

## BIOGRAPHICAL SKETCH

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NAME Paul J. Boor	POSITION TITLE Professor		
eRA COMMONS USER NAME pjboor			
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
Union College, Schenectady, New York	B.S.	1968	Biology
Tufts Univ. Medical School, Boston, MA	M.D.	1972	Medicine

### A. Positions and Honors:

1972-76 Resident and Chief Resident in Pathology, Peter Bent Brigham Hospital, Boston, MA  
1974-76 Clinical Fellow and Research Associate, Harvard Medical School, Boston, MA  
1977-81 Assistant Professor of Pathology, University of Texas Medical Branch, Galveston, TX, (UTMB)  
1981-86 Associate Professor of Pathology, UTMB  
1986- Professor of Pathology, UTMB

### Awards:

1975-77 National Research Service Award  
1977-80 Young Investigator Research Award  
1981-86 Research Career Development Award

### B. Peer Reviewed Publications (selected from a total of 140):

1. Boor, P.J., Cardiac glutathione: Diurnal rhythm and variation in drug induced cardiomyopathy. Res. Comm. Chem. Pathol. Pharmacol. 24(1) :27-36, 1979.
2. Boor, P.J., Moslen, M.T. and Reynolds, E.S. Allylamine cardiotoxicity: I. Sequence of pathologic events. Toxicol. Appl. Pharmacol. 50:581-592, 1979.
3. Boor, P.J., Nelson, T.J. and Chieco, P. Allylamine cardiotoxicity: II. Histopathology and histochemistry. Amer. J. Pathol. 100:739-751, 1980.
4. Nelson, T.J. and Boor, P.J. Allylamine cardiotoxicity: IV. Metabolism to acrolein by cardiovascular tissues. Biochem. Pharmacol. 31:509-514, 1982.
5. Boor, P.J. and Ferrans, V.J. Ultrastructural alterations in allylamine-induced cardiomyopathy: Early lesions. Lab. invest. 47:76-86, 1982.
6. Chieco, P. and Boor, P.J. Quantitative histochemistry in pathology and toxicology: An evaluation of the original method of Ornstein. Lab. Invest. 50:355-362, 1984.
7. Boor, P.J. and Ferrans, V.J. Ultrastructural alterations in allylamine cardiovascular toxicity: Late myocardial and vascular lesions. Am. J. Pathol. 121, 1985.
8. Douidar, S., Boor, P.J., Ahmed, A.E. Potentiation of hepatotoxic effect of acetaminophen by prior administration of salicylate. J. Pharmacol. Exp. Ther. 233:242-248, 1985.
9. Boor, P.J. and Ansari, G.A.S. HPLC method for quantitation of acrolein in biological samples. J. Chromatogr. Biomed. Appl. 373:159-164, 1986.
10. Hysmith, R.M., Welch, T.K. and Boor, P.J. The study of cardiovascular toxins utilizing a sensitive indicator of sublethal toxic injury. In Vitro 23:129-133, 1987.
11. Hysmith, R.M. and Boor, P.J. In vitro expression of BZAO activity in cultured porcine aortic smooth muscle cells. J. Cardiovasc. Pharmacol. 9:668-674, 1987.
12. Hysmith, R.M. and Boor, P.J. Binding of [<sup>14</sup>C]-allylamine to isolated mitochondria from rat heart and aorta. Toxicology 44:13-29, 1987.
13. Boor, P.J., Sanduja, R., Nelson, T.J. and Ansari, G.A.S. In vivo metabolism of the cardiovascular toxin, allylamine. Biochem. Pharmacol. 36:4347-4353, 1987.
14. Hysmith, R.M. and Boor, P.J. Role of benzylamine oxidase in the cytotoxicity of allylamine toward aortic smooth muscle cells. Toxicology 51:133-145, 1988.
15. Sanduja, R., Ansari, G.A.S. and Boor, P.J. 3-Hydroxypropylmercapturic acid: A biologic marker of exposure to allylic and related compounds. J. Appl. Toxicol. 9(4): 235-238, 1989.

