Ram Vishwakarma

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PROFESSIONAL EXPERIENCE

- Director, Indian Institute of Integrative Medicine (CSIR), Jammu (March 2009 onwards).
- Vice-President and Head (Medicinal Chemistry) Piramal Life Sciences (Nicholas Piramal Research Centre), Mumbai (2005-2009): Responsible for new drug discovery projects in the areas of inflammation, cancer, diabetes and drug-resistant infections.
- Staff-Scientist-VI at National Institute of Immunology, New Delhi, India (2005-2005).
- Staff-Scientist-V at National Institute of Immunology, New Delhi, India (2001-2005).
- Staff-Scientist-IV at National Institute of Immunology, New Delhi, India (1994-2000).
- Research Associate at Cambridge University (Dept. of Chemistry) England (1991-1993).
- Scientist at Central Institute of Medicinal & Aromatic Plants Lucknow, India (1986-1990).
- Scientist at Defense R&D organization (Govt. of India), New Delhi, India (1985-1985).
- Research Fellow (CSIR) at Central Drug Research Institute, Lucknow, India (1981-1985).

EDUCATION

- Post-doctoral studies at the Cambridge University, England (with Sir Alan Battersby FRS on biosynthesis of Vitamin B_{12} and related corrins and porphyrins) (1991-1993).
- Ph.D. (Medicinal Chemistry) from Central Drug Research Institute Lucknow. (Thesis Title: Structure, synthesis and medicinal chemistry of polyketide) (1981-1987).

- M.Sc. (Organic Chemistry) from Bundelkhand University, India (1978-1980).

RESEARCH EXPERTISE AND INTERESTS

- 28 years of research experience (both in scientific institution and Pharma Company) in drug discovery, medicinal chemistry, natural-products chemistry, organic-synthesis, chemical-biology and glycobiology.
- Chemical biology of Glycosylphosphatidylinositol (GPI) anchors in parasitic protozoa.
- Molecular target based drug discovery for cancer, diabetes, inflammation and infections.
- Research and leadership experience in both academic as well as industrial setting.
- Specific interest in the questions related to the chemistry of small molecules in biology.

RECOGNITIONS AND PROFESSIONAL ASSOCIATIONS

- Ranbaxy Research Award (2014) for Pharmaceutical Sciences.
- Fellow of the National Academy of Sciences of India.
- Adjunct Professor, Institute of Life Sciences, Hyderabad (2009 onwards).
- Bronze Medal of the Chemical Research Society of India, Bangalore (2005).
- Member of the Editorial Board of the *Journal of Chemical Sciences* (published by the Indian Academy of Sciences, Bangalore (2008 onwards).
- Member of Expert Committee on Drugs & Pharmaceuticals Research Program of the Department of Science and Technology (Govt. of India) (2009 onwards).
- Member of Genetic Engineering Approval Committee (GEAC) of the Ministry of Environment and Forests (Govt. of India) (2009 onwards).
- Member of the High Power Committee of NMITLI program of CSIR (2009 onwards).
- Member Program Advisory Committee (Organic-Chemistry) of the Department of Science and Technology (Govt. of India) (2004 onwards)
- Member of Task Force (Plant Biotechnology) of the Department of Biotechnology (Govt. of India) (2008-onwards).
- Member of Research Council of Institute of Genomics and Integrative Biology, Delhi.
- Member of Research Council of Central Inst. Medicinal & Aromatic Plants, Lucknow.

- Member of Research Council of Indian Institute of Chemical Biology, Calcutta.
- Member of Program Advisory Committee (Bio-prospecting & Molecular-Taxonomy) of the Department of Biotechnology (Govt. of India) (2003-2005).
- Member of Expert Committee of the CSIR on the trans-disciplinary research (2005-2008).
- Invited lecture at the Gordon Research Conference (Glycobiology) in USA (2005).
- 45 Invited lectures at the various International and National scientific conferences.
- Referee for various journals published by ACS, RSC and Elsevier.
- Grant-reviewer for American (NSF), British (Welcome-Trust) and Indian (DBT, DST and CSIR) national funding agencies.
- Received continuous research grants from various Indian (DST, DBT and CSIR) and the US (NIH) funding agencies.
- Member of the ACS (USA) and RSC (UK).
- BOYSCAST-Fellowship of DST (Govt. of India) for the Chemical Sciences (1991).
- A number of Ph.D. students supervised both in chemistry and biology (recognized as Ph.D. guide of the Jawaharlal Nehru University, JNU, New Delhi).

VISITING ASSIGNMENTS

- Visiting Scientist (1991) at Cambridge University, England.
- Visiting Scientist (1996) at the Institute Armand-Frappier, University of Quebec, Canada.
- Visiting Scientist (2000-2001) at Virginia Tech University Blacksburg USA.

RESEARCH PUBLICATIONS (In chronological order, 2016 downwards)

1. Magotra, A.; Nalli, Y.; Kushwaha, M.; Raina, C.; Gupta, A.P.; Ali, A.; Vishwakarma, R.A.; Chaubey, A. An efficient liquid chromatography tandem mass-spectrometry method for the quantification of borrelidin from Streptomyces rochei (ATCC 10739). **Journal of Chemical Technology and Biotechnology,** 2016, 91, 198–203.

2. Sharma, R.; Patel, N.; Vishwakarma, R.A.; Bharatam , P.V.; Bharate, S.B. Metal-free oxidative cyclization of acetophenones with diamines: a facile access to phenylpyridines. **Chemical Communication,** 2016, 52, 1009-1012.
3. Mehra, R.; Rani, C.; Mahajan, P.; Vishwakarma, R.A.; Khan, I.A.; Nargotra, A. Computationally Guided Identification of Novel Mycobacterium tuberculosis GlmU Inhibitory Leads, Their Optimization, and in Vitro Validation. **ACS Combinatorial Science***,* 2016, 18, 100-16.
4. Hussain, Aashiq.; Qazi, A.K.; Mupparapu, N.; Guru, S.K.; Kumar, Ashok.; Sharma, P.R.; Singh, S.K.; Singh, P.; Dar, M.J.; Bharate, S.B.; Zargaf, M.A.; Ahmed, Q.N.; Bhushan, S.; Vishwakarma, R.A.; Hamid, A. Modulation of glycolysis and lipogenesis by novel PI3K selective molecule represses tumor angiogenesis and decreases colorectal cancer growth. **Cancer Letters**, 2016, 374, 250-260.
5. Manda, S.; Sharma, S.; Wani, A.; Joshi, P.; Kumar, V.; Guru, S.K.; Bharate, S.S.; Bhushan, S.; Vishwakarma, R.A.; Kumar, A. and Bharate, S.B. Discovery of a marine-derived bis-indole alkaloid fascaplysin, as a new class of potent P-glycoprotein inducer and establishment of its structure-activity relationship. **European Journal of Medicinal Chemistry**, 2015,107, 1–11.
6. Sharma, R; Vishwakarma, R.A.; Bharate, S.B. An efficient transformation of furano-hydroxychalcones to furanoflavones via base mediated intramolecular tandem O-arylation and C-O bond cleavage: A new approach for synthesis of furanoflavones. **Organic & Biomolecular Chemistry**, 2015, 13, 10461-10465.
7. Yadav, R.R.; Sharma, S.; Joshi, P.; Wani, A.; Vishwakarma, R.A.; Kumar, A.; Bharate, S.B. Meridianin derivatives as potent Dyrk1A inhibitors and neuroprotective agents. **Bioorganic and Medicinal Chemistry Letters**, 2015, 25, 2948-2952.
8. Kumar, S.; Guru, S.K.; Pathania, A.S.; Manda, S.; Kumar A, Bharate ,S.B.; Vishwakarma, R.A.; Malik, F.; Bhushan, S.Fascaplysin induces caspase mediated crosstalk between apoptosis and autophagy through the inhibition of PI3K/AKT/mTOR signaling cascade in human leukemia HL-60 cells. **Journal of Cellular Biochemistry**, 2015,116, 985-97.
9. Venkateswarlu ,V.; Kumar,A.; Gupta,S.; Singh, D.; Vishwakarma, R. A.; Sawant , S.D. DMSO/I2 mediated C–C bond cleavage of α-ketoaldehydes followed by C–O bond formation: a metal-free approach for one-pot esterification. **Organic & Biomolecular Chemistry**, 2015, 13, 7973-7978.

10. Nasheeman, A.; Jain, D.; Vishwakarma, R. A. Identification, cloning and characterization of an Mupparapu, N.; Vishwakarma, R.A.; Ahmed,Q. N. Iodine-DMSO promoted C–H (SP3) functionalization approach to α-ketoamides. **Tetrahedron**, 2015, 71, 3417–3421.
11. Nasheeman, A.; Jain,D.; Vishwakarma,R. A. Identification, cloning and characterization of an ultrapetala transcription factor CsULT1 from Crocus: a novel regulator of apocarotenoid biosynthesis. **BMC Plant Biology**, 2015, 1; 15:25.
12. Mohammed, S.; Vishwakarma, R.A.; Bharate, S. Iodine Catalyzed Oxidative Synthesis of Quinazolin-4(3H)-ones and Pyrazolo [4, 3-d] pyrimidin-7(6H)-ones via Amination of sp3 C–H Bond. **Journal of Organic Chemistry**, 2015, 80, 6915–6921.
13. Sinha, S.;Amin, H.; Nayak,D.; Bhatnagar, M.;Kacker, P.; Chakraborty, S.; Kitchlu, S.; Vishwakarma, R.; Goswami, A.; Ghosal, S. Assessment of microtubule depol;ymerization property of flavonoids isolated from Tanacetum gracile in breast cancer cells by biochemical and molecular docking approach**. Chemico-Biological Interactions**, 2015, 5,239, 1–11
14. Kumar, K.A.; Kannaboina, P.; Devendra, K. D.;Vishwakarma , R. A. ; Bharatam , P. V. ;Das ,P. Cu-catalyzed arylation of the amino group in the indazole ring: regioselective synthesis of pyrazolo-carbazoles. **Organic & Biomolecular Chemistry**, 2015, 13, 1481-1491.
15. Aithagani, S. K .; Dara,S .; Munagala,G.; Aruri, H.P .; Yadav,M.; Sharma,S .;. Vishwakarma,R.A.; Singh,P.P. Metal-Free Approach for the Synthesis of N-Aryl Sulfoximines via Aryne Intermediate. **Organic Letters**, 2015, 17, 5547–5549.
16. Munagala, G .; Yempalla, K. R.; Singh, S .; Sharma , S .; Kalia , N.P.; Singh Rajput , V .; Kumar , Sunil .;Sanghapal D. S.; Khan, I. A.; Vishwakarma, Ram A. ; Singh , P. P.Synthesis of new generation triazolyl- and isoxazolyl-containing 6-nitro-2,3-dihydroimidazooxazoles as anti-TB agents: in vitro, structure–activity relationship, pharmacokinetics and in vivo evaluation. **Organic & Biomolecular Chemistry**, 2015, 13, 3610-3624.
17. Mahajan, V .; Sharma, N .;Kumar ,S .; Bhardwaj, V .; Ali,A.; . Khajuria, R. K .; Bedi,Y. S.; Vishwakarma, R. A.; Gandhi,S. G. Production of rohitukine in leaves and seeds of Dysoxylum binectariferum: An alternate renewable resource. Pharmaceutical Biology, 2015, 53, 446-45. .

18. Padala, A.K.; Mupparapu, N.; Singh, D.; Vishwakarma , R. A. ;Ahmed,Q.N .α-Carbonylimine to α-Carbonylamide: An Efficient Oxidative Amidation Approach. **European Journal of Organic Chemistry**, 2015, 16, 3577–3586.
19. Balgotra, S.; Venkateswarlu, V.; Vishwakarma, R. A..; Sawant,S. D. Direct C–N bond cleavage of N-vinyl or N-allyl arylamines: a metal-free strategy for N-devinylation and N-deallylation. **Tetrahedron Letters**, 2015, 56, 4289–4292.
20. Bharate, J.B..; Vishwakarma, R.A.; Bharate, S. B. Metal-free domino one-pot protocols for quinoline synthesis Show Affiliations. **RSC Advances**, 2015, 5, 42020-42053.
21. Saikam, V.; Dara, S.; Yadav, M.; Singh, P. P.; Vishwakarma, R.A. Dimethyltin Dichloride Catalyzed Regioselective Alkylation of cis-1, 2-Diols at Room Temperature. **Journal of Organic Chemistry**, 2015, 80, 11916–11925.
22. Kumar, S.; Kumar, G.S.; Venkateswarlu, V.; Malik, F.; Vishwakarma, R.A.; Sawant, S.D.; Bhushan, S. A Novel Quinoline Based Second-generation mTOR Inhibitor that Induces Apoptosis and Disrupts PI3K-Akt-mTOR Signaling in Human Leukemia HL-60 Cells. **Anti-Cancer Agents in Medicinal Chemistry**, 2015, 15, 1297-1304.
23. Bharate, S.S.; Vishwakarma, R. A.Thermodynamic equilibrium solubility measurements in simulated fluids by 96-well plate method in early drug discovery. **Bioorganic & Medicinal Chemistry Letters**, 2015, 25, 1561–1567.
24. Bharate, J. B. .; Abbat, S.; Bharatam, P. V.; Vishwakarma ,R. A.; Bharate, S. B. CuBr catalyzed aerobic oxidative coupling of 2-aminopyridines with cinnamaldehydes: direct access to 3-formyl-2-phenyl-imidazo[1,2-a]pyridines. **Organic & Biomolecular Chemistry**, 2015, 13, 7790-7794.
25. Srinivas,M.; Hudwekar,A. D. ; Venkateswarlu, V.; Reddy,G. L.;Kumar, A .; Vishwakarma,R. A.; Sawant,S. D. . A metal-free approach for transamidation of amides with amines in aqueous media. **Tetrahedron Letters**, 2015, 56, 4775–4779.
26. Awasthi, P.; Mahajan, V.; Rather, I.A.; Gupta, A.P.; Rasool, S.;Bedi ,Y.S.; Vishwakarma, R.A.;Gandhi, S.G.Plant Omics: Isolation, Identification, and Expression Analysis of Cytochrome P450 Gene Sequences from Coleus forskohlii. **OMICS**, 2015, 19, 782-92.
27. Venkateswarlu, V.; Pathania, A. S.; Kumar, A.; Mahajan, P.; Nargotra, A.; VishwakarmaR. A.; Malik, F.A.; Sawant, S. D. 4-(N-Phenyl-N'-substituted benzenesulfonyl)-6-(4-hydroxyphenyl)

quinolines as inhibitors of mammalian target of rapamycin. **Bioorganic & Medicinal Chemistry**, 2015, 23, 4237–4247.

