Principal Investigator/Program Director (Last, First, Middle): Gao, Bin

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed on Form Page 2.
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NAME	POSITION TITLE
Bin Gao, MD., PhD	Chief, Laboratory of Liver Diseases, NIAAA

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Wannan Medical College, China	MD	1986	Clinical Medicine
Norman Bethune University of Medical Sciences	PhD	1991	Immunology
National Institutes of Health	Postdoctoral	1991-1992	Molecular Biology
Medical College of Virginia	Postdoctoral	1992-1995	Liver Biology

A. Personal Statement

My lab at NIH has been actively conducting translational research to study the immunological aspects and molecular pathogenesis of liver diseases, focusing on the roles of cytokines and innate immunity in the liver disease progression, and to explore novel therapeutic targets for the treatment of liver disease and cancer.

B. Positions and Honors

2009-present: Chief, Laboratory of Liver Diseases, NIAAA/NIH, Bethesda, MD 20892
2000-2009: Chief, Section on Liver Biology, LPS, NIAAA/NIH, Bethesda, MD 20892
1995- 2000: Assistant Professor, Dept. of Pharmacology/Toxicology, Medical College of Virginia

Editorial Board:
Gastroenterology (2011-); *Hepatology* (2007-); *American Journal of Physiology-GI and liver* (2010-)
Expert Review of Gastroenterology and Hepatology (2007-); *Alcohol* (2006-); *Cell & Biosciences* (2010-)
Cellular and Molecular Immunology (2004-); *International Journal of Biological Sciences* (2010-)
Journal of Clinical Hepatology (2009-)

Awards and Honors:
2000 – International Society for Biomedical Research on Alcoholism Junior Investigator Award
2007 – Elected to the American Society for Clinical Investigation (ASCI) Member
2010 - NIH Asian & Pacific Islander American Organization (APAO) award

C: Selected Publications (total over 200):

1. Hong, F., Jaruga, B., Kim, W. H., Radaeva, S., Tian, Z., El-Assal, O., Nguyen, V., and Gao, B.: Opposing roles of STAT1 and STAT3 in T cell-mediated hepatitis: regulation by SOCS. ***J. Clin. Invest.*** 2002, 110 (10): 1503-1513. .
2. Radaeva, S., Jaruga, B., Hong, F., Kim, W. H., Fan, S., Cai, H., Strom S., Liu, Y., El-Assal, O., and Gao, B.: Interferon-α activates multiple STAT signals and downregulates c-Met in primary human hepatocytes. ***Gastroenterology*** 2002, 122:1020-1034.
3. Radaeva, R., Sun, R., Pan, H., Hong, F., and Gao, B.: Interleukin-22 (IL-22) plays a protective role in T cell hepatitis: IL-22 is a survival factor for hepatocytes via activation of STAT3. ***Hepatology*** 2004, 39(5):1332-1342.
4. Radaeva, S., Sun, R., Jaruga, B., Nguyen, V., Tian, Z., Gao B.: Natural killer cells ameliorate liver fibrosis through killing activated stellate cells in RAE1/NKG2D- and TRAIL-dependent manners. ***Gastroenterology*** 2006, 130: 435-452.

