Professor (Dr.) Raj Kumar,
Dean, School of Health Sciences
Head, Department of Pharmaceutical Sciences
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Got featured in the list of top 2% international scientists "Updated Science-wide Database of Stanford Citation Indicators" released by Stanford University, USA and published by Elsevier BV on 19th October, 2021.

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	Professor Associate Professor	28-12-2015- 27-12-2018	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**

Teaching Assignments

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

Major Administrative Duties (CUPB)

- Head of the Department, PSNP from 4-1-2016 to 3-1-2019 and w.e.f. 1-7-2020-present
- In Charge, Central Instrumentation Laboratory (CIL).
- Project In Charge of Ministry of Food Processing Industries, Delhi-500 Lakhs
- Member, Standing purchase committees until
- Member, IQAC

Area of specializations/Research Interest

Medicinal Chemistry:

Design and Synthesis of novel small heterocycles as anticancer agents via inhibition of tyrosine kinases, topoisomerases and DNA repair enzymes (APE-1) and their-cross talks.
Design and Synthesis of novel small heterocycles as xanthine oxidase inhibitors.

Methodology development:

Synthesis and methodology development of small bioactive molecules.
More recently, I have collaborated with Syngene and other companies to work on Antibody-Drug Conjugates (ADCs) for the development of mutant selective EGFR and KRAS inhibitors.

Research Projects

Handled

- Synthesis of NCEs as PDE4 Inhibitors at NIPER, Mohali in collaboration with Ranbaxy Research Laboratories, Gurugram
- Synthesis of novel anti-infective agents (Dr. Reddy's Lab, Hyderabad)
- 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/PKM2 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**
- **CUPB Fellowship Fund Release (Bristol-Myers Squibb), USA (5,000 Dollars)**

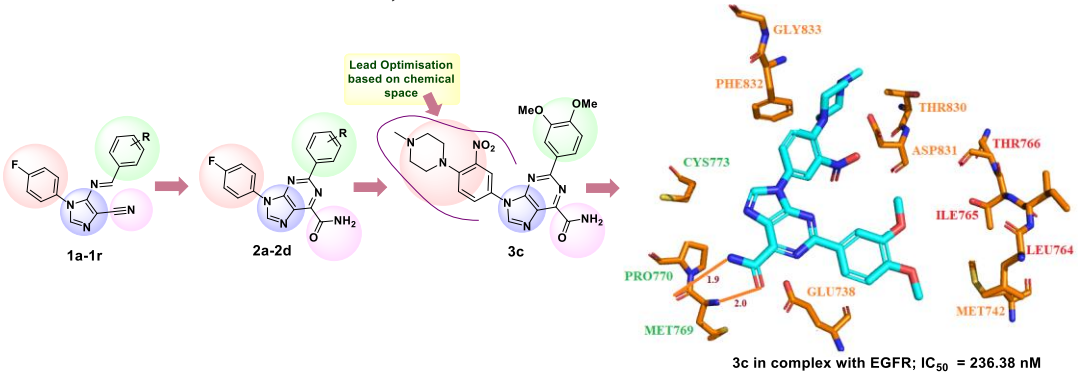
Ongoing

- **New Heterocyclic Ligands as Inhibitors of Multiple EGFR Mutations (L858R/T790M/C797S): Design, Synthesis and Anticancer Evaluation-CSIR extra mural research grant Rs. 33 lakhs approximately w.e.f. 2021.**
- **Project 53803645-CUP Ph.D. Fellowship funded by Bristol-Myers Squibb), USA (10000 Dollars) w.e.f. 23-8-2019**
- ***Dual Inhibitors of EGFR and HDAC as Anti-Lung Cancer Agents: Design, Synthesis and Biological Evaluation***- SERB-Department of Science and Technology (DST), Delhi, under the extramural core research grant- Rs. 4161530, Year 2018