28. Yadav, M .; Dara, S .; Saikam ,V .; Kumar, M.; Aithagani, S. K .; Paul, S.; Vishwakarma ,R. A. ; Singh, P. P . Regioselective Oxidative C–H Phosphonation of Imidazo [1, 2-a]pyridines and Related Heteroarenes Mediated by Manganese(III) Acetate.European. **Journal of Organic Chemistry**, 2015, 29, 6526–6533.
29. Qadri ,M, ;Deshidi ,R, ;Shah, B.A, ;Bindu, K.; Vishwakarma ,R.A.;Riyaz-Ul-Hassan S3.An endophyte of Picrorhiza kurroa Royle ex. Benth, producing menthol, phenylethyl alcohol and 3-hydroxypropionic acid, and other volatile organic compounds. **World Journal of Microbiology and Biotechnology**, 2015, 10, 1647-54.
30. Singh, B.; Jain, S. K.; Bharate, S. B.; Kushwaha, M.; Gupta, A.P.; Vishwakarma, R. A.Simultaneous Quantification of Five Bioactive Flavonoids in High Altitude Plant Actinocarya tibetica by LC-ESI-MS/MS. **Journal of AOAC International**, 2015, 98, 907-912.
31. Varma S.; Saidulu D.; Mahipal Y.; Singh, P. P.; Vishwakarma,R. A.Dimethyltin Dichloride Catalyzed Regioselective Alkylation of cis-1,2-Diols at Room Temperature. **Journal of Organic Chemistry**, 2015, 80, 11916–11925.
32. Yempalla,K.R.; Munagala,G.; Singh, S.;Magotra, A.;Kumar,S.; Rajput, V.S.;Bharate, S. S.;Tikoo,M.; Singh, G. D.; Khan,I. A.; Vishwakarma,R. A.; Singh, P.P. Nitrofuranyl Methyl Piperazines as New Anti-TB Agents: Identification, Validation, Medicinal Chemistry, and PK Studies. **ACS Medicinal Chemistry Letters**, 2015, 6, 1041–1046.
33. Yempalla,K. R.; Munagala,G.; Singh, S.; Kour,G.; Sharma,S.; Chib,R.; Kumar, S.; Wazir,P.; Singh, G. D.; Raina,S.; Bharate, S. S.; Khan,I.A.; Vishwakarma,R. A. ; Singh,P. P.Synthesis and Biological Evaluation of Polar Functionalities Containing Nitrodihydroimidazooxazoles as Anti-TB Agents. **ACS Medicinal Chemistry Letters**, 2015, 6, 1059–1064.
34. Khazir ,J.; Riley, D. L.; Chashoo, G .; Mir, B. A.; Liles,D.; Islam,M.A.; Singh,S. K.; Vishwakarma,R.A.; Pilcher,L. A. . Design, synthesis and anticancer activity of Michael-type thiol adducts of α-santonin analogue with exocyclic methylene. **European Journal of Medicinal Chemistry**, 2015,101, 769–779.

35. Dhar,N.; Razdan,S.; Rana,S.; Bhat,W. W.; Vishwakarma ,R. ;Lattoo,S.K. A Decade of Molecular Understanding of Withanolide Biosynthesis and In vitro Studies in Withania somnifera (L.) Dunal: Prospects and Perspectives for Pathway Engineering. Frontiers in Plant Science, 2015, 6, 1031.
36. Bharate , J. B. .; Abbat , S.; Sharma , R .; Bharatam , P.V.; Vishwakarma , R. A. Bharate , S.B.Cobalt(II) catalyzed C(sp)–H bond functionalization of alkynes with phenyl hydrazines: facile access to diaryl 1,2-diketones. **Organic & Biomolecular Chemistry**, 2015, 13, 5235-5242.
37. Yadav, R.R.; Khan, S.I.; Singh, S.; Khan, I.A.; Vishwakarma, R.A.; Bharate, S.B. Synthesis, antimalarial and antitubercular activities of meridianin derivatives. **European Journal of Medicinal Chemistry**, 2015, 98, 160-169.
38. Sharma, R.; Abbat, S.; Mudududdla, R.; Vishwakarma, R.A.; Bharatam, P.V.; Bharate, S.B. Ortho-quinone methides: TFA-mediated generation in water and trapping with lactams and styrenes. **Tetrahedron Letters**, 2015, 56, 4057-4059.
39. Mahale, S.; Bharate, S.B.; Manda, S.; Joshi, P.; Jenkins, P.; Vishwakarma, R.A.; Chaudhuri, B. Anti-tumour Potential of N-(Biphenyl-2yl)-Tryptoline (BPT): A Dual Inhibitor of Cdk4 and Tubulin Polymerization. **Cell death and Disease**, 2015, 6, e1743.
40. Bharate, J.B.; Singh, S.; Wani, A.; Sharma, S.; Joshi, P.; Khan, I.A.; Kumar, A.; Vishwakarma, R.A.; Bharate, S.B. Discovery of 4-acetyl-3-(4-fluorophenyl)-1-(p-tolyl)-5-methylpyrrole as a dual inhibitor of human P-glycoprotein and Staphylococcus aureus Nor A efflux pump. **Organic & Biomolecular Chemistry**, 2015, 13(19):5424-31.
41. Singh, B.; Kumar, A.; Joshi, P.; Guru, S.K.; Kumar, S.; Wani, Z.A.; Mahajan, G.; Hussain, A.; Qazi, A.; Kumar, A.; Bharate, S.S.; Gupta, B.D.; Sharma, P.R.; Dar, A.H.; Saxena, A.K.; Mondhe, D.M.; Bhushan, S.; Bharate, S.B.; Vishwakarma, R.A. Design and synthesis of colchicine derivatives with potent in vitro and in vivo anticancer activity and reduced p-glycoprotein induction liability. **Organic & Biomolecular Chemistry**, 2015, 13, 5674-5689.
42. Bharate, J.B.; Batarseh, Y.S.; Wani, A.; Sharma, S.; Vishwakarma, R.A.; Kaddoumi, A.; Kumar, A.; Bharate, S.B. Synthesis and P-glycoprotein induction activity of colupulone analogs. **Organic & Biomolecular Chemistry**, 2015, 13, 5488-96.
43. Sawant, S.D.; Reddy, G.L.; Dar, M.I.; Srinivas, M.; Gupta, G.; Sahu, P.K.; Mahajan, P.; Nargotra, A.; Singh, S.; Sharma, S.C.; Tikoo, M.; Singh, G.; Vishwakarma, R.A.; Syed, S.H. Discovery of Novel

Pyrazolopyrimidinone Analogs as Potent Inhibitors of Phosphodiesterase Type-5. **Bioorganic & Medicinal Chemistry**, 2015, 23, 2121-8.

44. Raghupathy, R .; Anilkumar, A.A.; Polley, A.; Singh, P.P.; Yadav, M.; Johnson, C.; Suryawanshi, S.; Saikam, V.; Sawant, S.D.; Panda, A.; Guo, Z.; Vishwakarma, R.A.; Rao, M.; Mayor, S. Transbilayer Lipid Interactions Mediate Nanoclustering of Lipid-Anchored Proteins. **Cell,** 2015, 161,581–594.
45. Sharma, R.; Guru, S.K.; Jain, S.K.; Pathania, A.S.; Vishwakarma, R.A.; Bhushan, S.; Bharate, S.B. 3-(2,6-Dichloro-benzyloxy)-11-oxo-olean-12-ene-29-oic acid, a semisynthetic derivative of glycyrrhetic acid: Synthesis, antiproliferative, apoptotic and anti-angiogenesis activity. **Medicinal Chemistry Communications,** 2015, 6, 564-575.
46. Mudududdla, R.; Guru, S.K.; Wani, A.; Sharma, S.; Joshi, P.; Vishwakarma, R.A.; Kumar, A.; Bhushan, S.; Bharate, S.B. 3-(Benzo[d][1,3]dioxol-5-ylamino)-N-(4-fluorophenyl)thiophene-2-carboxamide overcomes cancer chemoresistance via inhibition of angiogenesis and P-glycoprotein efflux pump activity. **Organic & Biomolecular Chemistry***,* 2015, 13, 4296-4309.
47. Mohammed, S.; Vishwakarma, R.A.; Bharate, S.B. Metal-free DBU promoted regioselective synthesis of isoxazoles and isoxazolines. **RSC Advances,** 2015, 5, 3470-3473.
48. Mupparapu, Nagaraju.; Battini, Narsaiah.; Battula, Satyanarayana.; Khan, Shahnawaz.; Vishwakarma, R.A.; Qazi, Naveed Ahmed. Aminocatalytic Cross-Coupling Approach via Iminium Ions to Different C-C Bonds. **Chemistry,** 2015, 21, 2954–2960.
49. Rather, I.A.; Awasthi, P.; Mahajan, V.; Bedi, Y.S.; Vishwakarma, R.A.; Gandhi, S.G. Molecular cloning and functional characterization of an antifungal PR-5 protein from Ocimum basilicum. **Gene**, 2015, 558,143-51.
50. Aruri ,H.; Singh, U.; Sharma, S.; Gudup, S.; Bhogal, M.; Kumar, S.; Singh, D.; Gupta, V.K.; Kant, R.; Vishwakarma, R.A.; Singh, P.P. Cross-Dehydrogenative Coupling of Azoles with α-C(sp(3))-H of Ethers and Thioethers under Metal-Free Conditions: Functionalization of H-N Azoles via C-H Activation. **Journal of Organic Chemistry,** 2015, 8, 1929-36.
51. Rana, S.; Bhat, W.; Dhar, N.; Pandith, S.A.; Razdan, S.; Vishwakarma, R.; Lattoo, S.K. Molecular characterization of two A-type P450s, *Ws*CYP98A and *Ws*CYP76A from *Withania somnifera* (L.) Dunal: expression analysis and withanolide accumulation in response to exogenous elicitations. **BMC Biotechnology**, 2014, 14(1): 89.

52. Kumar, S.; Pathania, A.S.; Guru, S.K.; Mupparapu, N.; Kumar, A.; Malik, F.; Bharate, S.B.; Qazi, N.A.; Vishwakarma, R.A.; Bhushan, S. A novel quinazolinone derivative induces cytochrome c interdependent apoptosis and autophagy in human leukemia MOLT-4 cells. **Toxicology Reports,** 2014, 1, 1013–1025.
53. Rao, D.N.; Rasheed, S.k.; Vishwakarma, R.A.; Das, Parthasarathi. Copper-catalyzed sequential N-arylation of C-amino-NH-azoles. **Chemical Communications**, 2014, 50, 12911-12914.
54. Mahale, S.; Bharate, S.B.; Manda, S.; Joshi, P.; Bharate, S.S.; Jenkins, P.R.; Vishwakarma, R.A.; Chaudhuri, B.Biphenyl-4-carboxylic acid [2-(1H-indol-3-yl)-ethyl]-methylamide (CA224), a non-planar analog of fascaplysin inhibits Cdk4 and tubulin polymerization: Evaluation of in vitro and in vivo anticancer activity. **Journal of Medicinal Chemistry**, 2014, 57, 9658-9672.
55. Mudududdla, R.; Sharma, R.; Abbat, S.; Bharatam, P.V.; Vishwakarma, R.A.; Bharate, S.B. Synthesis of 2-phenylnaphthalenes from styryl-2-methoxybenzenes. **Chemical Communications,** 2014, 50, 12076-12079.
56. Jain, S.K.; Singh, S.; Khajuria, A.; Guru, S.K.; Joshi, P.; Meena, S.; Nadkarni, J.; Singh, A.; Bharate, S.S.; Bhushan, S.; Bharate, S.B.; Vishwakarma, R.A. Pyrano-isochromanones as IL-6 inhibitors: Synthesis, in-vitro and in-vivo anti-arthritic activity. **Journal of Medicinal Chemistry,** 2014, 57, 7085−7097.
57. Bharate, J.B.; Bharate, S.B.; Vishwakarma, R.A. Metal-free, ionic liquid-mediated synthesis of functionalized quinolines. **ACS Combinatorial Science**, 2014, 16, 624–630.
58. Joshi, P.; Singh, S.; Wani, A.; Sharma, S.; Jain, S.K.; Singh, B.; Gupta, B.; Satti, N.; Koul, S.; Khan, I.A.; Kumar, A.; Bharate, S.B.; Vishwakarma, R.A. Osthol and curcumin as inhibitors of human Pgp and multidrug efflux pumps of Staphylococcus aureus: Reversing the resistance against frontline antibacterial drugs. **Medicinal Chemistry Communications,** 2014, 5, 1540–1547.
59. Singh, B.; Guru, S.K.; Sharma, R.; Bharate, S.S.; Khan, I.A.; Bhushan, S.; Bharate, S.B.; Vishwkarma, R.A. Synthesis and anti-proliferative activities of new derivatives of embelin. **Bioorganic & Medicinal Chemistry Letters,** 2014, 24, 4865-4870.

60. Aithagani, S.K; Yempalla, K.R.; Munagala, G.; Vishwakarma, R.A.; Singh, P.P. Metal-free, high yielding synthesis of unsymmetrical biaryl, bi(heteroaryl), aryl vinyl, aryl alkyl sulfones via coupling of aryne with sulfinic acid salts. **RSC Advances,** 2014, 4, 50208-50211.
61. Dara, S.; Varma, S.; Yadav, M.; Singh, P.P.; Vishwakarma, R.A. HClO4–silica-catalysed regioselective opening of benzylidene acetals and its application towards regioselective HO-4 glycosylation of benzylidene acetals in one-pot. **Carbohydrate Research**, 2014, 93–96.
62. Gannedi, V.; Ali, A.; Singh, P.P.; Vishwakarma, R.A. Intramolecular aglycon delivery for (1 → 2)-β-mannosylation: towards the synthesis of phospholipomannan of Candida albicans. **Tetrahedron Letters,** 2014, 55, 2945-2947
63. Mupparapu, N.; Khan, S.; Battula, S.; Kushwaha, M.; Gupta, A.P.; Ahmed, Q.N.; Vishwakarma, R.A. Metal-Free Oxidative Amidation of 2-Oxoaldehydes: A Facile Access to α-Ketoamides. **Organic Letters**, 2014, 16 (4), 1152–1155.
64. Dhar, N.; Rana, S.; Razdan, S.; Bhat, W.W.; Hussain, A.; Dhar, R.S.; Vaishnavi, S.; Hamid, A.; Vishwakarma, R.A.; Lattoo, S.K. Cloning and functional characterization of three branch point oxidosqualene cyclases from Withania somnifera (L.) Dunal. **The Journal of Biological Chemistry,** 2014, 289, 17249-17267.
65. Jain, S.K.; Kumar, K. A. Aravinda.; Bharate, S.B.; Vishwakarma, R.A. Facile access to amides and hydroxamic acids directly from nitroarenes. **Organic and Biomolecular Chemistry**, 2014, 12, 6465-6469.
66. Bhat, W.W.; Rana, S.; Dhar, N.; Razdan, S.; Pandith, S.A.; Vishwakarma, R.A.; Lattoo, S.K. An inducible NADPH-cytochrome P450 reductase from Picrorhiza kurrooa- an imperative redox partner of cytochrome P450 enzymes. **Functional and Integrative genomics**, 2014, 14(2), 381-399.
67. Reddy, G. L.; Guru, S. K.; Srinivas, M.; Pathania, A. S.; Mahajan, P.; Nargotra, A.; Bhushan, S.; . Vishwakarma, R. A.; Sawant, S.D. Synthesis of 5-substituted-1H-pyrazolo[4,3-d]pyrimidin-7(6H)-one analogs and their biological evaluation as anticancer agents: mTOR inhibitors. **European Journal of Medicinal Chemistry,** 2014, 80, 201-8.
68. Bhat, W.W.; Razdan, S.; Rana S.; Dhar, N.; Wani, T.A.; Qazi, P.; Vishwakarma, R.; Lattoo, S.K. A phenylalanine ammonia-lyase ortholog (PkPAL1) from Picrorhiza kurrooa Royle ex. Benth:

Molecular cloning, promoter analysis and response to biotic and abiotic elicitors. **Gene**, 2014, 547(2), 245–256.

