Search Committee for the Department of Pharmacology & Toxicology
- 06/2019 – 08/2019 Anthony He, high school student (10<sup>th</sup> grade), Christian Academy of Louisville
- 08/2019 – 11/2019 Jianfeng Tang, MD, Department of Cardiology, Danyang People's Hospital of Nantong University, China. Current position: **Associate Professor**.
- 09/2019 - present Wenxin Zeng, technologist I, Pediatric Research Institute, Department of Pediatrics, University of Louisville School of Medicine

#### Trainee awards and honors

- 11/17/2014 Guoxiang Wang (Ph.D. student) - "Maternal exposure to sleep apnea-featured intermittent hypoxia leads to oxidative stress and perinatal white matter deficits in mouse brains", **selected Data Blitz presentation** at the "Sleep and Circadian Biology", The Society for Neuroscience 44th Annual Meeting, Washington, DC, Nov. 15-19, 2014.
- 03/14/2015 Aisha Thapa (high school student) - "Neurobehavioral assessments in mice offspring experienced gestational exposures to intermittent hypoxia", **1<sup>st</sup> place (out of 30) in the category of Behavioral Sciences (Life Science)**, American Psychological Association Special Award, DuPont Manual Regional Science & Engineering Fair, 2015.
- 04/04/2016 Tianci Chu (research fellow) - "Thermosensitive heparin-poloxamer hydrogels enhance the effects of GDNF on neuronal circuit remodeling and neuroprotection after spinal cord injury", **selected 3-minute Data Blitz presentation**, 2016 Inaugural Midwest

Regenerative Medicine Meeting, Allerton Park and Retreat Center, Monticello, IL, April 3-4, 2016.

- 09/02/2016 Tianci Chu (research fellow) - "Practical skills from sacrifice perfusion to cryostat", **invited speaker** at the "Workshop of Basic Research on Spine and Spinal Cord", 9<sup>th</sup> annual conference of International Association of Neurorestoratology and 3<sup>rd</sup> National Spine and Spinal Cord Basic Research and Clinical Innovative Technology, Tianjin, China, September 1-4, 2016.
- 02/22/2018 Rahul Oberoi (NICU fellow) – "Expression diversity of basic myelin-relevant molecules in multiple rat brain regions after perinatal methadone exposure", **SSPR Trainee Travel Award**. The Southern Society for Pediatric Research Annual Meeting, New Orleans, Louisiana, Feb. 22-24, 2018.
- 05/10/2018 Tianci Chu (postdoctoral fellow) – "Complex signaling interplay in RAD-induced secondary hypoxic-ischemic brain injury in developing mice", **Invited Speaker of Trainees**, 2018 KSCHIRT symposium, Lexington, Kentucky, May 9-10, 2018.
- 07/12/2019 Chuyuan Ye (MS candidate) – "Impact of chronic intermittent hypoxia and obesity on the CNS development", **1<sup>st</sup> place of the poster presentation competition**, 10<sup>th</sup> Annual Conference of CMDA Sleep Medicine, Chinese Medical Doctor Association (CMDA) Sleep Medicine Specialized Committee, Taiyuan, China, July 12-14, 2019.
- 12/23/2020 Tianci Chu (postdoctoral fellow) – "**2020 Trainee Professional Development Award**", selected recipient, the Society for Neuroscience and the Professional Development Committee.
- 02/26/2021 Jennifer M. Gibson (NICU fellow) - "Regional effects of methadone exposure on oligodendrocyte lineage in the developing rat brain", **selected oral platform presentation**. The Southern Society for Pediatric Research Annual Meeting, A Virtual Event, Feb. 25-27, 2021.
- 04/12/2021 Tianci Chu (postdoctoral fellow), **invited panelist of the Career Development Panel Sessions** for undergraduate and graduate students, the Trainee Professional Development Award (TPDA) committee, the Society for Neuroscience.
- 05/02/2021 Ashley C. Wethall (NICU resident) – "Impairment of oligodendrocyte lineage cells by methadone exposure in the developing rat cerebellum", **highlighted posters with live Q&A**. The Pediatric Academic Society Annual Meeting, A Virtual Event, April 28 – May 5, 2021.
- 07/2021 Jennifer M. Gibson (NICU fellow) – **Chair's Achievement Award (Fellow)**, University of Louisville School of Medicine.
- 07/2021 Ashley C. Wethall (NICU resident) – **Academic Achievement Award (PGY3), 2<sup>nd</sup> Place of Original Research (resident), Chair's Achievement Award (Resident), and David H. Adamkin Award in Neonatal-Perinatal Medicine**, University of Louisville School of Medicine.

## **REACHOUT/COMMUNITY ACTIVITIES**

- 05/20/2017 Walk MS Louisville, National MS Society, Louisville.
- 09/21/2019 Heart Walk, American Heart Association, Louisville.
- 02/16/2020 Louisville Chinese Christian Church (LCCC), Louisville. Lecture - "Outbreak of 2019 Novel Coronavirus (COVID-19) and Prevention".
- 03/09/2020 Louisville Chinese Christian Church (LCCC), Louisville. Virtual lecture – "Update on COVID19 pandemic".

03/15/2020 Organizer and Chair of LCCC COVID19 Advisory Committee, and updating national and local COVID19 news twice a week or weekly, including case summary, policies, tests, treatments, vaccines, preventions, and so on.

