

CV of HONGBAO CAO

Tel: 301-201-5808 E-mail: caohon2010@gmail.com <https://hongbaocao.gousinfo.com>

Education

PhD, in Biomedical Engineering, Louisiana Tech University, Louisiana, LA, USA, awarded in Nov., 2009

M.S., in Biomedical Engineering, Tianjin University, Tianjin, China, awarded in Mar., 2005

B.A., in Biomedical Engineering, Tianjin University, Tianjin, China, awarded in Jun., 2002

Professional Services

- Lead Guest Editor of *Frontiers in Cell and Developmental Biology* (2020~present)
- Lead Guest Editor of *PPAR Research* (2019~present)
- Editorial Board Member of *SCIREA Journal of Biology* (2017~present)
- Editorial Board Member of *Austin Journal of Genetics and Genomic Research* (2017~present)
- Member of IEEE Since 2012
- Reviewer for top journals and conferences, including:
 1. *Applied Mathematics & Information Sciences (AMIS)*
 2. *Applied Computing and Informatics (ACI)*
 3. *The IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*
 4. *BMC Genomics*
 5. *Journal of Convergence Information Technology (JCIT)*
 6. *IEEE International Workshop on Machine Learning for Signal Processing (MLSP)*
 7. *Pattern Recognition (PR)*
 8. *IEEE Transactions on Biomedical Engineering (TBME)*
 9. *IEEE Transactions on Fuzzy System (TFS)*

Research Experience (2003~present):

1. Sr. Director, Department of Bioinformatics, AIC LLC, 2023.2~present

- Fulfill the role of a subject-matter authority within the Bioinformatics consultant department, engaging in consultations during meetings and various platforms, offering scientific assistance to academic and community collaborators, crafting written and visual materials, and creating or evaluating materials for wider distribution.
- Direct qualitative and quantitative research endeavors, involving substantial input in devising study frameworks, formulating research tools, gathering data, conducting analysis, and composing comprehensive reports.
- Lead the execution of technical support, encompassing the evaluation of requirements, supervision of training content and workshops, and establishment of an expansive network of proficient specialists.
- Supervise operational facets, including vigilance over project expenditures and financial viability.
- Cultivate and sustain client associations, furnishing strategic guidance and addressing challenges linked to projects.

- Head both active participation and leadership roles in business expansion initiatives, spanning the acquisition of opportunities and formulation of proposals.
 - Contribute to the preparation of outcomes and methodologies papers intended for publication in scholarly and specialized journals, in addition to producing materials tailored for non-academic audiences, like dashboards, visuals, videos, narratives, and the like.
2. **Affiliate faculty**, George Mason University, 2017. 3 ~ present
- Textbook design and editing — Elsevier in the Classroom
 - Research guidance for graduate students
 - Scientific paper publication
 - Bioinformatics classes design and implementation
3. **Sr. Product Manager, Sr. Bioinformatics Scientist**, Elsevier Inc., 2015.9~2023.2
- ✧ *Scientific-related duties*
- Develop approaches to create and improve machine-actionable, FAIR-compliant metadata
 - Design and develop structured vocabularies and ontologies
 - Design and develop new modules
 - Big data analyses and bioinformatics data integration
 - Research on NLP/ontology based network analysis
 - Research on In-Silico-Biology based drug development
 - Database management (Cypher, SQLite)
 - Large-scale genetic network analysis
 - Collaborate with GeneTalks LLC for NGS data analysis
- ✧ *Product management duties*
- Manage internal communications between product team, market team, sale team and teach team
 - Lead the development of big data-driven AI tool supporting In Silico biology
 - Manage outside collaborations: NIH, universities, pharmaceutical companies and hospitals
 - Monitoring/prioritizing product development
 - Leading a post-sale service team: customer advisory services, support and consultation
 - Product sale/usage analysis
4. **Research Scientist** at Unit on Statistical Genomics, NIH, 2015.9~2019.9
- Data integration (for genomic and imaging data)
 - Biomarker discovery (genetic and image biomarkers)
 - Statistical modeling
5. **Research Fellow** at National Institute of Mental Health (NIMH/NIH), Bethesda, MD, 2012.12~2015.9