69. Mudududdla, R.; Sharma, R.; Guru, S.K.; Kushwaha, M.; Gupta, A.P.; Bharate, S.S.; Aravinda, S.; Kant, R.; Bhushan, S; Vishwakarma, R.A.; Bharate, S.B.Trifluoroacetic acid catalyzed thiophenylmethylation and thioalkylmethylation of lactams and phenols via domino three-component reaction in water. **RSC Advances,** 2014, 2014, 4, 14081-14088.
70. Bharate, J.B.; Wani, A.; Sharma, S.; Reja, S.I.; Kumar, M.; Vishwakarma, R.A.; Kumar, A.; Bharate, S.B. Synthesis, antioxidant, neuroprotective and P-glycoprotein induction activity of 4-arylquinoline-2-carboxylates. **Organic and Biomolecular Chemistry**, 2014, 12, 6267-6277.
71. Lone, S.H.; Bhat, K.A.; Majeed, Rabiya.; Hamid, Abid. Click chemistry inspired facile synthesis and bioevaluation of novel triazolyl analogs of Ludartin. **Bioorganic & Medicinal Chemistry Letters,** 2014, 24(4), 1047-1051.
72. Lambu, M.R.; Yousuf, S.; Tripathi, A.K.; Sharma, D.K.; Hussain, A.; Singh, B.; Mukherjee, D.Synthesis of *C*-spiro-glycoconjugates from sugar lactones via zinc mediated Barbier reaction.**RSC Advances,** 2014, 4**,** 11023-11028.
73. Hussain, A.; Mukherjee, D. Highly diastereoselective 1, 2-dichlorination of glycals using NCS/PPh3: study of substituent and solvent effects. **Tetrahedron letters,** 2014, 70, 1133-1139.
74. Jain, S.K.; Meena, S.; Gupta, A.P.; Kushwaha, M.; Uma Shaanker, R.; Jaglan, S.; Bharate, S.B.; Vishwakarma, R.A. Dysoxylum binectariferum bark as a new source of anticancer drug camptothecin: Bioactivity-guided isolation and LCMS-based quantification. **Bioorganic & Medicinal Chemistry Letters,** 2014, 24, 3146-3149.
75. Sawant, S.D.; Hudwekar,A.D.; Kumar, K.A. Aravinda.; Venkateswarlu, V.; Singh, P.P.; Vishwakarma ,R.A. Ligand- and base-free synthesis of phenols by rapid oxidation of arylboronic acids using iron(III) oxide. **Tetrahedron letters,** 2014, 55, 811–814.
76. Rasheed, Sk. ; Rao, D. N.; Kumar, K. R.; Aravinda, S. ; Vishwakarma, R.A.; Das, P**.** C-N bond formation *via* Cu-catalyzed cross coupling with boronic acids leading to methyl carbazole-3-carboxylate: Synthesis of carbazole alkaloids**. RSC Advances**, 2014, 4, 4960-4969.

77. Manda, S.; Khan, S.I.; Jain, S.K.; Mohammed, S.; Tekwani, B.L.; Khan, I.A.; Vishwakarma, R.A.; Bharate, S.B. Synthesis, antileishmanial and antitrypanosomal activities of N-substituted tetrahydro-β-carbolines. **Bioorganic & Medicinal Chemistry Letters**, 2014, 24, 3247-3250.
78. Munagala, Gurunadham.; Yempalla, Kushalava.; Reddy, Aithagani.; Kumar, Sravan.; Kalia, Nitin Pal.; Ali, Furqan.; Ali, Intzar.; Rajput, Vikrant Singh.; Rani, Chitra.; Chib, Reena.; Mehra, Rukmankesh.; Nargotra, Amit.; Khan, Inshad Ali.; Vishwakarma, R.A.; Singh, Parvinder Pal. Synthesis and biological evaluation of substituted N-alkylphenyl-3,5-dinitrobenzamide analogs as anti-TB agents. **Med. Chem. Comm** (2014), *5*, 521-527.

79. Venkateswarlu, V.; Kumar, KA,; Balgotra, S.; Reddy, GL; Srinivas, M.; Vishwakarma, R.A.; Sawant, SD. C-H Oxygenation and N-Trifluoroacylation of Arylamines Under Metal-Free Conditions: A Convenient Approach to 2-Aminophenols and N- Trifluoroacyl-ortho-aminophenols. **Chem Eur**.(2014),20(22), 6641–6645.

80. Yadav, M.; Raghupathy, R; Saikam, V.; Dara, S; Singh, PP.; Sawant, SD.; Mayor, S.; Vishwakarma, RA. Synthesis of non-hydrolysable mimics of glycosylphosphatidylinositol (GPI) anchors. **Org Biomol Chem.** (2014), 12(7):1163-72**.**
81. Yadav, Mahipal.; Raghupathy, Riya.; Saikam, Varma.; Dara, Saidulu.; Singh, Parvinder Pal.; Sawant, Sanghapal D.; Mayor, Satyajit; Vishwakarma, Ram A. Synthesis of non-hydrolysable mimics of glycosylphosphatidylinositol (GPI) anchors. **Org. Biomol. Chem,** 2014, *12*, 1163-1172.
82. Devaria, Shekaraiah.; Jaglan, Sundeep.; Kumar, Manjeet.; Deshidi, Ramesh.; Guru, Santosh.; Bhushan, Shashi.; Kushwaha, Manoj.; Gupta, Ajai P.; Gandhi, Sumit G. .; Sharma, Jai P. ; Taneja, Subhash C. ; Vishwakarma, Ram A. ; Shah, Bhahwal Ali. Capsaicin production by Alternaria alternata, an endophytic fungus from *Capsicum annum*; LC-ESI-MS/MS analysis. **Phytochemistry**, , 2014, *98*, 183-9.
83. Masroor, Qadri.; Rajput ,Roopali.; Abdin, Malik Z.; Vishwakarma ,Ram A.; Syed, Riyaz-Ul-Hassan. Diversity, Molecular Phylogeny, and Bioactive Potential of Fungal Endophytes Associated with the Himalayan Blue Pine (Pinus wallichiana). **Microbial ecology,** 2014, 67, 877-87.
84. Zilla,M. K..; Nayak,D.; Vishwakarma,R. A.; Sharma,P.R.; Goswami, A .; Ali,A . A convergent synthesis of alkyne–azide cycloaddition derivatives of 4-α, β-2-propyne podophyllotoxin

depicting potent cytotoxic activity. **European Journal of Medicinal Chemistry**, 2014,77, 22, 47–55.

85. Dar,B.A.; Pandey,N.; Singh,S.; Bamezai,R.K.; Sharma, M.;Vishwakarma, R.A.;Singh ,B.Heterogeneous reusable catalyst, ultrasound energy, and no solvent: a quick and green recipe for one-pot synthesis of β-phosphonomalononitriles at room temperature. **Tetrahedron Letters**, 2014, 55, 623–628.
86. Battini, N.; Padala, A.K.; Mupparapu, N.; Vishwakarma, R. A. Ahmed, Q.N. Unexplored reactivity of 2-oxoaldehydes towards Pictet–Spengler conditions: concise approach to β-carboline based marine natural products. **RSC Advances**, 2014, 4, 26258-26263.
87. Pathania ,AS.; Kumar, S.; Guru, S.K.; Bhushan, S.; Sharma, P.R.; Aithagani, S.K.; Singh ,P.P.; Vishwakarma ,R.A.Kumar ,A.; Malik. F.The synthetic tryptanthrin analogue suppresses STAT3 signaling and induces caspase dependent apoptosis via ERK up regulation in human leukemia HL-60 cells. **PLoS One**, 2014, 10, e110411.
88. Dar,B. A.; Dangroo,N. A.; Gupta,A.; Wali, A.; Khuroo, M. A.;Vishwakarma , R. A.; Singh,B . Iodine catalyzed solvent-free cross-dehydrogenative coupling of arylamines and H-phosphonates for the synthesis of N-arylphosphoramidates under atmospheric conditions. **Tetrahedron Letters**, 2014, 55, 1544–1548.
89. Paul,D. J.; Laure,N. B.; Guru,S. K.; Khan,I. A.; Saxena ,A.K.; Vishwakarma ,R.A. ; Pierre,T. Antiproliferative and antimicrobial activities of alkylbenzoquinone derivatives from Ardisia kivuensis. **Pharmaceutical Biology**, 2014, 52, 392-397.
90. Dar, B. A.; Singh,S.; Pandey,N.; Singh, A.P.;Shama,P.; Lazar, A.;Sharma, M .; Vishwakarma ,R. A.; Singh, B. Clay encapsulated Cu(OH)x promoted homocoupling of arylboronic acids: An efficient and eco-friendly protocol. **Applied Catalysis**, 2014, 470, 30, 232–238.
91. Bharate, J. B.; Vishwakarma, R.A.; Bharate, S. B.; Kushwaha, M.; Gupta, A.P. Quantification of the Polyisoprenylated Benzophenones Garcinol and Isogarcinol Using Multiple Reaction Monitoring LC/Electrospray Ionization-MS/MS Analysis of Ultrasound-Assisted Extracts of Garcinia indica Fruits. **Journal of AOAC International**, 2014, 97, 1317-1322.
92. Battula, S.; Vishwakarma, R.A.; Ahmed, Q.N. Cu–benzotriazole-catalyzed electrophilic cyclization of N-arylimines: a methodical tandem approach to O-protected-4hydroxyquinazolines.Show

Affiliations. **RSC Advances**, 2014, 4, 38375-38378.

93. Bharate, S. B.; Bharate, J. B.;Khan, S. I. .; Tekwani,B. L.; Jacob,M.R. .; Mudududdla, R.; Yadav,R. R.; Singh,B.; Sharma,P.R.; Maity,S.; Singh , B.; Khan, I. A.;Vishwakarma, R. A.Discovery of '3,3 - diindolylmethanes as potent antileishmanial agents. **European Journal of Medicinal Chemistry**, 2013, 63, 435–443.
94. Bharate,S. B.; Padala,A. K.; Dar,B. A.; Yadav,R. R.; Singh,B.; Vishwakarma,R.A. . Montmorillonite clay Cu (II) catalyzed domino one-pot multicomponent synthesis of 3,5-disubstituted isoxazoles. **Tetrahedron Letters**, 2013, 54, 27, 3, 3558–3561.
95. Bharate,J.B.; Sharma , R.; Subrayashastry A. ; Gupta , V.K.; Singh , B; Bharate ,S. B.; Vishwakarma ,R.A. Montmorillonite clay catalyzed synthesis of functionalized pyrroles through domino four-component coupling of amines, aldehydes, 1,3-dicarbonyl compounds and nitroalkanes. **RSC Advances**, 2013, 3, 21736-21742.
96. Bharate, S.B.; Yadav, R.R.; Vishwakarma, R.A. QSAR and Pharmacophore Study of Dyrk1A Inhibitory Meridianin Analogs as Potential Agents for Treatment of Neurodegenerative Diseases. **Medicinal Chemistry**, 2013, 9, 152-161.
97. Singh, B .;Guru, S.K.; Kour, S.; Jain, S. K.; Sharma, R.; Sharma, P. R.; Singh, S.K.; Bhushan,S.;Bharate, S. B. ; Vishwakarma, R. A. Synthesis, antiproliferative and apoptosis-inducing activity of thiazolo[5,4-d]pyrimidines. **European Journal of Medicinal Chemistry**, 2013, 70, 864–874.
98. Chinthakindi, P.K.; Sangwan , P.L.; Farooq, S.; Aleti,R.R.; Kaulb,A.; Saxenab,A. K.; Murthy,Y.L.N.; Vishwakarma, R. A. Koul ,S.. Diminutive effect on T and B-cell proliferation of non-cytotoxic α-santonin derived 1, 2, 3-triazoles: A report. **European Journal of Medicinal Chemistry**, 2013, 60, 365–375.
99. Bharate, J.B. ; Guru,S.K.; Jain,S. K. ; Meena,S.; Singh, P. P.; Bhushan,S.; Singh,B.; Bharate, S. B. ; Vishwakarma,R. A.Cu–Mn spinel oxide catalyzed synthesis of imidazo[1,2-a]pyridines through domino three-component coupling and 5-exo-dig cyclizationinwater. **RSC Advances**, 2013, 3, 20869-20876.
100. Bharate ,S.B. ; Singh, B.; Bharate,J. B. ; Jain, S. K. ; Meena , S .; Vishwakarma, R.A. QSAR and pharmacophore modeling of N-acetyl-2-aminobenzothiazole class of phosphoinositide-3-kinase-

α inhibitors. **Medicinal Chemistry Research**, 2013, 22, 890-899.

101. Bharate, S. S.; Vishwakarma, R.A .Impact of preformulation on drug developmentpages. **Expert Opinion on Drug Delivery**, 2013, 10, 9, 1239-1257.

102. Sinha, S.;Mishra,P.; Amin,H.; Rah,B.; Nayak, D .; Goswami, A.;Kumar,N.; Vishwakarma, R.A.Sabari Ghosal.A new cytotoxic quinolone alkaloid and a pentacyclic steroidal glycoside from the stem bark of Crataeva nurvala: Study of anti-proliferative and apoptosis inducing property. **European Journal of Medicinal Chemistry**, 2013, 60, 490–496.

103. Singh, B.; Vishwakarma, R. A.; Bharate, S. B. QSAR and Pharmacophore Modeling of Natural and Synthetic Antimalarial Prodiginines. Current Computer - Aided Drug Design, 2013, 9, 3, 350-359.

104. Sharma, P .; Kumar, S .; Ali, F .; Anthal , S .; Gupta,V.K. ; Khan, I. A. , Singh, S .; Sangwan, P. L. ; Suri, K. A. ; Gupta,B. D. ; Gupta, D. K. ; Dutt, P .; Vishwakarma , R. A. ; Satti, N. K. Synthesis and biologic activities of some novel heterocyclic chalcone derivatives. **Medicinal Chemistry Research**, 2013, 22, 8, 3969-3983.

105. Bharate, S.B.; Mudududdla, R.; Sharma, R.; Vishwakarma, R. A.The first method for C-devinylation of aromatic systems. Tetrahedron Letters. 2013, 54, 2913–2915.

106. Rehman, S.; Sofi, S. N.; Khuroo, M.A.; Taneja,S. C.; Bhat, K. A.; Vishwakarma,R.A.New natural compounds from Rhododendron lepidotum. **Natural Product Research: Formerly Natural Product Letters**. 2013, 27, 21, 2033-2038.

107. Jain, S. K. ; Pathania, A. S.; Parshad,R.; Raina, C.; Ali,A.; Gupta, A. P. ; Kushwaha,M.; Aravinda, S.; Bhushan, S.; Bharate,S. B. ; Vishwakarma,R.A. Chrysomycins A–C, antileukemic naphthocoumarins from Streptomyces sporoverrucosus. **RSC Advances**, 2013, 3, 21046-21053.

108. Mehra,R.; Nargotra ,A .; Shah,B.A. ; Taneja,S. C. ;Vishwakarma, R.A .; Koul,S . Pro-apoptotic properties of parthenin analogs: a quantitative structure–activity relationship study. **Medicinal Chemistry Research**, 2013, 22, 5, 2303-2311.