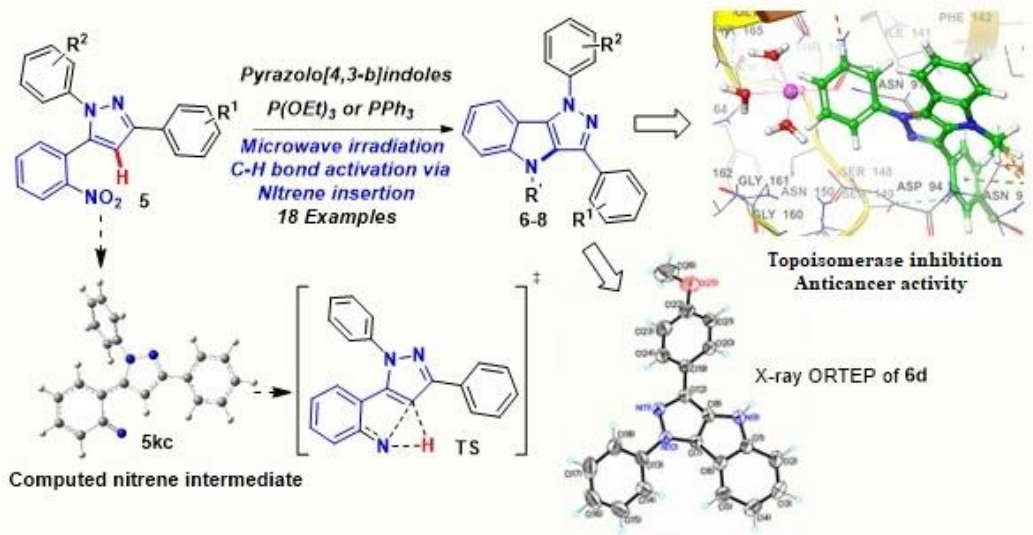
Summary of Research Work

Medicinal Chemistry and Drug Discovery

- New chemical entities as **EGFR inhibitors, DNA repair inhibitors, Topoisomerase inhibitors** and **mitochondrial death pathway stimulator, Xanthine Oxidase inhibitors,** novel 2-substituted benzoxazole derivatives as ***COX-2 enzyme inhibitors*** and ***PDE-4 inhibitors*** are developed. **RK-33**, first emerged as ***DDX-3 inhibitor*** has broad spectrum of anticancer effect (*Organic Letters 2008, 10, 4681-4684, International Publication Number: WO 2010/039187, ACS Med. Chem. Lett. 2011, DOI: 10.1021/ml100281b*).



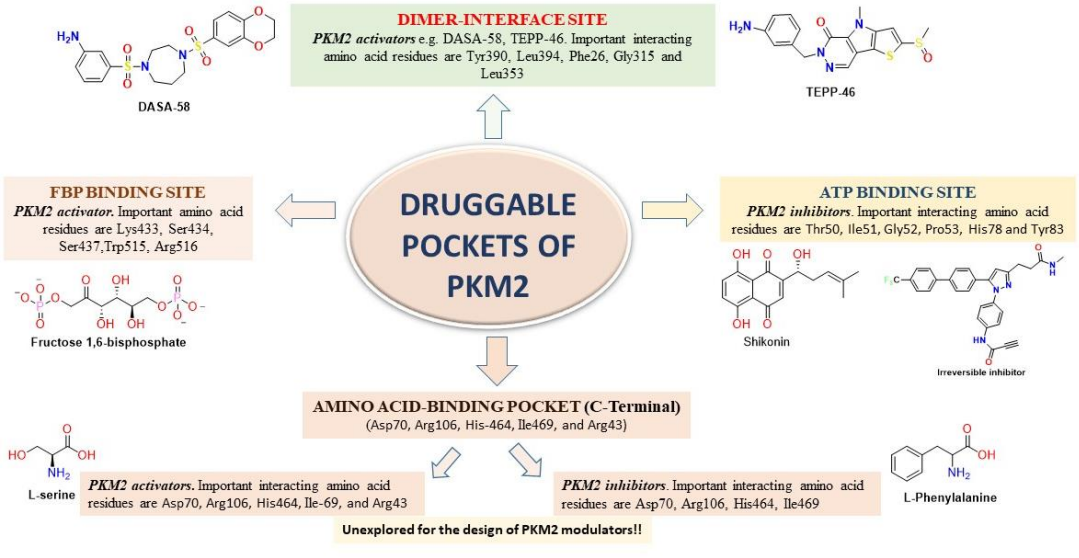
Kumar et al, RSC Med. Chem., 2020, DOI: https://doi.org/10.1039/D0MD00146E



