

Dr Nasiara Karim

B.Pharm (Pesh) M.Phil (Pesh), PhD (Australia)

Academic Information

| Name of the Course | Board / University | Grade |
|---|---------------------------------|------------------------|
| SSC (Science Group) | B.I.S.E Peshawar | A |
| F.Sc (Pre Medical Group) | B.I.S.E Peshawar | A |
| Bachelor of Pharmacy (B.Pharm) | University of Peshawar | A |
| Master of Philosophy (M.Phil) (Neuropharmacology) | University of Peshawar | 3.9/4.0 (Excellent) |
| Doctor of Philosophy (PhD) Neuropharmacology/Molecular pharmacology | University of Sydney, Australia | - |

Distinctions and Awards

- **Ist class** first position throughout till SSC
- **Ist class** second position in FSc
- **Ist class** second position throughout the four years of B. Pharmacy.
- **Ist Class** first position in M.Phil securing 3.90 cGPA
- Faculty development programme scholarship from the University of Malakand (HEC; Pakistan) for PhD studies (2008-2012)
- John Lamberton scholarships, The university of Sydney (2009-2011)
- **Cumulative impact factor 38.7** at the end of PhD.

Memberships

- Chair of the student chapter of American association of pharmaceutical sciences (**AAPS**) of the University of Sydney; Australia. (2010-2011)
- Treasurer of the student chapter of American association of pharmaceutical sciences (**AAPS**) of the University of Sydney; Australia. (2009-2010)
- Member of The Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists (**ASCEPT**) (2008 till present)
- Member of the Australian neuroscience society (**ANS**) (2008 till present)

- Member of the society of neurosciences (**SFN**); United States of America (2009 till present).

Research interests

- GABA receptors
- Opioid receptors
- Nicotinic acetylcholine receptors
- Glycine receptors

Research Focus: I have broad research interests in the areas of neuroscience, molecular pharmacology and neuropharmacology. My specific field of research focuses on identifying natural and synthetic ligands for GABA_A receptors to be effective as analgesics, sedatives, anxiolytics and antiepileptics using electrophysiological, radioligand binding studies and behavioral animal models. I am also interested in the development of animal models of depression and other behavioral disorders and in the pharmacological treatment of these disorders.

Research Skills obtained

- **Two electrode voltage clamp in *Xenopus Laevis* oocytes:** During my PhD at the faculty of Pharmacy, University of Sydney Australia, I have gained extensive experience in recording currents from GABA_A, GABA_C, and nicotinic acetylcholine receptors expressed in xenopus oocytes. I have become an expert in anesthetizing and harvesting oocytes from *Xenopus laevis* in the last 3.5 years.
- **Patch clamp technique:** I have also acquired skills in patch clamping during my PhD. I have used both the single channel and whole cell patch clamp configurations while studying ion channels during my visiting research fellowship at the Australian National University (ANU) Canberra, Australia and the University of New South Wales (UNSW), Australia.
- **Tissue Culture Skills:** During my visiting research fellowship, I have mastered the skills for culturing hippocampal neurons from new born mice at the John Curtin school of medical research (JCSMR) ANU, Australia.
- **Radioligand binding techniques:** During my PhD I have also done radioligand binding studies.
- **Molecular biology techniques:** I have used various molecular biology techniques during my PhD i.e. transformation, Culturing, Extraction and purification of DNA plasmids, linearization and in vitro transcription, site directed mutagenesis and PCR techniques.

- **Behavioral studies techniques in rodents:** During my M.Phil and PhD, I have worked extensively on various behavioral models for anxiety, sleep, depression, dependence and analgesia. I have become an expert in using automated Elevated plus Maze (EPM), light-dark test, Actimeter test, forced swimming, tail suspension and hot plate tests.