109. Singh, B .;Sidiq,T.; Joshi,P.;Jain,S. K.; Lawaniya,Y.; Kichlu,S .;Khajuria, A .;Vishwakarma , R. A. ; Bharate, S. B.Anti-inflammatory and immunomodulatory flavones from Actinocarya

tibetica Benth. **Natural Product Research: Formerly Natural Product Letters**, 2013, 27, 23, 2227-2230.

110. Gupta , S .; Pandotra, P.; Gupta, A. P. ; Verma, M. K. ; Ahuja , A.;Vishwakarma, R. A. Direct rhizogenesis, in vitro stolon proliferation and high-throughput regeneration of plantlets in Glycyrrhiza glabra. **Acta Physiologiae Plantarum**, 2013, 35, 9, 2699-2705.
111. Singh, Baljinder.; Parshad, Rajinder.; Khajuria, R. K.; Guru, Santosh K.; Pathania, Anup S.; Sharma, Rashmi; Chib,Reena; Aravinda, Subrayashastry; Gupta, Vivek K.; Khan, Inshad AShashi Bhushan; Sandip B. Bharate; Ram A. Vishwakarma. Saccharonol B, a new cytotoxic methylated isocoumarin from *Saccharomonospora azurea.* **Tetrahedron Letters**, 2013, *54*, 6695-6699.
112. Kannaboina, Prakash.; Anilkumar, K.; Aravinda, S.; Vishwakarma, Ram A.; Das, Parthasarathi. Direct C-2 Arylation of 7-Azaindoles: Chemoselective Access to Multiarylated Derivatives. **Organic Letters**, 2013, 15, 5718-5721.
113. Jain, Shreyans K.; Pathania, Anup S.; Meena, Samdarshi; Sharma, Rajni; Sharma, Ashok; Singh, Baljinder; Gupta, Bishan D.; Bhushan, Shashi; Bharate, Sandip B.; Vishwakarma, Ram A. Semisynthesis of Mallotus B from *Rottlerin*: Evaluation of Cytotoxicity and Apoptosis-Inducing Activity. **J. Nat. Prod**. 2013, *76*, 1724-1730.
114. Bhat, Wajid Waheed.; Dhar, Niha.; Razdan, Sumeer.; Rana, Satiander.; Mehra, Rukmankesh.; Nargotra, Amit.; Dhar, Rekha S.; Ashraf, Nasheeman.; Vishwakarma, Ram.; Lattoo, Surrinder K. Molecular characterization of UGT94F2 and UGT86C4, two glycosyltransferases from Picrorhiza kurrooa: comparative structural insight and evaluation of substrate recognition. **PLoS One,** 2013, 8, e73804.
115. Jain, Shreyans K.; Meena, Samdarshi.; Qazi, Asif K.; Hussain, Aashiq.; Bhola, Sunil K.; Kshirsagar, Rajendra.; Pari,Koteppa.; Khajuria, Anamika.; Hamid, Abid.; Shaanker, R. Uma.; Sandip B. Bharate .; Vishwakarma, Ram A. Isolation and biological evaluation of chromone alkaloid dysoline, a new regioisomer of rohitukine from *Dysoxylum binectariferum.* **Tetrahedron Letters,** 2013, *54*, 7140-7143.
116. Zilla, Mahesh K.; Qadri, Masroor.; Pathania, Anup S.; Strobel, Gary A.; Nalli, Yedukondalu.; Kumar, Sunil.; Guru, Santosh K.; Bhushan, Shashi.; Singh, Sanjay K.; Vishwakarma, Ram A.; Syed Riyaz-Ul-Hassanb, Asif Ali. Bioactive metabolites from an endophytic *Cryptosporiopsis sp*.

inhabiting Clidemia hirta. **Phytochemistry**, 2013, *95*, 291-297.

117. Dhar, N.; Rana, S.; Bhat, W. W.; Razdan, S.; Pandith, S.A.; Khan, S.; Dutt, P.; Dhar, R.S.; Vaishnavi, S.; Vishwakarma, R.; Lattoo, S.K. Dynamics of withanolide biosynthesis in relation to temporal expression pattern of metabolic genes in Withania somnifera (L.) Dunal: a comparative study in two morpho-chemovariants. **Molecular Biology Reports***, 2013,* 40(12):7007-16.
118. Kaur, T.; Hussain, K.; Koul, S.; Vishwakarma, R.; Vyas, D. Evaluation of Nutritional and Antioxidant Status of Lepidium latifolium Linn. A Novel Phytofood from Ladakh. **PLoS ONE,** 2013, 8(8): e69112.
119. Sawant, S. D.; Srinivas, M.; Kumar, Aravinda K.A.; Reddy, G. L.; Singh, P.P.; Singh, B.; Sharma, A.K.; Sharma, P.R.; Vishwakarma, R A. Ligand-free C–N bond formation in aqueous medium using a reusable Cu–Mn bimetallic catalyst; **Tetrahedron Letters,** 2013, 54, 5351-5354.
120. Bharate, S.B.; Sawant, S.D.; Singh, P.P.; Vishwakarma, R.A. Kinase inhibitors of marine origin. **Chemical Reviews,** 2013, 113, 6761–6815.
121. Jain, S.K.; Pathania, A.S.; Meena, S.; Sharma, R.; Sharma, A.; Singh, B.; Gupta, B.D.; Bhushan, S.; Bharate, S.B.; Vishwakarma, R.A. Semisynthesis of Mallotus B from Rottlerin: Evaluation of Cytotoxicity and Apoptosis-inducing Activity. **Journal of Natural Products**, 2013, 76, 1724−1730.
122. Singh, P.P.; Aithagani, S.K.; Yadav, M.; Singh, V.P.; Vishwakarma, R.A. Iron-catalyzed Cross-Coupling of Electron-Deficient Heterocycles and Quinone with Organoboron Species via Innate C-H Functionalization: Application in Total Synthesis of Pyrazine Alkaloid Botryllazine. **Journal of Organic Chemistry,** 2013, 78, 2639-2648.
123. Kumar, M; Qadri, M.; Sharma, P.R.; Kumar, A.; Andotra, S.S.; Kaur, T.; Kapoor, K,; Gupta, V.K.; Kant, R.; Hamid, A.; Johri, S.; Taneja, S.C.; Vishwakarma, R.A.; Riyaz-Ul-Hassan, S.; Shah, B.A. Tubulin Inhibitors from an Endophytic fungus isolated from Cedrus deodara. **Journal of Natural Products,** 2013, 76, 194-199.
124. Dzoyem, J.P.; Guru, S.K.; Pieme, C.A.; Kuete, V.; Sharma, A.; Khan I.A.; Saxena, A.K.; Vishwakarma. R.A. Cytotoxic and antimicrobial activity of selected Cameroonian edible plants. **BMC Complementary and Alternative Medicine,** 2013, 13:78.
125. Razdan, S.; Bhat, W.W.; Rana, S.; Dhar, N.; Lattoo, S.K.; Dhar, R.S.; Vishwakarma, R.A. Molecular characterization and promoter analysis of squalene epoxidase gene from Withania

somnifera (L.) Dunal. **Molecular Biology Reports**, 2013, 40, 905-916.

126. Singh, B .; Nadkarni,J. R.; Vishwakarma,R. A.; Bharate ,S. B; Nivsarkar,M.; Anandjiwala, S .The hydroalcoholic extract of Cassia alata (Linn.) leaves and its major compound rhein exhibits antiallergic activity via mast cell stabilization and lipoxygenase inhibition. **Journal of Ethnopharmacology**, 2012,141, 1, 7, 469–473.
127. Afnan,Q.; Adil,M. D.; Ashraf Nissar-Ul, Rafiq,A. R.; Hussian Faridi Amir, Kaiser,P.; Gupta,V. K.; Vishwakarma,R.; Tasduq,S.A. Glycyrrhizic acid (GA), a triterpenoid saponin glycoside alleviates ultraviolet-B irradiation-induced photoaging in human dermal fibroblasts. **Phytomedicine**, 2012, 19, 7, 15, 658–664.
128. Bharate,S. B.; Manda, S.; Joshi, P.; Singh,B.; Vishwakarma,R. A. Total synthesis and anti-cholinesterase activity of marine-derived bis-indole alkaloid fascaplysin. **Medicinal Chemistry Communication**, 2012, 3, 1098-1103.
129. Rammohan R. Yadav, Ram A. Vishwakarma, , Sandip B. Bharate. Catalyst-free ipso-nitration of aryl boronic acids using bismuth nitrate. **Tetrahedron Letters**, 2012, 53, 5958–5960.
130. Jain ,S.K.; Meena ,S.; Singh , B.; Bharate ,J. B.; Joshi, P .; Singh , V. P.; Vishwakarma,R.A.; Bharate ,S.B.KF/alumina catalyzed regioselective benzylation and benzoylation using solvent-free grind-stone chemistry. **RSC Advances**, 2012, 2, 8929-8933.
131. Yadav, R. R.; Battini,N.; Mudududdla,R.; Bharate,J. B.; Muparappu,N .; Bharate, ,S. B.; Vishwakarma,R. A.Deformylation of indole and azaindole-3-carboxaldehydes using anthranilamide and solid acid heterogeneous catalyst via quinazolinone intermediate. **Tetrahedron Letters**, 2012, 53, 2222–2225.
132. Bharate,S. B.; Mupparapu,N.; Manda,S.; Bharate,J.B.; Mudududdla,R.;. Yadav,R.R; Vishwakarma,R.A.Efficient synthesis of 2,3-dihydroquinazolin-4(1H)-ones using heterogeneous solid acid catalysts: unexpected formation of 2,3-dihydro-2-(4-(tetrahydro-2H-pyran-2-yloxy)butyl)-quinazolin-4(1H)-one. **Online Journal of Organic Chemistry**, 2012, 8,308-318.
133. Ruhela, D.; Banerjee, P.; Vishwakarma, R.A.Chemistry and biology of glycosylphosphatidylinositol molecules. **Current Science**, 2012, 102, 194-211.
134. Bhat, W. W.;Surrinder, K. L.; Rana, S.; Razdan, S.; Dhar ,N ; Dhar, R.S. ; Vishwakarma, R.A. Efficient plant regeneration via direct organogenesis and Agrobacteriumtumefaciens-

mediated genetic transformation of Picrorhiza kurroa: an endangered medicinal herb of the alpine Himalayas. **In Vitro Cellular & Developmental Biology – Plant**, 2012, 48, 295-303.

135. Bharate, S.B; Singh, B; Vishwakarma, R.A.Modulation of k-Ras signaling by natural products. **Current Medicinal Chemistry**, 2012, 19, 2273-91.
136. Bharate, S.B.; Manda, S.; Mupparapu, N.; Battini, N.; Vishwakarma, R.A. Chemistry and Biology of Fascaplysin, a Potent Marine-Derived CDK-4 Inhibitor. **Mini Reviews in Medicinal Chemistry**, 2012, 12, 7, 650-664.
137. Bharate, S.B.; Yadav, R.R.; Battula, S.; Vishwakarma, R.A. Meridianins: Marine-Derived Potent Kinase Inhibitors. **Mini Reviews in Medicinal Chemistry**, 2012, 12, 7, 618-631.
138. Jain, S. K.; Bharate, S. B.; Vishwakarma, R. A. Cyclin-Dependent Kinase Inhibition by Flavoalkaloids. **Mini Reviews in Medicinal Chemistry**, 2012, 12, 632-649.
139. Mudududdla, R.; Jain, S.K.; Bharate, J.B.; Gupta, A.P.; Singh, B.; Vishwakarma, R.A.; Bharate, S.B. Ortho-Amidoalkylation of phenols via tandem one-pot approach involving oxazine intermediate. **Journal of Organic Chemistry,** 2012, 77, 8821-8827
140. Bharate, S.B.; Yadav, R.R.; Khan, S. I.; Tekwani, B. L.; Jacob, M. R.; Khan, I.A.; Vishwakarma, R.A. Meridianin G and its analogs as antimalarial agents. **MedChemComm**, 4, 1042-1048
141. Rana, S.; Lattoo, S.K.; Dhar, N.; Razdan, S.; Bhat, W.W.; Dhar, R.S.; Vishwakarma, R.A. NADPH-Cytochrome P450 reductase: Molecular cloning and functional characterization of two paralogs from Withania somnifera (L.) Dunal. **PLoS ONE** ,8(2), e57068
142. Ali, A.; Khajuria, A.; Sidiq, T.; Kumar, A.; Thakur, N.L.; Naik, D.; Vishwakarma, R.A. Modulation of LPS induced inflammatory response by Lawsonyl monocyclic terpene from the marine derived Streptomyces sp. **Immunology Letters**, 150, 79-86
143. Sawant, S.D.; Srinivas, M.; Reddy, G. L.; Rao, V.V.; Singh, P.P.; Vishwakarma, R. One-pot multicomponent synthesis of medicinally important purine quinazolinone derivatives. **Tetrahedron Letters,** 2012, *53*, 6195–6198
144. Singh, PP.; Thatikonda, T.; Aravinda Kumar, K.; Sawant, S.D.; Singh, B.; Sharma, A.K.; Sharma, P.R.; Singh, D.; Vishwakarma, R.A.; Cu-Mn Spinel Oxide Catalyzed Regioselective Halogenation of Phenols and N-Heteroarenes. **Journal of Organic Chemistry,** 2012, 77, 5823-5828.
145. Mudududdla, R.; Jain, S.K.; Bharate, J.B.; Gupta, A.P.; Singh, B.; Vishwakarma, R.A.; Bharate,

S.B. Ortho-Amidoalkylation of phenols via tandem one-pot approach involving oxazine intermediate. **Journal of Organic Chemistry,** 2012, 77, 8821-8827.

146. Singh, PP.; Gudup, S.; Aruri, H.; Singh, U.; Ambala, S.; Yadav, M.; Sawant, S.D.; Vishwakarma, R.A.; New mthod for C-H arylation/alkylation at α-position of cyclic aliphatic ethers by iron-oxide mediated reaction. **Organic & Biomolecular Chemistry**, 2012, 10, 1587-1597.
147. Bharate, S.B.; Mudududdla, R.; Bharate, J.B.; Battini, N.; Battula, S.; Yadav, R.R.; Singh, B.; Vishwakarma, R.R. Tandem one-pot synthesis of flavans by recyclable silica-HClO4 catalyzed knoevenagel condensation and [4+2]-Diel's-Alder cycloaddition. **Organic & Biomolecular Chemistry,** 2012, 10, 5143-5150
148. Mohammed, S.; Padala, A.K.; Dar, B.A.; Singh, B.; Sreedhar, B.; Vishwakarma, R.A.; Bharate, S.B. Recyclable clay supported Cu (II) catalyzed tandem one-pot synthesis of 1-aryl-1,2,3-triazoles. **Tetrahedron Letters**, 2012, 68, 8156-8162
149. Bhat, W.W.; Lattoo, S.K.; Razdan, S.; Dhar, N.; Rana, S.; Dhar, R.S.; Khan, S.; Vishwakarma, R.A. Molecular cloning, bacterial xpression and promoter analysis of squalene synthase from Withania somnifera (L.) Dunal. **Gene**, 2012,499, 25-36.
150. Sharma ,E.; Arora ,B. S.; Khajuria , A.; Sidiq , T.; Kishore,D.; Vishwakarma, R.A. Isolation Of Continentalic Acid from Aralia Cachemirica and Its Immuno-Biological Evaluation**. IJPSR**, 2011, 2, 2183-2189.
151. Sen, M.; Shah, B.; Rakshit, S.; Singh, V.; Padmanabhan, B.; Pomusamy, M.; Pari, K.; Vishwakarma, R. A.; Nandi, D.; and Sadhale; P. P. UDP-glucose 4,6-dehydratase activity plays and important role in maintaining cell wall integrity and virulence of Candida albicans, **Plos Pathogens**, 2011, 7, e1002384.
152. Motiwala, H. ; Kandre, S. ; Birar, V. ; Kadam, K. S. ; Rodge, Atish.; Jadhav, R. D. ; K., M. M.; Reddy, M. J. Brahma.; Deshmukh, N. J. .; Dixit, A. ; Doshi, L. ; Gupte, A. ; Gangopadhyay, A. K. ; Vishwakarma, R. A. ; Srinivasan, S. ; Sharma, M. ; Nemmani, K. V. S. ; and Sharma, R. Exploration of pyridine containing heteroaryl analogs of biaryl ureas as DGAT1 inhibitors. **Bioorganic Medicinal Chemistry Letters**, 2011, 21, 5812-5817.
153. P. Singh.; Gudup, P. P.; Ambala, S. ; Singh, S.; Dadhwal, U.; Singh, S.; Sawant, B.; S. D.; Vishwakarma, R. A. Iron-oxide mediated direct ϵH arylation/alkylation at α -position of cyclic

aliphatic ethers. **Chemical Communications**, 2011, 47, 5852-5854.