16. Boor, P.J., Hysmith, R.M. and Sanduja, R. A role for a new vascular enzyme in the metabolism of xenobiotic amines. *Cir. Res.* **66**:249-252, 1990.
17. Kumar, D., Hysmith, R.M. and Boor, P.J. Allylamine and  $\beta$ -aminopropionitrile-induced vascular injury: in vivo and in vitro study. *Toxicol. Appl. Pharmacol.* **103**:288-302, 1990.
18. Sklar, J.L., Anderson, P.G. and Boor, P.J. Allylamine and acrolein toxicity in perfused rat hearts. *Toxicol. Appl. Pharmacol.* **107**:535-544, 1991.
19. Boor, P.J., Trent, M.B., Lyles, G.A., Tao, M. and Ansari, G.A.S. Methylamine metabolism to formaldehyde by a vascular enzyme. *Toxicology*, **73**:251-258, 1992.
20. Awasthi, S., Boor P.J. Lipid peroxidation and oxidative stress during acute allylamine-induced cardiovascular toxicity. *J. Vasc Res* **31**:33-41 1994.
21. Boor, P.J., Gotlieb, A.I., Joseph, E.C., Kerns, W.D., Roth, R.A., and Tomaszewski, K.E.: Contemporary Issues in Toxicology: Chemical-Induced Vessel Injury. *Toxicol. Appl. Pharmacol.* **132**:177-195, 1995.
22. Misra, P., Srivastava, S.K., Singhal, S.S., Awasthi, S., Awasthi, Y.C., and Boor, P.J. Glutathione-S-Transferase (GST) 8-8 is localized in smooth muscle cells of rat aorta and is induced in an experimental model of atherosclerosis. *Toxicol. Appl. Pharmacol.* **133**:27-33, 1995.
23. Conklin, D.J. and Boor, P.J. Allylamine cardiovascular toxicity: evidence for aberrant vasoreactivity. *Toxicol. Appl. Pharmacol.* **148**:245-251, 1998.
24. Kumar D., Trent, M.B. and Boor P.J. Allylamine &  $\beta$ -aminopropionitrile induced aortic medial necrosis: mechanisms of synergism. *Toxicology*. **125**:107-115, 1998.
25. He, NG, Awasthi, S. Singhal, SS, Trent, MB, and Boor, PJ. The role of GST as a defense against reactive electrophiles in the blood vessel wall. *Toxicol. Appl. Pharmacol.* **152**:83-89, 1998.
26. Langford, S.D., Trent, M.B., Balakumaran, A., and Boor, P.J. Developmental vasculotoxicity associated with inhibition of SSAO. *Toxicol. Appl. Pharmacol.* **155**:237-244, 1999.
27. He N, Singhal SS, Awasthi S, Zhao T and Boor PJ. Role of Glutathione S-transferase 8-8 in Allylamine Resistance of Vascular Smooth Muscle Cells *in Vitro*. *Toxicol. Appl. Pharmacol.* **158**:177-185, 1999.
28. Langford SD, Trent MB, Boor PJ. Cultured rat VSMC are resistant to methylamine toxicity: no correlation to semicarbazide-sensitive amine oxidase. *Cardiovasc. Toxicol.* **1**: 51-60,2001.
29. Conklin DJ, Boyce CL, Trent MB, Boor PJ. Amine metabolism: a novel path to coronary artery vasospasm. *Toxicol. Appl. Pharmacol.* **175**: 149-159, 2001.
30. Srivastava, S., Conklin, D.J., Boor, PJ. Liu, S.Q., Srivastava, S.K., and Bhatnagar, A. Identification of biochemical pathways for the metabolism of oxidized low-density lipoprotein derived aldehyde 4-hydroxy trans-2-nonenal in vascular smooth muscle cells. *Atherosclerosis* **158**: 339-350, 2001.
31. Boor,PJ. "The arterial media as a target of injury by chemicals". In Cardiovascular Toxicology 3<sup>rd</sup> Edition. D. Acosta, ed. Academic Press, San Diego, CA. pp 557-582, 2001.
32. Khan MF, Wu X, Tipnis UR, Ansari GAS, Boor PJ. Protein adducts of malondialdehyde and 4-hydroxynonenal in livers of iron-loaded rats: quantitation and localization. *Toxicol.* **173**: 193-201, 2002.
33. Langford, SD, Trent, MB, Boor, PJ. Semicarbazide-sensitive amine oxidase and extracellular matrix deposition by smooth-muscle cells. *Cardiovas. Toxicol.* **2**:141-150, 2002.
34. Conklin, DJ, Cowley, HR, Wiechmann, RJ, Johnson, GH, Trent, MB, Boor PJ. Vasoactive Effects of Methylamine in Isolated Human Blood Vessels: Role of Semicarbazide-Sensitive Amine Oxidase, Formaldehyde, and Hydrogen Peroxide. *Am. J. Physiol. Heart Circ. Physiol.* **286**:H667-676, 2004.
35. Yang, Y, Yang, Y, Trent, MB, He, N, Lick, SD, Zimniak, P, Awasthi, YC. Boor, PJ. Glutathione-S-Transferase A4-4 Modulates Oxidative Stress in Endothelium: Possible Role in Human Atherosclerosis. *Atherosclerosis* **173**:211-221, 2004.
36. Dugas, TR, Kanz, MF, Hebert, VY, Hennard, KL, Liu, H., Santa Cruz, V, Conklin, D, Boor, PJ. Vascular Medial Hyperplasia Following Chronic, Intermittent Exposure to 4,4'-Methylenedianiline. *Cardiovas. Tox.* **4**:85-96, 2004.
37. Awasthi, S, Singhal, SS, Yadav S, Singhal J, Drake K, Nadkar A, Zajac E, Wickramarachchi D, Rowe N, Yacoub A, Boor P, Dwivedi S, Dent P, Jarman WE, Berchmans J, Awasthi YC. RLIP76 is a major determinant of radiation sensitivity. *Cancer Res* **65**:6022-6028, 2005.
38. Gong, B, Trent, MB, Srivastava, D, Boor, PJ. Chemical-induced, nonlethal, developmental model of dissecting aortic aneurysm. *Birth Defects Research (Part A): Clin Molec Teratology*: **76**:29-38, 2006.
39. Dwivedi, S, Sharma, R, Sharma, A, Zimniak, P, Ceci, JD, Awasthi, YC, Boor, PJ. The course of CCl<sub>4</sub> induced hepatotoxicity is altered in mGSTA4-4 null (-/-) mice. *Toxicology* **218**:58-66, 2005.
40. Boor, PJ, Yang, Y, Gong, B. Role of the media in vascular injury: atherosclerosis and dissection. *Toxicol Path.* **34**:1-6, 2006.
41. Gong, B., Boor, PJ. The role of amine oxidases in xenobiotic metabolism. *Expert Opin Drug Metab Toxicol.* **2**:559-571, 2006.
42. Conklin DJ, Bhatnagar A, Cowley HR, Johnson GH, Wiechmann RJ, Sayre LM, Trent MB, Boor PJ. Acrolein Generation Stimulates Hypercontraction in Isolated Human Blood Vessels. *Toxicol. Appl. Pharm.* **217**(3):277-288, 2006.

