Dr. Panjwani Center for Molecular Medicine & Drug Research
International Center for Chemical and Biological Sciences
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C U R R I C U L U M V I T A E

Name: **Dr. Asmat Salim**

Current Position: Assistant Professor

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ACADEMIC CAREER

DEGREE	YEAR	DIVISION	SUBJECT(S)	DEPARTMENT/UNIVERSITY
B. Sc. (Hons)	1990	First Class First position	Biochemistry (major), Microbiology, Physiology	Department of Biochemistry, University of Karachi, Pakistan
M. Sc.	1991	First Class First position	Biochemistry	Department of Biochemistry, University of Karachi, Pakistan
Ph.D.	2001		Protein Chemistry	HEJ Research Institute of Chemistry, University of Karachi, Pakistan

ACADEMIC EXPERIENCE

***Ph.D. Thesis*: "Structural studies on human crystallins"**

The work carried out during the Ph.D. program involved Protein Modeling by computer graphics. The thesis represents analysis of the structures of four human and two bovine γ-crystallins and one αA-crystallin by theoretical molecular modeling. Analysis was based on the crystal structural data of some γ-crystallins from other sources. The study presents a comprehensive account of various structural features of γ-crystallin molecules in their native, mutated and post-translationally modified states. Analysis was also done on the effect of site-mutations in γD-crystallin that are reported to occur in two human cataract conditions. Secondary and tertiary structures of human αA-crystallin were also predicted and analyzed in comparison with the template, cyclodextrin glucosyltransferase (CGTase) with the intriguing possibility that this crystallin might even harbor some CGTase activity.

Passed the following courses offered as the partial fulfillment of the Ph.D. program:

- Physical Methods of Isolation and Structure Elucidation
- Proteins
- Enzymology
- Strategies in Protein Sequencing
- Protein and Peptide Synthesis

M.Sc. Thesis (Neuropharmacology): "Effect of tryptophan load on stress-induced changes of brain serotonin in male rats ".

PRESENT STATUS

Assistant Professor, Dr. Panjwani Center for Molecular Medicine and Drug Research. International Center for Chemical and Biological Sciences, University of Karachi.

PROFESSIONAL POSITIONS

Assistant Professor (April 2007 – Present)
Dr. Panjwani Center for Molecular Medicine and Drug Research, International Center for Chemical and Biological Sciences, University of Karachi.

Senior Research Officer (April 2004 – March 2007)
Dr. Panjwani Center for Molecular Medicine and Drug Research, International Center for Chemical and Biological Sciences, University of Karachi.

Research Fellow (August 2004 – July 2005)
Department of Pathology and Laboratory Medicine, University of Cincinnati, Cincinnati, Ohio.

Visiting Scientist (August 2005 – November 2005)
Department of Pathology and Laboratory Medicine, University of Cincinnati, Cincinnati, Ohio.

Assistant Professor (Oct 2003 – April 2004)
Department of Biochemistry, Baqai Medical University, Karachi.

Exam Question Writer (Feb 2003 – Jan 2004)
Online Exam Question writer in the field of Biochemistry, Biology and Chemistry, DSK College, London.

Visiting Faculty (June 2003- July 2003, Summer Course on Bioinformatics),

FAST Institute of Computer Science, National University of Emerging Sciences, Karachi, Pakistan.

Postdoctoral Research Fellow (April 2002 – April 2003)
Bioinformatics and Protein Chemistry (3D structure prediction of proteins by computer based molecular modeling)
Department of Biochemistry, University of Karachi

Teaching Assistant / Cooperative Teacher (August 1993-December 1994)
Department of Biochemistry, University of Karachi, Karachi, Pakistan.

CURRENT RESEARCH ACTIVITIES /Research Students

Currently, 5 students are working for their M. Phil. / Ph. D. degrees in Molecular Medicine:

1. Kanwal Haneef
   Topic: Role of cytokines and growth factors in the stimulation of stem cells for the regeneration of cardiac tissue

2. Nadia Naeem
   Topic: Study of differentiation potential of bone marrow mesenchymal stem cells into cardiac cells

3. Nazia Ahmed
   Topic: Study of regenerative potential of various populations of stem cells into cardiomyocytes

4. Hana'a Iqbal
   Topic: Study of the effect of free radicals and antioxidants in aging and apoptosis of bone marrow mesenchymal stem cells

5. Irfan Khan
   Topic: To be decided

HONOR(s) / AWARD(s)

- Zaidi Abid Gold Medal for obtaining first class first position in M.Sc. program.
- Merit certificates awarded from University of Karachi in 1990 and 1991.
- Second Prize in poster competition at the 7th International Symposium on Protein Structure Function relationship organized by H.E.J. Research Institute of Chemistry, University of Karachi.

MEMBERSHIP OF SCIENTIFIC SOCIETIES

- American Heart Association
- Society for Neuroscience

PROFESSIONAL SKILLS

- Protein purification techniques like conventional and automated (HPLC) chromatography, Electrophoresis, Western Blotting, etc.

