

Reaz Uddin

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

Education

- **2010** Ph.D. in Chemistry, **University of Karachi**.
(Dissertation: *Computational Studies on Cholinesterase and other Medicinally Important Enzymes*)
- **2008** Certificate Course of Advanced Pronunciation and Communication Skills, Tutorium in Intensive English, **University of Illinois at Chicago, IL**.
- **2006-2008** Visiting Research Scholar, **University of Illinois at Chicago**.
- **2006** International GRE (Subjective), Chemistry, **Educational Testing Service, USA**.
- **2005** Certificate Course of X-Ray Crystallography, **International Center for Chemical and Biological Sciences, University of Karachi**.
- **2004** M.Phil Courses in Organic Chemistry, **International Center for Chemical and Biological Sciences, University of Karachi**.
- **2002-2003** Master of Science, Major: Organic Chemistry, **University of Karachi**.
Thesis: *Studies on the Chemical Constituents of Bombax ceiba*.
- **2001** Diploma in Information Technology, Skill Development Council, **The Computer World College of Information Technology, Karachi**.
- **2000** Bachelor of Science, **University of Karachi**.
(Major: *Chemistry, Biochemistry, Microbiology*)

Awards and Fellowships/Memberships

- **Nov 2015 – Nov 2016** Postdoctoral Fellow, Prince of Wales Clinical School, UNSW, Sydney
(Advisor: Prof. Kevin Downard)
- **2015** Elected Pakistan Academy of Sciences (PAS) member
- **2014** Research Productivity Award from Pakistan Council of Science and Technology (PCST).
- **Sep 2014 – till Dec 2014** EMBO Post Doc short term fellow: Protein Evolution – Cell Network Group led by Prof. Dr. Rob Russel; University of Heidelberg, Germany.
- **2014** Member of Pakistan Chemical Society (PCS)
- **2014** Recipient of the EMBO Fellowship for the Postdoctoral Research at University of Heidelberg, Germany.
- **2011** Recipient of Motivational Young Scientists Award 2011 – Chemistry from National Academy of Young Scientists (NAYS) and Pakistan Science Foundation (PSF).
- **2011** HEC approved supervisor for PhD mentorship.
- **2011** Post Doctoral training in Theoretical Chemistry, **University of Innsbruck, Austria**
- **2010** The Austrian Agency for International Cooperation in Education and Research (**OeAD-GmbH**) grant for postdoctoral training in Austria.
- **2010** IUPAC funding to attend the 11th EURASIA conference in Jordan.
- **2010** HEC travel grant to attend the 11th EURASIA conference in Jordan.

- **2006** Development of High Level S&T Manpower through Split PhD Scholarship, **Government of Pakistan**.
- **2004** Graduate Research Fellowship, **International Center for Chemical and Biological Sciences, University of Karachi, Pakistan**.
- **2000** Microbiology Quiz Competition Winner, first prize, **microbiology society of Govt. Islamia Science College, Karachi, Pakistan**.

Current Position

Assistant Professor, ICCBS, University of Karachi, Pakistan.

Research Areas:

Computational Chemistry/Biology

- Very proficient in using scripting for solving puzzles of biology.
- Using various bioinformatic resources, online servers and databases.
- Expertise in running stand alone BLAST+.
- Protein-Protein interactions studies using molecular docking programs (e.g. HEX, ZDOCK, DOCK).
- Antibody homology (Rosetta Antibody).
- Protein structure predictions and validations using Homology based methods.
- Drug target identifications against infectious diseases particularly Methicillin Resistant *Staphylococcus aureus* and *Mycobacterium tuberculosis*.
- Familiar with the use of C/C++.
- Very proficient in Linux working environment, shell and AWK scripting.

Molecular Modeling

- QSAR modeling: Tripos sybyl, Comparative Molecular Field Analysis (CoMFA), VolSurf.
- Protein-ligand Docking: GOLD, AutoDock, DOCK, FlexX, FRED, GLIDE.
- Molecular Dynamics Simulation: GROMACS, AMBER.
- Pharmacophore Modeling: GASP, GALAHAD.
- Chemical Database Management: MOE, ChemFinder.
- Drug and Lead like filtering: OpenEyes Filter, OpenEyes Omega.
- Conformational Samplings: OpenEyes ROCS, Tripos FlexS.
- Scripting in C programming, UNIX shells, AWK scripting, Sybyl Programming Language.
- ADMET predictions: Volsurf.
- Quantum Mechanics: GAUSSIAN.