154. Saikam, V. ; Raghupathy, R. ; Yadav, M. ; Gannedi, V. ; Singh, P. P. ; Qazi, N. A. ; Sawant , S. D. ;and Vishwakarma, R. A.; Synthesis of new fluorescence labeled Glycosylphosphatidyl inositol (GPI) anchors. **Tetrahedron Letters**, 2011, 52, 4277-4279.

155. Dhuru, S. ; Bhedi, D. ; Gophane, D. ; Hirbhagat, K. ; Nadar, V. ; More, D. ; Parikh, S. ; Dalal, R. ; Fonseca, L. C. ; Kharas, F. ; Vadnal, P. Y. ; Vishwakarma, R. A. and H. Sivaramakrishnan; Novel diarylheptanoids as inhibitors of TNF- alpha production. **Bioorganic Medicinal Chemistry Letters**, 2011, 21, 3784-3787.

156. Balachandran, S. ; Gadekar, P. K. ; Parkale, S. ; Yadav, V. N. ; Kamath, D. ; Ramaswamy, S. ; Sharma, S.; Vishwakarma, R. A. ; Dagia, N. M.; Synthesis and biological activity of novel MIF antagonists. **Bioorganic Medicinal Chemistry Letters**, 2011, 21, 1508-11.

157. Deore, M. K. Lohar, R. Mundada, A. Roychowdhury, R. A. Vishwakarma and S. Kumar; Efficient synthesis of a key intermediate towards Liphagal synthesis. **Synthetic Communication**, 2011, 41, 177-183.

158. Mishra, P. ; Sinha, S. ; Guru, S. K. ; Bhusan, S. ; Vishwakarma, R. A. ; Ghosal, S.; Two new amides with cytotoxic activity from the fruits of Piper longum. **Journal of Asian natural products research**, 2011, 13, 143-148.

159. Saklani, A. ; Sahoo, M. R. ; Mishra, P. D. ; Vishwakarma, R. A.; Sassurea heteromalla: a new source of arctiin, arctigenin and chlorojanerin. Indian Journal of Chemistry, 2011, 50B, 624-626.

160. Adil, D. ; Kaiser, P. ; Satti, N. K. ; Zarger, A. M. ; Vishwakarma, R. A. ; Tasduq, S. A.; Effect of Emblicaofficinalis against UAB-induced photo-aging in human skin fibroblasts. **Journal of Ethnopharmacology**, 2010, 132, 109-114.

161. Ali, A. ; Vishwakarma, R. A. ; Total synthesis of the fully lipidated glycosylphosphatidyl inositol (GPI) anchor of malarial parasite *Plasmodium falciparum*. **Tetrahedron Letters**, 2010, 66, 4357-4369.

162. Chandra, S.; Ruhela, D. ; Deb, A.; Vishwakarma, R. A.; Glycobiology of the Leishmania parasite and emerging targets for antileishmanial drug discovery. **Expert Opinion in Therapeutic Targets**, 2010, 14, 739-57.

163. Bharate, S.B, Nemmani, K.V; Vishwakarma, R.A. Progress in the discovery and development of

small-molecule modulators of G-protein-coupled receptor 40 (GPR40/FFA1/FFAR1): an emerging target for type 2 diabetes. **Expert Opinion in Therapeutic Targets**, 2009, 19, 237-64.

164. Vishwakarma, R. A.; and Ruhela, D.; Chemical synthesis of Glycosylphosphatidylinositols (GPI) anchors. **The Enzymes**, 2009, 26, 181-227.

165. Deshmukh, S. K. ; Mishra, P.D. ; Kulkarni-Almeida, A. ; Verekar, S. ; Sahoo, G, M. R.; Periyasamy, Goswami, H.; Khanna, A.; Balakrishnan, A.; Vishwakarma, R. A. Anti-inflammatory & anticancer activity of Ergoflavin isolated from an endophytic fungus; **Chemistry & Biodiversity**, 2009, 6, 784-789.

166. Deore, V. ; Yewalkar, N. ; Bhatia, D. ; Desai, N. ; Gupte, R. D. ; Dadarkar, S. S. ; Jadhav, M. G. ; Tannu, A. A. ; Bhatt, P. ; Nemmani, K. ; Vishwakarma, R. A. ; Sharma, S. ; Roychowdhury, A.; Dagia, N. M. ; Bhonde, M. R.; Kumar, S. Synthesis and therapeutic evaluation of Pyridyl based novel mTOR Inhibitors. **Bioorganic Medicinal Chemistry Letters,** 2009, 19, 2949-2952.

167. Rodge, A. ; Gadekar, P. ; Yadav, V. ; Kamath, D. ; Chetrapal-Kunwar, A. ; Bhatt, P. ; Srinivasan, S.; Sharma, S. ; Dagia, N. M; and Vishwakarma, R. A; Novel derivatives of IS as potent inhibitors of MIF biological function. **Bioorganic Medicinal Chemistry Letters**, 2009, 19, 4773-4776.

168. Dagia, N. M. ; Kamath, D. V. ; Bhatt, P. ; Gupte, R. D. ; Dadarkar, S. S. ; Fonseca, L. ; G. Agarwal.; A, Chetrapal-Kunwar.; S. Balachandran.; S, Srinivasan.; J, Bose.; K, Pari.; C, Rao.; S, S. Parkale.; P, Gadekar.; A, H. Rodge.; N, Mandrekar.; R. A. Vishwakarma.; S. Sharma. A fluorinated analog of ISO-1 blocks the recognition and biological function of MIF and is orally efficacious in a murine model of colitis. **European Journal of Pharmacology**, 2009, 607, 201-212.

169. Deore, V.; Bhonde, M. R.; Vishwakarma, R. A.; Dagia, N. M.; Kumar, S.; A. Roychowdhury. Mammalian target of rapamycin (mTOR) inhibitors with therapeutic potential for colitis. **Indian Journal of Chemistry**, 2009, 48, 1761-1765.

170. Meera, C. R. ; Nitha, B. ; Janardhanan, K. K. ; and Vishwakarma, R. A. Anti-inflammatory and free radical scavenging activities of polysaccharide-protein complex isolated from Phellinus rimosus (Berk.) Pilat (Aphyllophoromycetideae). **International Journal of Medicinal Mushrooms**, 2009, 11, 365-373.

171. Suthar, A.; Gaja, V.P.; G.; Katkar, K.; Naik, V.; Mane, T.; Kshirsagar, R.; Vishwakarma, R.A.;

Chauhan, V. S. New naphthalene derivatives from Heliotropium ovalifolium. **Asian Journal of Research in Chemistry,** 2009, 2, 571-573.

172. Vyas, H.K.; Pal, R.; Vishwakarma, R.A., Lohia, N. K.; Talwar, G.P. Selective killing of leukemia and lymphoma cells expressing ectopically hCG Beta by a conjugate of curcumin with an antibody against HCG Beta subunit. **Oncology**, 2009, 76, 101-111.
173. Goswami, D. ; Gowrishankar, K. ; Bilgrami, S. ; Ghosh, S. ; Raghupathy, R. ; Chadda, R. ; Vishwakarma, R. A.;M. Rao and Mayor, S.; Nanoclusters of GPI-anchored proteins are formed by cortical actin-driven activity. **Cell**, 2008, 135, 1085-1097.
174. Bharate, S.; Nemmani, K. V. S.; and Vishwakarma, R. A.; Progress in the discovery and development of small molecule modulators of G-protein coupled receptor (GPR40/FFA1/FFAR1): An emerging target for type 2 diabetes. **Expert Opinion in Therapeutic Patents,** 2008, 19, 237-264.
175. Bhonde, M. ; Gupte, R. D. ; Dadarkar, S. ; Jadhav, M. G. ; Tannu, A. A. Bhatia, ; D. ; Bhatt, P. ; Desai, N.; Deore, V. ; Yewalkar, N. ; Vishwakarma, R. A. ; Sharma, S. ; Kumar, S. ; Dagia , N. ;A Novel mTOR Inhibitor is Efficacious in a Murine Model of Colitis. **American Journal of Physiology** (Gastrointest Liver Physiol.), 2008, *295*, G1237-1245.
176. Subramaniam, D. ; Giridharan, P. ; Marmu, N. ; Shankernarayanan, N. P. ; May, R. ; Houchen, C. W.; Ramanujum, R.P.; Balakrishnan, A.; Vishwakarma, R. A. and Anant, S. Activation of apoptosis by 1-hydroxy-5,7-dimethoxy-2-napthalene carboxaldehyde (HDNC), a novel compound from A. marmelos. **Cancer Research,** 2008, 68, 8573-8581.
177. Bharate, S. B. ; Rodge, A. ; Joshi, R. K. ; Kaur, J. ; Srinivasan, S. ; Senthil Kumar, S.; A. Kulkarni-Almeida, Balachandran, S.; Balakrishnan, A.; Vishwakarma, R.A. Discovery of Diacylphloroglucinols as a New Class of GPR40 (FFAR1) Agonists. **Bioorganic Medicinal Chemistry Letters,** 2008, 18*,* 6357-6361.
178. Bharate, S. B. ; Mahajan, T.R. ; Gole, Y.R. ; Nambiar, M. ; Matan, T.T. ; Kulkarni-Almeida, A. ; Balachandran, S. ; Junjappa, H. ; Balakrishnan, A. ; and Vishwakarma, R.A.; Synthesis and evaluation of pyrazolo[3,4-b]pyridines and its structural analogues as TNF-alpha and IL-6 inhibitors. **Bioorganic Medicinal Chemistry,** 2008*,* 16, 7167-7176.
179. Lohar, M. V. ; Mundada, R. ; Bhonde, M. ; Padgaonkar, A. ; Deore, V. ; Yewalkar, N. ;

Bhatia, D.; Rathos, M. ; Joshi, K. ; Vishwakarma, R. A. ; and Kumar, S.; Design and synthesis of novel furoquinoline based inhibitors of multiple targets in the PI3K/Akt/mTOR pathway; **Bioorganic Medicinal Chemistry Letters,** 2008, 18, 3603-3606.

180. Kulkarni-Almeida, A.; Suthar, A. ; Goswami, H. ; Vishwakarma, RA.; Chauhan, VS.; A. Balakrishnan and Sharma, S.; Novel leads from Heliotropium ovalifolium, 4,7,8- trimethoxy-naphthalene-2-carboxylic acid and 6-hydroxy-5,7-dimethoxy-naphthalene-2- carbaldehyde show specific IL-6 inhibitory activity in THP-1 cells and primary human monocytes. **Phytomedicine,** 2008**,** 15, 1079-1086.
181. Tripathi, R. ; Vishwakarma, R. A. ; and Dutta, G. P.; New antimalarial drug development: Pre-clinical status of α and β artelinate as fast acting blood schizontocides. **Proc. Indian Natl. Sci. Acad**. 2008, 74, 111-117.
182. Senthil, V. ; Ramadevi, S. ; Venkatakrishnan, V. ; Giridharan, P. ; Lakshmi, B. S. ; Vishwakarma, R. A.; and Balakrishnan, A.; Withanolide induces apoptosis in HL-60 leukemia cells via mitochondria mediated cytochrome c release and caspase activation. **Chem. Biol. Interact.** 5, 19-30 (2007)
183. Manjula, N. ; Gayathri, B. ; Vinaykumar, K. S. ; Shankernarayanan, N. P. ; Vishwakarma, R. A. and Balakrishnan, A.; Inhibition of MAP kinases by crude extract and pure compound isolated from *Commiphora mukul* leads to down regulation of TNF-aplha, IL-1 beta and IL-2. **Int. Immunopharmacol.** *6*, 122-132 (2006)
184. Vishwakarma, R. A. ; Anand, M. T. ; Arya, R. ; Vats, D. ; and Bhattacharya, A.; Glycosylated Inositol Phospholipid from *Entamoeba histolytica*: Identification and Structural characterization.**Mol. Biochem. Parasitol.** *145*, 121-124 (2006)
185. Anandharajan, R.; Jaiganesh, S.; Shankernarayanan, N.P.; Vishwakarma, R.A.; A, Balakrishnan. In vitro glucose uptake activity of *Aegles marmelos* and *Syzygium cumini* by activation of Glut-4, PI3 kinase and PPARγ in L6 myotubes. **Phytomedicine,** 2006**,** 13, 434-441.
186. Vats, D.; Vishwakarma, R.A.; Bhattacharya, S.; and Bhattacharya, A.; Biosynthesis of Glycosylphosphatidylinositol anchors in *Entamoeba histolytica* and their role in pathogenesis. **Infection and Immunity**, 2005, 73, 8381-8392.
187. Ali, A.; Gowda, D. C.; Vishwakarma, R.A. A new approach to construct full-length

glycosylphosphatidylinositols of parasitic protozoa and [4-deoxy-Man-III]-GPI analogues; **Chem. Commun.** 2005, 519-521.

188. Vishwakarma, R. A.; Menon, A. K. Flip-flop of glycosylphosphatidylinositols (GPI's) across the ER; **Chem. Commun**. (4) 453-455 (2005).

189. Ruhela, D.; Chatterjee, P.; and Vishwakarma, R. A.; 1-Oxabicyclic beta-lactams as new inhibitors of elongating MPT–a key enzyme responsible for assembly of cell-surface phosphoglycans of Leishmania parasite; **Org. Biomol. Chem**. 2005, 3, 1043-1048.

190. Vishwakarma, R. A. ; Vehring, S. ; Mehta, A. ; Sinha, A. ; Pomorski, T. ; Herrmann , A. ;and Menon, A. K.; New fluorescent probes reveal that flippase-mediated flip-flop of Phosphatidylinositol across the ER membrane does not depend on the stereochemistry of the lipid; **Org. Biomol. Chem.** 2005**,** 3, 1275-1283.