## **CLINICAL ACTIVITIES**

N/A

## **GRANTS AND CONTRACTS**

### Past:

1. 953707811, Jun Cai (PI) 04/01/1995 – 03/31/1998  
Tianjin Government Fund for Distinguished Young Scholars, P.R.China  
“Cloning and Expression of Human 1,25-(OH)2D3 Receptor Gene”  
Role: PI
2. FA1400-A-1, Jun Cai (PI) 07/01/2000 - 06/30/2003 100% effort  
NMSS Advanced Postdoctoral Fellowship  
\$113,697 (direct cost)  
“Nkx2.2 homeodomain transcription factor and oligodendrocyte development”  
Role: PI
3. 50459, Jun Cai (PI) 01/01/2008 - 12/31/2008 10% effort  
University of Louisville, Research Initiation Grant, University of Louisville  
\$4,942 (direct cost)  
“Oligodendrocyte generation in prenatal exposure to intermittent hypoxia”  
Role: PI
4. E0581, Jun Cai (PI) 03/01/2008 – 08/30/2009 10% effort  
James R. Glaszebrook Fund, University of Louisville School of Medicine Basic Grant  
\$14,964.15 (direct cost)  
“Phenotype on myelination and myelin Architecture in intermittent hypoxia mouse model”  
Role: PI
5. 001GN09, Jun Cai (PI) 09/01/2009 – 08/31/2011 10% effort  
Sleep Research Society Foundation/J. Christian Gillin, M.D. Research Grant  
\$20,000 (direct cost)  
“Vulnerability of defective myelin to intermittent hypoxia during sleep”  
Role: PI
6. 5P20RR017702-061A1rev, Robert M. Greene (PI)  
NIH/NCRR, COBRE Renewal  
“Molecular determinants of developmental defects”  
Subproject - “Intermittent hypoxia-mediated oligodendrocyte defects in a murine model of neonatal sleep apnea” 11/01/2008 – 05/31/2013 45% effort  
\$100,000/year (direct cost)  
Role: PI for subproject, COBRE supported junior faculty
7. Pilot Research Grant, Jun Cai (PI) 06/01/2012 – 05/31/2014 10% effort  
Department of Pediatrics, University of Louisville School of Medicine  
\$25,000 (direct cost)  
“PAF signaling and white matter development in the CNS”  
Role: PI
8. 5P30GM103507, Scott Whittemore (PI)  
NIH/NCRR  
“Mechanisms of plasticity and repair after spinal cord injury”  
Pilot grant - “The role of PAF signaling in functional recovery after the SCI”  
08/01/2013–07/31/2014 10% effort  
\$22,500 (direct cost)  
Role: PI for pilot grant.
9. Fellowship for Research, Rahul Oberoi (NICU fellow) 01/01/2016 – 12/31/2016  
The Norton Children’s Hospital



- \$10,000 (direct cost)  
“Perinatal Exposure of Opioids and White Matter Development in Rodents”  
Role: co-mentor
10. Kentucky Science & Engineering Foundation/Research & Development Excellence Program  
Jun Cai (PI) 07/01/2017 – 06/30/2018 10% effort  
\$45,500 (direct cost: \$45,500, indirect cost: \$4,500)  
“Zinc homeostasis and brain white matter integrity in high-fat diet-induced obesity”  
Role: PI
11. Fellowship for Research, Jennifer Mulla Gibson (NICU fellow) 12/02/2019 – 12/01/2020  
The Norton Children’s Hospital  
\$8,000 (direct cost)  
“Oligodendrocyte Development in Neonatal Rats with Perinatal Methadone Exposure”  
Role: co-mentor
12. Kentucky Spinal Cord and Head Injury Research Trust/Research Grant, Jun Cai (PI)  
01/17/2017 – 07/16/2021 NCE 20% effort  
\$300,000 (direct cost: \$ 272,727, indirect cost: \$27,273)  
“Modulation of hypoxia-inducible factor 1 signaling pathway following the rotational acceleration-deceleration traumatic brain injury in developing mice”  
Role: PI

Current:

1. NIH/R21NS098170, Jun Cai (PI) 05/15/2018 – 10/31/2021 NCE 20% effort  
\$423,500 (direct cost: \$275,000, indirect cost: \$148,500)  
“HIF-1/p38 MAPK pathway in rotational acceleration-deceleration neonatal brain injury”  
Role: PI
2. The NeuroCures Neurological Research Foundation/Research Grant, Jun Cai (PI)  
04/01/2016 – 03/31/2022 NCE 20% effort  
\$100,000 (direct cost: \$100,000)  
“Molecular targets for therapeutic intervention after the rotational acceleration-deceleration traumatic brain injury in developing mice”  
Role: PI
3. NIH/NIEHS P30 ES030283, J. Christopher States (PI) 07/01/2020 – 06/30/2025  
“University of Louisville Center for Integrated Environmental Health Sciences”  
\$78,000 (direct cost: \$50,000, indirect cost:\$28,000)  
Interdisciplinary pilot grant - “Disruption of  $\beta$ -catenin destruction complex and ASD-like behaviors in whole-life cadmium exposure and postnatal obesity”  
05/01/2021–04/30/2022 10% effort  
Role: PI for pilot grant.
4. NIH/NIEHS R21, John P. Wise, Jr. (PI) 09/19/2021 – 09/18/2023  
“Cr(VI)-Induced DNA Damage Contributes to Brain Aging”  
Role: co-investigator 5% effort  
Direct costs requested: \$275,000  
Indirect costs requested: \$154,625  
Role: co-investigator, 5% effort

Pending (submitted in 2021):

5. NIH/NINDS/NIMH R25, Jun Cai (multi-PI) 07/01/2022 – 06/30/2027 15% effort  
“The University of Louisville Collaborative Neuroscientist Training Program”  
Role: multi-PI/Associate PD  
Direct costs requested: \$1,250,000  
Indirect costs requested: \$22,297  
Current status: submitted on 09/27/2021, pending review.
6. Kentucky Pediatric Cancer Research Trust Fund, Jun Cai (multi-PI)