Isolation of Compounds from Plants (Phytochemical Analysis)

- NMR, Mass, IR and UV spectroscopic measurements.

- Thin and Thick Layer Chromatography.

Further Information

- Very easy-going and friendly for team work environment.
- Strong written and verbal communication skills particularly North American English.
- Very proficient in scientific reports/project writing and communication in scientific gatherings.
- Very competent for job-done in time.
- Quick learning ability in competitive environment.
- Organizing member of First Computational Chemistry Workshop at Dr. Panjwani Center for Molecular Medicine and Drug Research (International Center for Chemical Sciences, **University of Karachi**) June 26-28, 2006.
- Languages: Fluent in English and Urdu (mother tongue).

Teaching Experience:

- Teaching and design of **Computational Biology** course as part of MM707 to the M.Phil./Ph.D. students of ICCBS, University of Karachi since 2011.
- Teaching **Research Methodology** as part of ASR701 and ASR702 to the M.Phil./Ph.D. students of International Center for Chemical and Biological Sciences (ICCBS), University of Karachi since 2011.
- Teaching **Bioinformatics** to the subject special GRE in Molecular Medicine approved by the Higher Education Commission of Pakistan since 2011.

Funding for Research Projects:

- 1] International research funding from International Foundation for Science (IFS), Sweden.
Title: **Deciphering Natural Products Potential in Modulating Protein- Protein Interactions (PPIs) among the Infectious Druggable Genomes**
Amount: 11,902 US\$ (*Approved*)
- 2] Startup Research grant from Higher Education Commission (HEC) of Pakistan:
Title: **Comparative Evaluation of Docking Algorithms for High Quality 3D-QSAR.**
Amount: 0.5 million PKR (*Approved*)
- 3] National Research Program for Universities, Higher Education Commission (HEC) of Pakistan
Title: **Assignment of functional activity to uncharacterized proteins from infectious druggable genomes**
Amount: 2.188 million PKR (*Approved*)