- Medical image data analysis for feature selection and biomarker detection for complex disease (Autism, Schizophrenia, bipolar)
 - Signal processing for multivariate correlation analysis (eQTL analysis; multiple clinical phenotype-genotype data association analysis)
 - Data integration (e.g., fMRI, GWAS, gene expression)
 - Algorithm development and application (PLS;GLM; sparse regression; statistic analysis)
 - Experiment design
6. **Postdoctoral Research Associate** at Tulane university, New Orleans, LA, 2010.8~2012.12
- Genomic data/medical imaging data (DNA sequence, SNP and gene expression and copy number data, fMRI imaging data etc.) analysis for the study of complex diseases
 - Designed *genomic marker selection* algorithms and *genomic data classification* algorithms for the combined analysis of different genomic data (SNP data, gene expression data) in the diagnosis of osteoporosis.
 - Developed *sparse representation based clustering algorithm (SRC)* and *discovered two important osteoporosis susceptible genes*.
 - Designed integrative analysis methods of different medical measurements (SNP data, gene expression data, fMRI data) for the diagnosis of complex disease (e.g. osteoporosis, schizophrenia).
 - Developed *sparse representation based variable selection algorithm (SRVS)* and improved the diagnose accuracy of schizophrenia.
 - Statistical analysis of the diagnosis results.
7. **Postdoctoral Research Associate** at University of Missouri at Kansas City, Kansas City, MO, 2009.11~2010.7
- Multi-color fluorescence in situ hybridization (M-FISH) images analysis for disease diagnosis, 2009.11~present
 - Developed image processing algorithm for the Multi-color fluorescence in situ hybridization (M-FISH) images analysis, including image registration, color compensation, feature extraction, image segmentation, target tracking, and image classification. The work increased the M-FISH diagnosis accuracy by more than 10%.
 - Integrative genomic data analysis (gene expression and copy number data) for the study of breast cancer. Including large data management, feature extraction, genomic marker selection, and genomic data classification using sparse representation based methods. The work discovered seven meaningful genes for the disease.
8. **Research Assistant** at Louisiana Tech University, Ruston, LA, 2005.9~2009.10
- Independent components analysis (ICA) on four-layer computational head model
 - EEG-based Brain-Computer-Interface (BCI)
 - ECG-based heart disorder diagnosis
9. **Principal Software Engineer** at Tianjin Zhongya Medical Instrument T.D. Co., Ltd., Tianjin, China, 2004.1~2005.3

- Designed, debugged and applied embed software (C, Assemble) for the Pelvic inflammatory disease treatment instrument
- Product No.: ZP-11A
- <http://www.zhongyakj.com/eng/productinfo.asp?id=479>

10. **Research & development Engineer**, Tianjin University, Tianjin, China, 2003.3~2004.1

- Hardware and software design and development for Pulse Training Simulator.
- Commoditized by Tellyes Scientific Co. (Product No. CMIO300001ADC)
- <http://en.tellyes.com/product/4fa25432924d1.html>

Technical Skills

- 10+ years image processing experience; Experience with SPM, AFNI and FSL;
- 10+ years signal processing experience (Regression Models, PCA, ICA, FFT)
- 10+ years programming experience (Matlab, C/C++, R, Java, and SAS)
- 6+ years genomic data analysis (NGS, RNA-Seq, copy number, gene expression, GWAS)
- 2+ years instrumentation development experience, including software design and hardware control

Awards and Honors:

