

Dr. Raj Kumar,

Associate Professor and Head

Department of Pharmaceutical Sciences and Natural Products

(Formerly known as Chemical and Pharmaceutical Sciences)

School of Basic and Applied Sciences

Central University of Punjab

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Education

Course	Institution	Year	Details
Ph.D. (With Course work)	National Institute of Pharmaceutical Education and Research (NIPER), Mohali, India	2007	Medicinal Chemistry
M.S. (Pharm.)	National Institute of Pharmaceutical Education and Research (NIPER), Mohali, India	2002	Medicinal Chemistry
B. Pharmacy	M. D. University, Rohtak	2001	Pharmaceutical Sciences

Experience

Institution	Designation	Duration	Role
Pharmaceutical Sciences and Natural Products	Associate Professor	28-12-2015 to present	Teaching (Organic and Medicinal) and Research
Pharmaceutical Sciences and Natural Products (Formerly known as Centre for Chemical and Pharmaceutical Sciences), Central University of Punjab, Bathinda, India	Assistant Professor	April 2011-27-12-2015	Teaching (Organic and Medicinal) and Research
Indo-Soviet Friendship (ISF) College of Pharmacy, Moga, Punjab, India	Assistant Professor	2009-2011 Jan-April	Teaching and Research (Organic and Pharmaceutical Chemistry)
University of Maryland Baltimore County (UMBC), USA	Assistant Research Scientist	2007-2008	Research (Synthesis of NCEs as Anticancer agents)
National Institute of Pharmaceutical Education and Research (NIPER), Mohali, India	Senior Research Fellow	2003-2007	Research (Synthesis of NCEs as PDE4 Inhibitors) in collaboration with Ranbaxy Research Laboratories
Dr. Reddy's Laboratories, Hyderabad	Chemist	2003 February-August	Research (Synthesis of novel anti-infective agents)

Teaching Assignments

- Organic Chemistry/Spectral analysis/Logics of Organic Synthesis – I and II (undergraduate level and postgraduate level)
- Introduction to Medicinal Chemistry (postgraduate level)

Research Projects

Handled

- Research(Synthesis of NCEs as PDE4 Inhibitors) in collaboration with Ranbaxy Research Laboratories
- Synthesis of novel anti-infective agents
- Synthesis of novel COX-1/COX-2 inhibitors
- Synthesis of novel Xanthine Oxidase inhibitors
- Synthesis of NCEs as Anticancer agents via EGFR/HDAC/APE-1/topoisomerase/tubulin inhibition
- Research(Synthesis of NCEs as PDE4 Inhibitors) in collaboration with Ranbaxy Research Laboratories
- Synthesis of novel anti-infective agents
- Synthesis of novel COX-1/COX-2 inhibitors
- Synthesis of novel Xanthine Oxidase inhibitors
- Synthesis of NCEs as Anticancer agents via EGFR/HDAC/APE-1/topoisomerase/tubulin inhibition

Completed

- *Design, Synthesis and Biological Screening of Novel Multi-target Inhibitors of Tyrosine Kinase(s) and Topoisomerase-I* - Department of Science and Technology (DST), Delhi, under the SERB FastTrack Scheme for Young Scientist- (27 Lakhs)
- *Design, Synthesis and Biological Screening of Novel Heterocycles as Inhibitors of Dual Tyrosine Kinase(s) and Histone Deacetylase as Potential Anticancer Agents* –UGC-Major, Delhi, sanctioned money: Rs/-12,59,000
- **Design, synthesis and in vitro screening of mono-/bis- aminoquinolines as EGFR inhibitors-** Research Seed Money, Central University of Punjab, Bathinda: Rs/-3,00,000

Ongoing

- CUPB Fellowship Fund Release (Bristol-Myers Squibb), USA (5,000 Dollars)

Professional Recognition /Awards/Scholarship

- Central University's Outstanding Research Award -2016-17
- Central University's Research Award -2016-17
- Central University's Research Award -2015-16
- Central University's Research Award -2015-15
- Outstanding Faculty Award (2016) from Centre for Advance Research and Design, VenusInternational Foundation, Chennai, on dated 9 July, 2016.
- Most Cited Paper 2004-2007 Award for *Tetrahedron Lett.*,2005,46, 1721-1724.
- Most Cited Paper 2005-2008 Award for *Tetrahedron Lett.*,2005,46, 1721-1724.
- Qualified National Eligibility Test for Lectureship in Chemical Sciences (CSIR-NET June 2002,conducted by Council for Scientific and Industrial Research, New Delhi, India)

