

**Dr. AMAN BHALLA**

Ph.D (Chemistry), M.Sc [H. S.] (Chemistry), B. Ed.

Assistant Professor

Department of Chemistry and

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E-mail.: [amanbhalla@pu.ac.in](mailto:amanbhalla@pu.ac.in), [aman.bhalla20@gmail.com](mailto:aman.bhalla20@gmail.com)**• ACADEMIC QUALIFICATIONS:**

S. No.	Course	College/ Institution	Univ./Board	Period	Major Subjects
1.	Ph. D.	Dept. of Chemistry, P.U., Chandigarh	Panjab University, Chandigarh	20 <sup>th</sup> Sept. 2001-20 <sup>th</sup> Jan. 2007	Chemistry (Organic)
2.	B. Ed.	Govt. College of Education, Sector 20, Chandigarh	Panjab University, Chandigarh	2000-2001	Teaching of Science, Teaching of Hindi, Philo. Psych. Learn.
3.	M. Sc. (Hons. School)	Dept. of Chemistry, P.U., Chandigarh	Panjab University, Chandigarh	1997-1999	Chemistry (Organic Chemistry)
4.	B. Sc. (Medical)	D. A. V. College, Sector 10, Chandigarh	Panjab University, Chandigarh	1994-1997	Chemistry, Zoo., Bot., Eng., Pun., Hindi
5.	10+2 (Medical)	D. A. V. College, Sector 10, Chandigarh	C. B. S. E	1992-1994	Chem., Phy., Bio., Eng., Phy. Edu.
6.	Matric	D. A. V. School, Sector 15, Chandigarh	C. B. S. E	1991-1992	Sci., Math, Eng., Pun., Hindi, Soc. Sc.

**• NATIONAL LEVEL EXAMINATION CLEARED (CSIR-UGC-NET):**

Qualified CSIR-UGC National Eligibility Test (NET) for JRF & SRF and LS in subject of Chemical Science conducted by CSIR-UGC in July 2001

**• FELLOWSHIP (AWARDED):**

- DST : as Junior Research Fellow (Sept. 2001 – Dec. 2002)
- CSIR (OPEN) : as Junior Research Fellow (Dec. 2002 – Dec. 2004)
- CSIR (OPEN) : as Senior Research Fellow (Jan. 2005 – Dec. 2006)
- DST SERC PROJECT 1 (SR/FTP/CS-135/2006) : as Principal Investigator (July 2007 – Sept. 2010)
- DST SERB PROJECT 2 (SR/FTP/CS-037/2010) : as Principal Investigator (Oct. 2010 – Oct. 2013)

• **RESEARCH EXPERIENCE**

**[A]: AREA OF EXPERTISE: SYNTHETIC ORGANIC CHEMISTRY**

The main objective of the research is the development of new synthetic strategies for the synthesis of appropriately C-3/C-4/N-1 substituted  $\beta$ -lactam synthons and other heterocycles. This allows stereocontrolled transformations leading to important  $\beta$ -lactam synthons attracting the attention of organic as well as medicinal chemists. Emphasis has been put specially on the generation of stereoselectivity at a C-3 and C-4 position of  $\beta$ -lactams. The synthesized  $\beta$ -lactams and heterocycles have been submitted for their molecular docking, and evaluated for in silico as well as in vitro studies (Biological evaluation).

**[B]: RESEARCH PROJECTS: AWARDED**

**1. DST SERC Fast Track Project: SR/FTP/CS-135/2006:** **COMPLETED**

*Duration:* 19<sup>th</sup> July 2007 - 18<sup>th</sup> Sept. 2010 (3 years 2 months)  
*Position:* Principal Investigator  
*Cost of Project:* **Rs. 18, 48, 000.00/- (18.48 lacs)**  
*Title of Project:* “Studies towards incorporation of selenium and tellurium in the  $\beta$ -lactam heterocycle and their biological activities”

**2. DST SERB Fast Track Project: SR/FTP/CS-037/2010:** **COMPLETED**

*Duration:* 29<sup>th</sup> Oct. 2010 - 28<sup>th</sup> Oct. 2013 (3 years)  
*Position:* Principal Investigator  
*Cost of Project:* **24,35,000.00/- (24.35 lacs)**  
*Title of Project:* “Studies towards Asymmetric and Chemoenzymatic Synthesis of Chiral  $\beta$ -Lactams and their Structure Activity Relationship (SAR)”