1. Research Assistantship of Louisiana Tech University, 2005.9~2009.9
2. Outstanding BME senior Ph.D. graduate student of Louisiana Tech University, 2007.10
3. Excellent graduate thesis of Tianjin University, 2005,3
4. Distinguished Scientific Report of Tianjin University, 2004.3
5. Hi-Tech Research and Development program of China, 2003,1
6. Distinguished Student Award of Tianjin University, four times, 2003,1998~2001
7. Superior Winner Prize in the National College Mathematic Modeling Competition, 2001
8. Motorola Scholarship, Motorola Inc.-Tianjin University, twice, 1999,1998

Publications (*Journal papers*):

1. Fu L, Baranova A, **Cao H**, Zhang F. Exploring the causal effects of depression and antidepressants on COVID-19. *J Affect Disord.* 2024 Aug 15;359:350-355. doi: 10.1016/j.jad.2024.05.122. Epub 2024 May 25. PMID: 38801921.
2. Baranova A, Fu L, Song Y, **Cao H**, Zhang F. Causal Associations between Posttraumatic Stress Disorder and COVID-19. *J Integr Neurosci.* 2024 Apr 1;23(4):68. doi: 10.31083/j.jin2304068. PMID: 38682223.
3. **Cao H**, Baranova A, Zhao Q, Zhang F. Bidirectional associations between mental disorders, antidepressants and cardiovascular disease. *BMJ Ment Health.* 2024 Mar 15;27(1):e300975. doi: 10.1136/bmjment-2023-300975. PMID: 38490691.
4. Baranova A, **Cao H**, Zhang F. Exploring the influences of education, intelligence and income on mental disorders. *Gen Psychiatr.* 2024 Feb 28;37(1):e101080. doi: 10.1136/gpsych-2023-101080. PMID: 38440407; PMCID: PMC10910399.
5. Baranova A, Zhao Q, **Cao H**, Chandhoke V, Zhang F. Causal influences of neuropsychiatric disorders on Alzheimer's disease. *Transl Psychiatry.* 2024 Feb 23;14(1):114. doi: 10.1038/s41398-024-02822-1. PMID: 38395927; PMCID: PMC10891165.