- **Qualified** Graduate Aptitude Test for Engineering (**GATE 2001**) with **99.08 percentile (All India 30th Rank)**; an essential requirement for getting scholarship during M. S. Pharm. course)
- **University Gold Medal** in Bachelor of Pharmacy.
- **Member, School Board** of the **School of Basic and Applied Sciences** from 05-01-16-present at **Central University of Punjab**, Bathinda
- Expert Member in Board of studies (Biomedical Sciences) from 17-8-2016 – 17-8-2019 at Gurukul Kangri Vishwavidyalaya, Haridwar, India.
- Chairperson, **Board of Studies** (Department of Pharmaceutical Sciences and Natural Products) from November 2014- till date at **Central University of Punjab**, Bathinda.
- Chairperson on “*Socio-legal and Other challenges for the prevention of drug abuse in India: Existing approaches and Agenda of reform*” organized by Central University of Punjab, Bathinda, August 24-25, 2017.
- Expert Member in Board of studies (Pharmacy) and Faculty of Pharmacy from 01-10-2015 – 30-09-2017 at Maharaja Ranjit Singh State Technical University, Bathinda (MRSSTU).
- Expert Member in Board of studies (Pharmacy) from December 2011- 2013 at PTU, Jalandhar
- Resource person at 3rd Annual Conference of APTI organized by JCDM college of Pharmacy, Sirsa, Haryana, November 11-12, 2016.
- Poster Evaluator on 24th ISCB International Conference (ISCB-2018), Frontier Research in Chemistry and Biology, January 11-13, 2018.
- Poster Evaluator on 69th Indian Pharmaceutical Congress, Chandigarh, December 22-24, 2017.
- Resource person at 2nd APTI at organized by Govt Polytechnic College, Patiala, Punjab, March 18-19, 2016
- Chairperson at UGC sponsored seminar on “*Green Chemistry*” organized at GHG Khalsa College, Gursar Sadhar, Punjab, and February 24-25, 2012.
- Life Member-Chemical Research Society of India
- Life Member-IPGA
- Life Member-Indian Science Congress
- Life Member-Indian Society of Chemists and Biologists.
- Life Member-APTI, India
- ACS member
- Chairperson at APTI-16 Annual National Convention 2011 organized at I.S.F. College of Pharmacy, Moga, Punjab, India, October 7-9, 2011

Peer Recognition

1. **Lead Guest Editor** of Special Issue on “**Signal Transduction Inhibitors as Promising Anticancer Agents**” *BioMed Research International*(<http://www.hindawi.com/journals/bmri/si/636318/cfp/>)
2. **Reviewer to the following Journals and Grant agencies:**
 - *Journal of Medicinal Chemistry (J Med Chem, ACS)*, *Journal of Agricultural and Food Chemistry (ACS)*, *Molecular Biosystems (RSC)*, *MedChemCom (RSC)*, *Bioorganic and Medicinal Chemistry (BMC, Elsevier)*, *Bioorganic and Medicinal Chemistry Letters (BMC, Elsevier)*, *Food and Chemical Toxicology (FCT, Elsevier)*, *European Journal of Medicinal Chemistry (EJMC, Elsevier)*, *International Journal of Biological Macromolecules (Elsevier)*, *Medicinal Chemistry Research (Springer)*, *Mini Reviews in Medicinal Chemistry (Bentham)*, *Journal of Enzyme Inhibition and Medicinal Chemistry (Informa healthcare)*, *Letters in Drug Design & Discovery (Bentham science)*, *Biomarkers in Cancer (Libertas Academica)*, *Drug Target Insights (Libertas Academica)*, *PLoSOne*, *Chemistry and Biology, Wiley*, *Organic Chemistry Insights (Libertas Academica)*, *Associate Editor to Pharmaceutica Analytica Acta (www.omicsonline.org)*, *Grant agency: Czech Republic Foundation*, *Grant agency: Department of Science and Technology, SERB*

Area specializations/Research Interest

- Design and Synthesis of novel small heterocycles as anticancer, antimalarial and xanthine oxidase inhibitors.
- Synthesis and methodology development of small bioactive molecules.

Publications: 59 (h index = 25; Google scholar), total impact factor:129

- [1] **R. Kumar**, G. Joshi, H. Kler, S. Kalra, M. Kaur, R. Arya, Toward an Understanding of Structural Insights of Xanthine and Aldehyde Oxidases: An Overview of their Inhibitors and Role in Various Diseases, *Medicinal Research Reviews*, (2017). doi: 10.1002/med.21457
- [2] G. Joshi, H. Nayyar, S. Kalra, P. Sharma, A. Munshi, S. Singh, **R. Kumar**, Pyrimidine Containing Epidermal Growth Factor Receptor Kinase inhibitors: Synthesis and Biological Evaluation, *Chemical Biology & Drug Design*, (2017). doi: 10.1111/cbdd.13027
- [3] G.J. Ammu Muraleedharan, **R. Kumar**, Natural Products Based Ayurvedic Formulations: Chemical Constituents and Treatment in Neurodegenerative Disorders, *Mini-Reviews in Organic Chemistry*, 14 (2017) 280-287.
- [4] M. Garg, M. Chauhan, **R. Kumar**, Identification of new insulin growth factor receptor-1 (IGF-1R) inhibitors via exploring ATPase kinase domain of IGF-1R through virtual screening, *Medicinal Chemistry Research*, 26 (2017) 205-219.
- [5] P.K. Singh, A. Negi, P.K. Gupta, M. Chauhan, **R. Kumar**, Toxicophore exploration as a screening technology for drug design and discovery: techniques, scope and limitations, *Archives of toxicology*, 90 (2016) 1785-1802.
- [6] G. Joshi, H. Nayyar, J. Marin Alex, G. S Vishwakarma, S. Mittal, **R. Kumar**, Pyrimidine-fused Derivatives: Synthetic Strategies and Medicinal Attributes, *Current topics in medicinal chemistry*, 16 (2016) 3175-3210.
- [7] G. Joshi, S.M. Amrutkar, A.T. Baviskar, H. Kler, S. Singh, U.C. Banerjee, **R. Kumar**, Synthesis and biological evaluation of new 2, 5-dimethylthiophene/furan based N-acetyl pyrazolines as selective topoisomerase II inhibitors, *RSC Advances*, 6 (2016) 14880-14892.
- [8] B.S. Gill, P. Sharma, **R. Kumar**, S. Kumar, Misconstrued versatility of Ganoderma lucidum: a key player in multi-targeted cellular signaling, *Tumor Biology*, 37 (2016) 2789-2804.
- [9] M. Chauhan, G. Sharma, G. Joshi, **R. Kumar**, Epidermal Growth Factor Receptor (EGFR) and its Cross-Talks with Topoisomerases: Challenges and Opportunities for Multi-Target Anticancer Drugs, *Current pharmaceutical design*, 22 (2016) 3226-3236.
- [10] M. Chauhan, G. Joshi, H. Kler, A. Kashyap, S.M. Amrutkar, P. Sharma, K.D. Bhilare, U.C. Banerjee, S. Singh, **R. Kumar**, Dual inhibitors of epidermal growth factor receptor and topoisomerase II α derived from a quinoline scaffold, *RSC Advances*, 6 (2016) 77717-77734.
- [11] A. Rana, J.M. Alex, M. Chauhan, G. Joshi, **R. Kumar**, A review on pharmacophoric designs of antiproliferative agents, *Medicinal Chemistry Research*, 24 (2015) 903-920.
- [12] R. P Cholia, H. Nayyar, **R. Kumar**, A. K Mantha, Understanding the multifaceted role of ectonucleotide pyrophosphatase/phosphodiesterase 2 (ENPP2) and its altered behaviour in human diseases, *Current molecular medicine*, 15 (2015) 932-943.
- [13] A. Negi, J.M. Alex, S.M. Amrutkar, A.T. Baviskar, G. Joshi, S. Singh, U.C. Banerjee, **R. Kumar**, Imine/amide-imidazole conjugates derived from 5-amino-4-cyano-N1-substituted benzyl imidazole: Microwave-assisted synthesis and anticancer activity via selective topoisomerase-II- α inhibition, *Bioorganic & medicinal chemistry*, 23 (2015) 5654-5661.

- [14] **R. Kumar**, C. Santos Dos, T.S. Ahluwalia, S. Singh, Editorial Signal Transduction Inhibitors as Promising Anticancer Agents, *BioMed Research International*, (2015). doi: 10.1155/2015/584170
- [15] A.N. Gaurav Joshi, Pankaj Kumar Singh, Sandeep Singh, Raj Kumar, Growth factors mediated cell signalling in prostate cancer progression: Implications in discovery of anti-prostate cancer agents, *Chemico-biological interactions*, 240 (2015) 120-133.
- [16] M. Garg, M. Chauhan, P.K. Singh, J.M. Alex, **R. Kumar**, Pyrazoloquinazolines: Synthetic strategies and bioactivities, *European journal of medicinal chemistry*, 97 (2015) 444-461.
- [17] M. Chauhan, A. Rana, J.M. Alex, A. Negi, S. Singh, **R. Kumar**, Design, microwave-mediated synthesis and biological evaluation of novel 4-aryl (alkyl) amino-3-nitroquinoline and 2, 4-diaryl (dialkyl) amino-3-nitroquinolines as anticancer agents, *Bioorganic chemistry*, 58 (2015) 1-10.
- [18] M. Chauhan, **R. Kumar**, A comprehensive review on bioactive fused heterocycles as purine-utilizing enzymes inhibitors, *Medicinal Chemistry Research*, 24 (2015) 2259-2282.
- [19] K. Seth, S.K. Garg, **R. Kumar**, P. Purohit, V.S. Meena, R. Goyal, U.C. Banerjee, A.K. Chakraborti, 2-(2-Arylphenyl) benzoxazole as a novel anti-inflammatory scaffold: synthesis and biological evaluation, *ACS medicinal chemistry letters*, 5 (2014) 512-516.
- [20] D. Kumar, **R. Kumar**, Microwave-assisted synthesis of pyrazolo [1, 5-c] quinazolines and their derivatives, *Tetrahedron Letters*, 55 (2014) 2679-2683.
- [21] D. Kumar, G. Kaur, A. Negi, S. Kumar, S. Singh, **R. Kumar**, Synthesis and xanthine oxidase inhibitory activity of 5, 6-dihydropyrazolo/pyrazolo [1, 5-c] quinazoline derivatives, *Bioorganic chemistry*, 57 (2014) 57-64.
- [22] G. Kaur, R.P. Cholia, A.K. Mantha, **R. Kumar**, DNA repair and redox activities and inhibitors of apurinic/aprimidinic endonuclease 1/redox effector factor 1 (APE1/Ref-1): a comparative analysis and their scope and limitations toward anticancer drug development: Miniperspective, *Journal of Medicinal Chemistry*, 57 (2014) 10241-10256.
- [23] J.M. Alex, S. Singh, **R. Kumar**, 1-Acetyl-3, 5-diaryl-4, 5-dihydro (1H) pyrazoles: exhibiting anticancer activity through intracellular ROS scavenging and the mitochondria-dependent death pathway, *Archiv der Pharmazie*, 347 (2014) 717-727.
- [24] J.M. Alex, **R. Kumar**, 4, 5-Dihydro-1 H-pyrazole: an indispensable scaffold, *Journal of enzyme inhibition and medicinal chemistry*, 29 (2014) 427-442.
- [25] A. Negi, P. Ramarao, **R. Kumar**, Recent advancements in small molecule inhibitors of insulin-like growth factor-1 receptor (IGF-1R) tyrosine kinase as anticancer agents, *Mini reviews in medicinal chemistry*, 13 (2013) 653-681.
- [26] A. Negi, S. Bhushan, P. Gupta, P. Garg, **R. Kumar**, Cystathionine β -Lyase-Like Protein with Pyridoxal Binding Domain Characterized in Leishmania major by Comparative Sequence Analysis and Homology Modelling, *ISRN Computational Biology*, 2013 (2013) doi: 10.1155/2013/520435.
- [27] D. Kumar, D.N. Kommi, R. Chebolu, S.K. Garg, **R. Kumar**, A.K. Chakraborti, Selectivity control during the solid supported protic acids catalysed synthesis of 1, 2-disubstituted benzimidazoles and mechanistic insight to rationalize selectivity, *RSC Advances*, 3 (2013) 91-98.
- [28] M. Chauhan, **R. Kumar**, Medicinal attributes of pyrazolo [3, 4-d] pyrimidines: a review, *Bioorganic & medicinal chemistry*, 21 (2013) 5657-5668.
- [29] A.T. Baviskar, U.C. Banerjee, M. Gupta, R. Singh, S. Kumar, M.K. Gupta, S. Kumar, S.K. Raut, M. Khullar, S. Singh, Synthesis of imine-pyrazolopyrimidinones and their mechanistic interventions on anticancer activity, *Bioorganic & medicinal chemistry*, 21 (2013) 5782-5793.

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- [31] S. Kumar, S. Sapra, **R. Kumar**, M.K. Gupta, S. Koul, T. Kour, A.K. Saxena, O.P. Suri, K.L. Dhar, Synthesis of combretastatin analogs: evaluation of in vitro anticancer activity and molecular docking studies, *Medicinal Chemistry Research*, 21 (2012) 3720-3729.
- [32] N. Kumar, K. Nepali, S. Sapra, K.R.V. Bijjem, **R. Kumar**, O.P. Suri, K.L. Dhar, Effect of nitrogen insertion on the antitussive properties of menthol and camphor, *Medicinal Chemistry Research*, 21 (2012) 531-537.
- [33] K. Nepali, G. Singh, A. Turan, A. Agarwal, S. Sapra, **R. Kumar**, U.C. Banerjee, P.K. Verma, N.K. Satti, M.K. Gupta, A rational approach for the design and synthesis of 1-acetyl-3, 5-diaryl-4, 5-dihydro (1H) pyrazoles as a new class of potential non-purine xanthine oxidase inhibitors, *Bioorganic & medicinal chemistry*, 19 (2011) 1950-1958.
- [34] K. Nepali, A. Agarwal, S. Sapra, V. Mittal, **R. Kumar**, U.C. Banerjee, M.K. Gupta, N.K. Satti, O.P. Suri, K.L. Dhar, N-(1, 3-Diaryl-3-oxopropyl) amides as a new template for xanthine oxidase inhibitors, *Bioorganic & medicinal chemistry*, 19 (2011) 5569-5576.
- [35] **R. Kumar**, Darpan, S. Sharma, R. Singh, Xanthine oxidase inhibitors: a patent survey, *Expert opinion on therapeutic patents*, 21 (2011) 1071-1108.
- [36] S. Sapra, K. Nepali, **R. Kumar**, R. Goyal, O.P. Suri, V.K. Koul, K.L. Dhar, Analysis of Mentha waste products using GC-MS, *Int. J. Pharm. Sci. Res.*, 1 (2010) 53-55.
- [37] H.S. Sandhu, S. Sapra, M. Gupta, K. Nepali, R. Gautam, S. Yadav, **R. Kumar**, S.M. Jachak, M. Chugh, M.K. Gupta, Synthesis and biological evaluation of arylidene analogues of Meldrum's acid as a new class of antimalarial and antioxidant agents, *Bioorganic & medicinal chemistry*, 18 (2010) 5626-5633.
- [38] A. Kondaskar, S. Kondaskar, **R. Kumar**, J.C. Fishbein, N. Muvarak, R.G. Lapidus, M. Sadowska, M.J. Edelman, G.M. Bol, F. Vesuna, Novel, broad spectrum anticancer agents containing the tricyclic 5: 7: 5-fused diimidazodiazepine ring system, *ACS medicinal chemistry letters*, 2 (2010) 252-256.
- [39] A.K. Chakraborti, S.K. Garg, **R. Kumar**, H.F. Motiwala, P.S. Jadhavar, Progress in COX-2 inhibitors: a journey so far, *Current medicinal chemistry*, 17 (2010) 1563-1593.
- [40] A.N. Kondaskar, **R. Kumar**, R.S. Hosmane, Synthesis of a series of 5: 7: 5-fused diimidazodiazepines as anticancer agents, in: Abstracts Of Papers Of The American Chemical Society, Amer Chemical Soc 1155 16th St, Nw, Washington, Dc 20036 USA, 2009.
- [41] G. Sharma, **R. Kumar**, A.K. Chakraborti, Fluoroboric acid adsorbed on silica-gel (HBF₄-SiO₂) as a new, highly efficient and reusable heterogeneous catalyst for thia-Michael addition to α , β -unsaturated carbonyl compounds, *Tetrahedron Letters*, 49 (2008) 4272-4275.
- [42] G. Sharma, **R. Kumar**, A.K. Chakraborti, 'On water' synthesis of 2, 4-diaryl-2, 3-dihydro-1, 5-benzothiazepines catalysed by sodium dodecyl sulfate (SDS), *Tetrahedron Letters*, 49 (2008) 4269-4271.
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- [44] D. Kumar, **R. Kumar**, A.K. Chakraborti, Tetrafluoroboric acid adsorbed on silica gel as a reusable heterogeneous dual-purpose catalyst for conversion of aldehydes/ketones into acetals/ketals and back again, *Synthesis*, 2008 (2008) 1249-1256.