- 07/01/2022 – 06/30/2024 15% effort  
“Targeting Pediatric High-Grade Glioma with Combination Anti-Metabolic and Cellular Therapies”  
Role: multi-PI  
Direct costs requested: \$450,000  
Indirect costs requested: \$50,000  
Current status: submitted on 08/22/2021, pending review.
7. Paralyzed Veterans of American, Basic Science/PVA Research Foundation, Jun Cai (PI)  
01/01/2021 – 12/31/2022 10% effort  
“The functional role of astrocytic aquaporin 4 in syringomyelia”  
Role: PI  
Direct costs requested: \$138,888  
Indirect costs requested: \$11,112  
Current status: submitted on 07/01/2021, pending review.
8. American Syringomyelia & Chiari Alliance Project Grant, Jun Cai (PI)  
04/01/2021 – 03/31/2022 10% effort  
“Modulation of Aquaporin 4-Mediated Water Homeostasis and Experimental Gene Therapy of Syringomyelia”  
Role: PI  
Direct costs requested: \$46,296  
Indirect costs requested: \$3,704  
Current status: submitted on 08/20/2021, pending review.
9. NIH/NIEHS R21, Jun Cai (PI) 12/01/2021 – 11/30/2023 15% effort  
“Disruption of beta-catenin destruction complex and neurodevelopmental disorders in whole-life cadmium exposure and postnatal obesity”  
Role: PI  
Direct costs requested: \$275,000  
Indirect costs requested: \$154,625  
Current status: submitted on 02/16/2021, not funded.

Not funded (submitted in 2019 and 2020):

1. NIH/NIA R21, Jun Cai (multiple PI) 07/01/2021 – 06/30/2023 10% effort  
“The bioeffects of focal fractionated low-dose ionizing radiation on neurofunctions and adult hippocampal neural stem cells in Alzheimer’s dementia”  
Role: PI  
Direct costs requested: \$275,000  
Indirect costs requested: \$154,625  
Current status: submitted on 10/16/2020, not funded.
2. Kentucky Spinal Cord and Head Injury Research Trust/Research Grant, Jun Cai (PI)  
01/31/2021 – 01/30/2024 20% effort  
“Remodeling of glial scar via astrocyte-microglia crosstalk in axon plasticity and remyelination after spinal cord injury”  
Role: PI  
Direct cost request: \$272,727  
Indirect cost request: \$27,273  
Current status: not funded.
3. NIH/NCCIH R21, Jun Cai (PI) 07/01/2020 – 06/30/2022 15% effort  
“Zinc homeostasis and myelin plasticity in high-fat diet-induced obesity”  
Role: PI  
Direct costs requested: \$275,000  
Indirect costs requested: \$154,000  
Current status: not funded.
4. NIH/NIDA R21, Nick Mellen (PI) 07/01/2020 – 06/30/2022 30% effort  
“Assessing efficacy and teratologic risk of neonatal opioid withdrawal syndrome”  
Role: co-investigator  
Direct costs requested: \$275,000

- Indirect costs requested: \$154,000  
Current status: **60 impact score** but not funded.
5. NIH/NIEHS R21, John P. Wise, Jr. (PI) 07/01/2020 – 06/30/2022 5% effort  
“Pericyte-driven neuroinflammation in psychiatric disorders associated with metabolic syndrome”  
Role: co-investigator  
Direct costs requested: \$275,000  
Indirect costs requested: \$154,000  
Current status: **50<sup>th</sup> percentile** but not funded.
6. Kosair Charities Grant, Christopher B. Shields (PI) 09/01/2019 – 08/31/2023 40% effort  
“Protocol to minimize permanent damage to babies with shaken baby syndrome”  
Role: co-investigator  
Direct costs requested: \$950,000  
Indirect costs requested: \$95,000  
Current status: not funded.
7. NMSS Postdoctoral Fellowship, Tianci Chu (PI) 07/01/2020 - 06/30/2022  
“Impact of high fat diet-induced obesity on oligodendrocyte in the development of multiple sclerosis and identification of key signaling pathways”  
Role: mentor  
Direct costs requested: \$121,893  
Indirect costs requested: NA  
Current status: not funded.

## PATENTS

N/A

## EDITORIAL WORK

### Editor-in-Chief

2016 – 2017 Current Neurobiology

### Editor of Scientific Journals

2011 - 2017 Pediatrics & Therapeutics

### Member of Editorial Boards

2011 – 2017 Pediatrics & Therapeutics

2012 – present International Journal of Clinical and Experimental Pathology

2015 - present Journal of Current Neurobiology

2017 - present Annals of Sleep Medicine Research

2018 – present Journal of Spine and Neuroscience

2021 – present Exploration of Neuroprotective Therapy

### Peer Reviewer of Scientific Journals

2008 - present Neurobiology of Disease

2008 – present Stem Cells and Development

2009 - present Development

2010 – present Journal of Clinical Endocrinology and Metabolism

2011 – present Molecular Biology Reports

2011 - present Pediatrics & Therapeutics

2011 - present Pediatric Research

2012 - present Neural Regeneration Research

2012 – present Sleep

2013 – present Antioxidants & Redox Signaling (ARS)  
2013 – present Sleep Medicine  
2013 – present Nanomedicine - Nanotechnology, Biology and Medicine  
2014 – present Brain Research  
2014 - present Journal of Neuroscience Research  
2014 - present Journal of the Royal Society Interface  
2015 – present Neuroscience Bulletin  
2015 – present Acta Neurobiologiae Experimentalis  
2015 – present Journal of Bioenergetics and Biomembranes  
2017 – present Journal of Clinical Sleep Medicine  
2017 – present Journal of Diabetes Research  
2017 – present FASEB Journal  
2018 – present Dose-Response  
2018 – present Neurorehabilitation and Neural Repair  
2018 – present ASN Neuro  
2018 – present Scientific Report  
2019 – present Naunyn-Schmiedeberg's Archives of Pharmacology  
2020 – present PLOS ONE  
2021 - present Experimental Biology and Medicine  
2021 – present Molecular Neurobiology  
2021 – present Neurotoxicity Research  
2021 – present Journal of Molecular Neuroscience