43. Wang L, Yang Y, Dwivedi S, Xu Y, Chu ET, Li J, Fitchett K, Boor PJ. Manipulating Glutathione-S-Transferases May Prevent the Development of Tolerance to Nitroglycerin Cardiovasc. Toxicol. 6(2):121-144, 2006.
44. Gong B, Asimakis GK, Chen Z, Albrecht TB, Boor PJ, Pappas TC, Bell B, Motamedi M. Whole-Body Hyperthermia Induces Up-Regulation of Vascular Endothelial Growth Factor Accompanied by Neovascularization in Cardiac Tissue. Life Sciences, 79:1781-1788, 2006.
45. Yang Y, Boor PJ. Glutathione-S-Transferases and Oxidative Injury of Cardiovascular Tissues. In Toxicology of Glutathione Transferases, edited by Y.C. Awasthi. Taylor & Francis, pp. 257-276, 2006.
46. Singhal SS, Singhal J, Yadav S, Dwivedi S, Boor PJ, Awasthi YC, Awasthi S. Regression of Lung and Colon Cancer Xenografts by Depleting or Inhibiting RLIP76 (Ral-Binding Protein 1). Cancer Res. 67(9):4382-4389, 2007.
47. Singhal SS, Singhal J, Yadav S, Dwivedi S, Boor PJ, Awasthi YC, Awasthi S. Regression of Lung and Colon Cancer Xenografts by Depleting or Inhibiting RLIP76 (Ral-Binding Protein 1). Cancer Res. 67(9):4382-4389, 2007.
48. Huang M-H, Wang H-Q, Roeske W, Birnbaum Y, Wu Y, Yang N-P, Lin Y, Ye Y, McAdoo D, Hughes M, Lick S, Boor P, Lui C, Uretsky B. Mediating 2-Adrenergic Receptor: Role of Intrinsic Cardiac Adrenergic Cells. Am J Physiol: Heart Circ Physiol. 293: 376-384, 2007.
49. Xu Y, Gong B, Yang Y, Awasthi YC, Woods ME, Boor PJ. Glutathione-S-Transferase Protects against Oxidative Injury of Endothelial Cell Tight Junctions. Endothelium 14: 333-343, 2007.
50. Gong B, Sun J, Vargas G, Chang Q, Xu Y, Srivastava D, Boor PJ. Nonlinear Imaging Study of Extracellular Matrix in Chemical-Induced, Developmental Dissecting Aortic Aneurysm: Evidence for Defective Collagen Type III. Birth Defects Res (Part A) 82: 16-24, 2008.
51. Vertrees RA, Zwischenberger JB, Boor PJ, Popov V, McCarthy M, Solley TN, Goodwin T. Cellular Differentiation in Three-Dimensional Lung Cell Cultures. Cancer Biol Therapy 7: 1-8, 2008.
52. Gong B, Bell B, Boor PJ, Albrecht TB, Asimakis GK, Motamedi M. Cardiac preconditioning with local laser-induced hyperthermia J Surg Res. 149(2):177-183. 2008
53. Boor, PJ, Conklin, DJ. The Arterial Media as a Target of Structural and Functional Injury by Chemicals" in Cardiovascular Toxicology, 4<sup>th</sup> Edition, Daniel Acosta, ed; Informa Healthcare Publishing, New York, New York. pp. 667-691, 2008.
54. Yang Y, Yang Y, Xu Y, Lick SD, Awasthi YC, Boor PJ. Endothelial Glutathione-S-Transferase A4-4 Protects Against Oxidative Stress and Modulates iNOS Expression through NF-  $\kappa$ B Translocation. Toxicol. Appl. Pharmacol. 230: 187-196, 2008
55. Xu Y, Gong B, Yang Y, Awasthi YC, Boor PJ. Adenovirus-Mediated Overexpression of Glutathione-S-Transferase Mitigates Transplant Arteriosclerosis in Rabbit Carotid Allografts. Transplantation (*in press*)