Kumar et al., Bioorganic Chemistry 114 (2021) 105114

EGFR Inhibitors; *Chem. Commun., 2018, 54, 11530-*

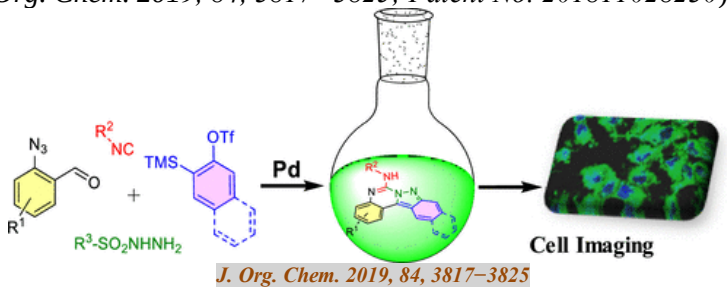
DNA repair Inhibitor; *J. Med. Chem. 2014, 57, 10241-*



Journal of Medicinal Chemistry, 2021, In Press. **(IF: 7.45),** DOI: 10.1021/acs.jmedchem.1c00981

Diagnostic agents

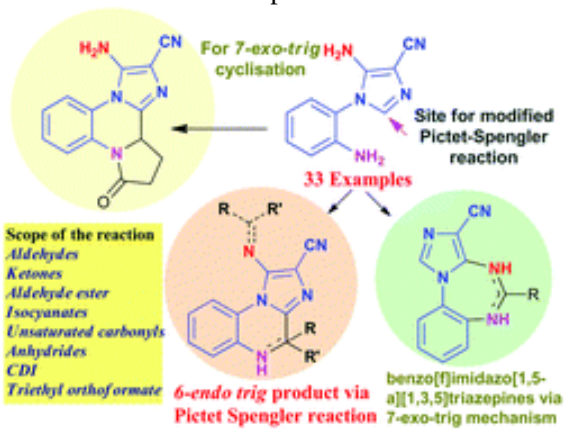
- **Pd-catalyzed cascade reaction** for the synthesis of **fluorescent** indazolo[2,3-c]quinazolines with high quantum yield, and excellent photostability was developed. Its application is explored in **live cell imaging, which exhibited cytoplasmic and mitochondrial specific staining** with no toxicity (*J. Org. Chem. 2019, 84, 3817−3825; Patent No. 201811028230*).



J. Org. Chem. 2019, 84, 3817−3825

Green Chemistry and methodology development

- Recently a "**carbene mediated-Pictet Spengler reaction"** for the first time for the synthesis of imidazo[1,2-a]quinoxaline compounds (*Org. Chem. Front., 2018, **5**, 3526-3533., Indian Patent No. 201611014161*) is revealed under M***icrowave conditions***. Novel methodologies were established by using ***re-usable heterogeneous catalysts*** such as $HClO_4$ adsorbed on SiO_2, HBF_4 adsorbed on K-10/KSF clays or *Lewis acid catalysts* such as $Cu(BF_4)_2{\cdot}xH_2O$ and $Zn(ClO_4)_2{\cdot}6H_2O$ with their electrophilic activation potential or ***water*** or ***SDS-water*** having dual-activation power. M***icrowave-assisted catalyst-free synthesis*** of 2-substituted **benzoxazoles** and 4-aminoquinoline derivatives and **pyrazolo(1,5-*c*)quinazoline** were also developed.



Carbene mediated-Pictet Spengler reaction; *Org. Chem. Front., 2018, **5**, 3526-3533*

Professional Recognition /Awards/Scholarship

- **'Roll of Honour' by Central University of Punjab in 2021**
- **Central University's Research Award -2019-20** given in the year 2021
- **Central University's Outstanding Research Award -2018-19** given in the year 2020.
- **Central University's Research Award -2018-19** given in the year 2020.
- **Central University's Research Award -2017-18** given in the year 2019.
- **Central University's Outstanding Research Award -2016-17** given in the year 2018.
- **Central University's Research Award -2016-17** given in the year 2018.
- **Central University's Research Award -2015-16** given in the year 2017.