**[C]: RESEARCH PUBLICATIONS:**

**DETAIL LIST OF PUBLICATIONS:**

S. No	Authors	Title	Name of Journal	Volume	Page	Year
1.	Preety Saini, Shamsher S. Bari, Bimal K. Banik, and <b>Aman Bhalla</b>	A synthetic route for the novel pyrimidine-substituted alkanoate, acetohydrazide and imines: Synthon for $\beta$ -lactams	<b>Synth. Commun.</b>	In Press	In Press	<b>2017</b>
2.	Jitender Bhalla, Shamsher S. Bari, <b>Aman Bhalla</b>	Pyrimidine and Pyrazole Linked Azetidin-2-ones: Entry to Novel Class of $\beta$ -Lactam Heterocycles	<b>J. Heterocyclic Chem.</b>	In Press	In Press	<b>2017</b>
3.	<b>Aman Bhalla</b> , Garima Modi, S. S.	Stereoselective	<b>Tetrahedron</b>	58	1160-	<b>2017</b>

	Bari, Anu Kumari, Shiwani Berry, Geeta Hundal	synthesis of novel C-3 functionalized 3-sulfonyl- blactams: Promising biologically active heterocyclic scaffolds	<b>Lett.</b>		1165	
4.	<b>Aman Bhalla</b> , Garima Modi, S. S. Bari, Anu Kumari, Dipika Narula, Shiwani Berry	An investigation towards the diastereoselective synthesis of 3- acetoxy/methoxy/phthal imido- $\beta$ -lactams using chiral imines	<b>Tetrahedron : Asymmetry</b>	28	307- 316	<b>2017</b>
5.	Anu Kumari, Shamsher S. Bari, Bimal K. Banik, and <b>Aman Bhalla</b>	Studies towards the synthesis of novel <i>N</i> 1- & <i>N</i> 2-benzotriazole linked <i>C</i> -3 substituted azetidin-2-ones	<b>Heterocyclic Lett.</b>	7	105- 112	<b>2017</b>
6.	Preety Saini, Shamsher S. Bari, Bimal K. Banik, and <b>Aman Bhalla</b>	Facile synthesis of novel imidazo[2,1- <i>b</i> ]thiazole linked schiff's bases: potential synthon for $\beta$ -lactams	<b>Heterocyclic Lett.</b>	7	75-80	<b>2017</b>
7.	<b>Aman Bhalla</b> , Shamsher S. Bari, Sunil Vats, Jitender Bhalla, Kiran Sharma, Dipika Narula	One pot, simple and efficient synthesis of ( <i>E</i> )- and ( <i>Z</i> )-3- allylidene- $\beta$ -lactams from 3-allyl-3- phenylseleno- $\beta$ - lactams: analogues of $\beta$ -lactamase inhibitors	<b>Tetrahedron Lett.</b>	57	4763- 4766	<b>2016</b>
8.	<b>Aman Bhalla</b> , Shamsher S. Bari, Jitender Bhalla, Sadhika Khullar, Sanjay Mandal	Facile synthesis of novel halogenated 4- pyrazolylspirocyclic- $\beta$ - lactams: versatile heterocyclic synthons	<b>Tetrahedron Lett.</b>	57	2822- 2828	<b>2016</b>
9.	Reshma , Renu Arora, Geeta Hundal, <b>Aman Bhalla</b> And S.S.Bari	An efficient synthesis of spiro- $\beta$ -lactams having sulfenyl, sulfinyl and sulfonyl moiety	<b>J. Chem. Sci</b>	127(11)	1957- 1966	<b>2015</b>
10.	<b>Aman Bhalla</b> , S. S. Bari, Shiwani	Facile synthesis of novel monocyclic trans-	<b>Arkivoc</b>	vii	10-27	<b>2015</b>