### C. Research Support:

#### Ongoing Research Projects:

##### ACTIVE:

"Splenic Toxicity of Aniline"

NIH R01-ES-06476 (**M.F. Khan**, Principal Investigator)

08/01/05 - 07/31/10 (5% effort)

"Hepatic Steatosis and the Lipid Metabolome"

NIH R01-AA-016364 (**G.A.S Ansari**, Principal Investigator)

09/30/07-08/31/12 (5% effort)

"Oxidative Stress and Autoimmunity"

NIH 5R01ES01630202 (**M.F.Khan**, Principal Investigator)

12/01/07 – 11/30/12 (5% effort)

"Role of Ralbp 1 in Xenobiotic and Radiation Resistance"

NIH 5R01CA10466106 (**subcontract – UTMB PI Boor**)

11/01/07 – 05/31/09 (5% effort)

“Peripheral and Central Sensitization in Pain”  
NIH NS-11255-32A2 (**J.M. Chung**, Principal Investigator)  
04/01/08 – 03/31/13 (3% effort)

**Research Projects Completed in the last 3 years:**

“Glutathione S-transferases: Oxidative Stress in Early Atherosclerosis”  
Principal Investigator: **Paul J. Boor**  
Agency: NIH  
Type: RO1 HL65416  
National Heart Lung and Blood Institute  
04/01/02 - 03/31/07

“Fetal Basis of Dissecting Aortic Aneurysm”  
Principal Investigator: **Paul J. Boor**  
Agency: NIH  
Type: R21-ES-013038-01  
04/01/04 – 03/31/07

“Mechanism(s) of TCE-Mediated Autoimmunity”  
Principal Investigator: **G.A.S. Ansari**  
Agency: NIH  
Type RO1 ES011584-01  
07/01/03 – 06/30/08

“Fatty Acid Ethyl Esters in Ethanol-induced Pancreatitis”  
Principal Investigator: **B.S. Kaphalia**  
Agency: NIH  
Type RO1 AA13171-01A2  
08/01/02–07/31/07

“Xenobiotics, Lipid Peroxidation and Autoimmunity”  
Principal Investigator: **M. Firoze Khan**  
Agency: National Institutes of Environmental Health Sciences (NIEHS, NIH)  
Type: R21 (ES013510, Years 1-2)  
12/01/2005 to 11/30/07