- **Central University's Research Award -2014-15** given in the year 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 Rank 30**); 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).
- Member expert in Institutional Animal Ethics Committee (IAEC) of Maharaja Ranjit Singh Punjab Technical University (CPCSEA Registration. No. ***2017/GO/Re/S/18/CPCSEA***)
- 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, March18-19, 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. ***Associate Editor:*** **Frontiers in Behavioral Neuroscience; Mini-Reviews in Organic Chemistry;**
3. ***Reviewer to the following Journals and Grant agencies:***

Angewandte Chemie (Wiley), Medicinal Research Reviews (Wiley), Future Medicinal Chemistry, ACS Chemical Neuroscience, Journal of Organic Chemistry (JOC, ACS), Journal of Medicinal Chemistry (J Med Chem, ACS), Journal of Agricultural and Food Chemistry (ACS), RSC Advances (RSC), Molecular Biosystems (RSC, MedChemCom (RSC), Bioorganic Chemistry (Elsevier), 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 (Benthem), 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), Grant agency: Czech Republic Foundation, Grant agency: Department of Science and Technology, DST, SERB, CSIR and AICTE

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.**

Books Chapters

1. Joshi, G., Kaur, M., & Kumar, R. Dynamic Axial Chirality in Drug Design and Discovery: Introduction to Atropisomerism, Classification, Significance, Recent Trends and Challenges. Drug Discovery and Development: From Targets and Molecules to Medicines, 2021, 103, Springer Nature. ISBN: 978-981-15-5533-6
2. Arora, S., Kumar, M., Joshi, G. & Kumar, R. Chapter 6, The Future of COVID-19, Treatment COVID-19: Diagnosis and Management-II, 2021, 168-199. Bentham Science Publishers Ltd. ISBN: 978-1-68108-806-8

3. Joshi, G., Thakur, A., Kaur, G., Kalra, S., Singh, S. and Kumar, R., 2017. Interaction between topoisomerases and histone deacetylases: Role in cancer progression and therapeutic interventions. Nova Science Publishers, Inc. ISBN: 978-1-53611-841-4
4. Kaur, G., Joshi, G., Sharma, P., Kumar R., and Singh S., 2017. Topoisomerases Genetics and Its associated diseases. Nova Science Publishers, Inc. ISBN: 978-1-53611-841-4

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. Resource person (delivered invited lecture) in A Virtual Conference on "Confluence of Biomedical and Allied Sciences for Development of Pharmaceuticals" November 25-27, 2020; Shoolini University, Solan, HP, INDIA on the topic "EGFR Inhibitors in Anticancer Research" from November 25-27, 2020.
2. Resource person (delivered invited lecture) in Workshop on spectroscopic techniques and their Biological Applications at Mata Gujri College Fatehgarh Sahib, Punjab on the topic "Mass Spectrometry" from November 2-6, 2020.
3. Resource person (delivered invited lecture) at six days STTP online sponsored by AICTE on "Target Based Drug Design Strategies Utilising CADD Tools and Eco friendly Microwave Assisted Green Synthesis" ISDF college of Pharmacy, Moga, Punjab on the topic "Microwave–Assisted Green Protocols: Role in Extraction and Synthesis of Pharmaceuticals" from 27th April to 2nd May, 2020.
4. Resource person (delivered invited lecture) at 5 Days Faculty Development Programme sponsored by AICTE and IKGPTU at ISDF college of Pharmacy, Moga, Punjab on the topic "Greener Processes for the construction of compounds of pharmaceutical interests" dated 16 December, 2019
5. Resource person (delivered two lectures) at UGC-Human Resource Development Centre, Guru Jambeshwar University of Science and Technology, Hisar, Haryana on the topic "Liquid Chromatography & Mass Spectrometry I & II" dated 15November, 2019
6. Resource person (delivered invited talk) at University Institute of Pharmaceutical Sciences, Panjab University, Chandigarh on the topic "Modern Bioanalytical Techniques for Drug Discovery" dated 25 February – March 2, 2019
7. Oral Presentation on 24th ISCB International Conference (ISCB-2018), Frontier Research in Chemistry and Biology, January 11-13, 2018, Jaipur, India
8. Resource person and delivered lectures on Publication Process at ICSSR sponsored capacity Building Programme for Social Science Faculty Members, Central University of Punjab, Bathinda, May 18-31, 2018.
9. Poster evaluator, 69th Indian Pharmaceutical Congress held on 22-24 December 2017 at Chitkrara University

10. Oral Presentation on 7th International Conference on Stem Cells and Cancer (ICSCC-2016): Proliferation, Differentiation and Apoptosis, 21-23 October 2016, Goa India.
11. Invited talk on International Conference on Drug Design, Schrodinger, April 7-9, 2017, JNU, India
12. Invited Talk on Baddi University, Emerging trends in Computer aided drug design and drug delivery, 11 May 2017, Himachal, India
13. Oral Presentation on 18th CRSI-National Symposium in Chemistry, CRSI-2016, 5-7 February, 2016, Chandigarh, India
14. One-day program on "Acquaintance Program of Inter University Accelerator Centre, New Delhi" organised by Central University of Punjab on April 4, 2016.
15. One-day program on "Prime Minister's Fellowship Scheme for Doctoral Research" organised by Central University of Punjab on May 3, 2017.
16. Invited lecture at Gurukul Kangri Vishwavidyalaya, Haridwar, India on 19-8-2016.
17. One-day seminar on Evolving Importance of Intellectual Property Rights, Organised by Intellectual Property Right Cell, Central University of Punjab on January 30, 2016
18. Orientation programme at Panjab University Chandigarh, Feb 10-March 09, 2015
19. Refresher course at Punjabi University Patiala, May 04- May 23, 2015
20. Kumar, R, M Chahuan, G Joshi and Sandeep Kumar- presented a poster at 18 CRSI, National symposium on Chemistry, 2016, held at Panjab University, Chandigarh.
21. 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 onNascent Development in Chemical Sciences (NDCS-2015), organised by BITS Pilani, Rajasthan from 16th – 18th October, 2015.
22. Joshi, G, Singh, S, and Kumar, R,* presented a poster at 1st International ElectronicConference 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.
23. 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 10thInternational 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.
24. Invited Lecture: Kumar, R,*Pyrazolo[3,4-*d*]pyrimidines: Synthetic strategies and biologicalactivities, International Symposium on Recent Advances on Medicinal Chemistry (ISRAM), IL-12, NIPER, Mohali on September 8 – 10, 2014.
25. 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.
26. Invited Lecture; Kumar, R. Delivered lecture entitled "Design and Synthesis of Novel Ring Expanded Heterocycles and their Corresponding Nucleosides as Potential ChemotherapeuticAgents for Cancer and Viral Diseases" at *Indian Institute of Science Education and Research(IISER),*2009, Jan 23. Mohali, India
27. 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).

28. 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 (2^{nd} Prize).

29. 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.
30. Kumar, R,* Rana, A., Chauhan, M., Singh, S., Microwave assisted synthesis of derivatives of 4-aminoquinolines as potential anticancer agents, Presented in 50^{th} Annual Convention of Chemist 2013 held at Punjab University, Chandigarh on December 04-07, 2013.
31. 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 50^{th} Annual Convention of Chemist 2013 held at Punjab University, Chandigarh on December 04-07, 2013.
32. Chairperson at UGC sponsored seminar on "*Green Chemistry*" organized at GHG Khalsa
33. College, Gursar Sadhar, Punjab, February 24-25, 2012
34. National Seminar on *Environment and Health*, September 27, 2011 held at Central University of Punjab, Bathinda.
35. 3rd NIPER-(RBL)-CDRI symposium on *Medicinal Chemistry and Pharmaceutical Sciences*, March 03-05, 2011 held at CDRI Lucknow.
36. 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*.
37. 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/dihetroarylpropyl)acetamides as potential non-purine xanthine oxidase inhibitors, Abstract published in *Med. Chem. Res*. 2010, *19*, S77. Current Trends in Drug Discovery Research 2010, February 17-21 at Central Drug Research Institute (CDRI),Lucknow. Poster No. 55.
38. 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.
39. Kumar, S., Gupta, M., Agarwal A., Kumar, R.*, Banerjee, U. C., Dhar, K. L. Design, syntheisis 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.
40. 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 in21stCentuary, Indian Pharmacy Graduates' Association (IPGA),* 2009, November 7-8 at I.S.F.College of Pharmacy, Moga, Punjab, India. Poster No. B24.
41. Singh, P., Gupta, M., Yadav, S. K. and Kumar, R.*Synthetic purines and pyrimidines: recent entries as potential anticancer and antiviral agents, *Challenges and Opportunities for PharmacyGraduates in 21stCentuary, Indian Pharmacy Graduates' Association (IPGA),*2009, November 7-8at I.S.F. College of Pharmacy, Moga, Punjab, India. Poster No. B25.
42. 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. ChemConference*, 2009, Feb 2-4. Playa del Carmen, Mexico.