191. Singh, R. Gupta.; R. A. Vishwakarma.; Narayanan, P. R.; Paramasivan, C. N. ; V. D. Ramanathan.; Tyagi, A. K. Requirement of mymA operon for appropriate cell wall ultrastructure and persistence of *Mycobacterium tuberculosis* in the spleens of guinea pigs. **Journal of Bacteriology**, 2005, *187*, 4173-4186.

192. Prasad, T. ; Saini, P. ; Gaur, N. A. ; Vishwakarma, R. A. ; Khan, L. A. ; Haq, Q. M. R. ; R. Prasad.Functional analysis of CaIPT1, a sphingolipid biosynthetic gene involved in Multi drug resistance and morphogenesis of *Candida albicans*. **Antimicrobial Agents Chemother**, 2005*, 49*, 3442-3452.

193. Anandharajan, R.; Pathmanathan, K.; Shankernarayanan, N. P.; Vishwakarma, R. A.; A. Balakrishnan; Upregulation of Glut-4 and PPAR-gamma by an isoflavone from *Pterocarpus marsupium* on L6 myotubes: a possible mechanism of action. **J. Ethnopharmacol**. 2005, 97, 253-260.

194. Ruhela, D.; and Vishwakarma, R. A.; A facile and novel route to the antigenic branched phosphoglycan of the protozoan *Leishmania major* parasite. **Tetrahedron Letters***.* 2004, 45, 2589-2592.

195. Ruhela, D.; and Vishwakarma, R. A.; Iterative synthesis of *Leishmania* Phosphoglycans by Solution, Solid-phase and Polycondensation Approaches without involving any Glycosylation. **Journal of Organic Chemistry***,* 2003, 68, 4446-4456.

196. Chawla, M.; Vishwakarma, R. A. Alkylacylglycerolipid domain of GPI molecules of *Leishmania* is responsible for inhibition of PKC mediated *c-fos* gene expression. **Journal of Lipid Research**, 2003, 44, 594-600.

197. Arya, R. ; Mehra, A. ; Bhattacharya, S. ; Vishwakarma, R. A. ; Bhattacharya, A.; Biosynthesis of *Entamoeba histolytica* proteophosphoglycan in-vitro**. Mol. Biochem. Parasitol**. 2003, 126, 1-8.

198. Giridharan, P. ; Somasundaram, S. T. ; Perumal, K. ; Vishwakarma, R. A. ; Karthikeyan, N. P.; Velmurugan, R.; Balakrishnan, A. Novel substituted methylenedioxy lignan suppresses proliferation of cancer cells by inhibiting telomerase & activation of c-*myc* and caspases leading to apoptosis. **British J. Cancer**, 2002, *87*, 98-105.

199. Ruhela, D.; Vishwakarma, R. A.; Efficient Synthesis of the antigenic phosphoglycans of *Leishmania* Parasite. **Chem. Commun**., 2001, 2024-2025.

200. Khan, S. R.; Deutscher, J.; Vishwakarma, R. A.; Monedero, V.; Bhatnagar, N. B. The *ptsH* gene from *Bacillus thuringiensis israelensis*: characterization of a novel phosphorylation site on the protein HPr. **Eur. J. Biochem**., 2001, 268, 521-530.

201. Chaturvedi, G. ; Tewari, R. ; Mrigank, N; Agnihotri.; Vishwakarma, R. A. ; N. K. Ganguly; Inhibition of *Helicobacter pylori* adherence by a peptide derived from neuraminyl lactose binding adhesion; **Mol. Cell. Biochem**. 2001, 228, 83-89.

202. Upreti, M.; Ruhela, D.; Vishwakarma, R. A. Synthesis of the tetrasaccharide cap domain of the antigenic cell surface Lipophosphoglycan of *Leishmania donovani* parasite. **Tetrahedron**, 2000, 56, 6577-6585.

203. Sahai, P.; Chawala, M.; Vishwakarma, R.A. C labeling and electrospray mass spectrometry reveal a de novo route for inositol biosynthesis in *Leishmania donovani* parasite. **J. Chem. Soc. Perkin-1,** 2000, 1283-1290.

204. Nakra, P.; Manivel, V. Vishwakarma, R. A.; Rao, K. V.; S. B cell responses to a primary response is thermodynamically regulated. **J. Immunol**, 2000, 164, 5615-5625.

205. Upreti, M.; and Vishwakarma, R. A.; Synthesis of phosphodisaccharide repeat of antigenic Lipophosphoglycan of Leishmania parasite. **Tetrahedron Letters**, 1999, 40, 2619-2622.

206. Tyagi, A.; and Vishwakarma, R. A.; Recombinant *Bacillus subtilis* whole cell system as a catalyst for enzymatic synthesis of cyclic inositol phosphate. **Tetrahedron Letters**, 1998, *39*, 6069-6072.

207. Bharel, S.; Vishwakarma, R. A.; Artemisinin mediated alteration of haemin to α-meso oxidation product: Relevance to the mechanism of action. **J. Chem. Soc. Perkin-1**, 1998, 2163-2166.

208. Sahai, P. ; Vishwakarma, R. A.; Bharel, S. ; Gulati, A. ; Abidin, M. Z. ; Srivastava, P. S. ; Jain, S. K.; HPLC-Electrospray mass spectrometric analysis of artemisinin. **Analytical Chemistry**, 1998, 70, 3084-3087.

209. Nayak, B. P. ; Tuteja, R. ; Manivel, V. ; Roy, R. P. ; Vishwakarma, R. A. ; Rao, K. V. S.; B cell response to a peptide epitope: Kinetic regulation of repertoire discrimination and antibody optimization for epitope. **J. Immunol.**, 1998, 161, 3510-3519.

210. Bharel, S.; Gulati, A.; Abidin, MZ. ; Srivastava, PS.; Vishwakarma, R.A.; Jain, S. K.; Enzymatic synthesis of artemisinin from natural and synthetic precursors. **J. Nat. Prod**., 1998, *61*, 633-636.

211. Gupta, S.; Dutta, G.P.; Vishwakarma, R. A.; Effect of alpha, beta-arteether against primary amoebic meningo-encephalitis in Swiss mice. **Indian J. Exp. Biol**., 1998, *36*, 824-825.

212. Ghosal and Vishwakarma, R. A.; Tinocordiside, a new rearranged cadinane sesquiterpene glycoside from Tinospora cordifolia. **J. Nat. Prod**., 1997, *60*, 839.

213. Sahai and Vishwakarma, R.A.; Phospholipase-A_2 mediated stereoselective synthesis of (R)-3-*lyso*-1-O-alkyl-*sn*-glycero-3-phosphate and alkyl-acyl analogues: Application for synthesis of radiolabeled biosynthetic precursors of cell surface glyco-conjugates of *Leishmania donovani*. **J. Chem. Soc. Perkin-1**, 1997, 1845-1849.

214. Zamir, O. ; Balachandran, S. ; Zheng, Y. F. ; Caron, G. ; Nikolakakis, A. ; Nedea, M. E. ; Vishwakarma, R. A.; Sauriol, F. ; and Mamer, O.; Acid catalyzed rearrangements of 9-dihydro-13-acetyl-baccatin-III, a major Taxane from Taxus Canadensis. **Tetrahedron**, *53*, 15991-16008 (1997)

215. Tripathi; Vishwakarma, R. A.; Dutta, G. P.; Plasmodium frigile: Efficacy of arteether against cerebral malaria model. **Exp. Parasitol**., 1997, *87*, 290-292.

216. Tripathi, R.; Dutta, G. P.; and Vishwakarma, R. A.; Gametocytocidal antimalarial activity of a/b-arteether by oral administration. **Amer. J. Trop. Med. Hyg**., 1996, *54*, 652-654.

217. Gupta, S.; Ghosh, P. K. ; Dutta, G. P. ;* and Vishwakarma, R. A.; In-vivo study of artemisinin and its derivatives against primary amebic meningoencephalitis. **J. Parasitol**. 1995, *81*, 1012-1013.

218. Li, Y. ; Alanine, A. I. D. ; Vishwakarma, R. A. ; Balachandran, S. ; Leeper, F. J. ; A. R. Battersby; Biosynthesis of Vitamin B_{12}: Mechanistic studies on transfer of methyl group from C-

11 to C-12 and incorporation of ^{18}Oxygen. **J. Chem. Soc., Chem. Commun**., 1994, 2407-2508.

219. Balachandran, S. ; Vishwakarma, R. A. ; Monagham, S. M. ; Prelle, A. ; Stamford, N. P. J. ; Leeper, F.J. ; and Battersby, A. R.; Biosynthesis of porphyrins and related macrocycles: Pulse labeling experiments concerning timing of cobalt insertion in Vitamin B_{12}; **J. Chem. Soc., Perkin 1**, 1994, 487-491.

220. Vishwakarma, R. A. ; Balachandran, S. ; Alanine, A. I. D. ; Stamford, N. P. J. ; Leeper , F. J.; Battersby, A. R.; Biosynthesis of porphyrins and related macrocycles: Fate of oxygen atoms as precorrin-2 carrying eight labeled carboxyl groups ($^{13}C^{18}O_2H$) is enzymatically converted to cobyrinic acid. **J. Chem. Soc., Perkin 1**, 1993, 2893-2899.

221. Vishwakarma, R. A.; Mehrotra, R.; Tripathi, R.; and Dutta, G. P.; Stereoselective synthesis and antimalarial activity of artelinic acid; J. Nat. Prod., 1992, 55, 1142-1144.

222. Tndon, J. S.; Roy, R.; Balachandran, S.; and Vishwakarma, R. A.; Epideoxycoleonol, a new antihypertensive labdane diterpenoid from *Coleus forskohlii*. **Bioorganic Medicinal Chemistry Letter**, 1992, 2, 249-253.

223. Tripathi, R. ; Dutta, G. P. ; and Vishwakarma, R. A.; Comparison of antimalarial efficacy of alpha,beta and alpha/beta arteether against Plasmodium cynomolgi B. **Amer. J. Trop. Med. Hyg**., 1991, 44, 1991, 560-563.

224. Agrawal, P. K. ; Vishwakarma, R. A. ; Jain, D. C. ; Roy, R.; High field NMR spectroscopic studies of arteannuin B and a reappraisal of the structure of arteannuin C. **Phytochemistry**, 1991, *30*, 1991, 3469-3471.

225. Tripathi, R. ; Dutta, G. P. ; and. Vishwakarma, R. A.; Gametocytocidal activity of the antimalarial alpha beta arteether against Plasmodium cynomolgi B. **Amer. J. Trop. Med. Hyg**. 1990, *43*, 571-575.

226. Vishwakarma, R. A.; and J. S. Tandon; Stereoisomers of coleonol (forskolin) and related diterpenoids. **Tetrahedron Letters**, 1990, *31*, 7493-7494.

227. Roy, R.; Vishwakarma, R.A.; Varma, N.; Tandon.; J. S. ; Coleonolic acid, a new ursane triterpenoid from Coleus forskohlii. **Tetrahedron Letters**, 1990, *31*, 3467-3470.

228. Vishwakarma, R. A.; Stereoselective synthesis of -arteether from artemisinin**. J. Nat. Prod**.,

1990, *31*, 216-217.

229. Praka sh, O.; Roy, R.; Kapil, R. S.; Vishwakarma, R. A.; Two-dimensional NMR studies of arteether. **Indian J. Chem**., 1990, *29B*, 103-107.
230. Vishwakarma, R. A.; Spiroforskolin, an acid catalyzed rearrangemen product of forskolin. **Tetrahedron Letters**, 1989, *30*, 131-132.
231. Dutta, G. P.; Tripathi, R.; and Vishwakarma, R. A.; Artemisinin, a new gametocytocidal drug for malaria. **Chemotherapy**, 1989, *35*, 200-207.
232. Bajpai, R.; Dutta, G.P.; Vishwakarma, R. A.; Blood-schizontocidal activity of new antimalarial arteether against *Plasmodium knowsi*. **Trans.Royal Soc.Trop.Med.Hyg**., 1989, *83*,484-485.
233. Dutta, G. P.; Bajpai, R. ; Vishwakarma, R. A.; Comparison of antimalarial efficacy of artemisinin and arteether against *Plasmodium cyanomolgi*. **Trans.Royal Soc.Trop. Med. Hyg**., 1989, *83*, 56-58.
234. Kar, K.; Nath, A.; Bajpai, R.; Dutta.; Vishwakarma, R. A.; Pharmacology of arteether, a new Artemisinin, a new antimalarial drug. **J. Ethanopharmacol**., 1989, *27*, 297- 305.
235. Madhusudanan, K.P.; Vishwakarma, R.A.; Balachandran, S.; and Popli, S. P.; Mass spectral studies on artemisinin, dihydroartemisinin and arteether. **Indian J. Chem**., 1989, *28B*, 1989, 751-754.
236. Mehrotra, R.; Ahmed, B.; Vishwakarma, R.A.; and Thakur, R. S.; Verbacoside: a new luteolin glycoside from Verbascum Thapsus. **J. Nat. Prod**., 1989, *52*, 640-643.
237. Mehrotra, R.; Vishwakarma, R. A. ; Thakur, R. S. Abietane diterpenoids from Coleus zeylanicus. **Phytochemistry**, 1989, *28*, 3135-3137.
238. Dutta, G.P.; Bajpai, R.; Vishwakarma, R. A.; Antimalarial efficacy of arteether against multiple drug resistant strain of Plasmodium yoelii nigeriensis. **Pharmacol. Res**., 1989, *21*, 1989, 415-419.
239. Ahmad, B.; Vishwakarma, R. A.; Coleoside, a new monoterpene glycoside from Coleus forskohlii. **Phytochemistry**, 1988, *27*, 3309-3311.
240. Kar, K. ; Shankar, G. ; Bajpai, R.; Dutta, G.P.; Vishwakarma, R. A.; Artemisinin, a potent antimalarial:general pharmacological properties. **Indian J. Parasitol**., *12,* 209-212 (1988)
241. Balachandran, S.; Vishwakarma, R. A. ; and Popli, S. P.; Studies in medicinal plants: A new xanthone from Hypericum mysorense; **Indian J. Chem**., 1988, 7B, 385-386.

242. Singh, A.; Vishwakarma, R. A.; and Husain, A.; Evaluation of Artemisia annua strains for higher artemisinin production. **Planta Medica, 1988,** *54*, 475-476.

243. Vishwakarma, R. A.; Tyagi, B. R.; Ahmed, B.; and Husain, A.; Variation in Forskolin content in the roots of Coleus forskohlii. **Planta Medica**, 1988, *54*, 1988, 471-472.

244. Dutta, G. P. ; Bajpai, R. ; Vishwakarma, R. A.; Blood schizontocidal activity of artemisinin (qinghaosu) and a new antimalarial arteether against Plasmodium berghei. **Indian J. Parasitol**., 1987, *11*, 253-257.

245. Vishwakarma, R. A.; Kapil, R. S.; Popli, S. P.; Studies in medicinal plants Part XVII. New lactones from Hypericum mysorense. **Indian J. Chem.**, 1987, *26B*, 486-487.

246. Balachandran, S.; Vishwakarma, R. A.; and Popli, S. P.; Chemical investigation of some Artemisia species: search for artemisinin or other related sesquiterpene lactones with a peroxide bridge. **Indian J. Pharm. Sci**., 1987, *49*, 152-154.

247. Vishwakarma, R.A.; Kapil, R. S.; Popli, S. P.; Structure of hypericorin. **Indian J. Chem**., 1986, *25B*, 1155-1156.