Job experience

1. **May 2012-till present:** Assistant Professor, University of Malakand
2. **September 2011-December 2011:** Research Assistant, Laboratory of neurosciences, faculty of Pharmacy, University of Sydney
3. **2008-2011:** Demonstrator and tutor in the faculty of Pharmacy; University of Sydney. During this period I have taught various subjects including medicinal chemistry, pharmacokinetics and pharmacology to the undergraduates' students.
4. **2006 -2008:** Lecturer in the Department of Pharmacy, University of Peshawar, Pakistan. I have served as lecturer at Department of Pharmacy University of Peshawar, Pakistan and have been teaching various subjects of Basic Medical Sciences (Pharmacology, Physiology, Biochemistry, Anatomy, and Pathology) and conducting the practical of these subjects to the Doctor of Pharmacy (Pharm-D) students independently for the last two years.
5. **2005-2008:** Hospital/Clinical Pharmacist in Rehman Medical Institute, Peshawar Pakistan. My job description in this position was
 - Unit dose drug distribution system to the inpatients using the computerized software system
 - Ambulatory and emergency patient services
 - In house compounding and preparing extemporaneous preparations.
 - Inventory control through pharmacy information management system
 - Provide drug information to the all health care professional including consultants, registrars, senior medical officers, medical officers, nurses and microbiologist
 - Patient counseling
 - Member of the Hospital infection control committee. I have actively participated in formulating guidelines and protocols for the control of infections in the hospital specially MRSA and against pseudomonas auregenosa, the most common hospital pathogens.
 - Member of the hospital formulary committee.

6. **2004 – 2005:** On-Job Hospital Pharmacist Training Programme in Aga Khan Hospital Karachi, Pakistan

During this training gained experience in

- Computerized unit dose drug distribution system
- Floor stock filling
- Ambulatory care services
- Patient counseling
- Drug and poison information centre (DPIC)
- Computerized physician order entry system(cPOE)
- Cytotoxic drug Admixture
- Total parenteral nutrition (TPNs)
- Sterile preparations
- In-house extemporaneous and bulk compounding
- Clinical rounds of patient care areas (ICU, CICU&CCU).
- Clinical Pharmacy including studying patient profiles and suggest rational drug therapy to the prescribers, drug utilization review, therapeutic class evaluation, analysis and documentation of adverse drug reactions.

7. **15 Oct 2003-12 Dec 2003:** Worked as a trainee industrial Pharmacist in MSD (MERCK SHARP & DHOME) Pakistan

During this internship programme gained experience in

- Manufacturing of tablets, capsules and sterile preparations
- Sampling and analysis of in-process and finished products
- Packaging and ware house activities.

Refereed Publications

1. Nathan Absalom, Laura F. Eghorn, Inge S. Villumsen, **Nasiara Karim**, Tina Bay, Jesper V. Olsen, Gitte M. Knudsen, Hans Bräuner-Osborn, Bente Frølund, Rasmus P. Clausen, Mary Chebib and Petrine Wellendorph. **$\alpha 4\beta\delta$ GABA_A receptors are high-affinity targets for γ -hydroxybutyric acid (GHB). PNAS (IF =9.8 Accepted 06/06/2012).**
2. **Karim N**, Wellendorph P, Absalom NL, Bang LH, Jensen LM, Maja Michelle Hansen MM, Lee HJ, Johnston GAR, Hanrahan JR, and Chebib M, Low nanomolar GABA effects at extrasynaptic $\alpha 4\beta 1/\beta 3\delta$ GABA_A receptor subtypes indicate a different binding mode for GABA at these receptors (**Accepted 21/05/2012: Biochemical pharmacol**) (IF= 5.0)

3. **Karim N**, Gavande N, Wellendorph, P, Johnston GAR, Hanrahan JR, and Chebib M "3-Hydroxy-2'-methoxy-6-methylflavone: A potent anxiolytic with a unique selectivity profile at GABA_A receptor subtypes. *Biochem Pharmacol*. 2011 Dec 15;82(12):1971-83 (IF= 5.0)
4. **Karim N**, Curmi J, Gavande N, Johnston GAR, Hanrahan JR, Tierney ML and Chebib M "2'-Methoxy-6-methylflavone: A novel anxiolytic and sedative with subtype selective activating and modulating actions at GABA-A receptors *Br J Pharmacol*. 2011 Jul 28. doi: 10.1111/j.1476-5381.2011.01604 (IF=5.2)
5. Fernandez SP, **Karim N**, Mewett KN, Chebib M, Johnston GAR and Hanrahan JR "Flavan-3-ol esters: new agents for exploring modulatory sites on GABA-A receptors *Br J Pharmacol*. 2011 Aug 1. doi: 10.1111/j.1476-5381.2011.01615. (IF=5.2)
6. Gavande N, **Karim N**, Johnston GAR, Hanrahan JR and Chebib M "Identification of benzopyran-4-one derivatives (isoflavones) as positive modulators of GABA-A receptors" *ChemMedChem*, 2011, **6**, 1340–6 (IF=3.3)
7. Subhan F, **Karim N**, Gilani AH, Sewell RD, Terpenoid content of *Valeriana wallichii* extracts and antidepressant-like response profiles, *Phytother Res*. 2010 May; 24(5):686-91 (IF=1.8)
8. Khan I, Nisar M, Khan N, Saeed M, Nadeem S, Fazal-ur-Rehman, Ali F, **Karim N**, Kaleem WA, Qayum M, Ahmad H, Khan IA: Structural insights to investigate Conyopodioid as a dual cholinesterase inhibitor from *Asparagus adscendens*: *Fitoterapia*. 2010 Dec;81(8):1020-5 (IF=1.1)
9. Khan I, Muhammad N, Farooq E, Said N, Muhammad S, Haroon K ; Samiullah, Fazli K, **Karim N**, Zia A; Anti-inflammatory activities of Sieboldogenin from *Smilax china* Linn.: experimental and computational studies, *J Ethnopharmacol* 2009, Jan,12;121(1):175-7 (IF=2.1)
10. Subhan F, **Karim N**, Ibrar M,:Anti-inflammatory activity of methanolic and aqueous extract of *Valleriana Wallichii* DC rhizome." (2007) *Pak Journal of Plant Sciences* Vol: 13 pp: 103-110