- Spectrophotometeric techniques like UV, Visible, Infra Red spectroscopy etc.
- Cell Biology: Tissue culture, Microscopy (Confocal, Phase-Contrast and Fluorescent), Immuno-histochemistry, Flow Cytometry.
- Molecular Biology: RT-PCR
- Softwares involved in the Computer based structural prediction of simple and complex proteins, e.g. Web Lab Viewer, Rasmol, Swiss Pdb Viewer etc.
- Linux based softwares including MODELLER, WHATIF etc.

LIST OF PUBLICATIONS

(13 publications: Total Impact factor = 37.73)

1. Hashim, Z., Ilyas, A., Saleem, A., Salim, A. and Zarina, S. (2009) Expression and activity of Paraoxonase 1 (PON1) in human cataractous lens tissue. *Free Radical Biol. & Med.* Accepted for Publication

2. Gul, A., Rahman, M.A., Salim, A. and Simjee, S.U. (2008) Advanced glycation end products in senile diabetic and nondiabetic patients with cataract. *J Diabetes Complications* In press

3. Gul, A., Rahman, M.A., Salim, A. and Simjee, S.U. (2008) Advanced glycation endproducts in senile diabetic and nondiabetic patients with cardiovascular complications. *AGE* Vol 30, 303–309.

4. Gul, A., Rahman, M.A., Hasnain, S.N., Salim, A. and Simjee, S.U. (2008) Could oxidative stress associate with AGE-products in cataractogenesis? *Current Eye Research*, Vol 33, 69-675.

5. Jiang, S., Haider, K. H., Ahmed, R.P., Idris, N. M., Salim, A. and Ashraf, M. (2008) Transcriptional profiling of young and old mesenchymal stem cells in response to oxygen deprivation and reparability of the infarcted myocardium**.** *Journal of Molecular and Cellular Cardiology*. Vol. 44, 582-596.

6. Jiang, S., Haider, K. H., Idris, N. M., Salim, A. and Ashraf, M. (2006) Supportive Interaction Between Cell Survival Signaling and Angiocompetent Factors Enhances Donor Cell Survival and Promotes Angiomyogenesis for Cardiac Repair. *Circulation Res*. Vol. 99, 776-784.

7. Khurshid, R, Salim, A. and Abbasi A. (2005) Three-dimensional structure prediction of bovine AP lyase, BAP1: prediction of interaction with DNA and alterations as a result of Arg176-->Ala, Asp282-->Ala, and His308-->Asn mutations. *Biochem. and Biophys. Res. Commun.* Vol. 316, 711-717.

8. Rashid, A., Khurshid, R., Begum, M., Raana, G., Latif, M. and Salim A. (2004) Modeling the mutational effects on calmodulin structure; prediction of alteration in the amino acid interactions. *Biochem. and Biophys. Res. Commun.* Vol. 317, 363-369.

9. Salim, A. and Zaidi, Z. H. (2004) Prediction of stability factors at the domain interface of Human γB crystallin by Homology Modeling. *J Pak Med Assoc.* 54:419-422.

10. Salim, A., Bano, A. and Zaidi, Z. H. (2003) Prediction of possible sites for post translational modifications in Human Gamma Crystallins: Effect of glycation on the structure of human gammaB-crystallins as analyzed by molecular modeling. *Proteins Structure, Function and Genetics* Vol. 53, 162–173.

11. Salim, A., Haleem, R., Murtaza, F., Shameem, G., Perveen, T. and Haleem, D. J. Injected tryptophan increases brain but not plasma tryptophan level more in stressed rats (2003). *Pak J Pharm Sciences.* Vol. 16, 51–57.

12. Salim, A. and Zaidi, Z. H. Homology Models of Human Gamma Crystallins: Structural study of the extensive charge network in gamma crystallins. (2003) *Biochem. and Biophys. Res. Commun.* Vol. 300, 624 – 630.

13. Khurshid, R. and Salim, A. (2000). Amino Acid Sequence Homology and Modelling of Cystein Protease Cathepsin S. (2000) *Pak. J. Biol. Sci.* Vol. 3, 639-641.

PRESENTATIONS/ABSTRACTS

- Asmat Salim, Kanwal Haneef, Nadia Naeem, Hana'a Iqbal and Siddiqua Jamall (2009) Transdifferentiation Potential of Normal and Engineered Rat Mesenchymal Stem Cells into Cardiomyocytes. Paper presented at the 2nd International Symposium-cum-training course on Molecular Medicine and Drug Research held in Karachi, Pakistan (Jan. 12-15, 2009).

- Shabana U. Simjee, **Asmat Salim** and Raheela Khan (2008). Suppression of Long-term Kindled Seizures Induced alterations in hematopoietic functions in Bone Marrow Cells by Essential Oil from *Allium cepa*. Poster presented at the 38th annual meeting of the Society for Neuroscience in Washington, DC, USA (Nov. 15 to 19, 2008).