	Berry, Jitender Bhalla, Sunil Vats, Sadhika Khullar, Sanjay Mandal,	and cis-3- oxy/thio/seleno-4- pyrazolyl- $\beta$ -lactams				
11.	<b>Aman Bhalla</b> , S. S. Bari, Jitender Bhalla	Synthesis of novel pyrazolylmethylene- pyrimidine heterocycles-potential synthons for hybrid $\beta$ - lactams	<b>Can. Chem. Trans</b>	3	72-84	<b>2015</b>
12.	S. S. Bari, <b>Aman Bhalla</b> , Reshma and Geeta Hundal	Facile synthesis of novel bicyclic $\beta$ - lactams: analogues of C-fused penicillin type ring systems	<b>Tetrahedron Lett.</b>	54	483- 486.	<b>2013</b>
13.	S. S. Bari, <b>Aman Bhalla</b> , Paloth Venugopalan, Qudrat Hundal,	Facile synthesis of novel C-3- monosubstituted-3- phenylthio- $\beta$ -lactams	<b>Resc. J. Chem. Soc.</b>	3(7)	45-53	<b>2013</b>
14.	<b>Aman Bhalla</b> , S.S. Bari, S. Vats and M.L. Sharma	Facile and Stereoselective Synthesis of Novel trans-3- Monosubstituted-3- benzylseleno- $\beta$ -lactams	<b>Resc. J. Chem. Soc.</b>	2(1)	59-64	<b>2012</b>
15.	S. S. Bari, R. Arora, <b>Aman Bhalla</b> and P. Venugopalan	Facile synthesis of 3- allylidene- $\beta$ -lactams via thermal $\beta$ -elimination of 3-allyl-3-sulfinyl- $\beta$ - lactams.	<b>Tetrahedron Lett.</b>	51	1719- 1722.	<b>2010</b>
16.	<b>Aman Bhalla</b> , Yogesh Nagpal, K. K. Bhasin, S. K. Mehta, S. S. Bari	Synthesis and characterization of novel benzyl/ (diphenyl)methyl/ naphthylseleno substituted mono cyclic- $\beta$ -lactams: X-ray structure of trans-1-(4'- methoxyphenyl)-3- (diphenyl) methyl seleno-(4'-methoxy phenyl)azetidin-2-one	<b>J. Organomet. Chem.</b>	695	1979- 1985.	<b>2010</b>
17.	S. S. Bari, M. S. Magtoof and <b>Aman Bhalla</b>	Potential synthons for biologically active compounds	<b>Monatsh. Chem.</b>	141	987- 991	<b>2010</b>
18.	Shamsher S. Bari,	Stereoselective	<b>Tetrahedron</b>	65	10060	<b>2009</b>

	Reshma, <b>Aman Bhalla</b> , and Geeta Hundal	synthesis and Lewis acid mediated functionalization of novel 3-methylthio- $\beta$ -lactams.			- 10068	
19.	<b>Aman Bhalla</b> , Yogesh Nagpal, Rajeev Kumar, S. K. Mehta, K. K. Bhasin and S. S. Bari.	Synthesis and characterization of novel pyridyl/naphthyl/(diphenyl)methylseleno substituted alkanolic acids: X-ray structure of 2-pyridylseleno ethanoic acid, 2-naphthyl selenoethanoic acid and 2-(diphenyl)methylseleno ethanoic acid	<b>J. Organomet. Chem.</b>	694	179-189	<b>2009</b>
20.	K. K. Bhasin, Neelam Singh, Shivani, Rishu, <b>Aman Bhalla</b> , Gurjeet Kaur, S. K. Mehta.	Synthesis and characterization of some $\alpha,\omega$ -bis(naphthylseleno)alkanes: X-ray crystal structure of 1,2-bis(1-naphthylseleno)ethane	<b>Inorg. Chim. Acta</b>	360	3127-3131	<b>2007</b>
21.	<b>Aman Bhalla</b> , Paloth Venugopalan, Kuldip K. Bhasin Shamsher S. Bari.	Seleno- $\beta$ -lactams: synthesis of monocyclic and spirocyclic selenoazetidin-2-ones.	<b>Tetrahedron</b>	63	3195-3204	<b>2007</b>
22.	<b>Aman Bhalla</b> , Sitansh Sharma, Kuldip K. Bhasin and Shamsher S. Bari.	Convenient Preparation of Benzylseleno- and Phenylselenoalkanoic acids: Reagents for Synthesis of Organoselenium Compounds.	<b>Synth. Commun.</b>	37	783-793	<b>2007</b>
23.	<b>Aman Bhalla</b> , Paloth Venugopalan and Shamsher S. Bari.	A new synthetic approach to novel spiro- $\beta$ -lactams	<b>Eur. J. Org. Chem.</b>	-	4943-4950	<b>2006</b>
24.	<b>Aman Bhalla</b> , Suman Rathee, Sachin Madan, Paloth Venugopalan and	Lewis acid mediated functionalization of $\beta$ -lactams: mechanistic study and synthesis of C-3unsymmetrically	<b>Tetrahedron Lett.</b>	47	5255-5259	<b>2006</b>