43. 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.
44. 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 NewChallenges in Chemistry*, 2006, Mar 20–21. Guru Nanak Dev University, Amritsar, India PosterNo. PP 24.
45. KamleshMeena, Kumar, R. Pankaj Soni, Asit K. Chakaraborti and U.C. Banerjee. Chemoenzymatic synthesis of key precursor of (S)-sotalol, Department of Biotechnology, Punjabi University, Patiala, 21 -22, March, 2006.
46. Kumar, R. and Chakraborti, A. K. An Efficient Protocol for acetal formation under the catalyticinfluence of Copper (II) Tetrafluoroborate hydrate, *National Symposium on Chemistry*, 8th CRSI 2006, Mumbai (India).
47. Kumar, R., Thilagavathi, R., Aparna V., Sobhia, M. E., Gopalakrishnan, B. and Chakraborti,A. K. 3-D QSAR Studies on Imidazolyl and *N*-PyrrolylHeptenoates as HMG-CoA Reductase Inhibitors, *National Symposium on Chemistry*, 7th CRSI 2005, Kolkata (India).
48. K. S., Kumar, R. and Chakraborti, A. K. Novel Transition Metal Derived Catalyst for Thia-MichealReaction.*National Symposium on Chemistry*, 7th CRSI 2005, Kolkata (India).
49. Chakraborti, A. K., Kondaskar, A., Kumar, R. and Rudrawar, S. Complementarity of Zeolites and Clays in Catalyzing Nucleophilic Opening of Epoxides: *Applications for Synthesis of Drug and Drug Intermediates, ICOB-4 & ISCNP-24 (IUPAC International Conference on Biodiversity and Natural Products: Chemistry and Medical Applications)*, January 2004, Delhi (India) P-165.
50. Chakraborti, A. K., Kaur, G., Sharma, L., Magesh, S. and Kumar, R. Solution and Solid Phase Combinatorial Synthesis of Stilbene Libraries, *Biotechnology-A Challenge to PharmacyProfession, 54thIndian Pharmaceutical Congress*, December 2002, Pune (India) B$_1$-27.

Thesis Supervision

(a) M. Pharm. thesis Supervised: 35
(b) M. Sc. Dissertation/Project work Supervised: 13
(c) Ph.D. students supervised-4, under Supervision-6, under co- supervision-1

M. Pharm. thesis

1. Title: "Design and Synthesis of 1-Acetyl-3,5-diaryl-4,5-dihydro-(1H)-pyrazoles as a New Class of Non-purine Xanthine Oxidase Inhibitors"- M. Pharm. degree awarded to Mr. Anil Turan (MDU Regn No: 99-RUR-246) in August 2010
2. Title: "Design and Synthesis of Some New Purine based Allopurinol Analogues as Xanthine Oxidase Inhibitors"- M. Pharm. degree awarded to Mr. Mukesh Gupta (PTU Regn No: 80404446008) in August 2010
3. Title: "Synthesis and Biological Evaluation of Arylidene Analogues of Meldrum's acid as a New Class of Antimalarial and Antioxidant Agents"- M. Pharm. degree awarded to Mr. Harmeet Singh Sandhu (PTU Regn No: 80404446002) in August 2010