6. Song Y, Zhao Y, Baranova A, **Cao H**, Yue W, Zhang F. Causal association of attention-deficit/hyperactivity disorder and autism spectrum disorder with post-traumatic stress disorder. *Psychiatr Genet*. 2024 Apr 1;34(2):37-42. doi: 10.1097/YPG.0000000000000357. Epub 2024 Jan 23. PMID: 38288984; PMCID: PMC10919267.
7. Chen F, **Cao H**, Baranova A, Zhao Q, Zhang F. Causal associations between COVID-19 and childhood mental disorders. *BMC Psychiatry*. 2023 Dec 8;23(1):922. doi: 10.1186/s12888-023-05433-0. PMID: 38066446; PMCID: PMC10704772.
8. Fu X, Baranova A, **Cao H**, Liu Y, Sun J, Zhang F. miR-9-5p deficiency contributes to schizophrenia. *Schizophr Res*. 2023 Dec;262:168-174. doi: 10.1016/j.schres.2023.11.006. Epub 2023 Nov 21. PMID: 37992560.
9. Fu L, Baranova A, **Cao H**, Zhang F. Causal influences of osteoarthritis on COVID-19: a Mendelian randomization study. *Front Med (Lausanne)*. 2023 Oct 31;10:1287043. doi: 10.3389/fmed.2023.1287043. PMID: 38020136; PMCID: PMC10644031.
10. **Cao H**, Baranova A, Song Y, Chen J, Zhang F. Causal associations and genetic overlap between COVID-19 and intelligence, *QJM: An International Journal of Medicine*, June 2023, head122, <https://doi.org/10.1093/qjmed/head122>
11. Baranova A, Zhao Y, **Cao H**, Zhang F. Causal associations between major depressive disorder and COVID-19. *Gen Psychiatr*. 2023 Apr 5;36(2):e101006. doi: 10.1136/gpsych-2022-101006. PMID: 37066117; PMCID: PMC10083530.
12. Baranova A, **Cao H**, Zhang F. Causal associations and shared genetics between hypertension and COVID-19. *J Med Virol*. 2023 Mar 23. doi: 10.1002/jmv.28698. Epub ahead of print. PMID: 36951353.
13. Baranova A, Chandhoke V, **Cao H**, Zhang F. Shared genetics and bidirectional causal relationships between type 2 diabetes and attention-deficit/hyperactivity disorder. *Gen Psychiatr*. 2023 Mar 13;36(2):e100996. doi: 10.1136/gpsych-2022-100996. PMID: 36937092; PMCID: PMC10016243.
14. Baranova A, **Cao H**, Teng S, Su KP, Zhang F. Shared genetics and causal associations between COVID-19 and multiple sclerosis. *J Med Virol*. 2023 Jan;95(1):e28431. doi: 10.1002/jmv.28431. PMID: 36571271; PMCID: PMC9880714.
15. Baranova A, **Cao H**, Zhang F. Causal effect of COVID-19 on Alzheimer's disease: A Mendelian randomization study. *J Med Virol*. 2023 Jan;95(1):e28107. doi: 10.1002/jmv.28107. Epub 2022 Sep 7. PMID: 36039844; PMCID: PMC9539282.
16. Baranova A, **Cao H**, Teng S, Zhang F. A phenome-wide investigation of risk factors for severe COVID-19. *Journal of Medical Virology*, 31 October 2022 <https://doi.org/10.1002/jmv.28264>
17. Baranova A, Song Y, **Cao H**, Zhang F. Causal Associations Between Basal Metabolic Rate and COVID-19. *Diabetes*. 2022 Oct 10;db220610. doi: 10.2337/db22-0610. Epub ahead of print. PMID: 36215434.
18. Richman S, Lyman C, Nesterova A, Yuryev A, Morris M, **Cao H**, Cheadle C, Skuse G, Broderick G. Old drugs, new tricks: leveraging known compounds to disrupt coronavirus-induced cytokine storm. *NPJ Syst Biol Appl*. 2022 Oct 10;8(1):38. doi: 10.1038/s41540-022-00250-9. PMID: 36216820; PMCID: PMC9549818.
19. Baranova A, Xu Y, **Cao H**, Zhang F. Associations between pulse rate and COVID-19. *J Med Virol*. 2022 Oct 6. doi: 10.1002/jmv.28194. Epub ahead of print. PMID: 36203197.
20. **Cao H**, Baranova A, Wei X, Wang C, Zhang F. Bidirectional causal associations between type