	Shamsher S. Bari.	disubstituted azetidin-2-ones.				
25.	<b>Aman Bhalla</b> , Paloth Venugopalan and Shamsher S. Bari.	Facile stereoselective synthesis of cis- and trans-3-alkoxyazetidin-2-ones.	<b>Tetrahedron</b>	62	8291-8302	<b>2006</b>
26.	<b>Aman Bhalla</b> , Sachin Madan, Paloth Venugopalan and Shamsher S. Bari.	C-3 $\beta$ -Lactam carbocation equivalents: versatile synthons for C-3 substituted $\beta$ -lactams	<b>Tetrahedron</b>	62	5054-5063	<b>2006</b>
27.	Jasvinder Singh, Irvinder Kaur, Jasamrit Kaur, <b>Aman Bhalla</b> , and Goverdhan L. Kad.	Speedy and Regioselective 1,2-Reduction of Conjugated $\alpha,\beta$ -Unsaturated Aldehydes and Ketones Using $\text{NaBH}_4/\text{I}_2$ .	<b>Synth. Commun.</b>	33	191-197	<b>2003</b>

**Books/Reports/Chapters/General articles etc**

S,No	Ttile (Chapters, <i>In Book</i> )	Author's name	Publisher	Year of Publication
1	Spirocyclic $\beta$ -lactams: Synthesis and Biological Evaluation of Novel Heterocycles. <i>In Topics in Heterocyclic Chemistry: Heterocyclic Scaffold I</i>	S. S. Bari, <b>Aman Bhalla</b>	Springer, pp 49-99.	2010
2.	Biological Activity Profile of Thiazolidinone Scaffolds Linked to Bioactive Thiazoles: A Review	<b>Aman Bhalla</b> , Shiwani Berry, Shamsher S. Bari	Am. J. PharmTech Res. 6(6), pp 62-78	2016
3.	A Comprehensive Review On Structural and Biological Activity Relationship of 3-Acetoxyazetidin-2-Ones	<b>Aman Bhalla</b> , Dipika Narula, Shamsher S. Bari	Am. J. PharmTech Res. 6(6), pp 96-116	2016
4.	Recent Synthesis and Biological Applications of Novel Benzotriazoles: A Review	<b>Aman Bhalla</b> , Shamsher S. Bari, Anu Kumari	Am. J. PharmTech Res. 7(7), pp 34-56	2017
5.	2-Aminothiophenes: A Review On Synthetic	<b>Aman Bhalla</b> , Preety Saini,	Am. J. PharmTech Res.	2017

	Routes and Applications (Biological/Synthons)	Shamsher S. Bari	7(7), pp 57-78	
6.	Synthesis of Diverse $\beta$ -Lactams: Role of Appended Hetero Moiety on its Activity. <i>In <math>\beta</math>-lactams: Novel Synthetic Pathways and Applications</i>	<b>Aman Bhalla</b> , S. S. Bari, Jitender Bhalla	Springer,	2017 (In Press)
7.	Role of Transition Metal Reagents in $\beta$ -lactam Synthesis: New Paradigms. <i>In <math>\beta</math>-lactams: Novel Synthetic Pathways and Applications</i>	S. S. Bari, <b>Aman Bhalla</b> Jitender Bhalla	Springer,	2017 (In Press)

**[D]:**

**SUPERVISING RESEARCH:**

Presently, I am supervising 6 Ph. D Students in their research projects.

**Ph. D. (Organic Chemistry):**

S. No.	Name	Year/Session
1	Jitender Bhalla	Ph.D Degree Awarded 2016
2	Kiran Sharma (SRF)	2012-pursuing
3	Shiwani Berry (SRF)	2012-pursuing
4	Dipika Narula (SRF)	2012-pursuing
5	Anu Kumari (SRF)	2012-pursuing
6	Preety Saini (SRF)	2012-pursuing
7	Navneet Kaur (SRF)	2014-pursuing

**[E]:CONFERENCES/SYMPOSIA ATTENDED (ORAL/POSTER PRESENTATION):- More than 70 (International and National)**

• **TEACHING EXPERIENCE: 11 years**

I have been actively pursuing teaching w.e.f. session 2006 in the Department of Chemistry & Centre of Advanced Studies in Chemistry, Panjab University, Chandigarh.

