

BIOGRAPHICAL SKETCH

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NAME M. Firoze Khan	POSITION TITLE Professor		
eRA COMMONS USER NAME FIROZE			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Aligarh Muslim University, Aligarh, India	B.S.	1976	Chemistry, Zoology, Botany
Aligarh Muslim University, Aligarh, India	M.S.	1978	Biochemistry
Aligarh Muslim University, Aligarh, India	M.Phil	1980	Biochemistry
Aligarh Muslim University, Aligarh, India	Ph.D.	1983	Biochemistry

NOTE: The Biographical Sketch may not exceed four pages. Items A and B, together, may not exceed two of the four-page limit.

A. Positions and Honors. List in chronological order previous positions, concluding with your present position. List any honors. Include present membership on any Federal Government public advisory committee.

Professional Positions:

1979-80 Junior Research Fellow, Biophysics Division, Central Drug Research Institute, Lucknow, India
1980-84 Research Fellow, Industrial Toxicology Research Centre, Lucknow, India
1984-85 Visiting Fellow, National Institute of Environmental Health Services, Research Triangle Park, NC
1987-88 Scientific Officer, Industrial Toxicology Research Centre, Lucknow, India
1988-89 Post Doctoral Fellow, Dept. of Pharmacology, University of Ottawa, Ottawa, Ontario, Canada
1989-91 Post Doctoral Fellow, Dept. of Pathology, University of Texas Medical Branch, Galveston, TX
1991-95 Instructor, Dept. of Pathology, University of Texas Medical Branch, Galveston, TX
1995-2001 Assistant Professor, Dept. of Pathology, University of Texas Medical Branch, Galveston, TX
2001-2006 Associate Professor, Dept. of Pathology, University of Texas Medical Branch, Galveston, TX
2006- Professor, Department of Pathology, University of Texas Medical Branch, Galveston, TX

Awards and Other Professional Activities:

2008 Member, ZRG1 DIG-E (10) Study Section (Small Business), NIH
2007 Member, ZRG1 DIG-H (29) L - Fellowship: Diversity Programs Study Section, NIH
2006 Member, ZRG1 DIG-C 50 R Study Section (NIH)
2006 Member, ZRG1 DIG-F02 Study Section (NIH)
2002- Member, ZRG1 F10 Study Section (NIH)
2008- Member, Lupus Panel, Peer Reviewed Medical Research Program (PRMRP) of USAMRMC
2007 Researcher of the Year Award, Department of Pathology, UTMB, TX
1998 Young Scientist Award, ASIOA, San Francisco, CA
2004- Editorial Board Member, Toxicology and Applied Pharmacology
2003- Editorial Board Member, Medical Science Monitor
1998-2001 Editorial Board Member, Toxicology Letters
2000- Editorial Board Member, Journal of Toxicology and Environmental Health, Part A
2007- Editorial Board Member, The Open Drug Metabolism Journal
2008- Editorial Board Member, Journal of Toxicology

B. Selected peer-reviewed publications (in chronological order).

- Khan MF.** Enhanced analgesic activity of liposomized met-enkephalin analogue. *Ind J Biochem Biophys* 18: 440-441, 1981.
- Khan MF, Jaffery FN, Ali S, Rahman Q.** Biochemical studies on the toxicity of slate mine dust. *Environ Health Perspect* 51: 305-310, 1983.

3. **Khan MF**, Ali S, Singh SV, Rahman Q, Viswanathan PN. Pulmonary biochemical response to slate dust in rats. *J Appl Toxicol* 4: 87-91, 1984.
4. **Khan MF**, Singh SV, Rahman Q. Alveolar macrophage and its role in the toxicity of particulate air pollutants. *Biol Mem* 9: 210-221, 1984.
5. **Khan MF**, Ali S, Rahman Q. Bioreactivity of intratracheally administered slate dust: Incorporation of ¹⁴C-acetate into lung lipids. *J Appl Toxicol* 9: 305-311, 1989.
6. **Khan MF**, Gallagher JE, Brody AR. Effect of alveolar lining layer proteins and lipids on particle binding and phagocytosis. *Toxicol In Vitro* 4: 93-101, 1990.
7. **Khan MF**, Abidi P, Anwer J, Ray PK, Anand M. Pulmonary biochemical assessment of fenitrothion toxicity in rats. *Bull Environ Contam Toxicol* 45: 598-603, 1990.
8. **Khan MF**, Kaphalia BS, Ansari GAS. Heated linoleic acid anilide reduces serum enzyme activities in rats. *Res Commun Chem Pathol Pharmacol* 73: 107-110, 1991.
9. **Khan MF**, Kaphalia BS, Palafox A, Jerrells TR, Ansari GAS. Heated linoleic acid anilide: Toxicity and relevance to toxic oil syndrome. *Toxicology* 68: 143-155, 1991.
10. Lemaire I, Jones S, **Khan MF**. Bombesin-like peptides in alveolar macrophage -increased release in pulmonary inflammation and fibrosis. *Neuropeptides* 20:63-72, 1991.
11. **Khan MF**, Kaphalia BS, Palafox A, Jerrells TR, Ansari GAS. Toxicity of oleic acid anilide in rats. *Arch Environ Contam Toxicol* 21: 571-577, 1991.
12. **Khan MF**, Gupta GSD. Cellular and biochemical indices of bronchoalveolar lavage for the detection of lung injury following insult by airborne toxicants. *Toxicol Lett* 58:239-255, 1991.
13. **Khan MF**, Kaphalia BS, Ansari GAS. Toxic response of linoleic acid anilide in female rats. *Res Commun Chem Pathol Pharmacol* 77: 241-244, 1992.
14. **Khan MF**, Kaphalia BS, Boor PJ, Ansari GAS. Subchronic toxicity of aniline hydrochloride in rats. *Arch Environ Contam Toxicol* 24:368-374, 1993.
15. **Khan MF**, Boor PJ, Kaphalia BS, Alcock NW, Ansari GAS. Hematopoietic toxicity of linoleic acid anilide: Importance of aniline. *Fundam Appl Toxicol* 25: 224-232, 1995.
16. Ansari GAS, Kaphalia BS, **Khan MF**. Fatty acid conjugates of xenobiotics. *Toxicol Lett* 75:1-17, 1995.
17. **Khan MF**, Srivastava SK, Singhal SS, Chaubey M, Awasthi S, Petersen DRR, Ansari GAS, Awasthi YC. Iron induced lipid peroxidation in rat liver is accompanied with preferential induction of glutathione S-transferase 8-8 isozyme. *Toxicol Appl Pharmacol* 131:63-72, 1995.
18. **Khan MF**, Kaphalia BS, Ansari GAS. Erythrocyte-aniline interaction leads to their accumulation and iron deposition in rat spleen. *J Toxicol Environ Health* 44:415-421, 1995.
19. **Khan MF**, Kaphalia BS, Prabhakar BS, Kanz MF, Ansari GAS. Trichloroethene- induced autoimmune response in female MRL+/+ mice. *Toxicol Appl Pharmacol* 134:155-160, 1995.
20. **Khan MF**, Gu, Y, Alcock NW, Boor PJ, Ansari GAS. Oxidative stress in splenotoxicity of aniline. *Fundam Appl Toxicol* 35:22-30, 1997.
21. **Khan MF**, Kaphalia BS, Ansari GAS. Time-dependent autoimmune response of dichloroacetyl chloride in female MRL +/+ mice. *Immunopharmacol Immunotoxicol* 19:265-277, 1997.
22. **Khan MF**, Wu X, Kaphalia BS, Boor PJ, Ansari GAS. Acute hematopoietic toxicity of aniline in rats. *Toxicol Lett* 92:31-37, 1997.
23. **Khan MF**, Green, SM, Ansari GAS, Boor PJ. Phenylhydroxylamine: Role in aniline-associated splenic oxidative stress and induction of subendocardial necrosis in rats. *Toxicol Sci* 42:64-71, 1998.
24. **Khan MF**, Wu X, Boor PJ, Ansari GAS. Oxidative modification of proteins and lipids in aniline-induced splenic toxicity. *Toxicol Sci* 48:134-140, 1999.
25. Kaphalia BS, **Khan MF**, Ansari GAS. Fatty acid anilides: *In vivo* formation and relevance to toxic oil syndrome. *J Biochem Mol Toxicol* 13:269-277, 1999.
26. **Khan MF**, Wu X, Alcock NW, Boor PJ, Ansari GAS. Iron exacerbates aniline-associated splenic toxicity. *J Toxicol Environ Health* 57:173-184, 1999.
27. **Khan MF**, Wu X, Ansari GAS. Contribution of nitrosobenzene to splenic toxicity of aniline. *J Toxicol Environ Health* 60:263-273, 2000.
28. **Khan MF**, Wu X, Ansari GAS. Anti-malondialdehyde antibodies in MRL +/+ mice treated with trichloroethene and dichloroacetyl chloride: Possible role of lipid peroxidation in autoimmunity. *Toxicol Appl Pharmacol* 170:88-92, 2001.
29. Green SM, **Khan MF**, Kaphalia BS, Ansari GAS. Immunohistochemical localization of trichloroacetylated

- protein adducts in tetrachloroethene-treated mice. *J Toxicol Environ Health* 63:145-157, 2001.
30. **Khan MF**, Wu, X, Tipnis UR, Ansari GAS, Boor PJ. Protein adducts of malondialdehyde and 4-hydroxynonenal in the livers of iron-loaded rats: Quantitation and localization. *Toxicology* 173:193-201, 2002.
 31. **Khan MF**, Wu X, Ansari GAS, Boor PJ. Malondialdehyde-protein adducts in the spleens of aniline-treated rats: Immunohistochemical detection and localization. *J Toxicol Environ Health, Part A* 66:93-102, 2003.
 32. **Khan MF**, Wu X, Wang J. Up-Regulation of transforming growth factor-beta 1 in splenic toxicity of aniline. *Toxicol Appl Pharmacol* 187:22-28, 2003.
 33. **Khan MF**, Wu X, Kaphalia BS, Boor PJ, Ansari GAS. Nitrotyrosine formation in the splenic toxicity of aniline. *Toxicology* 194:95-102, 2003.
 34. Li H, Wang J, Kaphalia BS, Ansari GAS, **Khan MF**. Quantitation of acrolein-protein adducts: potential biomarker of acrolein exposure. *J Toxicol Environ Health, Part A* 67:539-550, 2004.
 35. Kaphalia BS, Cai P, **Khan MF**, Okorodudu AG, Ansari GAS. Fatty acid ethyl esters in alcoholics: Markers of alcohol abuse and alcoholism. *Alcohol* 34:151-158, 2004.
 36. Wu X, Kannan S, **Khan MF**. Iron release and oxidative DNA damage in splenic toxicity of aniline. *J Toxicol Environ Health, Part A* 68:657-666, 2005.
 37. Wang J, Kannan S, Li H, **Khan MF**. Cytokine gene expression and activation of NF- κ B in aniline-induced splenic toxicity. *Toxicol Appl Pharmacol*, 203:36-44, 2005.
 38. Cai P, **Khan MF**, Kaphalia BS, Ansari GAS. Immunotoxic response of oleic acid anilide and its hydrolysis products in female MRL +/+ mice. *J Immunotoxicol* 2:231-236, 2005.
 39. **Khan MF**, Kannan S, Wang J. Activation of transcription factor AP-1 and mitogen-activated protein kinases in aniline-induced splenic toxicity. *Toxicol Appl Pharmacol* 210:86-93, 2006.
 40. Cai P, Konig R, **Khan MF**, Ansari GAS. Immunotoxic response of dichloroacetyl chloride and dichloroacetic anhydride in female MRL +/+ mice. *Toxicol Appl Pharmacol* 216:248-255, 2006.
 41. Sarkar S, **Khan MF**, Kaphalia BS, Ansari GAS. Methyl palmitate inhibits lipopolysaccharide-stimulated phagocytic activity of rat peritoneal macrophages. *J Biochem Mol Toxicol* 216:248-255, 2006.
 42. Wang G, Cai P, Ansari GAS, **Khan MF**. Oxidative and nitrosative stress in trichloroethene-mediated autoimmune response. *Toxicology* 229:186-193, 2007.
 44. Li H, Wang J, Konig R, Ansari GAS, **Khan MF**. Formaldehyde-protein conjugate specific antibodies in rats exposed to formaldehyde. *J Toxicol Environ Health, Part A* 70:1071-1075, 2007.
 45. Cai P, Konig R, **Khan MF**, Kaphalia BS, Boor PJ, Ansari GAS. Immuno- and hepato-toxicity of dichloroacetic acid in MRL +/+ mice. *J Immunotoxicol* 4:107-115, 2007.
 46. Cai P, Konig R, **Khan MF**, Kaphalia BS, Ansari GAS. Differential immune responses to albumin adducts of reactive intermediates of trichloroethene in MRL +/+ mice. *Toxicol Appl Pharmacol* 220:278-283, 2007.
 47. Wang G, Ansari GAS, **Khan MF**. Involvement of lipid peroxidation-derived aldehyde-protein adducts in autoimmunity mediated by trichloroethene. *J Toxicol Environ Health, Part A* 70:1977-1985, 2007.
 48. Wang G, Konig R, Ansari GAS, **Khan MF**. Lipid peroxidation-derived aldehyde-protein adducts contribute to trichloroethene-mediated autoimmunity via CD4+Tcell activation. *Free Radic Biol Med* 44:1475-1482, 2008.
 49. Cai P, Konig R, Boor PJ, Kondraganti, S, **Khan MF**, Kaphalia BS, Ansari GAS. Chronic exposure to trichloroethene causes SLE-like disease in female MRL+/+ mice. *Toxicol Appl Pharmacol* 228:68-75, 2008.
 50. Wang J, Wang G, Ansari GAS, **Khan MF**. Activation of oxidative stress-responsive signaling pathways in early splenotoxic response of aniline. *Toxicol Appl Pharmacol* 230:227-234, 2008.
 51. Ma H, Wang J, Abdel-Rahman SZ, Boor PJ, Khan MF. Oxidative DNA damage and its repair in rat spleen following subchronic aniline exposure. *Toxicol Appl Pharmacol* 233:247-253, 2008.
 52. Wang G, Ma H, Wang J, **Khan MF**. Nitration and carbonylation of proteins in MRL+/+ mice exposed to trichloroethene: Possible role of protein oxidation in autoimmunity. *Toxicol Appl Pharmacol* 237:188-195, 2009.