- 2 diabetes and COVID-19. *Journal of Medical Virology*, 27 August 2022 <https://doi.org/10.1002/jmv.28100>
21. Liu S., Guo Z, **Cao H**, Li H., Hu X, Cheng L, Li J, Liu R., Xu Y. Altered asymmetries of resting - state MRI in the left thalamus of first - episode schizophrenia. *Chronic Dis Transl Med.* 2022;1–11. DOI: 10.1002/cdt3.41
 22. Rhoades R, Sobitan A, Mahase V, Gebremedhin B, Tang Q, Rawat D, **Cao H**, Teng S. In-silico investigation of systematic missense mutations of middle east respiratory coronavirus spike protein. *Front. Mol. Biosci.*, September 2022 <https://doi.org/10.3389/fmolb.2022.933553>
 23. Baranova A, **Cao H**, Zhang F. Severe COVID-19 increases the risk of schizophrenia. *Psychiatry Res.* 2022 Aug 24;317:114809. doi: 10.1016/j.psychres.2022.114809. Epub ahead of print. PMID: 36037742; PMCID: PMC9398553.
 24. Zhang F, **Cao H.**, & Baranova, A. (2022). Genetic variation mediating neuroticism's influence on cardiovascular diseases. *Journal of Psychopathology and Clinical Science*, 131(3), 278–286. <https://doi.org/10.1037/abn0000744>
 25. Baranova A, Wang J, **Cao H**, Chen JH, Chen J, Chen M, Ni S, Xu X, Ke X, Xie S, Sun J, Zhang F. Shared genetics between autism spectrum disorder and attention-deficit/hyperactivity disorder and their association with extraversion. *Psychiatry Res.* 2022 Jun 13;314:114679. doi: 10.1016/j.psychres.2022.114679. Epub ahead of print. PMID: 35717853.
 26. Long J, Tian L, Baranova A, **Cao H**, Yao Y, Rao S, Zhang F. Convergent lines of evidence supporting involvement of NFKB1 in schizophrenia. *Psychiatry Res.* 2022 Jun;312:114588. doi: 10.1016/j.psychres.2022.114588. Epub 2022 May 1. PMID: 35524996.
 27. Baranova A, **Cao H**, Chen J, Zhang F. Causal Association and Shared Genetics Between Asthma and COVID-19. *Front Immunol.* 2022 Mar 21;13:705379. doi: 10.3389/fimmu.2022.705379. PMID: 35386719; PMCID: PMC8977836.
 28. Ouni E, Nedbal V, Da Pian M, **Cao H**, Haas KT, et al. Proteome-wide and matrisome-specific atlas of the human ovary computes fertility biomarker candidates and open the way for precision oncofertility. *Matrix Biol.* 2022 Mar 24:S0945-053X(22)00037-3. doi: 10.1016/j.matbio.2022.03.005. Epub ahead of print. PMID: 35341935.
 29. Zhang F, **Cao H**, Baranova A. Genetic variation mediating neuroticism's influence on cardiovascular diseases. *J Psychopathol Clin Sci.* 2022 Feb 17. doi: 10.1037/abn0000744. Epub ahead of print. PMID: 35230853.
 30. Zhang F, Rao S, **Cao H**, Zhang X, Wang Q, Xu Y, Sun J, Wang C, Chen J, Xu X, Zhang N, Tian L, Yuan J, Wang G, Cai L, Xu M, Baranova A. Genetic evidence suggests posttraumatic stress disorder as a subtype of major depressive disorder. *J Clin Invest.* 2022 Feb 1;132(3):e145942. doi: 10.1172/JCI145942. PMID: 33905376; PMCID: PMC8803333.
 31. Rao S, Tian L, **Cao H**, Baranova A, Zhang F. Involvement of the long intergenic non-coding RNA LINC00461 in schizophrenia. *BMC Psychiatry.* 2022 Jan 26;22(1):59. doi: 10.1186/s12888-022-03718-4. PMID: 35081922; PMCID: PMC8790831.
 32. Zhang F, **Cao H**, Baranova A. Shared Genetic Liability and Causal Associations Between Major Depressive Disorder and Cardiovascular Diseases. *Front Cardiovasc Med.* 2021 Nov 11;8:735136. doi: 10.3389/fcvm.2021.735136. PMID: 34859065; PMCID: PMC8631916.
 33. Baranova A, **Cao H**, Zhang F. Shared genetic liability and causal effects between major