Positions	Year
Ph.D Research Scholar	2006
Principal Investigator (DST Project)	2007 to 18-08-2011
Assistant Professor (Stage II)	19-08-2011 onwards

**SCHOOL CHILDRENS-RELATED ADMINISTRATIVE AND ORGANIZATIONAL EXPERIENCE:**

- Judge**, CBSE Science Exhibition 2012, organized by Gurukul Global School in association with Central Board of Secondary Education.
- Laboratory Mentor**, Ist DST Inspire Internship Camp, Panjab University Chandigarh, March 23-27, 2015

3. **Laboratory Mentor**, 2<sup>nd</sup> DST Inspire Internship Camp, Panjab University Chandigarh, August 17-21, 2015

#### **ADMINISTRATIVE AND ORGANIZATIONAL EXPERIENCE:**

4. **Convener** of Registration-cum-Coordination Committee of Chemistry Department for organizing International year of Chemistry 2011.
5. **Co-Convener** of Transport/Press-cum-Publicity Committee of Chemistry Department for organizing International year of Chemistry 2011.
6. **Secretary**, Technical Committee of Chemistry Department for the year 2012.
7. **Secretary**, Post-Graduate-APMEC of Chemistry Department for the session 2012-2013
8. **Secretary**, Academic Committee of Chemistry Department for the year 2013.
9. **Secretary**, Post-Graduate-APMEC of Chemistry Department for the session 2013-2014
10. **Secretary**, Administrative Committee of Chemistry Department for the year 2014.
11. **Member** of Research Degree Committee in Chemistry for the term 1.1.2012 to 31.12.2013.
12. **Member** of Admission Committee of Chemistry Department for the session 2012-2013.
13. **Member** of Seminar Committee of Chemistry Department for the session 2012-2013.
14. **Member** of Board of Studies in Environmental Education, Panjab University, Chandigarh for the session 2014-2015.
15. **Member** of Board of Studies in Environmental Education, Panjab University, Chandigarh for the session 2013-2014.
16. **Member** of Board of Studies in Applied Sciences, Panjab University, Chandigarh for the session 2013-2014.
17. **Member** of Seminar Committee of Chemistry Department for the session 2013-2014.
18. **Member**, Academic Committee of Chemistry Department for the year 2015.
19. **Member**, Administrative Committee of Chemistry Department for the year 2016.
20. **Member** of Board of Studies in Environmental Education, Panjab University, Chandigarh for the session 2015-2016.
21. **Member** of Admission Committee of Chemistry Department for the session 2016-2017.
22. **Member**, Technical Committee of Chemistry Department for the year 2017.
23. **Member** of Board of Studies in Environmental Education, Panjab University, Chandigarh for the session 2016-2017.

#### **LIFE MEMBERSHIPS:**

- I. Life Membership of **Chemical Research Society of India (CRSI) LM 968.**
- II. Life Membership of **The Indian Thermodynamics Society LM 309.**
- III. Life Membership of **Chemistry Department Alumni Association, Panjab University (CDAA PU).**

#### **MEMBER OF EDITORIAL/REVIWERS BOARD:**

- Member of editorial board of **Journal of Chemistry, Environmental Sciences and its Application.**
- Member of reviewers committee of **Can. Chem. Trans., Curr. Med. Chem., Indian Journal of Chemistry, Section-B, Lett. In Org. Chem. Etc.**

#### **ACADEMIC DISTINCTIONS / HONOURS / AWARDS / OTHER ACHIEVEMENTS MEMBERSHIPS:**



- Awarded as Best Poster Presentation in **4th Chandigarh Science Congress (CHASCON-04) held in March 19-20, 2010.**
- Participated in the **N. S. S camp** organized by the Panjab University in connection with the “ **Youth for Health Society**” at Govt. College of Education: Sector 20-D & Village: Kajheri (UT) (**Sept-Oct. 2000**).
- Participated as a member of the Organizing Committee in the Children Science Congress on **11th Nov. 2006**, organized by Panjab University, Chandigarh in association with Indian Science Congress (Chandigarh Chapter) & PUSC.
- Awarded, “**Panjab University Chemical Society Certificate of Honour**” and memento for standing **First** in Badminton (Mixed Doubles) in the event of Intra Department Sports at the Department of Chemistry, Panjab University, Chandigarh (**2004-2005**).
- Life Membership of **Chemical Research Society of India.**
- Annual membership of **Indian Council of Chemists**
- Life Membership of **Panjab University, Chemistry Department** Old Student Association.
- Received, “ D. A. V. College Academic Merit Certificate” for standing **Second** in Chemistry & **First** in Punjabi in B. Sc. (II) Medical Examination (**1996**).
- Received, “ D. A. V. College Academic Merit Certificate” for standing **First** in B. Sc. (III) Medical House Test Examination (**1996**).
- Received, “ D. A. V. College Academic Merit Certificate” for Active member of Bose Biological Association (**1996-1997**).

**(Dr. AMAN BHALLA)**