248. Vishwakarma, R. A.; Kapil, R. S. ; Popli, S. P.; Total synthesis of Keilcorin. **Indian J. Chem**., 1986, *25B*, 1021-1025.

249. Vishwakarma, R. A.; Kapil, R. S.; Popli, S. P.; Studies in medicinal plants: PartXV Novel pyrones from Hypericum mysorense. **Indian J. Chem**., 1986, *25B*, 466-468.

250. Vishwakarma, R. A.; Kapil, R. S.; Popli, S. P.; Studies in medicinal plants: Part X Chemical constituents of Hypericum mysorense. **Indian J. Chem**., 1983, *22B*, 612-613.

PATENTS (filed and granted)

- Vishwakarma, R.A.; Bharate, S.B.; Bhushan, S.; Yadav, R.R.; Guru, S.K.; Joshi, P. 6-Aryl-4-Phenylaminoquinazolines As Phosphoinositide 3 Kinase Inhibitors And Their Preparation, Pharmaceutical Compositions And Use In The Treatment Of Cancer. (WO Patent No. WO2015128873A1).

- Bharate, S.; Kumar, A.; Bharate, J.; Joshi, P.; Wani, A.; Mudududdla, R.; Sharma, R.; Vishwakarma, R.A. Polyalkylated Acyl And Benzoyl-Phloroglucinols As Potent P-Glycoprotein Inducers.(WO Patent Application No. PCT/IN2015/050069).
- Bharate, S.; Kumar, A.; Manda, S.; Joshi, P.; B, S.; Wani, A.; Sharma, S.; Vishwakarma, R.A. Alkylidene Phosphonate Esters As P-Glycoprotein Inducers. (WO Patent Application No. PCT/IN2015/050110).
- Yempalla ,K.R.; Munagala, G.; Singh, S.; Sharma, S.; Khan, I.A.; Vishwakarma, R.A.; Singh, P.P. Substituted 1,2,3-Triazol-1-Yl-Methyl-2,3-Dihydro-2-Methyl-6-Nitroimidazo[2,1-B]Oxazoles As Anti-Mycobacterial Agents And A Process For The Preparation Thereof. (WO Patent Application No. PCT/IN2015/050111).
- Vishwakarma, R. A.; Jain, S.K.; Bharate, S. B.; Dar, A.H.; Khajuria, A.; Meena, S.; Bhola, S.K.; Qazi, A.K.; Hussain, A.; Sidiq, T.; Uma, S.R.; Ravikanth, G.; Vasudeva, R.; Patel, M.K.; Ganeshaiah, K. New Chromone Alkaloid Dysoline for the Treatment of Cancer and Inflammatory Disorders (EP Patent Application No. 14724520.3).
- Vishwakarma, R.A.; Bharate, S. B.; Bhushan, S.; Mondhe, D. M.; Jain, S. K.; Meena, S.; Guru, S. K.; Pathania, A. S.; Kumar, S.; Behl, A.; Mintoo, M. J.; Bharate, S. S.; Joshi, P. Rohitukine Analogs As Cyclin-Dependent Kinase Inhibitors And A Process For The Preparation Thereof (EP Patent Application No. 14734915.3, US Patent Application No. 14/784489)
- Vishwakarma, R.A.; Bharate, S.B.; Kumar, A.; Singh, B.; Kumar, A.; Bhushan, S.; Hamid, A.; Joshi, P.; Guru, S.K.; Kumar, S.; Hussain, A.; Qazi, A.K.; Bharate, S.S.; Sharma, P.; Saxena, A.K.; Mondhe, D.M.; Mahajan, G.; Wani, Z. 10-Substituted Colchicinoids As Potent Anticancer Agents. (WO Patent Application No. PCT/IN2015/050135).
- Vishwakarma, R.A.; Kumar, A.; Khan, I.A.; Bharate, S.B.; Joshi, P.; Singh, S.; Satti, N. A Pharmaceutical Composition for the Treatment of Multi-Drug Resistant Infections. (WO Patent Application No. PCT/IN2015/050143).

- Bharate, S.; Kumar, A.; Manda, S.; Joshi, P.; Bharate, S.; Vishwakarma, R.A. N-Substituted Beta-Carbolinium Compounds as Potent P-Glycoprotein Inducers. (WO Patent Application No. PCT/IN2015/050142).
- Vishwakarma, R.A.; Bharate, S.B.; Kumar, A.; Singh, B.; Kumar, A.; Bhushan, S.; Hamid, A.; Joshi, P.; Guru, S.K.; Kumar, S.; Hussain, A.; Qazi, A.K.; Bharate, S.S.; Sharma, P.; Saxena, A.K.; Mondhe, D.M.; Mahajan, G.; Wani, Z. 10-Substituted Colchicinoids As Potent Anticancer Agents. (WO Patent Application No. PCT/IN2015/050135).
- Bharate, S.B.; Bhushan, S.; Mohammed, S.; Guru, S.K.; Bharate, S.S.; Kumar, V.; Mahajan, G.; Mintoo, M.J.; Mondhe, D.M.; Vishwakarma, R.A. Fused Pyrimidines as Isoform Selective Phosphoinositide-3-Kinase-Alpha Inhibitors and Process for Preparation Thereof. (Indian Patent Filed: 3818DEL2015).
- Vishwkarma, R.A.; Bharate, SB.; Bhushan, S.; Mondhe, D.M.; Jain. SK.; Meena, S.; Guru, SK.; Pathania, AS.; Kumar, S.; Behl, A.; Mintoo, MJ.; Bharate, SS.; Joshi, P. Cyclin-Dependent Kinase Inhibition By 5,7-Dihydroxy-8-(3-Hydroxy-1-Methylpiperidin-4-Yl)-2-Methyl-4h-Chromen-4-One Analogs. (WO Patent No. WO/2014/170914 A1).
- Vishwakarma R.A.; Jain, S.K.; Bharate, S.B.; Dar, A.H.; Khajuria, A.; Meena, S.; Bhola, S.K.; Qazi, A.K.; Hussain, A.; Sidiq, T.; Uma, Shanker R.; Ravikanth, G.; Vasudeva, R.; Patel, MK.; Ganeshaiah, KN. New chromone alkaloid dysoline for the treatment of cancer and inflammatory disorders. (WO Patent No. WO/2014/167580 A1).
- Jain, S.K.; Sidiq, T.; Meena, S.; Khajuria, A.; Vishwakarma, RA.; Bharate, SB. Tetrahydro-2h-pyrano {3, 2-c]-isochromene-6-ones and analogs for the treatment of inflammatory disorders**.** (WO Patent No.WO/2014/188440 A1).
- Sawant, .D.; Ginnereddy, L.R.; Mahesuni, Srinivas.; Syed, Sajad Hussain.; Dar, M.I.; Nargotra, Amit.; Mahajan, Priya.; Vishwakarma, R.A. Novel Pyrazolopyrimidinones as PDE-5 inhibitors**.** (Patent Application No. PCT/IN2014/000662)

- Singh, Deepika.; Sharma, Prakash Jai.; Jaglan, Sundeep.; Dar, Hamid Abid.; Khajuria, Anamika.; Singh, Pratap Varun.; Vishwakarma, Ram Asrey. Brachiatin d and process for their production thereof. (Patent Application No. PCT/IN2014/000557).
- Vishwakarma, Ram Asrey.; Bharate, Sandip Bibishan.; Bhushan, Shashi.; Mondhe, Dilip Manikrao.; Jain, Shreyans Kumar.; Meena, Samdarshi.; Guru, Santosh Kumar.; Pathania, Anup Singh.; Kumar, Suresh.; Behl, Akanksha.; Mintoo, Mubashir Javed.; Bharate, Sonali Sandip.; Joshi, Prashant. Rohitukine analogs as cyclin-dependent kinase inhibitors and a process for the preparation thereof**.** (Patent Application No. PCT/IN2014/000239).
- Singh, Parvinder Pal.; Munagala, Gurunadham.; Yempalla, Kushalava Reddy.; Khan, Inshad Ali.; Kalia, Nitin Pal.; Rajput, Singh Vikrant.; Nargotra, Amit.; Sawant, Damodhar Sanghapal.; Vishwakarma, RA. 6-notro-2, 3-dihydroimidazo [2, 1-b] oxazoles and a process for the preparation thereofanti-mycobacterial agents**.** (WO Patent Application No.PCT/IN2014/000202, TW Patent Application No. 103120596).
- Vishwakarma, Ram Asrey.; Jain, Shreyans Kumar.; Bharate, Sandip Bibishan.; Dar, Abid Hamid.; Khajuria, Anamika.; Meena, Samdarshi.; Bhola, Sunil Kumar.; Qazi, Asif Khurdhid.; Hussain, Aashiq.; Sidiq, Tabasum.; Uma, Shanker Ramanan.; Ravikanth, Gudasalamani.; Vasudeva, Ramesh.; Patel, Mohana Kumara.; Ganeshaiah, Kotiganahalli. New chromone alkaloid dysoline for the treatment of cancer and inflammatory disorders. (WO Patent Application No. PCT/IN2014/000201).
- Vishwakarma, Ram Asrey.; Sawant, Damodhar Sanghapal.; Singh, Parvinder Pal.; Dar, Hamid Abid.; Sharma, Raj Parduman.; Saxena, Ajit Kumar.; Nargotra, Amit.; Kumar, Aravind.; Kolluru, Anjaneya.; Mudududdla, Ramesh.; Qazi, Asif Khurshid.;. Hussain, Aashiq; Chanauria, Nayan. Design, synthesis and biological evaluation of isoform selective analogs of liphagane scaffold as anticancer agents: p13k-alpha/beta inhibitors. (EP, JP, CN Patent Application No.13723567.7).
- Bharate, S.B.; Bhushan, S.; Mohammed, S.; Guru, S.K.; Bharate, S.S.; Kumar, V.; Mahajan, G.; Mintoo, M.J.; Mondhe, D.M.; Vishwakarma, R.A.FUSED PYRIMIDINES AS ISOFORM SELECTIVE PHOSPHOINOSITIDE-3-KINASE-ALPHA INHIBITORS AND PROCESS FOR PREPARATION THEREOF**.** (Indian Patent Filed: 3818DEL2015)

- Vishwakarma, R.A.; Bharate, S.B.; Bhushan, S.; Yadav, R.R.; Guru, S.K.; Joshi, P. 6-Aryl-4-Phenylaminoquinazolines As Phosphoinositide 3 Kinase Inhibitors And Their Preparation, Pharmaceutical Compositions And Use In The Treatment Of Cancer. (Indian Patent Filed: 0554DEL2014)
- Vishwakarma, Ram.; Kumar, Ajay.; Khan, Inshad Ali.; Bharate, Sandip Bibishan.; Joshi, Prashant.; Singh, Samsher.; Satti, Naresh. A pharmaceutical composition for the treatment of multi-drug resistant infections**.** (Indian Patent Filed: 3077DEL2014)
- Thatikonda, Thanusha.; Kumar, Suresh.; Singh, Umed.; Mahajan, Priya.; Mahajan, Girish.; Nargotra, Amit.; Malik, Fayaz.; Mondhe, Dilip Manikrao.; Vishwakarma, Ram Asrey.; Singh, Parvinder Pal. Novel 1,3,5 -triazine based pi3k inhibitors as anticancer agents and a process for the preparation thereof**.** (Indian Patent Filed: 3369DEL2014)
- Bharate, Sandip.; Kumar, Ajay.; Manda, Sudhakar.; Joshi, Prashant.; Bharate, Sonali.; Wani, Abubakar.; Sharma, Sadhana.; Vishwakarma, Ram. Alkylidene phosphonate esters as p-glycoprotein inducers**.** (Indian Patent Filed: 3010DEL2014)
- Yempalla, Kushalava Reddy.; Munagala, Gurunadham.; Singh, Samsher.; Sharma, Sumit.; Khan, Inshad Ali.; Vishwakarma, Ram Asrey.; Singh, Parvinder Pal. Substituted 1,2,3-triazol-1-yl-methyl-2,3-dihydro-2-methyl-6-nitroimidazo[2,1-b]oxazoles as anti-mycobacterial agents and a process for the preparation thereof. (Indian Patent Filed: 3009DEL2014)
- Bharate, Sandip.; Kumar, Ajay.; Bharate, Jaideep.; Joshi, Prashant.; Wani, Abubakar.; Mudududdla, Ramesh.; Sharma, Rohit.; Vishwakarma, R.A. Polyalkylated acyl and benzoyl-phloroglucinols as potent p-glycoprotein inducers**.** (Indian Patent Filed: 3004DEL2014)
- Bharate, Sandip.; Kumar, Ajay.; Manda, Sudhakar.; Joshi, Prashant.; Bharate, Sonali.; Vishwakarma, Ram. N-substituted beta-carbolinium compounds as potent p-glycoprotein inducers. (Indian Patent Filed: 3002DEL2014)
- Vishwakarma, Ram.; Bharate, Sandip Bibishan.; Kumar, Ajay.; Singh, Baljinder.; Kumar, Ashok.; Bhushan, Shashi.; Hamid, Abid.; Joshi, Prashant.; Guru, Santosh Kumar.; Kumar, Suresh.; Hussain, Aashiq.; Qazi, Asif Khurshid.; Bharate, Sonali Sandip.; Sharma, Parduman.; Saxena, Ajit Kumar.;

Mondhe, Dilip Manikrao.; Mahajan, Girish.; Wani, Zahoor. 10-substituted colchicinoids as potent anticancer agents. (Indian Patent Filed: 2929DEL2014)

- Vishwakarma ,Ram Asrey.; Bharate, Sandip Bibishan.; Bhushan ,Shashi.; Yadav ,Rammohan Rao.; Guru, Santosh Kumar.; Prashant,Joshi. 6-Aryl-4-Phenylamino-Quinazoline Analogs as Phosphoinositide-3-Kinase Inhibitors. Indian Patent Filed: 0554DEL2014 (Dt. 27-02-2014).
- Sawant, Sanghapal Damodhar.; Reddy, Ginnereddy Lakshma.; Srinivas,Mahesun.; Hussain, Syed Sajad.; Dar, Mohd Ishaq.; Nargotra, Amit.; Mahajan , Priya.; Vishwakarma ,Ram Asrey. Novel Pyrazolopyrimidinones as Pde-5 Inhibitors.Indian Patent Filed: 0281DEL2014 (Dt. 30-01-2014).
- Vishwakarma, Ram A.; Sawant, Sanghapal Damodhar.; Singh, Parvinder Pal.; Dar, Abid Hamid.; Sharma, Parduman Raj.; Saxena, Ajit Kumar.; Nargotra, Amit.; Kumar, Kolluru Anjaneya Aravind.; Mudududdla, Ramesh.; Qazi, Asif Khurshid .; Hussain, Aashiq.; Chanauria, Nayan. (En)Boronic Acid Bearing Liphagane Compounds As Inhibitors Of Pi3k-A And/Or B (Fr) Composés Liphagane Porteurs D'acide Boronique Servant D'inhibiteurs De Pi3k-A Et/Ou B**.** (WO Patent No. WO/2013/14041 A1).
- Jain, Shreyans Kumar.; Sidiq, Tabasum.; Meena, Samdarshi.; Khajuria, Anamika.; Vishwakarma, Ram Asrey.; Bharate, Sandip Bibishan. Tetrahydro-2h-Pyrano [3, 2-C] Isochromene-6-Ones and Analogs for the Treatment of Inflammatory Disorders. (Patent Application No.PCT/IN2013/000679).
- Vishwakarma, Ram Asrey.; Jain, Shreyans Kumar.; Bharate, Sandip Bibishan.; Hamid, Dar Abid.;Khajuria, Anamika.; Samdarshi, Meena.; Kumar, Bhola Sunil.; Khurdhid, Qazi Asif.; Hussain, Aashiq.; Tabasum, Sidiq.; Uma Shaanker,Ramanan .; Gudasalamani, Ravikanth.; Vasudeva, Ramesh.; Patel, Mohana Kumara.; Kotiganahalli, Ganeshaiah. New Chromone Alkaloid Dysoline For The Treatment Of Cancer And Inflammatory Disorders.Indian Patent Filed: 1077DEL2013 Dt. (Dt. 10-04-2013).
- Jain ,Shreyans Kumar.; Tabasum,Sidiq.; Samdarshi,Meena.; Khajuria ,Anamika.; Vishwakarma, Ram Asrey.; Bharate, Sandip Bibishan. Tetrahydro-2h-Pyrano [3, 2-C] Isochromene-6-Ones and Analogs for the Treatment of Inflammatory Disorders. Foreign Patent Filed: 1565DEL2013 (Dt. 24-05-2013) .