## ABSTRACTS AND PRESENTATIONS

Oral Presentations: ¶ invited talks

*National/International Presentations:*

1. The Fifth National Congress of Endocrinology and Metabolism held by Chinese Medical Association, Hangzhou, P. R. China, 07/1997. "Expression of Recombinant Human Calcitonin Gene in vitro".
2. ¶Tianjin Medical University, Tianjin, P. R. China, 12/27/2005. "Molecular control of oligodendrocyte development".
3. ¶Tianjin Medical University, Tianjin, P. R. China, 04/28/2009. "Agenesis of white matter in offspring and gestational sleep apnea".
4. ¶Tianjin Medical University, Tianjin, P. R. China, 05/06/2010. "Transcriptional Control of Oligodendrocyte Development-From Generation to Myelination".
5. ¶BIT's 1st Annual World Congress of NeuroTalk 2010, Singapore, June 25-28, 2010. "Transcriptional Control of Oligodendrocyte Development-From Generation to Myelination".
6. ¶Tianjin Medical University, Tianjin, P. R. China, 04/22/2011. "Collaboration of Nkx6.2 and Nkx2.2 homeodomain proteins in differentiated myelinating oligodendrocytes".
7. ¶Annual World Congress of NeuroTalk 2011, Dalian, China, May 22-25, 2011. "Infantile apnea-associated intermittent hypoxia and developmental deficits in white matter"
8. ¶SLEEP 2011 25nd Annual Meeting of the Associated Professional Sleep Societies, LLC (APSS), Minneapolis, Minnesota, June 11-15, 2011. "Intermittent hypoxia-induced white matter lesions in neonatal mice". Sleep 34(Abstract Supplement): A23.

9. †Shandong Academy of Medical Sciences, Institute of Basic Medicine, Jinan, Shandong China, 09/12/2013. “The role of Nkx homeodomain transcription factors in oligodendrocyte development and its application”.
10. The Society for Neuroscience 43th Annual Meeting, San Diego, CA, Nov. 9-13, 2013. “Functional improvement with intranasal administration of gelatin nanostructured lipid encapsulating basic fibroblast growth factor”.
11. †The Society for Neuroscience 44th Annual Meeting at the "Sleep and Circadian Biology", Washington, DC, Nov. 17, 2014. “Maternal exposure to sleep apnea-featured intermittent hypoxia leads to oxidative stress and perinatal white matter deficits in mouse brains”.
12. †General Hospital of Tianjin Medical University, Tianjin, P. R. China, 10/30/2014. “Role of Reactive Gliosis in Axon Regeneration Following the Spinal Cord Injury”
13. †General Hospital of Tianjin Medical University, Tianjin, P. R. China, 10/20/2015. “Transcriptional control in oligodendrocyte development and its application”
14. †Danyang People’s Hospital of Jiangsu Province, Danyang, Jiangsu, P. R. China, 10/29/2015. “How to prepare a SCI paper and apply for a visiting scholar”
15. †2015 Yuying Forum – International conference on Translational Medicine, The Second Affiliated Hospital and Yuying Children’s Hospital of Wenzhou Medical University, Wenzhou, Zhejiang, P. R. China, 10/31/2015 – 11/01/2015. “Receptor-dependent activation of platelet activating factor signaling in reactive gliosis following spinal cord injury”
16. †The Children’s Hospital of Jiangxi Province, Nanchang, Jiangxi, P. R. China, 11/03/2015. “Platelet activating factor signaling in reactive gliosis and axon regeneration following spinal cord injury”
17. †The First Bethune Hospital of Jilin University, Changchun, Jilin, P. R. China, 11/05/2015. “Platelet activating factor signaling in reactive gliosis and axon regeneration following spinal cord injury”
18. †The China’s Pediatric Sleep Medicine Forum, The Second Affiliated Hospital and Yuying Children’s Hospital of Wenzhou Medical University, Wenzhou, Zhejiang, P. R. China, 09/16/2016 – 09/18/2016. “Intermittent hypoxia-induced white matter lesions in neonatal mice”.
19. †The Second Affiliated Hospital and Yuying Children’s Hospital of Wenzhou Medical University, Wenzhou, Zhejiang, P. R. China, 10/13/2017. “Oligodendrocyte development and relevant diseases”.
20. †The Second Affiliated Hospital and Yuying Children’s Hospital of Wenzhou Medical University, Wenzhou, Zhejiang, P. R. China, 10/15/2018. “Neurotoxicity: toxic responses of the nervous system”.
21. †The First Bethune Hospital of Jilin University, Changchun, Jilin, P. R. China, 10/22/2018. “Application of experimental animal models in spinal cord injury study”.
22. †The Second Affiliated Hospital of Jilin University, Changchun, Jilin, P. R. China, 10/23/2018. “Application of experimental animal models in spinal cord injury study”.
23. The Southern Society for Pediatric Research Annual Meeting, A Virtual Event, Feb. 25-27, 2021. “Regional effects of methadone exposure on oligodendrocyte lineage in the developing rat brain”.  
**Gibson, J.M.**, Chu, T., Zeng, W., Mellen, N., Devlin, L.A. and **Cai, J.**