Peer Reviewed Publications

No.	Authors	Title	Reference	Year
27	R. Uddin , Kevin M. Downard	<i>Subtyping of Hepatitis C Virus with High Resolution Mass Spectrometry</i>	Clinical Mass Spectrometry 4–5: p. 19-24.	2017
26	Arfa kamil, Shamim Akhtar, Ajmal Khan, Irum Farooq, Umar Nishan, Reaz Uddin , Umar Farooq	<i>Synthesis, Structure-Activity Relationship and Antinociceptive Activities of Some 2-(2'-Pyridyl) Benzimidazole Derivatives</i>	Med. Chem. Res. (Accepted)	2016
25	Reaz Uddin , Syed Sikander Azam, Abdul Wadood and Waqasuddin Khan, Umar Farooq, Ajmal Khan	<i>Computational Identification of Potential Drug Targets against Mycobacterium leprae</i>	Med. Chem. Res. March 2016, Volume 25, Issue 3, pp 473-481	2016
24	Reaz Uddin , M. Sufian	<i>Core Proteomic Analysis of Unique Metabolic Pathways of Salmonella enterica for the Identification of Potential Drug Targets</i>	PLoS One. 2016 Jan 22;11(1):e0146796.	2016
23	Rizwana Sarwar, Umar Farooq, Ajmal Khan, Sadia Naz, Sara Khan, Afsar Khan, Abdur Rauf, Haji Bahadar, Reaz Uddin	<i>Evaluation of Antioxidant, Free Radical Scavenging, and Antimicrobial Activity of Quercus incana Roxb.</i>	Front. Pharmacol., 6:277	2015
22	Fazal Rahim, Khalid Zaman, Hayat Ullah, Muhammad Taha, Abdul Wadood, Muhammad Tariq Javed, Wajid Rehman, Muhammad Ashraf, Reaz Uddin , Imad Uddin, Humna Asghar, Aftab Ahmad Khan, Khalid M. Khan	<i>Synthesis of 4-thiazolidinone analogs as potent in vitro anti-urease agents</i>	Bioorg. Chem., 63, 123–131	2015
21	Reaz Uddin , Sidra Rafi	<i>Structural and Functional Characterization of a Unique Hypothetical Protein of Mycobacterium tuberculosis: A Bioinformatics Approach</i>	Genomics (Revised)	2015
20	Reaz Uddin , Kiran Saeed, Syed Sikander Azam, Abdul Wadood and Waqasuddin Khan	<i>Metabolic Pathway Analysis Approach: Identification of Novel Therapeutic Target against Methicillin Resistant Staphylococcus aureus</i>	Gene. 10;556(2): 213-26.	2015
19	Reaz Uddin , Kiran Saeed	<i>Identification and Characterization of Strain Specific Drug Targets by Subtractive Genome Analyses of Methicillin Resistant Staphylococcus aureus</i>	Comp. Biol. and Chem. 48, 55–63	2014
18	Abdul Wadood, Muhammad Riaz, Reaz Uddin , Zaheer ul-Haq	<i>Identification and Evaluation of Leads for the Simultaneous Inhibition of Protease and Helicase Activities of HCV NS3/4A Protease Using Complex Based Pharmacophore Mapping and Virtual Screening</i>	PLoS ONE 9(2): e89109. doi:10.1371	2014
17	Reaz Uddin , Maria Saeed, Zaheer Ul Haq	<i>Molecular Docking and Genetic Algorithm based Approaches to Produce Robust 3D-QSAR Models</i>	Med. Chem. Res. 23 (5), 2198-2206	2014
16	Reaz Uddin , Kiran Saeed	<i>An Exhaustive Yet Simple Virtual Screening Campaign against Sortase A from Multiple Drug Resistant Staphylococcus aureus</i>	Mol. Biol. Reports 41 (8), 5167-5175	2014
15	Reaz Uddin , Zaheer-ul-Haq, Afshan Naz, Nahid Akhtar	<i>Development of 3D-QSAR Models of Tubulin Inhibitors using Rapid Overlay of Crystal Structures (ROCS) based Alignment</i>	Med. Chem. Res. 22, 3229-3241	2013
14	Ajmal Khan, Alexander Weiss, Reaz Uddin , Bernhard Randolf, Bernd Rode, Thomas Hofer	<i>An ab initio Quantum Mechanical Charge Field Molecular Dynamics Simulation (QMCF-MD) of Bi+3 in Water</i>	J. Phys. Chem. A 116 (30), 8008–8014	2012
13	Reaz Uddin , Mazhar Ullah Lodhi and Zaheer-ul-Haq	<i>Combined Pharmacophore and 3D-QSAR Study on A Series of Staphylococcus aureus Sortase A inhibitors</i>	Chem. Biol. Drug Des. 80 (2) 300-14,	2012
12	Kok Wai Lam, Reaz Uddin , Choi Yi Liew, Chau Ling	<i>Synthesis and QSAR analysis of chalcone derivatives as nitric oxide inhibitory agent.</i>	Med. Chem. Res. 21 (8) 1953-1966	2012