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- [46] H.F. Motiwala, **R. Kumar**, A.K. Chakraborti, Microwave-accelerated solvent-and catalyst-free synthesis of 4-aminoaryl/alkyl-7-chloroquinolines and 2-aminoaryl/alkylbenzothiazoles, *Australian journal of chemistry*, 60 (2007) 369-374.
- [47] **R. Kumar**, D. Kumar, A.K. Chakraborti, Perchloric acid adsorbed on silica gel (HClO₄-SiO₂) as an inexpensive, extremely efficient, and reusable dual catalyst system for acetal/ketal formation and their deprotection to aldehydes/ketones, *Synthesis*, 2007 (2007) 299-303.
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- [51] **R. Kumar**, R. Thilagavathi, R. Gulhane, A.K. Chakraborti, Zinc (II) perchlorate as a new and highly efficient catalyst for formation of aldehyde 1, 1-diacetate at room temperature and under solvent-free conditions, *Journal of Molecular Catalysis A: Chemical*, 250 (2006) 226-231.
- [52] R.K. Khunger, Cu (BF₄)₂ · xH₂O: A Versatile Catalyst, *Synlett*, 2006 (2006) 327-328.
- [53] G.L. Khatik, **R. Kumar**, A.K. Chakraborti, Catalyst-free conjugated addition of thiols to α , β -unsaturated carbonyl compounds in water, *Organic Letters*, 8 (2006) 2433-2436.
- [54] R. Thilagavathi, **R. Kumar**, V. Aparna, M.E. Sobhia, B. Gopalakrishnan, A.K. Chakraborti, Three-dimensional quantitative structure (3-D QSAR) activity relationship studies on imidazolyl and N-pyrrolyl heptenoates as 3-hydroxy-3-methylglutaryl-CoA reductase (HMGR) inhibitors by comparative molecular similarity indices analysis (CoMSIA), *Bioorganic & medicinal chemistry letters*, 15 (2005) 1027-1032.
- [55] **R. Kumar**, C. Selvam, G. Kaur, A.K. Chakraborti, Microwave-assisted direct synthesis of 2-substituted benzoxazoles from carboxylic acids under catalyst and solvent-free conditions, *Synlett*, 2005 (2005) 1401-1404.
- [56] **R. Kumar**, A.K. Chakraborti, Copper (II) tetrafluoroborate as a novel and highly efficient catalyst for acetal formation, *Tetrahedron letters*, 46 (2005) 8319-8323.
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Books Published

1. Edited; Topoisomerase Inhibitors: Classification, Mechanisms of Action and Adverse Effects, **2017** Editors: Raj Kumar and Sandeep Singh; Nova Publisher, USA Inc., **ISBN: 978-1-53611-841-4**.
2. Pharmaceutical Organic Chemistry for B. Pharmacy students by S.C. Sharma and Raj Kumar, Vishal Publishing Co., Jalandhar, India, **ISBN 978-81-921432-9-3**.

Workshop Organised

1. Organised three day workshop on “*Drug Design, Molecular Docking, Virtual Screening and Pharmacoinformatics*” in association with Schrödinger INC. USA from 26-11-2015 to 28-11-2015.
2. Organised a three day workshop on “*ADVANCED WORKSHOP ON MOLECULAR DOCKING, VIRTUAL SCREENING AND COMPUTATIONAL BIOLOGY*” in association with Schrödinger INC. USA from 15-11-2017 to 17-11-2017.

Conferences/Workshop/lectures delivered and Attended

1. **Oral Presentation** on **24th ISCB International Conference (ISCB-2018)**, Frontier Research in Chemistry and Biology, January 11-13, 2018, Jaipur, India
2. **Oral Presentation** on **7th International Conference on Stem Cells and Cancer (ICSCC-2016): Proliferation, Differentiation and Apoptosis**, 21-23 October 2016, Goa India.
3. **Invited talk** on International Conference on Drug Design, **Schrodinger**, April 7-9, 2017, JNU, India
4. **Invited Talk** on **Baddi University, Emerging trends in Computer aided drug design and drug delivery**, 11 May 2017, Himachal, India
5. **Oral Presentation** on **18th CRSI-National Symposium in Chemistry**, CRSI-2016, 5-7 February, 2016, Chandigarh, India
6. One-day program on “Acquaintance Program of Inter University Accelerator Centre, New Delhi” organised by Central University of Punjab on April 4, 2016.
7. One-day program on “Prime Minister’s Fellowship Scheme for Doctoral Research” organised by Central University of Punjab on May 3, 2017.
8. Invited lecture at Gurukul Kangri Vishwavidyalaya, Haridwar, India on 19-8-2016.
9. One-day seminar on Evolving Importance of Intellectual Property Rights, Organised by Intellectual Property Right Cell, Central University of Punjab on January 30, 2016
10. Orientation programme at Panjab University Chandigarh, Feb 10-March 09, 2015
11. Refresher course at Punjabi University Patiala, May 04- May 23, 2015
12. **Kumar, R**, M Chahuan, G Joshi and Sandeep Kumar- presented a poster at 18 CRSI, Nationalsymposium on Chemistry, 2016, held at Panjab University, Chandigarh.
13. Joshi, G, Singh, S, and **Kumar, R,*** presented a poster entitled “Design, Synthesis and in vitro Screening of Novel Heterocycles as Potential Anticancer Agents”, International Conference on Nascent Development in Chemical Sciences (**NDCS-2015**), organised by **BITS Pilani**, Rajasthan from 16th – 18th October, 2015.
14. Joshi, G, Singh, S, and **Kumar, R,*** presented a poster at 1st International Electronic Conference on Medicinal Chemistry entitled “Design, Synthesis and in vitro Screening of

Pyrazolines based compounds as Phytohaemagglutinin (PHA) mimetic” 2-27 November 2015, organized by Pharmaceuticals.

15. Chauhan, M., Alex, J.M., Singh, S., **Kumar, R.**,*Quinoline Based Inhibitors of Epidermal Growth Factor Receptor: Synthesis and *In vitro* Biological Evaluation, Presented on 10th International Symposium on Bio-Organic Chemistry, in association with International Union of Pure and Applied Chemistry (**IUPAC**) held at Indian Institute of Sciences Education and Research (**IISER**), **Pune** on 11-15 January, 2015.
16. **Invited Lecture: Kumar, R.**,*Pyrazolo[3,4-*d*]pyrimidines: Synthetic strategies and biological activities, International Symposium on Recent Advances on Medicinal Chemistry (ISRAM), IL-12, **NIPER, Mohali** on September 8 – 10, 2014.
17. Purohit, P., Seth, K., **Kumar, R.**, Garg, S.K., Chakraborti, A.K. NOVEL HETEROCYCLIC SCAFFOLD AS COX-2 SELECTIVE, Presented on International Symposium on Recent Advances on Medicinal Chemistry (ISRAM), **NIPER, Mohali** on September 8 – 10, 2014.
18. **Invited Lecture; Kumar, R.** Delivered lecture entitled “Design and Synthesis of Novel Ring Expanded Heterocycles and their Corresponding Nucleosides as Potential Chemotherapeutic Agents for Cancer and Viral Diseases” at **Indian Institute of Science Education and Research(IISER)**, 2009, Jan 23. Mohali, India
19. Compounds inducing hpbmc proliferative capacity in vitro Alex, J. M., Singh, S., **Kumar, R.**, presented at one day symposium on Recent Trend in Molecular Medicine held at **CUPB on December 5, 2014 (1ST Prize)**.
20. Design Synthesis and in-vitro screening of novel heterocycles as potential anticancer agents, Joshi.G., Singh, S., **Kumar, R.**, presented at one day symposium on Recent Trend in Molecular Medicine held at **CUPB on December 5, 2014 (2nd Prize)**.
21. Kaur, G, **Kumar, R.**,* Rationale design of APE1 DNA repair inhibitors through *in silico* approaches, Presented on 8th Chandigarh Science Congress, CHASCON-2014 held at Panjab University, Chandigarh on 26th-28th February 2014.
22. **Kumar, R.**,* Rana, A., Chauhan, M., Singh, S., Microwave assisted synthesis of derivatives of 4-aminoquinolines as potential anticancer agents, Presented in 50th Annual Convention of Chemist 2013 held at Punjab University, Chandigarh on December 04-07, 2013.
23. Chauhan, M., Alex, J. M., Singh, S., **Kumar, R.**,* An easy and greener approach for the synthesis of novel heterocyclics and their anticancer evaluation, Presented in 50th Annual Convention of Chemist 2013 held at Punjab University, Chandigarh on December 04-07, 2013.
24. Chairperson at UGC sponsored seminar on “*Green Chemistry*” organized at GHG Khalsa
25. College, Gursar Sadhar, Punjab, February 24-25, 2012
26. National Seminar on *Environment and Health*, September 27, 2011 held at Central University of Punjab, Bathinda.
27. 3rd NIPER-(RBL)-CDRI symposium on *Medicinal Chemistry and Pharmaceutical Sciences*, March 03-05, 2011 held at CDRI Lucknow.
28. A short term certificate course (from August 23, 2010 to August, 27, 2010) on Faculty Induction Training Programme conducted by Education and Educational Management, at *National Institute of Technical Teachers’ Training and Research, Chandigarh*.
29. Nepali, K., Agarwal A., **Kumar, R.** , Banerjee, U. C., Dhar, K. L., Suri, O. P. Design, synthesis and biological evaluation of *N*-(3-oxo-1,3-diaryl/dihydroarylpropyl)acetamides as potential non-purine xanthine oxidase inhibitors, Abstract published in *Med. Chem. Res.*