- Jain, Shreyans Kumar.; Tabasum,Sidiq.; Samdarshi,Meena.; Khajuria, Anamika.; Vishwakarma, Ram Asrey.; Bharate, Sandip Bibishan. Tetrahydro-2h-Pyrano [3, 2-C] Isochromene-6-Ones and Analogs for the Treatment of Inflammatory Disorders. Indian Patent Filed: 1565DEL2013 (Dt. 24-05-2013).
- Vishwakarma, Ram Asrey.; Bharate, Sandip Bibishan.; Bhushan, Shashi.; Jain, Shreyans Kumar.; Meena, Samdarshi.; Kumar, Guru Santosh.; Singh, Pathania Anup.; Kumar, Suresh. Cyclin-Dependent Kinase Inhibition By 5,7-Dihydroxy-8-(3-Hydroxy-1-Methylpiperidin-4-Yl)-2-Methyl-4h-Chromen-4-One Analogs. Indian Patent Filed: 1142DEL2013 (Dt. 17-04-2013).
- Singh, Deepika.; Sharma, Jai Prakash .; Jaglan, Sundeep.; Dar, Abid Hamid .; Khajuria, Anamika.; Singh ,Varun Pratap.; Vishwakarma, Ram Asrey. Brachiatin D and Process for Their Production Thereof. Indian Patent Filed: 2563DEL2013 (Dt. 30-08-2013).
- Singh, Parvinder Pal.; Munagala, Gurunadham.; Yempalla, Kushalava Reddy.; Khan, Inshad Ali.; Kalia, Nitin Pal.; Rajput, Vikrant Singh.; Nargotra, Amit.; Sawant, Sanghapal Damodhar.; Vishwakarma, Ram Asrey. 6-Nitro-2,3-Dihydroimidazo[2,1-B]Oxazoles And A Process For The Preparation Thereofanti-Mycobacterial Agents.Indian Patent Filed: 2954DEL2013 (Dt. 04-10-2013).
- Mondhe, Dilip Manikrao.; Taneja, Subhash Chandra.; Koul, Surrinder.; Dhar, Jagdish Kumar.; Saxena, Ajit Kumar.; Johri, Rakesh Kamal.; Wani, Zahoor Ahmad.; Andotra, Samar Singh.; Sharma, Subhash Chander.; Singh, Surjeet.; Gupta, Prem Narayan.; Vishwakarma, Ram Asrey. A Novel Formulation Useful In Cancer Chemotherapy. Indian Patent Filed: (Prov Dt. 17-02-2013).
- Jain Jain, S.K.; Sidiq, T.; Meena, S.; Khajuria, A.; Vishwakarma, R.A.; Bharate, S.B. Tetrahydro-2H-pyrano{3,2-C]-isochromene-6-ones and analogs for the treatment of inflammatory disorders. Indian Patent Filed: 1565DEL2013 (granted on 24/05/2013).
- Vishwakarma, R.A.; Bharate, S.B.; Bhushan, S.; Jain, S.K.; Meena, S.; Guru, S.K.; Pathania, A.S.; Kumar, S. Cyclin-dependent kinase inhibition by 5,7-dihydroxy-8-(3-hydroxy-1-methylpiperidin-4-yl)-2-methyl-4H-chromen-4-one analogs. Indian Patent Filed: 1142DEL2013 (Prov. Date: 17/04/2013).

- Vishwakarma, R.A.; Jain, S.K.; Bharate, S.B.; Dar, A.H.; Khajuria, A.; Meena, S.; Bhola, S.K.; Qazi, A.K.; Hussain, A.; Sidiq, T.; Uma Shaanker, R.; Ravikanth, G.; Vasudeva, R.; Patel, M.K.; Ganeshaiah, K.N. New chromone alkaloid dysoline for the treatment of cancer and inflammatory disorders. Indian Patent Filed: 1077DEL2013 (Prov. Date: 10/04/2013).
- Mondhe, Dilip Manikrao.; Taneja, Subhash Chandra.; Koul, Surrinder .; Dhar,Jagdish Kumar; Saxena, Ajit Kumar.; Johri, Rakesh Kamal; Wani, Zahoor Ahmad.; Andotra, Samar Singh .; Sharma, Subhash Chander.; Singh, Surjeet.; Gupta, Prem Narayan; Vishwakarma, Ram A; A novel formulation useful in cancer chemotherapy. Indian Patent application. 554DEL2012.
- Vishwakarma, Ram A; Sawant, Sanghapal Damodhar; Singh, Parvinder Pal; Dar, Abid Hamid; Sharma, Parduman Raj; Saxena, Ajit Kumar ; Nargotra, Amit; Kolluru, Anjaneya Aravind Kumar; Mudududdla, Ramesh; Qazi, Asif Khurshid; Hussain, Aashiq; Chanauria, Nayan; Design, synthesis and biological evaluation of isoform selective analogs of liphagane scaffold as anticancer agents: PI3K-alpha/beta inhibitors. Patent application no. 0794DEL2012.
- Koul, Surrinder.; Reddy, Mallepally Venkat.; Sangwan, Payare Lal.; Singh, Buddh.; Kumar, Ch Parveen.; Khan, nshad Ali.; Kalia, Nitin Pal.; Nargotra,Amit.; Vishwakarma, Ram. Novel Diamides as Potentiators of the Bioefficacy of Drugs. Indian Patent Filed: 0864DEL2011 (Dt. 29-03-2011).
- Koul, Surrinder; Reddy, Mallepally Venkat; Sangwan, Payare Lal; Singh, Buddh; Kumar, Ch Parveen; Khan, Inshad Ali; Kalia, Nitin Pal.; Nargotra, Amit; Vishwakarma, Ram; Novel diamines as potentiators of the bioefficacy of drugs. Patent application no. 0864DEL2011.
- Shafee, M.A.; Mishra, P. D.; Vishwakarma, R. A.; Fiebig, H.-H. ; Kelter, G. (Piramal Life Sciences Ltd, Mumbai) Preparation of macrocyclic lactone derivatives for the treatment of cancer PCT Int. Appl. (2011) WO 2011061666.
- Kumar, S.; Vishwakarma, R.; Mundada, R.; Deore, V. ; Kumar, P. ; Sharma, S. (Piramal Life Sciences Ltd, Mumbai) Preparation of imidazo [4, 5-c]-quinoline derivatives and their use in the treatment of tumors and/or inflammation PCT Int. Appl. (2011) WO 2011001212.

- Ghosal, S.; Mishra, P.; Vishwakarma, R.A.; A. Deb (National Institute of Immunology, New Delhi) A novel compound with leishmanicidal activity Indian Patent. Appl. (2010), 2008DE02321A 20100423 AN 2010:546980.
- Mishra, P. D.; Mahajan, G.; Kulkarni-Almeida, A.; Parikh, S. H.; Ranadive, P. V.; Jain, R.and Vishwakarma, R. A. (Piramal Life Sciences, Mumbai) (Piramal Life Sciences Ltd, Mumbai) Anti-inflammatory compounds comprising borrelidin or its isomers and salts. PCT Int. Appl. WO 2009141786 (2009).
- Bhedi, D. N. ; Vishwakarma, R.A. ; Deka, V. ; More, D. ; Ramalingam, M. ; Suthar, A. ; Dalal, R. ; Parikh, S. ; Tannu , A. A. (Piramal Life Sciences, Mumbai) (Piramal Life Sciences Ltd, Mumbai) Preparation of derivatives of 7 -hydroxyeudesm-4-en-6,12-olide for treatment of inflammatory disorders, PCT Int. Appl. 2009016565 (2009).
- Kumar, S.; Vishwakarma, R.; Mundada, R. ; Deore, V. ; Kumar, P. ; Sharma , S. (Piramal Life Sciences Ltd, Mumbai) Anticancer heterocyclic compounds (Piramal Life Sceinces, Mumbai) PCT/IB2009/052819 (2009).
- Periyasamy, G.; Suther, A.; Balakrishnan, A.; Vishwakarma, R. A; et.al. Periyasamy, Manohar, V.; Pari, K.; Chauhan, V. S. and Kulanthaivelu, P. (Piramal Life Sciences, Mumbai) (Piramal Life Sciences Ltd, Mumbai) Enriched plant extract, steroid backbone-containing compound, and methods for the treatment of proliferative disorders PCT Int. Appl. WO 2008090517 (2008).
- Balachandran, S.; Vishwakarma, RA; Kaki, V.; Yadav, V.; Chauthe, S. ; Sharma, S. ; Parikh, S.; Kharas, F. (Piramal Life Sciences Ltd, Mumbai) Preparation of diamines as tumor necrosis factor alpha inhibitors PCT Int. Appl. WO 2008142623 (2008).
- Bhedi, D.; Vishwakarma, R. A. (Nicholas Piramal India Ltd, Mumbai) (Piramal Life Sciences Ltd, Mumbai) Tricyclic compounds for the treatment of inflammatory disorders PCT/IB2008/05299 (2008).
- Periyasamy, G.; Suthar, A.; Balakrishnan, A.; Vishwakarma, R. ; Manohar, V. ; Pari, K. ; Chauhan, V. S. ; Kulanthaivelu, P. (Nicholas Piramal) (Piramal Life Sciences Ltd, Mumbai) Enriched plant

extract, compound, & methods for the treatment of proliferative disorders PCT Int. Appl. WO 2008090517 (2008).

- Mahajan, G. B. ; George, S. D. ; Ranadive, P. ; Mishra, P. D. ; Sreekumar, E. ; Panshikar, R. M. ; Sawant, S. N. ; Krishna, S. ; Sivakumar, M. ; Pari, K. ; Thomas, B. ; Patel, Z. ; Vishwakarma, R. A.; Naik, C. G. ; D'Souza, L. ; Devi, P. (Nicholas Piramal, Mumbai & NIO, Goa) (Piramal Life Sciences Ltd, Mumbai) PM181104 and related antibacterial compounds, production, pharmaceutical compositions, and therapeutic use PCT Int. Appl. WO 2007119201 (2007).
- Talwar, G. P. ; Kabeer, R. ; Vyas, H. ; Vishwakarma, Ram.; Gupta, J. C. (National Institute of Immunology, New Delhi) A recombinant antibody linked to drugs for killing of advanced stage cancer cells. Indian Pat. Appl. 2006DE01352 (2007).
- Balakrishnan, A.; Giridharan, P.; Vishwakarma, R. A.; Nallankandy, S. N. Panangadan.(National Institute of Immunology and Anna University, India) A substituted furochromenone exhibiting anti-cancer and anti-proliferative properties PCT WO Patent No. WO 2003022854, granted on 20 March 2003 (Appl. No PCT WO 2001-IN156 dated 11 September 2001).
- Jain, D. C. ; Bhakuni, R. S. ; Saxena, S. ; Kuamr, Sushil; Vishwakarma , R. A. (Council of Scientific and Industrial Research, India) Process for the preparation of arteethers from dihydroartemisinin U. S. Patent No. US 6346631, granted on 12 Feb 2002 (Appl. No US 2000-535513 dated 24 March 2000).
- Jain, D. C. ; Bhakuni, R. S. ; Saxena, S. ; Kuamr, Sushil; Vishwakarma, R. A. ; (Council of Scientific and Industrial Research, India) Preparation of arteethers British Patent No. GB 2360517, granted on 26 September 2001 (Appl. No GB 2000-7261 dated 24 March 2000).
- Balakrishnan, A.; Vishwakarma, R. A. ; Ramakrishnan, V. ; (National Institute of Immunology and Anna University, India) Lignan compounds with anti-proliferative properties PCT WO Patent No. WO 2001096589, granted on 20 December 2001 (Appl. No PCT WO 2000-IN 63 dated 16 June 2000).
- Upadhyay, S. N. ; Vishwakarma, R. A. ; Ghosal, S. ; Shukla, S. ; Bose, C. ; Kamra, A. (National Institute of Immunology, India) Process for isolation and synthesis of 1-(3,4-methylenedioxy-

phenyl)-1E-tetradecene and its analogs and their activities against tumors and infections U. S. Patent No. US 5962515, granted on 5 October 1999 (Appl. No. US 1997-865152 dated 29 May 1997).

- Tandon, J. S.; Vishwakarma, R. A. (Council of Scientific and Industrial Research, India) A stereoselective process for the preparation of novel 7-epicoleonol Indian Patent (1999) IN 182182 A1 19990123 CAN 141:71735 AN 2004:563444.
- Zamir, L. ; Balachandran, S. ; Caron, G. ; Vishwakarma, R. A. (Institute Armand Frappier, Laval, Canada) Method for the semi-synthesis of taxanes including Paclitaxel Canadian Patent No. 2188190, granted on 18 Jan 1998 J. S. Tandon, R. A. Vishwakarma, N. Varma, S. Balachandran (Council of Scientific and Industrial Research, India) Preparation of novel 1-O-hemisuccinylcoleonol-bovine serum albumin protein bioconjugate useful as an immunogen Indian patent (1997) IN 177701A119970215 CAN 139:53175 AN 2003:528117.
- Tandon, J. S. ; Vishwakarma, R. A.; Srimal, R. C. ; Varma, N. ; Balachandran, S. (Council of Scientific and Industrial Research, India) A process for the preparation of stable and water-soluble sodium (1- -coleonoloxy) hemisuccinate as an antihypertensive Indian Patent (1997) IN 177702 A119970215 CAN 138:358426 AN 2003:385350.
- Vishwakarma, R. A. ; Mehrotra, R. ; Thakur, R. S. ; Dutta, G. P. ; Bajpai, R. (Council of Scientific and Industrial Research, India) A process for the preparation of novel sodium p-(12- -dihydroartemisininoxy methyl) benzoate useful as an antimalarial drug Indian Patent No. IN 173339, granted on 2 April 1994 (Appl. No. IN 1989-DE1096 dated 23 November 1989.
- Vishwakarma, R. A. (Council of Scientific and Industrial Research, India) Process for the preparation of ethyl ether of dihydroartemisinin Indian Patent No. IN 170904, granted on 13 June 1992 (Appl. No. IN 1988-DE549 dated 28 June 1988).