*Local/Regional Presentations:*

1. Kentucky Spinal Cord Injury Research Center, Department of Neurological Surgery, University of Louisville School of Medicine, 02/09/2001. "Nkx2.2 homeodomain transcription factors and oligodendrocyte development".
2. Kentucky Spinal Cord Injury Research Center, Department of Neurological Surgery, University of Louisville School of Medicine, 02/21/2003. "Nkx6 transcriptional factors regulate the oligodendrocyte development".
3. KCH Research Institute, Department of Pediatrics, University of Louisville School of Medicine, 06/06/2007. "Genetic control of oligodendrocyte development by Nkx homeodomain transcription factors".
4. Center of Biomedical Research Excellence, University of Louisville, External Advisory Committee Site Visit, Louisville, 11/20/2008. "Intermittent hypoxia-mediated oligodendrocytes defects in a murine model gestational sleep apnea".
5. Birth Defects Center, University of Louisville School, Louisville, 04/14/2009. "Maloligodrogenesis in offspring and maternal sleep apnea-associated intermittent hypoxia".
6. Birth Defects Center, University of Louisville, Louisville, 11/23/2009. "Sleep apnea-associated intermittent hypoxia and oligodendrocyte development".
7. Department of Pediatrics, University of Louisville School of Medicine, Louisville, 12/14/2009. "White Matter Injury in Offspring and Maternal Sleep Apnea-associated Intermittent Hypoxia".
8. Center of Biomedical Research Excellence, University of Louisville, External Advisory Committee Site Visit, Louisville, 11/09/2010. "Disturbance of Myelinogenesis and Axonal Immaturity in Neonatal Mice Elicited by Sleep Apnea-Associated Intermittent Hypoxia".
9. Birth Defects Center, University of Louisville, Louisville, 01/10/2011. "Signaling in intermittent hypoxia-elicited white matter injury".
10. Center of Biomedical Research Excellence, University of Louisville School of Medicine, External Advisory Committee Site Visit, Louisville, 11/02/2011. "Molecular signaling involved in white matter deficits elicited by perinatal intermittent hypoxia exposures associated with sleep disordered breathing".
11. Birth Defects Center, University of Louisville, Louisville, 03/20/2012. "Signaling pathways in intermittent hypoxia-elicited white matter injury during the CNS development".
12. Center of Biomedical Research Excellence, University of Louisville School of Medicine, External Advisory Committee Site Visit, Louisville, 11/26/2012. "Identification of molecular signals involved in white matter deficits elicited by perinatal intermittent hypoxia exposures associated with sleep disordered breathing".
13. Birth Defects Center, University of Louisville, Louisville, 03/21/2013. "Activation of NADPH oxidase in perinatal white matter injury".
14. Research ! Louisville, Louisville, KY, 09/17/2014. "Intermittent Hypoxia-Induced White Matter Injury During the CNS Development".

15. 2016 Inaugural Midwest Regenerative Medicine Meeting, Allerton Park and Retreat Center, Monticello, IL, 04/04/2016. "Thermosensitive heparin-poloxamer hydrogels enhance the effects of GDNF on neuronal circuit remodeling and neuroprotection after spinal cord injury".
16. Department of Pediatrics, University of Louisville School of Medicine, Louisville, 2/13/2017. "Food for Thought: Does Body Weight Shape the Brain?"
17. Department of Pharmacology and Toxicology, University of Louisville School of Medicine, Louisville, 5/24/2018. "Complex Signaling Interplay in RAD-induced Secondary Hypoxic-ischemic Brain Injury in Developing Mice".
18. Department of Pediatrics, University of Louisville School of Medicine, Louisville, 2/18/2021. "The Art of Translational (Collaboration) Research".

#### Poster Presentations

1. **Cai Jun**, Zhang Yue, Ren Zhiyong, Song Jianliang and Zhang Jingyu. (1997) Expression & Identification of Recombinant Human Parathyroid Hormone Gene in vitro. Eighth National Meeting of Biochemistry and Molecular Biology, Chinese Biochemical Journal (special issue): p275. (\*Also presented on Fifth National Congress of Endocrinology and Metabolism held by Chinese Medical Association).
2. **Cheng Zhiqiang**, Zhao Chong, **Cai Jun**, Wang Weili and Zhang Jingyu. (1997) Glucokinase Gene is Genetic Marker for NIDDM. Second National Youth Conference of Endocrinology and Metabolism, Fifth National Congress of Endocrinology and Metabolism held by Chinese Medical Association, Abstr. Corpus: p34
3. **Zhang Jingyu**, **Cai Jun**, Cai Fang, Ren Zhiyong, He Wei. (1997) Cloning and Expression of Recombinant Salmon Calcitonin Gene in vitro. Fifth National Congress of Endocrinology and Metabolism held by Chinese Medical Association, Abstr. Corpus: p124
4. **Cai Jun**, Ren Zhiyong, He Wei, Zhang Jingyu and Yin Wei. (1997) Expression of Recombinant Human Calcitonin Gene in vitro (Presentation). Second National Youth Conference of Endocrinology and Metabolism, Fifth National Congress of Endocrinology and Metabolism held by Chinese Medical Association, Abstr. Corpus: p125
5. **Cai Fang**, **Cai Jun**, Zhao Chong, Deng Tong and Zhang Jingyu. (1997) Cloning and Sequencing of Human Calcitonin Gene. Second National Youth Conference of Endocrinology and Metabolism, Fifth National Congress of Endocrinology and Metabolism held by Chinese Medical Association, Abstr. Corpus: p125
6. **Cai Jun**, Zhao Chong, Song Jianliang, Song Xuewen, He Wei, Liu Bingrong and Zhang Jingyu. (1996) Determination of the Thyroid Hormone Receptor by hydroxylapatite. Labeled Immunoassays and Clinical Medicine, 3(Suppl): p139.
7. **Zhao Chong**, Song Xuewen, Song Jianliang, **Cai Jun**, Zhang Lianying, He Wei and Zhang Jingyu. (1996) A Large Scale Purification of the Triiodothyronine Receptor. Labeled Immunoassays and Clinical Medicine, 3(Suppl): p140.
8. **Cai, J.**, Yin, H., Agrawal, M. and Qiu, M-S. (1999). Expression and regulation of the *Nkx-6.2* homeobox gene suggest its role in ventral neural patterning and differentiation (Presentation). Soc. Neurosci. Abstr. 25: p526.
9. **Cai, J.**, Xu, X., Wu, R., Fu, H., Qi, Y., Modderman, G., Sussel, L., Rubenstein, J. and Qiu, M-S (2000). Control of oligodendrocyte development by the *Nkx-2.2* homeodomain transcription factor.