- depressive disorder and insomnia. *Hum Mol Genet.* 2021 Nov 11;ddab328. doi: 10.1093/hmg/ddab328. Epub ahead of print. PMID: 34761251.
34. Rao S, Baranova A, **Cao H**, Chen J, Zhang X, Zhang F. Corrigendum to: Genetic mechanisms of COVID-19 and its association with smoking and alcohol consumption. *Brief Bioinform.* 2021 Nov 5;22(6):bbab357. doi: 10.1093/bib/bbab357. Erratum for: *Brief Bioinform.* 2021 Nov 5;22(6): PMID: 34387328; PMCID: PMC8385990.
 35. Lyman CA, Richman S, Morris MC, **Cao H**, Scerri A, Cheadle C, Broderick G. Attractor Landscapes as a Model Selection Criterion in Data Poor Environments, *bioRxiv*, Nov 2021. doi: <https://doi.org/10.1101/2021.11.09.466986>
 36. **Cao H**, Li S, Baranova A, Zhang F. Shared Genetic Liability Between Major Depressive Disorder and Atopic Diseases. *Front Immunol.* 2021 Sep 8;12:665160. doi: 10.3389/fimmu.2021.665160. PMID: 34566951; PMCID: PMC8455950.
 37. Baranova A, **Cao H**, Zhang F. Unraveling Risk Genes of COVID-19 by Multi-Omics Integrative Analyses. *Front Med (Lausanne).* 2021 Sep 7;8:738687. doi: 10.3389/fmed.2021.738687. PMID: 34557504; PMCID: PMC8452849.
 38. **Cao H**, Wang J, Baranova A, Zhang F. Classifying major mental disorders genetically. *Prog Neuropsychopharmacol Biol Psychiatry.* 2021 Jul 30;110410. doi: 10.1016/j.pnpbp.2021.110410. Epub ahead of print. PMID: 34339760.
 39. Yang X, Chen Y, Wang H, Fu X, Kural KC, **Cao H**, Li Y. Schizophrenia Plays a Negative Role in the Pathological Development of Myocardial Infarction at Multiple Biological Levels. *Front Genet.* 2021 Jun 3;12:607690. doi: 10.3389/fgene.2021.607690. PMID: 34149793; PMCID: PMC8211423.
 40. Zhang F, Baranova A, Zhou C, **Cao H**, Chen J, Zhang X, Xu M. Causal influences of neuroticism on mental health and cardiovascular disease. *Hum Genet.* 2021 Sep;140(9):1267-1281. doi: 10.1007/s00439-021-02288-x. Epub 2021 May 11. Erratum in: *Hum Genet.* 2021 Jul 9;: PMID: 33973063.
 41. Olson A, Zhang Z, **Cao H**, Baranova A and Slavin M. In silico Gene Set and Pathway Enrichment Analyses Highlight Involvement of Ion Transport in Cholinergic Pathways in Autism: Rationale for Nutritional Intervention. March 2021. *Front. Neurosci.* doi: 10.3389/fnins.2021.648410
 42. Cai L, Bao Y, Fu X, **Cao H**, Baranova A, Zhang X, Sun J, Zhang F. Causal links between major depressive disorder and insomnia: A Mendelian randomisation study. *Gene.* Feb 2021. 26:145271. doi: 10.1016/j.gene.2020.145271
 43. Meng X, Lu H, Jiang X, Huang B, Wu S, Yu G, **Cao H**. Understanding the molecular association between hyperkalemia and lung squamous cell carcinomas. *BMC Med Genet.* 2020 Oct 22;21(Suppl 1):176. doi: 10.1186/s12881-020-01099-7.
 44. Xiang X, Yuan D, Kong P, Chen T, Yao H, Lin S, Zhang X, **Cao H**. Deep vein thrombosis inhibitor may play a therapeutic role in post-stroke patients. *BMC Med Genet.* 2020 Oct 22;21(Suppl 1):174. doi: 10.1186/s12881-020-01108-9.
 45. Q Xie, Z Li, Y Wang, S Zaidi, A Baranova, **H Cao**. Preeclampsia Drives Molecular Networks to Shift Toward Greater Vulnerability to the Development of Autism Spectrum Disorder. *Front Neurol.* 2020 Jul 15; 11:590. doi: 10.3389/fneur.2020.00590.
 46. L Qiao, L Xia, Y Dong, Y Cheng, **H Cao**, Uterine Fibroids My Play a Protecting Role Against Endometrial Carcinoma in Chinese Women With Gynecological Diseases. *Biosci Rep.* 2020

