Dr. Ashok Kumar Patel
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Current Position: *Assistant Professor at IIT Delhi (30th December 2013-till date)*

Details of Education and Research Experiences:

S. No.	***Degree type***	***Mentor***	***University***
1.	Postdoctoral research	Prof Gregory Bowman	Department of Biophysics, Johns Hopkins University, USA
2.	Research trainee	Prof Petri Kursula	University of Oulu, Finland
3.	Research trainee	Prof Bauke W Dijkstra	University of Groningen, The Netherlands
4.	Research trainee	Prof David W Rice	University of Sheffield, UK
5.	Ph.D. (Molecular Biology)	Prof J. V. