

**Hafiz Mohammad Abdul, Ph.D.**  
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## OBJECTIVE

To obtain a research position in biological sciences that facilitates creative exploration of science concerning human disease.

## HIGHLIGHTS

- Demonstrated capability to succeed in diverse areas of scientific research including proteomics
- Special expertise in neuronal culture and measures of oxidative stress
- Extensive experience in biochemical and immunological techniques
- Proficient in computer skills
- Creative and a strong problem solver

## EXPERIMENTAL & INSTRUMENTAL SKILLS

- **Biochemistry:** Spectroscopy- Visible, UV, protein estimation, lypholyzation, Electrophoresis-SDS-PAGE, Native PAGE, silver staining, Commasiae staining, Two-dimensional gel electrophoresis and enzyme Assays, Protein purification- affinity column chromatography, Western blotting, protein sequencing, Iodination and binding assays, autoradiography, liquid scintillation counter.
- **Molecular Biology:** DNA and total RNA isolation, agarose gel electrophoresis, PCR, Northern blotting – Probe preparation (End-labeling).
- **Immunology:** Raising of Polyclonal antibodies, Ouchterlony immunodiffusion, rocket gel electrophoresis, ELISA.
- **Cell-culture:** Rat embryonic cell culture, mice neuronal culture, maintenance of T-cell lines, HIV infection to T-cell lines, anti-HIV activity assay by quantifying p24 antigen, proliferation assays (<sup>3</sup>H-thymidine incorporation and MTT assay).
- **Microscopy:** Light, Fluorescent, Confocal microscopy.
- **Computer Skills:** MS-Office (WORD, POWER-POINT, EXCEL), Adobe-Photoshop, Gel documentation, Internet navigation.

## RESEARCH EXPERIENCE

- **Postdoctoral Fellow (fall 2003- till date)** – University of Kentucky, Lexington (KY) in area of oxidative stress and neurodegenerative disease- Amyloid-beta induced-oxidative stress in rat embryonic cortical neuronal culture, APP/PS1 double mutant mice and proteomics.
- Worked at University of Hyderabad as **Senior Research Fellow** in the Department of Biotechnology on a sponsored project entitled “Characterization and mechanism of action of anti-HIV active glycoprotein from first trimester human placenta” – (2000-2003).
- Worked at University of Hyderabad as **Junior Research Fellow** in the Department of Biotechnology on a sponsored project entitled “Isolation, purification and characterization of Human Chorio-gonadotropin associated proteins from first trimester human placenta: screening for its anti-HIV and anti-cancerous activities” – (1998-2000)

## EDUCATION

- **Postdoctoral fellow, University of Kentucky, 2003 - till date**
- **Doctor of Philosophy, Biochemistry**  
University of Hyderabad, Hyderabad, India (1998-2003)  
**Dissertation:** Analysis and mechanism of action of an anti-HIV active glycoprotein present during early pregnancy.
- **Master of Science (Animal Sciences)**  
University of Hyderabad, Hyderabad, India (1995-1997)
- **Bachelor of Science (Botany, Zoology and Chemistry)**  
Andhra University, Visakhapatnam, India (1992-1995)

## HONORS & AWARDS

- Recipient of Lady Tata Memorial Fellowship for Senior Research fellow (2001-2003)
- Recipient of Graduate Aptitude Test in Engineering (GATE) fellowship, administered by the Ministry of Human Resources, New Delhi, India (1998-2000).
- Recipient of “**Servier Young Investigators’ Award**” for the contributions to the advancement of Pharmacology at International conference in “International congress on frontiers in pharmacology and therapeutics in 21st century”, organized by All India Institute of Medical Sciences, New Delhi, India. (Dec 1-4, 1999).