Jul 31; BSR20201083. doi: 10.1042/BSR20200350

47. X Li , Y Zhu, M Keaton, A Baranova, S Liu, X Hu, Q Li, L Cheng, P Zhou, **H Cao**, Y Xu. Variants and expression changes in PPAR-encoding genes display no significant association with schizophrenia. *Biosci Rep.* 2020 Jul 31;40(7):BSR20201083. doi: 10.1042/BSR20201083.
48. Wei W, Zhang M, Xu Z, Li W, Cheng L, **Cao H**, Ma M, Chen Z. A microfluidic array device for single cell capture and intracellular Ca²⁺ response analysis induced by dynamic biochemical stimulus. *Biosci Rep.* 2021 Jul 30; 41(7):BSR20210719. doi: 10.1042/BSR20210719. PMID: 34269374; PMCID: PMC8319492.
49. Y Wu, **H Cao**, A Baranova, et al. Multi-trait Analysis for Genome-Wide Association Study of Five Psychiatric Disorders. *Transl Psychiatry.* 2020 Jun 30; 10(1):209. doi: 10.1038/s41398-020-00902-6.
50. Y Dong, **H Cao**, R Cao, A Baranova. TNFRSF12A and CD38 Contribute to a Vicious Circle for Chronic Obstructive Pulmonary Disease by Engaging Senescence Pathways. *Front Cell Dev Biol.* 2020 May 27;8:330. doi: 10.3389/fcell.2020.00330. eCollection 2020.
51. Xi-Juan Zhang, Zhong-Hua Cui, Yan Dong, Xiu-Wen Liang, Yan-Xin Zhao, Ancha Baranova, **H Cao**, Ling Wang. GPNMB Contributes to a Vicious Circle for Chronic Obstructive Pulmonary Disease. *Biosci Rep.* 2020 Jun 26; BSR20201083. doi: 10.1042/BSR20194459.
52. Yanjun Meng, Yuling Li, **Hongbao Cao**, Yong Xu, Binquan Wang. Development of Two Psychological Experience Questionnaires for Screening Violence-Related Mental Health Disorders of Non-Psychiatric Inpatients. *Health Qual Life Outcomes.* 2020 May 25;18(1):151. doi: 10.1186/s12955-020-01399-9.
53. **Cao H**, Ancha Baranova, Weihua Yue, Hao Yu, Zufu Zhu, Fuquan Zhang, Dongbai Liu. miRNA-Coordinated Schizophrenia Risk Network Cross-Talk With Cardiovascular Repair and Opposed Gliomagenesis. *Front Genet.* 2020 Mar 4;11:149. doi: 10.3389/fgene.2020.00149. eCollection 2020.
54. Meng L, **Cao H**, Baranova A, et al. Aging-associated genes TNFRSF12A and CHI3L1 contribute to thyroid cancer: An evidence for the involvement of hypoxia as a driver, *Oncology letter*, April 10, 2020. <https://doi.org/10.3892/ol.2020.11530>
55. Zhang L, Huang X, Zhou T, Cao H. Microcystic adnexal carcinoma: report of rare cases. *Biosci Rep.* 2020 Jan 31;40(1).
56. Chen C, Zhu Z, Mao Y, Xu Y, Du J, Tang X, **Cao H**. HbA1c may contribute to the development of non-alcoholic fatty liver disease even at normal-range levels. *Biosci Rep.* 2020 Jan 31;40(1).
57. Liu S, Zhao W, Li Y, Li X, Li J, **Cao H**, Yang Z, Xu Y. Improve cognition of depressive patients through the regulation of basal ganglia connectivity: Combined medication using Shuganjiayu capsule. *J Psychiatr Res.* 2020 Jan 28;123:39-47.
58. S Liu, S Rao, Y Xu, J Li, H Huang, X Zhang, H Fu, Q Wang, **H Cao**, A Baranova, C Jin, F Zhang, Identifying Common Genome-Wide Risk Genes for Major Psychiatric Traits, *Hum Genet*, 2019 Dec 7
59. Liu D, **Cao H**, Kural KC, Fang, Q, Zhang F. Integrative Analysis of shared Genetic Pathogenesis by Autism Spectrum Disorder and Obsessive-Compulsive Disorder, *Biosci Rep.* 2019 Dec 6. pii: BSR20191942. doi: 10.1042/BSR20191942.
60. Fang P, Zhang L, Zhang X, Yu J, Sun J, Jiang Q, Zha M, Nesterova A, **Cao H**, Apatinib Mesylate in the treatment of advanced progressed lung adenocarcinoma patients with EGFR-