C. Research Support. List selected ongoing or completed (during the last three years) research projects (federal and non-federal support). Begin with the projects that are most relevant to the research proposed in this application. Briefly indicate the overall goals of the projects and responsibilities of principal investigator identified above.

Ongoing Research Projects

“Oxidative Stress and Autoimmunity”

Principal Investigator: M. Firoze Khan, Ph.D.

Agency: National Institute of Environmental Health Sciences (NIEHS, NIH)

Type: R01 (ES016302-01, Years 1-5)

Project Period: 12/01/07-11/30/12

The long-term goal of this project is to establish oxidative stress and nitrosative stress as pathogenic mechanisms in autoimmune diseases.

“Splenic Toxicity of Aniline”

Principal Investigator: M. Firoze Khan, Ph.D.

Agency: National Institute of Environmental Health Sciences (NIEHS, NIH)

Type: RO1 (ES06476, Years 11-15)

Period: 08/01/05 to 07/31/10

The long-term goal of this project is to understand the molecular mechanisms of aniline-induced toxicity to spleen. Studies are mainly focused on the role of oxidative stress, macromolecular damage, gene regulation and signaling mechanisms.

“Peripheral and Central Sensitization in Pain”

Co-Investigator: M. Firoze Khan, Ph.D.

Principal Investigator: Jin Mo Chung, Ph.D.

Type: NIH 5P01 NS11255-31

Period: 4/1/08 – 3/31/2013

This project will assess the role reactive oxygen species (ROS) to understand the mechanisms of peripheral and central pain. The focus of this PPG is to study the cause and effect relationship of ROS and assess the role of ROS-derived products as signaling molecule in delineating the mechanism of pain.

“Mechanism(s) of TCE-Mediated Autoimmunity”

Co-Investigator: M. Firoze Khan, Ph.D.

Principal Investigator: G.A.S. Ansari, Ph.D.

Agency: National Institute of Environmental Health Sciences (NIEHS, NIH)

Type: RO1 (ES11584, Years 1-5)

Period: 07/01/03 to 06/31/10 (No cost extension)

To elucidate the mechanism(s) of trichloroethene (TCE) and its metabolite mediated autoimmune responses.

Completed Research Projects During the Last 3 years

“Xenobiotics, Lipid Peroxidation and Autoimmunity”

Principal Investigator: M. Firoze Khan, Ph.D.

Agency: National Institutes of Environmental Health Sciences (NIEHS, NIH)

Type: R21 (ES013510, Years 1-3)

Period: 12/01/2005 to 11/30/07

The long-term goal of this project is to elucidate the role of lipid peroxidation-derived aldehydes in the induction and/or exacerbation of autoimmunity.

“Splenic Toxicity of Aniline”

Principal Investigator: M. Firoze Khan, Ph.D.

Type: R01 (ES06476, years 5-10)

Period: 08/01/00 to 07/31/05

To determine how aniline exposure causes selective toxicity to the spleen. In order to elucidate the mechanisms of toxicity, special emphasis is given to assess the role of iron overload, oxidative stress and signaling mechanisms in the splenotoxicity of aniline.