## Publications

1. Kondapi AK, **Hafiz Mohammad Abdul**, Sivaram T. Anti-HIV activity of a glycoprotein from first trimester placental tissue. *Antiviral Res.* 2002 Apr; 54: 47-57.
2. Sultana R, Newman S, **Mohammad-Abdul H**, Keller JN, Butterfield DA. Protective effect of the xanthate, D609, on Alzheimer's amyloid beta-peptide (1-42)-induced oxidative stress in primary neuronal cells. *Free Radic Res.* 2004 May; 38: 449-58.
3. **Mohammad Abdul H**, Wenk GL, Gramling M, Hauss-Wegrzyniak B, Butterfield DA. APP and PS-1 mutations induce brain oxidative stress independent of dietary cholesterol: implications for Alzheimer's disease. *Neurosci Lett.* 2004 Sep 23; 368: 148-50.
4. Boyd-Kimball D, Sultana R, **Mohammad-Abdul H**, Butterfield DA. Rodent Abeta(1-42) exhibits oxidative stress properties similar to those of human Abeta(1-42): Implications for proposed mechanisms of toxicity. *J Alzheimers Dis.* 2004 Oct; 6: 515-25.
5. Boyd-Kimball D, **Mohammad Abdul H**, Reed T, Sultana R, Butterfield DA. Role of phenylalanine 20 in Alzheimer's amyloid beta-peptide (1-42)-induced oxidative stress and neurotoxicity. *Chem Res Toxicol.* 2004 Dec; 17(12): 1743-9.
6. Sultana R, Ravagna A, **Mohammad-Abdul H**, Calabrese V, Butterfield DA. Ferulic acid ethyl ester protects neurons against amyloid beta-peptide(1-42)-induced oxidative stress and neurotoxicity: relationship to antioxidant activity. *J Neurochem.* 2005 Feb; 92(4): 749-58.
7. Boyd-Kimball D, Sultana R, Poon HF, **Mohammad-Abdul H**, Lynn BC, Klein JB, Butterfield DA. Gamma-glutamylcysteine ethyl ester protection of proteins from Abeta (1-42)-mediated oxidative stress in neuronal cell culture: a proteomics approach. *J Neurosci Res.* 2005 Mar 1; 79(5): 707-713.
8. Boyd-Kimball D, Sultana R, **Mohammad-Abdul H**, Butterfield DA. Gamma-glutamylcysteine ethyl ester-induced up-regulation of glutathione protects neurons against Abeta(1-42)-mediated oxidative stress and neurotoxicity: implications for Alzheimer's disease. *J Neurosci Res.* 2005 Mar 1; 79(5): 700-706.
9. Boyd-Kimball D, Sultana R, **Mohammad-Abdul H**, Butterfield DA. Neurotoxicity and oxidative stress in D1M-substituted Alzheimer's A

- beta(1-42): relevance to N-terminal methionine chemistry in small model peptides. *Peptides*. 2005 Apr; 26(4): 665-673.
10. Pocernich CB, Sultana R, **Mohammad-Abdul H**, Nath A, Butterfield DA. HIV-dementia, Tat-induced oxidative stress, and antioxidant therapeutic considerations. *Brain Res Brain Res Rev*. 2005 Dec 50(1):14-26.
  11. **Mohammad Abdul H**, Butterfield DA. Protection against amyloid beta-peptide (1-42)-induced loss of phospholipid asymmetry in synaptosomal membranes by tricyclodecan-9-xanthogenate (D609) and ferulic acid ethyl ester: Implications for Alzheimer's disease. *Biochim Biophys Acta*. 2005 Jun 30; 1741(1-2): 140-148.
  12. **Hafiz Mohammad Abdul**, Sultana R and D. Allan Butterfield. Mutation in APP and PS1 synergistically increase the oxidative stress mediated by A $\beta$  (1-42), H<sub>2</sub>O<sub>2</sub> and Kainic acid in mice neuronal cells: relationship to AD. *Journal of Neurochemistry* 2006, 2006 Mar; 96(5):1322-35.
  13. W.O. Opii, Rukhsana Sultana, **Hafiz Abdul-Mohammad**, A. Nath, D. Allan Butterfield (2005) Oxidative stress and neurotoxicity induced by nucleoside reverse transcriptase Inhibitors (NRTI'S): Relevance to HIV dementia. (Submitted to *Experimental Neurology* after revision).
  14. **Hafiz Mohammad Abdul**, Vittorio Calabrese, Menotti Calvani and D. Allan Butterfield: Acetyl-L-carnitine-induced up-regulation of HSPs protects cortical neurons against A $\beta$  (1-42)-mediated oxidative stress and neurotoxicity: implications for Alzheimer's disease. (*Journal of Neuroscience Research*, In press).
  15. Rukhsana Sultana, Shelley F. Newman, **Hafiz Mohammad Abdul**, Jian Cai, William M. Pierce, Jon B. Klein, Michael Merchant, Butterfield DA. Protective effect of D609 against Ab (1-42)-induced oxidative modification of neuronal proteins: A redox proteomics study. (*Journal of Neuroscience Research*, In press).
  16. **Hafiz Mohammad Abdul** and Butterfield DA. Involvement of PI3K/PKG/ERK1/2 signaling pathways to trigger protection by acetyl-carnitine and lipoic acid in cortical neurons against HNE-mediated oxidative stress and neurotoxicity (manuscript in preparation for *Journal of Biological Chemistry*).
  17. **Hafiz Mohammad Abdul**, Sultana R, Butterfield DA. APP and PS-1 mutation-induced oxidative stress in mice brain as a function of age (manuscript in preparation for *Neurobiol of Aging*).