Conference abstracts/ presentations

1. **Karim N**, Gavande N, Johnston GAR, Hanrahan JR and Chebib M, GABA_A receptors subtype selective and anxiolytic effects of 3-hydroxy-2'-methoxy-6-methylflavone. Gage Conference on ion channels and transporters, Canberra, Australia 18-20 April 2011
2. **Karim N**, Gavande N, Johnston GAR, Hanrahan JR and Chebib M '2'-Methoxy-6-methylflavone – a novel direct activator of $\alpha 2\beta 2/3\gamma 2L$ and $\alpha 4\beta 1/2/3\delta$ GABA-A receptors' ANS, Auckland, 30 January – 3 February 2011
3. **Karim N**, Gavande N, Johnston GAR, Hanrahan JR and Chebib M '2'-Methoxy-6-methylflavone: a novel allosteric activator of $\alpha 4\beta 1/2/3\delta$ GABA-A receptors' ASCEPT Annual Scientific Meeting, Melbourne, 28 November-1 December 2010
4. **Karim N**, Gavande N, Johnston GAR, Hanrahan JR and Chebib M '3-Hydroxy-2'-methoxyflavone: an allosteric modulator of synaptic while activator of extrasynaptic GABA-A receptors' ASCEPT Annual Scientific Meeting, Melbourne, 28 November-1 December 2010
5. **Karim N**, Gavande N, Johnston GAR, Hanrahan JR and Chebib M 2'-Methoxy-6-methylflavone: a novel allosteric activator of $\alpha 2\beta 2/3\gamma 2L$ and $\alpha 4\beta 1/2/3\delta$ GABA-A receptors with anxiolytic effects in mice' 20th Neuropharmacology Conference, High resolution neuropharmacology: structure changes the paradigm, San Diego, 10-12 November 2010
6. **Karim N**, Gavande N, Johnston GAR, Hanrahan JR and Chebib M '2'-Methoxy-6-methylflavone: a novel allosteric activator of $\alpha 4\beta 1/3\delta$ GABA-A receptors' Society for Neuroscience, San Diego, 13-17 November 2010
7. Iyer D, **Karim, N**, Johnston GAR, Hanrahan JR and Chebib M 'Valproate and the promiscuous delta-containing GABA-A receptors' ASCEPT Annual Scientific Meeting, Melbourne, 28 November-1 December.2010
8. **Karim N**, Chebib M, Fernandez SP, Hanrahan JR, Hinton T, Johnston GAR, Kumar RJ, and Mewett KN, Flavonoids and GABA receptors, GABA2010, San Servolo, Venice, Italy, 22-27 August 2010
9. **Karim N**, Premoli I, Po K, Gavande N, Johnston GAR, Hanrahan JR and Chebib M '2'-Methoxy-6-methylflavone, an allosteric activator of $\alpha 2\beta 2\gamma 2L$ GABA_A receptors' ASCEPT 43rd Annual Scientific Meeting, Sydney, 29 November-2 December 2009
10. Chebib M, **Karim N**, Premoli I, Gavande N, Johnston GAR and Hanrahan JR '2'-Methoxy-6-methylflavone, an allosteric activator of $\alpha 2$ -containing GABA_A receptors' Society for Neuroscience, Chicago, 17-24 October 2009

References

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