- Gordon Research Conferences: Neural Development (Presentation). Salve Regina Univ., Newport, RI, July 2-7, 2000.
10. **Cai, J.**, Wu, R., Modderman, G., Qi, Y., Fu, H., Liu, R. and Qiu, M. (2000) Disruption of the *Nkx-6.2(Gtx)* homeobox gene has no apparent effects on neuronal and oligodendroglial differentiation (Presentation). Soc. Neurosci. Abstr. 26: p1348.
  11. **Qi, Y.**, **Cai, J.**, Wu, R. Sussel, L., Rubenstein, J. and Qiu, M. (2000) Mutation of the *Nkx-2.2* homeodomain transcription factor leads to defective oligodendrocyte development. Soc. Neurosci. Abstr. 26: p1600.
  12. **Fu, H.**, Xu, X., **Cai, J.**, Wu R., Qi, Y., Modderman, G., and Qiu, M. (2000) Evidence that oligodendrocytes are derived from the *Nkx-2.2* domain of the ventral neuroepithelium. Soc. Neurosci. Abstr. 26: p1603.
  13. **Fu, H.**, **Cai, J.** and Qiu M. (2001). Early differentiation of oligodendrocyte progenitors in embryonic chicken spinal cord and retina. Research Louisville 2001, Oct. 29-Nov.2, 2001.
  14. **Cai, J.**, Hu, X., Liu, Z. and Qiu, M. (2003). Misexpression of *Nkx2.2* transcription factor in CNS progenitor cells: Doxycycline-inducible and cell-specific control of gene expression in transgenic mice (Presentation). The Society for Neuroscience 33<sup>rd</sup> Annual Meeting, New Orleans, LA, Nov. 8-12, 2003.
  15. **Zhang, X.**, **Cai, J.**, Qiu, M., Klueber, K., Lu, C., Hatcher, L.M. and Roisen, F.J. (2003). Induction of oligodendrocytes from progenitors of adult human olfactory epithelium. The Society for Neuroscience 33<sup>rd</sup> Annual Meeting, New Orleans, LA, Nov. 8-12, 2003.
  16. **Zhang, X.**, **Cai, J.**, Klueber, K., Lu, C., Qiu, M. and Roisen, F.J. (2003). Induction of oligodendrocytes from progenitors of adult human olfactory epithelium. Research ! Louisville 2003, Nov. 3-7, 2003.
  17. **Cai, J.**, Hu, X., Liu, Z., Li, Q., Sander, M. and Qiu, M. (2004) *Nkx6*-independent oligodendrogenesis from the dorsal spinal cord despite its functional redundancy during oligodendrocyte development (Presentation). The Society for Neuroscience 34<sup>th</sup> Annual Meeting, San Diego, CA, Oct. 23-27, 2004.
  18. **Liu, Z.**, **Cai, J.**, Takebayashi, H. and Qiu, M. (2004) Expression pattern and birthdating analysis of *Olig3* in the developing spinal cord. The Society for Neuroscience 34<sup>th</sup> Annual Meeting, San Diego, CA, Oct. 23-27, 2004.
  19. **Zhang, X.**, Klueber, K.M., **Cai, J.**, Guo, Z., Lu, C., Harding, G., Qiu, M. and Roisen F.J. (2004). Lineage restriction of adult human olfactory neuroepithelial-derived neural progenitors toward neurons. The Society for Neuroscience 34<sup>th</sup> Annual Meeting, San Diego, CA, Oct. 23-27, 2004.
  20. **Cai, J.**, Hu, X., Liu, Z., Li, Q., Sander, M. and Qiu, M. (2004) Oligodendrogenesis from dorsal spinal cord independent of *Nkx6* redundant regulation during oligodendrocyte development (Presentation). Research ! Louisville 2004, Louisville, KY, Nov. 8-12, 2004.
  21. **Roisen, F.J.**, Klueber, K.M., Lu, C., Zhang, X., Xiao, M., **Cai, J.**, Guo, Z., Marshall, C., Othman, M., Qiu, M. and Winstead, W. (2005) Adult human olfactory epithelium: a source of autologous neural progenitors. Journal of Neurochemistry 94 (Suppl. 1): p78.
  22. **Zhu, Y.**, Hu, X., **Cai, J.**, Liu, Z., Li, H., Park, P., Zhu, Q., and Qiu, M. (2007) *Id3* and glial cell differentiation. The Society for Neuroscience 37<sup>th</sup> Annual Meeting, San Diego, CA, Nov. 3-7, 2007.
  23. **Zhu, Q.**, **Cai, J.**, Zhu, Y., Park, J., Li, H., Hu, X., and Qiu, M. Fate-mapping of dorsal-derived oligodendrocytes in the spinal cord. The Society for Neuroscience 37<sup>th</sup> Annual Meeting, San Diego, CA, Nov. 3-7, 2007.
  24. **Cai, J.**, Zhang, Y., Qi, Y., Li, H., Zhang, Y., Shields, C.B., and Qiu, M. *Nkx2.2* regulates oligodendrocyte myelination in collaboration with *Nkx6.2* (Presentation). The Society for Neuroscience 37<sup>th</sup> Annual Meeting, San Diego, CA, Nov. 3-7, 2007.
  25. **Cai, J.**, Zhang, Y., Tuong, C., Row, B.B., Shields, C.B., and Gozal, D. Intermittent hypoxia during sleep is associated with defects in the myelin sheaths (Presentation). SLEEP 2008 22nd Annual Meeting of the Associated Professional Sleep Societies, LLC (APSS), Baltimore, Maryland, June 9-12, 2008. Sleep 31(Abstract Supplement): A283.
  26. **Fu, H.**, **Cai, J.**, Taylor, C., Alberta, J., Clever, H., Qiu, M., and Stiles, C.D. Genome-wide transcription factor screening identified *Tcf4* as pro-myelin gene. Gordon Research Conferences: Molecular and Cellular Neurobiology. Hong Kong University of Science and Technology, Hong Kong, China, June 8-13, 2008.