4. Title: “Synthesis and Biological Evaluation of Novel 5:6/5:7:6-Fused Heterocycles as AnticancerAgents”- M. Pharm. degree awarded to Mr. Rajveer Singh (PTU Regn No: 96065181126) in August 2011
5. Title: “Synthesis and Evaluation of New N-Heterocycles as Potential Anticancer Agents and Xanthine Oxidase Inhibitors”- M. Pharm. degree awarded to Mr. Darpan (PTU Regn No: 96065181116) in August 2011
6. Title: “Synthesis and Biological Evaluation of Novel Heterocycles as Potential Anticancer Agents”- M. Pharm. degree awarded to Mr. Sahil Sharma (PTU Regn No: 96065181128) in August 2011
7. Title: “Imidazole based compounds: Synthesis and in vitro anticancer screening”- M. Pharm. , Thesis submitted in August 2013 by Mr. Arvind Negi (Central University of Punjab Regn No: CUP/Mphm-PhD/SBAS/CPS/2011/01)
8. Title: “Synthesis and Evaluation of Novel Heterocyclics as Anticancer Agents”- M. Pharm. , Thesis submitted in August 2013 by Miss Monika Chauhan (Central University of Punjab Regn No: CUP/Mphm-PhD/SBAS/CPS/2011/04)
9. Title: “Synthesis and Biochemical Screening of Novel Non-Purine Based Xanthine Oxidase Inhibitors”- M. Pharm. Thesis submitted in August 2013 by Mr. Deependra Kumar (Central University of Punjab Regn No: CUP/Mphm-PhD/SBAS/CPS/2011/06)
10. Title: “Anticancer potential of new N-acetyl pyrazoline derivatives of 1, 3-diaryl/heteroarylpropenones: Synthesis and evaluation”- M. Pharm., Thesis submitted in August 2013 by MissJimi Marin Alex (Central University of Punjab Regn No: CUP/M.Pham-Ph.D/SBAS/CPS/2011-12/02)
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18. Title: “Design and Synthesis of imidazo[1,2-a]quinoxaline derivatives as putative anti-proliferative agents”-Candidate: Rakesh Kumar (Reg. No. 15mpharm05). Thesis submitted in 2017
19. Title: “Synthesis and In Vitro Screening of N-FormylatedPyrazolines as Xanthine Oxidase Inhibitors”-Candidate: Manisha Sharma (Reg. No. 15mpharm07). Thesis submitted in 2017
20. Title: “Imidazole fused heterocycles as putative anticancer agents”-Candidate: Ankush Thakur (Reg. No. 15mpharm03). Thesis submitted in 2017

21. Title: “Imidazole containing new heterocycles as putative anticancer agents”-Candidate: Sachin Sharma (Reg. No. 16mpharm01). Thesis submitted in 2018
22. Title: “Antiproliferative Activity of Chloroform andMethanol Extracts of *Piper attenuatum*(Buch-Ham)”-Candidate: Neha Pathak (Reg. No. 16mphyto04). Thesis submitted in 2018
23. Title: “Synthesis and antiproliferative activity of pyrazole based heterocycles”-Candidate: Vishakha Pandey (Reg. No. 16mpharm06). Thesis submitted in 2018
24. Title: “Synthesis of New Nitrogen Containing Heterocycles as Anti-proliferativeAgents”-Candidate: Sajal Biswas (Reg. No. 17mpharm10). Thesis submitted in 2019.
25. Title: “Synthesis of Benzamides as Antileishmanial Agents”-Candidate: Surya Shuvam (Reg. No. 17mphyto06). Thesis submitted in 2019
26. Title: “Imidazo[1,2-*a*]quinoxalines as new anti-proliferative agents”-Candidate: Joydeep Chatterjee (Reg. No. 18mpharm04). Thesis submitted in 2020
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28. Title: “Identification of inhibitors of pyruvate kinase M2(PKM2) as potential anticancer agents: An *in silico* approach” Merugumala Kusuma (Reg. No. 18mpharm01). Thesis submitted in 2020
29. Title: “Isolation and characterization of piperine from *Piper nigrum* and exploration of *in silico* binding affinities of piperine and its derivatives towards pteridine reductase-1 (PTR-1) as a leishmanial drug target” Kumar P. (Reg. No. 18mphyto09). Thesis submitted in 2020
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31. Title: “Analysis of trace metals in different medicinal plants by atomic absorption spectroscopy and inductively coupled plasma mass spectrometry.” Sobhana Thakur (Reg. No. 18mphyto12). Thesis submitted in 2020
32. Title: “*In silico* screening and synthesis of 5,6,7,8-tetrahydrobenzo[4,5]thieno[2,3-*d*]pyrimidines as possible anti-inflammatory agents.” Shikha Thakur (Reg. No. 18mpharm10). Thesis submitted in 2020
33. Title: “Design and synthesis of 1,2,3,4-tetrahydrobenzothieno[2,3-d]pyrimidine derivatives as possible kinesin spindle protein inhibitors.” Nandini Thakur (Reg. No. 18mpharm04). Thesis submitted in 2020
34. Title: “*In silico* studies and synthesis of few 6-ethyl[2,3-*d*]pyrimidine derivatives as possible anti-proliferative agents.” Kaila Rushendra Kumar (Reg. No. 18mpharm07). Thesis submitted in 2020
35. Title: “*In silico* screening and synthesis of few tetrahydropyridothieno[2,3-*d*]pyrimidine derivatives as possible BRD4 inhibitors.” Km. Shivani (Reg. No. 18mpharm02). Thesis submitted in 2020

Ph. D. theses

1. ***Supervisor;***Title: “Synthesis and anticancer evaluation of novel heterocyclics derived from imidazole and quinoline scaffolds”- Ph.D. degree awarded to Ms. Monika Chauhan(Regn No: CUP/M.pharm-PhD/SBAS/CPS/2011-12/04) in 2017

2. ***Supervisor;***Title: “Synthesis and Biological Evaluation of Inhibitors of Topoisomerases and Histone Deacetylase for In Vitro Anticancer Activity”- Ph.D.thesis submitted byMr. Gaurav Joshi(Regn No: 15phdphm01) in May, 2019

3. ***As Co-supervisor:***Title: "Oxidative Stress Induced Cell Proliferation and DNA Repair Mechanism inGlioblastoma Cells: Role of ENPP2 and APE1"- Ph.D. degree awarded to Mr. Ravi Prakash Cholia (Regn No: CUP/MPh-PhD/SBAS/BSS/2010-11/04) in 2017

4. ***As Co-supervisor:*** Title: "Pharmacogenetics of Cyclophosphamide and Doxorubicin in Breast Cancer&Synthesis and Biological Evaluation of New Imidazole Based Putative Anticancer Agents"- Ph.D. degree awarded to Mr. Sourav Kalra (Regn No: 15phdhgs03) in 2019.

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6. Professor Anjana Munshi, Department of Human Genetics and Molecular Medicine, Central University of Punjab, Bathinda
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Industrial collaborations

1. Dr. Brahman Pujala; Integral Biosciences, Noida
2. Dr. Pritesh Bhatt; Schrodinger, India
3. Dr. Hemant Bhutani, Bristol Meyer Squibb, Bangalore
4. Dr. Santoshkumar Patil, Syngene International Ltd., Bangaluru
5. Dr. Manoj Chugh, Vice President, Transasia Bio-Medicals Pvt. Ltd.

Patents Filed/Granted

1. Title: Indazolo[2,3-*c*]quinazoline based fluorophores and their applications in Bio-imaging and Tagging: Kumar, R., Singh, S,. Joshi, G,. Sharma P. Indian Patent application no. 201811028230 filed on July 27, 2018.

2. 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. (Patent No. 376462), Granted on 06/09/202.
3. Title: Fused diimidazodiazepine compounds and methods of use and manufacture thereof.
   Inventors: Hosmane, R. S., Raman, V and Kumar, R.*U.S. Patent No. 8,518,901*. Washington, DC: U.S. Patent and Trademark Office.
4. Title: Novel Cyclooxygenase-2 Inhibitors. Inventors: Chakraborti, A. K. Banerjee, U. C., Kumar, R., Garg, S. K., Meena, V. S., Indian Patent Grant No. 283941; Grant Date: 06-06-2017. Indian patent, application no. 638/DEL/2008 filed on 14th March 2008.
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