	Tham, Daud A. Israf, Ahmad Syahida, Mohd. Basyaruddin Abdul Rahman, Zaheer Ul-Haq and Nordin H. Lajis			
11	Azam, S.S., Reaz Uddin , Wadood	<i>Structure and dynamics of alpha-glucosidase through molecular dynamics simulation studies</i>	J. Mol. Liq. 174, 58-62	2012
10	S. Sikander Azam, Reaz Uddin , Adnan A. Shah and Zaheer-ul-Haq	<i>Molecular docking studies of potent inhibitors of tyrosinase and α-glucosidase</i>	Med. Chem. Res. 21 (8), 1677-1683	2012
	Zaheer-ul-Haq, Reaz Uddin and Sana Gul	<i>Optimization of Structure Based Virtual Screening Protocols against Thymidine Monophosphate Kinase Inhibitors as Antitubercular Agents.</i>	Mol. Inf. 30 (10), 851 – 862	2011
9	Zaheer ul Haq, Reaz Uddin , David Lam Kok Wei, Abdul Wadood, Nordin Haji Lajis	<i>Docking and 3D-QSAR Modeling of Cyclin-Dependent Kinase 5/p25 Inhibitors</i>	J. Mol. Model. 17 (5), 1149-61	2011
8	Zaheer-ul-Haq, Uzma Mahmood, Sualeha Reza, Reaz Uddin and Mehwish Aleem	<i>Ligand Based 3D-QSAR Studies of Diaryl Acylsulfonamide Analogues as Human Umbilical Vein Endothelial Cells inhibitors Stimulated by VEGF</i>	Chem. Biol. Drug Des. 77 (4), 288-94	2011
7	Imtiaz Khan, Sajid Ali, Nasim Hasan Rama, Abdul Wadood, Reaz Uddin , Zaheer Ul-Haq, Ajmal Khan, Sajjad Ali and Muhammad Iqbal Choudhary	<i>Synthesis, Urease Inhibition and Antioxidant Activities of Some 1,2,4-Triazole and 1,3,4-Thiadiazole Derivatives</i>	Eur. J. Med. Chem. 45 (11) 5200-7	2010
6	Obaid-ur-Rahman Abid, Tariq Mahmood Babar, Farukh Iftakhar Ali, Shahzad Ahmed, Abdul Wadood, Nasim Hasan Rama, Reaz Uddin , Zaheer -ul-Haq, Ajmal Khan, M. Iqbal Choudhary	<i>Identification of Novel Urease Inhibitors by High-Throughput Virtual and in Vitro Screening</i>	ACS Med. Chem. Lett. 1 (4), 145-149	2010
5	Zaheer-ul-Haq, Sobia Ahsan Halim, Reaz Uddin , Jeffry D. Madura	<i>Benchmarking Docking and Scoring Protocol for the Identification of Potential Acetylcholinesterase Inhibitor</i>	J. Mol. Graph. Modell. 28 (8), 870-882	2010
4	Zaheer-ul-Haq, Abdul Wadood, Reaz Uddin	<i>CoMFA and CoMSIA 3D-QSAR Analysis on Hydroxamic Acid Derivatives as Urease Inhibitors</i>	J. Enz. Inh. Med. Chem. 24 (1), 272-8	2009
3	Zaheer-ul-Haq, Reaz Uddin , Hongbin Yuan, Pavel A. Petukhov, M. Iqbal Choudhary, Jeffry D. Madura	<i>Receptor-Based Modeling and 3D-QSAR for a Quantitative Production of the Butyrylcholinesterase Inhibitors Based on Genetic Algorithm</i>	J. Chem. Inf. Model. 48 (5), 1092–1103	2008
2	Subash Velaparthi, Michael Brunsteiner, Reaz Uddin , Dahua Pan, Baojie Wan, Scott Franzblau, Pavel A. Petukhov	<i>5-tert-Butyl-N-pyrazol-4-yl-4,5,6,7-tetrahydrobenzo[d]isoxazole-3-carboxamide Derivatives as Novel Potent Inhibitors of Mycobacterium tuberculosis Pantothenate Synthetase: Initiating a Quest for New Antitubercular Drugs</i>	J. Med. Chem. 51 (7), 1999–2002	2008
1	Reaz Uddin	<i>Studies on the Chemical Constituents of Bombax ceiba</i>	MSc. Thesis	2003

Books

- 1] **Reaz Uddin**, Zaheer ul Haq, Pavel A Petukhov, *In Silico Modeling and its Applications on Biomolecules*, LAP LAMBERT Academic Publishing Germany, (April 14, 2011), **ISBN**: 978-3844328233. [**First Author**]

Chapter in Book

1. Zaheer ul Haq, **Reaz Uddin**, *Alzheimer's Disease Pathogenesis, Core Concepts, Shifting Paradigms and Therapeutic Targets* Chapter Title: *Structure Based 3D-QSAR Studies on Cholinesterase Inhibitors*, Editor: Prof. Suzanne De La Monte, InTech Publishers Croatia, (June 16, 2011), **ISBN**: 978-9533076904. [**Co-First Author**]