27. **Cai, J.**, Tuong, C., Zhang, Y., Shields, C.B., and Gozal, D. PAF signaling is required for normal development and motor function in CNS (Presentation). The Society for Neuroscience 38<sup>th</sup> Annual Meeting, Washington, DC, Nov. 15-19, 2008.
28. **Cai, J.** Hypoplasia of white matter in newborn mice elicited by maternal exposure to intermittent hypoxia during sleep (Presentation). SLEEP 2009 23rd Annual Meeting of the Associated Professional Sleep Societies, LLC (APSS), Seattle, Washington, June 6-11, 2009. Sleep 32(Abtract Supplement): A188.
29. **Cai, J.**, Tuong, C., and Gozal, D. Delayed or disrupted axonal maturation in developing mice exposed to intermittent hypoxia during sleep (Presentation). SLEEP 2010 24nd Annual Meeting of the Associated Professional Sleep Societies, LLC (APSS), San Antonio, Texas, June 5-9, 2010. Sleep 33(Abtract Supplement): A148
30. **Cai, J.**, Tuong, C., and Gozal, D. Cortical white matter is vulnerable to intermittent hypoxia in Nkx6.2 null mice. (Presentation). SLEEP 2011 25nd Annual Meeting of the Associated Professional Sleep Societies, LLC (APSS), Minneapolis, Minnesota, June 11-15, 2011. Sleep 34(Abtract Supplement): A18.
31. **Yin, X.**, Tan, Y., Wang, B., Zheng, Y., **Cai, J.**, and Cai, L. Metallothionein protects intermittent hypoxia-induced cardiomyopathy by inhibition of cardiac oxidative damage, apoptosis and inflammation. SOT Annual Meeting & ToxExpo, San Francisco, California, March 11-15, 2012.
32. **Cai, J.**, Tuong, C., Cai, L., and Gozal, D. Maternal exposure to intermittent hypoxia during sleep leads to hypoxic and oxidative stress in fetal mouse brains. (Presentation) SLEEP 2012 26nd Annual Meeting of the Associated Professional Sleep Societies, LLC (APSS), Boston, Massachusetts, June 9-13, 2012. Sleep 35(Abtract Supplement): A55.
33. **Cai, J.**, Yin, X., Tan, Y., Wang, B., Zheng, Y., and Cai, L. Cardiac remodeling after oxidative injury in mice exposed to chronic OSA-relevant intermittent hypoxia. (Presentation) SLEEP 2012 26nd Annual Meeting of the Associated Professional Sleep Societies, LLC (APSS), Boston, Massachusetts, June 9-13, 2012. Sleep 35(Abtract Supplement): A15.
34. **Gao, Z-W.**, Zhang, Y., Tuong, C., Shields, C.D., Gozal, D., and **Cai, J.** Platelet activating factor mediates the reactive gliosis in SCI. INRS 2012 2<sup>nd</sup> International Neural Regeneration Symposium, Shenyang, China, September 21-25, 2012.
35. **Gao, Z-W.**, Zhang, Y., Tuong, C.M., Gozal, D., Zhu, Q-S., Shields, C.D., and **Cai, J.** Reactive gliosis following spinal cord injury and functional recovery in PAFR null mutant mice. Bevill Conference on Glial Biology in Medicine, Birmingham, Alabama, November 5-6, 2012.
36. **Cai, J.**, Li, X., Tuong, C., Gozal D. Intermittent hypoxia inhibits Akt-mTOR signaling in neonatal mouse brains. (Presentation) SLEEP 2013 27nd Annual Meeting of the Associated Professional Sleep Societies, LLC (APSS), Baltimore, Maryland, June 1-5, 2013. Sleep 35(Abtract Supplement): A33.
37. **Zhou, S.**, Yin, X., Tan, Y., Feng, W., Epstein, P.N., **Cai, J.**, Cai, L. Metallothionein as a compensatory component prevents intermittent hypoxia-induced cardiomyopathy in mice. Research ! Louisville, Louisville, KY, Sept. 24-28, 2013.
38. **Prater, K.**, Zhou, S., Yin, X., **Cai, J.**, Cai, L. Metallothionein Prevention of Cardiac Endoplasmic Reticulum Stress Is Associated with a Preservation of Cardiac Function in the Mice Exposed to Intermitted Hypoxia. Research ! Louisville, Louisville, KY, Sept. 24-28, 2013.
39. **Li, X.**, Tuong, C.M., Gozal, D., and **Cai, J.** Maternal exposure to sleep apnea-featured intermittent hypoxia leads to oxidative stress and perinatal white matter deficits in mouse brains. Research ! Louisville, Louisville, KY, Sept. 24-27, 2013.
40. **Wang, Y.**, Gao, Z., Zhang, Y., Zhu, Q., Gozal, D., Shields, C.B., **Cai, J.** Platelet-activating factor receptor-mediated reactive gliosis and functional recovery following the spinal cord injury in mice. The 24<sup>th</sup> Annual Neuroscience Day, Louisville, KY, Apr. 21, 2014.
41. **Wang, G.**, Zhang, Y., Yang, X., Li, F., Currie, M., Moriarty, T., Gao, Z., Wu, R., Shields, C.B., **Cai, J.** Neuropathology and behavioral changes of inflicted traumatic brain injury in developing mice. The Society for Neuroscience 44<sup>th</sup> Annual Meeting, Washington, DC, Nov. 15-19, 2014.
42. **Wang, Y.**, Gao, Z., Zhang, Y., Zhu, Q., Gozal, D., Shields, C.B., **Cai, J.** Functional recovery following spinal cord injury in platelet-activating factor receptor null mutant mice. The Society for Neuroscience 44<sup>th</sup> Annual Meeting, Washington, DC, Nov. 15-19, 2014.