- TKI resistance —A Multicenter Randomized Trial, *Scientific Reports* volume 9, Article number: 14013, Sep 2019. <https://doi.org/10.1038/s41598-019-50350-6>
61. Zhang G, Wang W, Huang W, Xie X, Liang Z, **Cao H**. Cross-disease analysis identified novel common genes for both lung adenocarcinoma and lung squamous cell carcinoma. *Oncol Lett*. 2019 Oct;18(4):3463-3470. doi: 10.3892/ol.2019.10678. Epub 2019 Jul 29.
 62. Xie Q, Shen W, Li Z, Baranova A, **Cao H**, Li Z. A core collection of pan-schizophrenia genes allows building cohort-specific signatures of affected brain. *Sci Rep*. 2019 Sep 3;9(1):12671. doi: 10.1038/s41598-019-48605-3.
 63. Lian X, Baranova A, Ngo J, Yu G, **Cao H**. UGT2B17 and miR-224 contribute to hormone dependency trends in adenocarcinoma and squamous cell carcinoma of esophagus. *Biosci Rep*. 2019 Jul 5;39(7). doi: 10.1042/BSR20190472. Print 2019 Jul 31.
 64. Lian M, **Cao H**, Baranova A, Kural K, Hou L, He S , Shao Q and Fang J. Aging-related genes TNFRSF12A and CHI3L1 contribute to the carcinogenesis in the thyroid: an evidence for involvement of hypoxia as a driver. *Oncology Letters*. June 2019.
 65. Ge Y, Xia L, Wu Y, **Cao H**. Employ ductus venous blood flow in the early detection of trisomy 21, trisomy 18, and trisomy 13: A meta-analysis. *Medicine (Baltimore)*. 2019 Mar;98(12):e14773. doi: 10.1097/MD.00000000000014773.
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 67. Xu C, **Cao H**, Liu D. Integrative analysis of shared genetic pathogenesis by obsessive-compulsive and eating disorders. *Molecular Medicine Reports*, 2019. 19(3):1761-1766.
 68. Xu C, **Cao H**, Zhang F, Cheadle C. Comprehensive literature data-mining analysis reveals a broad genetic network functionally associated with autism spectrum disorder. *Int J Mol Med*. 2018;42(5):2353-2362.
 69. Huang B, Zhong N, **Cao H**, Yu G. A curated target gene pool assisting disease prediction and patient-specific biomarker selection for lung squamous cell carcinoma. *Oncol Lett*. 2018 Oct;16(4):5140-5146.
 70. Yu T, Li Y, Fan F, **Cao H**, et al. Decreased Gray Matter Volume of Cuneus and Lingual Gyrus in Schizophrenia Patients with Tardive Dyskinesia is Associated with Abnormal Involuntary Movement. *Sci Rep*. 2018; 8(1):12884.
 71. Li Z, Xiong Z, Manor L, **Cao H**, and Li T. Integrative computational evaluation of genetic markers for Alzheimer's disease. *Saudi J Biol Sci*. 2018; 25(5): 996-1002.
 72. Xiang X, Wang Y, **Cao H**, and Zhang X, Knowledge database assisted gene marker selection for chronic lymphocytic leukemia, *J Int Med Res*. 2018 Aug; 46(8): 3358-3364.
 73. Zheng Y, Wang YP, **Cao H**, Chen Q, Zhang X. Integrated computational biology analysis to evaluate target genes for chronic myelogenous leukemia. *Mol Med Rep*. 2018;18(2):1766-1772.
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