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30. Sapra, S., Sandhu, H. S., Chugh, M., **Kumar, R.**, Padh, H., Shishoo, C. J., Dhar, K. L. Synthesis and antimalarial activity of arylidene derivatives of Meldrum's acid, Abstract published in *Med.Chem. Res.* 2010, 19, S113. *Current Trends in Drug Discovery Research* 2010, February 17-21 at Central Drug Research Institute (CDRI), Lucknow. Poster No. 117.
 31. Kumar, S., Gupta, M., Agarwal A., **Kumar, R.**, Banerjee, U. C., Dhar, K. L. Design, synthesis and xanthine oxidase inhibitory activities of novel 5:6-fused heterocycles, Abstract published in *Med. Chem. Res.* 2010, 19, S126, *Current Trends in Drug Discovery Research* 2010, February 17-21 at Central Drug Research Institute (CDRI), Lucknow. Poster No. 139.
 32. Kalra, S., Sandhu, H. S., Sapra, S. and **Kumar, R.** An account on biological potential of synthetics derived from Meldrum's acid, *Challenges and Opportunities for Pharmacy Graduates in 21st Century*, *Indian Pharmacy Graduates' Association (IPGA)*, 2009, November 7-8 at I.S.F. College of Pharmacy, Moga, Punjab, India. Poster No. B24.
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 34. **Kumar, R.** Ujjinamatada, R. K. and Hosmane, R. S. The First Synthesis of a Novel 5:7:5-Fused Diimidazodiazepine Ring System and Some of its Chemical Properties, *Zing Med. Chem Conference*, 2009, Feb 2-4. Playa del Carmen, Mexico.
 35. Khathik, G. L. **Kumar, R.** and Chakraborti, A. K. Co-operative Dual Activation Role of Water in Catalyst-free C-S Bond Formation, *National Symposium on New Challenges in Chemistry*, 2006, Mar 20 – 21. Guru Nanak Dev University, Amritsar, India Poster No. PP 23.
 36. Motiwala, H. F., **Kumar, R.** and Chakraborti, A. K. Microwave-Assisted Catalyst and Solvent-Free Synthesis of 4-Aminoaryl Derivatives of 4,7-Dichloroquinolines, *National Symposium on New Challenges in Chemistry*, 2006, Mar 20–21. Guru Nanak Dev University, Amritsar, India Poster No. PP 24.
 37. Kamlesh Meena, **Kumar, R.** Pankaj Soni, Asit K. Chakraborti and U.C. Banerjee. Chemoenzymatic synthesis of key precursor of (S)-sotalol, Department of Biotechnology, Punjabi University, Patiala, 21 -22, March, 2006.
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Thesis Supervision

- (a) **M. Pharm. thesis Supervised: 18**
(b) **M. Sc. dissertation Supervised: 6**
(c) **Ph.D. students supervised-2, under Supervision-2, under co-supervision-1**

Collaborations

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4. Dr. Anil K. Mantha, **Department of Animal Sciences**, Central University of Punjab, Bathinda
5. Professor Anjana Munshi, **Department of Human Genetics and Molecular Medicine**, Central University of Punjab, Bathinda
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8. Dr. Devesh Sawant; Central University of Rajasthan
9. Dr. Umesh Gupta; Central University of Rajasthan

Industrial collaborations

10. Dr. Brahman Pujala; **Integral Biosciences, Noida**
11. Dr. Pritesh Bhatt; **Schrodinger, India**
12. Dr. Hemant Bhutani, **Bristol Meyer Squibb, Bangalore**

Patents Filed

1. Title: Novel fused heterocycles and method of use and manufacture thereof. Inventors: Kumar, R., Singh, S., Chauhan, M. Indian Patent application no. 201611014161 filed on April 22, 2016.
2. Title: Novel 5:7:5 Fused Tricyclic Heterocycles and Nucleosides with Potential Anticancer and

- Antiviral Properties. Inventors: Hosmane, R. S., Kumar, R., Ujjinamatada, R., US patent, International application no. **PCT/US2009/005273**. Published and available online.
3. Title: Novel Cyclooxygenase-2 Inhibitors. Inventors: Chakraborti, A. K. Banerjee, U. C., Kumar, R., Garg, S. K., Meena, V. S., Indian patent, application no. 638/DEL/2008 filed on 14th March 2008.
 4. Title: Inhibitors of Phosphodiesterase Type-IV: Benzimidazolone series. Inventors: Chakraborti, A. K. Sarin, S., Rudrawar, S., Kumar, R., Chankeshwara, S. V., Dastidar, S., Ray, A. European patent, application no. 08151539.7-2117, filed on 15th February 2008. US patent, application no. 12/031842, filed on 15th February 2008, United States Patent 20080207659
 5. Title: Phosphodiesterase-4 Inhibitors: Urea, Carbamate and Amide series. Inventors: Chakraborti, A. K. Sarin, S., Rudrawar, S., Kumar, R., Chankeshwara, S. V., Dastidar, S., Ray, A. Indian patent, application no. 565/DEL/2006, filed on 3rd March 2006.