- Shujia Jiang, Husnain K Haider, Niagara Muhammad Idris, Rafeeq Ahmed, **Asmat Salim** and Muhammad Ashraf (2007). Transplantation of mesenchymal stem cells constitutively co-expressing Akt and Ang-1 leads to improved cardiac function in rodent model of acute myocardial infarction (Supplemented to Circulation Vol 116, No 16, October 16, 2007)

- Husnain K Haidar, Shujia Jiang, **Asmat Salim**, Shahida Shujaat, Niagra M Idris, Ruowen Ge, Uemura Royta, Ashraf Muhammad (2005). Transplantation of mesenchymal stem cells constitutively co-expressing Akt and Ang-1 leads to improved cardiac function in rodent model of acute myocardial infarction (Supplemented to Circulation Vol 112, No 17, October 25, 2005)

- Yigang Wang, Husnain kh Haidar, Nauman Ahmad, Jeff Brown, Royta Uemura, Meifeng Xu, Sadia Sharif, **Asmat Salim**, Shahida Shujaat, Shujia Jiang, Ruowen Ge, Muhammad Ashraf; (2005) Combining pharmacological mobilization of bone marrow stem cells with intramyocardial injection of genetically modulated mesenchymal stem cells over expressing VEGF for cardiac repair (Supplemented to Circulation Vol 112, No 17, October 25, 2005)

- **Salim, A**. and Zaidi, Z. H. (2003). Prediction of stability factors at the domain interface of Human γB-crystallin by Homology Modeling**.** Paper presented at the 7th International Conference on Trends in Biochemistry and Molecular Biology organized by Pakistan Society for Biochemistry and Molecular Biology in April 2003.

- **Salim, A**. and Zaidi, Z. H. (2003). Prediction of structural changes in the two human γD-crystallin mutants caused by punctate, progressive juvenile-onset cataract and crystalline aculeiform or frosted cataract. Poster presented at the 7th International Symposium of Protein-Structure function relationship organized by HEJ Research Institute of Chemistry, University of Karachi

- Bano, A, **Salim, A**, Abbasi, A and Zaidi, Z. H. (2002). Comparison of three Classes (α, β and γ) of Snake Neurotoxins by homology Modeling. Poster presented at the 7th Eurasia Conference on Chemical Sciences organized by HEJ Research Institute of Chemistry, University of Karachi.

- **Salim, A**, and Zaidi, Z. H. (2002). Exploring the stability features of Human γ-crystallin by homology modeling. Poster presented at the 7th Eurasia Conference on Chemical Sciences organized by HEJ Research Institute of Chemistry, University of Karachi.

- **Salim, A**. and Zaidi, Z. H. (1999). Homology Modeling of human gamma crystallins. Poster presented at the 6th International Symposium of Protein-Structure function relationship organized by HEJ Research Institute of Chemistry, University of Karachi

- **Salim, A**., Azim, M. K.and Zaidi, Z. H. (1998). Homology Modeling of human alpha A crystallin. Paper presented at the National Chemistry Symposium, University of Karachi

- Naqvi, S., **Salim, A** and Zaidi, Z. H. (1995) Poster presented on "Studies on water insoluble proteins from human cataractous lenses" at the National Symposium on Biochemistry and Molecular Biology in Lahore organized, April 1995 organized by the Biochemical Society of Pakistan.

- **Salim, A**., Haleem, R., Murtaza, F., Shameem, G., Perveen, T. and Haleem, D. J. (1992). Injected tryptophan increases brain but not plasma tryptophan level more in stressed rats". Proceedings of the First International Conference of Pharmaceutical Sciences.

COURSES AND WORKSHOPS

- Workshop on Human Stem Cell: Principles and Applications (Dec, 26-27, 2007) jointly organized by COMSATS, Pakistan, UNESCO and National Research Center, Cairo Egypt.

- S* Online Bioinformatics Course (17 Feb to 2 June 2003) organized by The S* Life Science Informatics Alliance. The international course was run jointly by Karolinska Institutet, National, University of Singapore (NUS), Stanford University, University of Western Cape's South Africa National Bioinformatics Institute (SANBI), University of Sydney, Uppsala University, Sweden, and University of California San Diego.

- Series of International workshops on Protein Structure Function Relationship from 1993-1997 organized by the Protein Chemistry Section at the HEJ Research Institute of Chemistry, University of Karachi.

- Workshop on Molecular Biology Techniques, September 1995 organized by Aga Khan University, Karachi.

- Workshop on Gas Chromatography and Mass spectrometry, Jan 10-14, 1996 organized by HEJ Research Institute of Chemistry, University of Karachi, University of Karachi.

- Course entitled, Mathematics For Researchers, Nov 11, 1997 to Dec 28, 1998 conducted by HEJ Research Institute of Chemistry, University of Karachi, University of Karachi.

REFERENCES

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