43. Li, X., Tuong, C., Gozal, D., **Cai, J.** Maternal Exposure to Sleep Apnea-Featured Intermittent Hypoxia Leads to Oxidative Stress and Perinatal White Matter Deficits in Mouse Brains. The Society for Neuroscience 44th Annual Meeting, Washington, DC, Nov. 15-19, 2014.
44. **Cai, L.**, Zhou, S., **Cai, J.** Nuclear factor erythroid 2-related factor 2 (Nrf2)-mediated protection from intermittent hypoxia-induced cardiomyopathy via metallothionein-dependent and independent mechanisms. Research ! Louisville, Louisville, KY, Sept. 16-20, 2014.
45. **Cai, J.**, Li, X., Wu, R., Tuong, C., Gozal, D. NADPH-oxidase mediated white matter damage in perinatal mouse brains elicited by maternal exposures to sleep apnea-featured intermittent hypoxia during pregnancy (Presentation). SLEEP 2015 29th Annual Meeting of the Associated Professional Sleep Societies, LLC (APSS), Seattle, Washington, June 6-10, 2015. Sleep 38(Abstract Supplement): A13.
46. **Chu, T.**, Zhao, Y-Z., Jiang, X., Lin, Q., Lu, C-T., Xiao, J., Tian, F-R., Mao, K-L., **Cai, J.** Thermosensitive heparin-polyoxamer hydrogels enhance the effects of GDNF on neuronal circuit remodeling and neuroprotection after spinal cord injury (Presentation). 2016 Inaugural Midwest Regenerative Medicine Meeting, Allerton Park and Retreat Center, Monticello, IL, April 3-4, 2016.
47. **Chu, T.**, Zhang, Y-P., Wang, G., Li, F., Gao, Z., Shields, C. B., **Cai, J.** Pathophysiological and behavioral deficits of rotational acceleration-deceleration traumatic brain injury in developing mice (Presentation). Research ! Louisville, Louisville, KY, Oct. 11-15, 2016.
48. Gourévitch, B., **Cai, J.**, **Mellen, N.** Changes in protein expression and ventrolateral medulla network properties accompanying in utero  $\mu$ -opioid agonist and/or nociception receptor antagonist exposure. The Society for Neuroscience 46th Annual Meeting, San Diego, CA, Nov. 12-16, 2016.
49. **Chu, T.**, Zhang, Y-P., Wang, G., Li, F., Gao, Z., Shields, C. B., **Cai, J.** Rotational acceleration-deceleration traumatic brain injury in developing mice (Presentation). 23<sup>rd</sup> Annual Kentucky Spinal Cord & Head Injury Research Trust Symposium, Louisville, KY, May 17-18, 2017.
50. **Liu, Q.**, Liu, Y-H., Gu, Z-L., Li, F-Y., Zhang, L-H., Zhu, F-X., **Cai, J.**, McClain, C., Feng, W-K. Lactobacillus rhamnosus GG culture supernatant improves energy expenditure and glucose tolerance in high-fat-high-fructose fed mice exposed to chronic intermittent hypoxia by inducing adiponectin production. Research ! Louisville, Louisville, KY, Sept. 11-15, 2017.
51. **Chu, T.**, Huang, Y., Barnes, G.N., Freedman, J.H., Cai, L., **Cai, J.** Zinc supplementation prevents white matter and neurobehavioral deficits in high-fat diet-induced obese mice (Presentation). The Society for Neuroscience 47th Annual Meeting, Washington, DC, Nov. 11-15, 2017.
52. **Oberoi, R.**, Wu, R., Mellen, N., Chu, T., Jagadapillai, R., Ouyang, H., Devlin, L. A., **Cai, J.** Expression diversity of basic myelin-relevant molecules in multiple rat brain regions after perinatal methadone exposure (Presentation). The Southern Society for Pediatric Research Annual Meeting, New Orleans, Louisiana, Feb. 22-24, 2018.
53. **Oberoi, R.**, Wu, R., Mellen, N., Chu, T., Jagadapillai, R., Ouyang, H., Devlin, L. A., **Cai, J.** Expression diversity of basic myelin-relevant molecules in multiple rat brain regions after perinatal methadone exposure (Presentation). The Pediatric Academic Societies 2018 Meeting, Toronto, Canada, May 5-8, 2018.
54. **Chu, T.**, Zhang, Y-P., Tian, Z., Ye, C-Y., Zhu, M-M., Shields, C. B. and **Cai, J.** Dynamic Response of Oligodendrocytes and Microglia/Macrophages Polarization in Demyelination Lesions. (Presentation). Research ! Louisville, Louisville, KY, Oct. 8-12, 2018.
55. **Gao, J.**, Wang, J., Chu, T., Zhu, M-M., Cai, L., Barnes, G. N., and **Cai, J.** Genetic susceptibility to high-fat diet-induced obesity causes differential responses in neurobehavior, white matter microstructure, and hippocampal metabolites in C57BL/6 mice (Presentation). Research ! Louisville, Louisville, KY, Sept. 10-14, 2019.
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## PUBLICATION, BOOK CHAPTERS, MONOGRAPHS AND TEXTBOOK

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