18. **Hafiz Mohammad Abdul**, Reed T, Newman S, Butterfield DA. Redox-proteomics in neurodegenerative disease. Review (manuscript communicated for a special edition of NeuroRX, July 2006).
19. Butterfield DA, **Hafiz Abdul-Mohammad**, Rukhsana Sultana, W.O.Opii, Reed T, Newman S, Mubeen AA, Joshi G. PIN-1 and Alzheimer's disease. (Review communicated to Journal of Neurochemistry)
20. Miranda.P, **Hafiz Abdul-Mohammad** and Butterfield DA. Phospholipid asymmetry in human AD brain. (manuscript in preparation for Biochim Biophys Acta)
21. Sultana R, **Hafiz Mohammad Abdul**, Butterfield DA. Proteomic analysis of oxidatively modified proteins from APP and PS-1 mice brain as a function of age (manuscript in preparation for Journal of Neurochemistry).
22. Mubeen AA, Joshi G, Quanzhen Huwang, **Hafiz Abdul-Mohammad**, Rukhsana Sultana, W.O.Opii, Butterfield DA. *In vivo* protective effect of D609 in brain mitochondria against Fe<sup>2+</sup>/ H<sub>2</sub>O<sub>2</sub>, 2,2-azobis-(2-amidinopropane) and A $\beta$  (1-42): relevance to Alzheimer's disease (communicated to Free Radical Biology of Medicine)
23. Mubeen AA, **Hafiz Abdul-Mohammad**, Butterfield DA. *In vitro* protective effect of quercetin against A $\beta$  (1-42)-induced oxidative stress in neuronal cells (manuscript ready for Neuroscience Letters)

### Chapters:

- D. Allan Butterfield and **Hafiz Mohammad Abdul** (2006). Lipids in Alzheimer's disease brain. Handbook of Neurochemistry and Molecular Biology (Vol. 8), [Accepted].

### Poster presentations / Workshops attended

- Presented a poster at Society for neuroscience, entitled "Mutation in APP and PS1 increase the oxidative stress mediated by A $\beta$  (1-42), H<sub>2</sub>O<sub>2</sub> and Kainic acid in mice neuronal cells: relationship to AD" (Washington, DC, Oct 2005).
- Presented a poster at Society for neuroscience, entitled "APP and PS-1 mutations induce brain oxidative stress independent of dietary cholesterol: implications for Alzheimer's disease". (San Diego, Oct 2004).
- Attended Indo-US workshop on "The role of reproductive tract health in transmission of sexually transmitted diseases" held at National Institute of Immunology, New Delhi, India. (Feb 2002).

- Presented a poster at International conference in Molecular Epidemiology and Evolutionary Genetics of Infectious Diseases, entitled “Identification of a 90 kDa anti-HIV active early pregnancy associated protein in first trimester human placental tissue”, organized by CDFD, Hyderabad, India. (Nov 2000).
- Attended International conference on “Life sciences in the next millennium” organized by University of Hyderabad, India. (Dec 1999).
- Presented a poster at International conference in International congress on frontiers in pharmacology and therapeutics in 21st century, entitled “Analysis of anti-HIV active pregnancy associated protein from human placenta”, organized by All India Institute of Medical Sciences, New Delhi, India. (Dec 1999).

## REFERENCES

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