5. Xu, X., Kobayashi, S., Qiao, W., Li, C., Xiao, C., Radaeva, S., Stiles, B., Wang, R., Ohara, N., Yoshino, T., LeRoith, D., Torbenson, M., Gores, G., Wu, H., Gao, B., and Deng, C. Induction of cholangiocellular carcinoma by liver specific disruption of Smad4 and Pten in mice. ***J. Clin. Invest.*** 2006, 116:1843-1852
6. Gao, B., Jeong, W., and Tian, Z.: Liver: an organ with predominant innate immunity (Review). ***Hepatology*** 2008: 47:729-736
7. Jeong, W., Osei-Hyiaman, D., Park, O., Liu, J., Bátkai, S., Mukhopadhyay, P., Horiguchi, N., Harvey-White, J., Marsicano, G., Lutz, B., Gao, B., Kunos, G.: Paracrine activation of hepatic CB1 receptors by stellate cell-derived endocannabinoids mediates alcoholic liver disease. ***Cell Metabolism*** 2008, 7:227-235
8. Horiguchi, N., Wang, L., Mukhopadhyay, P., Jeong, W., Lafdil, F., Osei-Hyiaman, D., Moh, A., Fu, X., Pacher, P., Kunos, G., Gao, B.: Cell-dependent pro- and anti-inflammatory role of STAT3 in alcoholic liver injury. ***Gastroenterology*** 2008; 134:1148-1158
9. Hu, W., Ferris, S., Tweten, R., Wu, G., Radaeva, S., Gao, B., Bronson, R., Halperin, J., Qin, X.: Conditional, rapid and targeted ablation of cells expressing human CD59 in transgenic mice by intermedilysin. ***Nature Medicine*** 2008,14:98-103
10. Lafdil, F., Wang, H., Park, O., Zhang, W., Moritoki, Y., Yin, S., Fu, X., Gershwin, M., Lian, Z., Gao, B.: Myeloid STAT3 inhibits T-cell-mediated hepatitis by regulating T helper 1 cytokine and interleukin-17 production. ***Gastroenterology*** 2009, 137:2125-2135
11. Hong, H., Mak, K., Topol, L., Yun, K., Hu, J., Garrett, L., Chen, Y., Park, O., Chang, J., Simpson, R., Wamg, C., Gao, B., Jiang, J., Yang, Y.: Mammalian Mst1 and Mst2 kinases play essential roles in organ size control and tumor suppression. ***Proc. Natl. Acad. Sci. USA*** 2010, 107:1431-6
12. Horiguchi, N., Lafdil F, Miller AM, Park O, Wang H, Rajesh M, Mukhopadhyay P, Fu XY, Pacher P, Gao, B.: Dissociation between hepatic inflammation and necrosis induced by CCl_4 in myeloid cell specific STAT3 knockout mice. ***Hepatology*** 2010, 51:1724-1734
13. Kim H, Xiao C, Wang R, Lahusen T, Xu X, Vassilopoulos A, Vazquez-Ortiz G, Jeong W, Park O, Ki S, Gao B, Deng CX.: Sirt6 deacetylase negatively regulates glycolysis and triglyceride synthesis and prevents fatty liver formation in mice. ***Cell Metabolism*** 2010, 12:224-236
14. Ki, S., Park, O., Zheng, M., Kolls, J., Batller, R., and Gao, B.: IL-22 treatment ameliorates alcoholic liver injury in a murine model of chronic plus binge drinking. ***Hepatology*** 2010, 52 (4):1291-300
15. Park, O., Wang, H., Weng, H., Feigenbaum, L., Li, H., Yin, S., Ki, S., Yoo, S., Dooley, S., Wang, F., Young, S., and Gao, B.: *In vivo* consequences of liver-specific interleukin-22 expression in mice: implications for human liver disease progression. ***Hepatology*** 2011 54:252-61
16. Gao, B., and Bataller R.: Alcoholic liver disease: Pathogenesis and novel therapeutic targets (Invited Review). ***Gastroenterology*** 2011, 141:1572-1585
17. Feng, D., Kong, X., Weng, H., Park, O., Wang, H., Dooley, S., Gershwin, E., and Gao, B.: IL-22 promotes liver progenitor cell proliferation in patients with viral hepatitis and in mice. ***Gastroenterology*** 2012 143:188-198
18. Wang, H., Feng, D., Park, D., Yin, S., Gao, B.: Invariant NKT cell activation induces neutrophil accumulation and hepatitis: oppositely regulated by IL-4 and IFN-gamma. ***Hepatology*** 2013, 58:1474-1485
19. Bertola, A., Park, O., and Gao, B.: Chronic plus binge ethanol feeding synergistically induces neutrophil infiltration and liver injury: A critical role of E-selectin. ***Hepatology*** 2013, 58:1814-1823
20. Bertola, A., Mathews, S., Ki, S., Wang, H., and Gao, B.: Chronic plus binge ethanol feeding model (the NIAAA model). ***Nature Protocol*** 2013, ;8:627-637
21. Kwon, H., Won,Y., Park,O., Gao, B.: Prednisolone treatment exacerbates hepatotoxin-induced acute liver injury by targeting glucocorticoid receptors in neutrophils and macrophages in mice. ***Hepatology*** 2014 59:695-704
22. Kwon, H., Won,Y., Park,O., Chang, B., Duryee, M., Thiele, G. E., Matsumoto, A., Singh, S., Abdelmegeed, M., Song, B., Kawamoto, T., Vasiliou, V., Thiele, G., Gao, B.: Aldehyde dehydrogenase 2 deficiency ameliorates alcoholic fatty liver but worsens liver inflammation and fibrosis in mice. ***Hepatology*** 2014; 60(1):146-57
23. Xu MJ, Feng D, Wu H, Wang H, Chan Y, Kolls J, Borregaard N, Porse B, Berger T, Mak TW, Cowland JB, Kong X, Gao B. Liver is the major source of elevated serum lipocalin-2 levels after bacterial infection or partial hepatectomy: a critical role for IL-6/STAT3. ***Hepatology***. 2015;61(2):692-702.

Ongoing Research Support:

Z01 AA000368 ***Gao* (PI)** 2000-present: Intramural Program, NIAAA/NIH, "Inflammation and liver disease progression"
Z01 AA000369 ***Gao (PI)*** 2000-present: Intramural Program, NIAAA/NIH, "Immunologic mechanisms of alcoholic liver disease"

Completed:

NIH R29CA72681 (PI: Bin Gao) (R01 for a new investigator): *1998-2003*
"Tissue specific regulation of the transcription of the α_{1B} AR gene".

NIH R03AA11823 (PI: Bin Gao): 1998-2000
" Ethanol and IL-6 signaling pathway in the liver".

NIH R01AA12637 (PI: Bin Gao): 2000-2003
" Ethanol and the JAK-STAT signaling pathway".

The Massey Cancer Center grant (PI: Bin Gao): 1996-1997
"Cloning of a novel transcriptional factor gene controlling the protooncogenic α1B AR"

The Thomas F. Jeffress and Kate Miller Jeffress Memorial Trust (PI: Bin Gao): 1996-1998
"Molecular Mechanisms of the α1B AR gene regulation during liver regeneration"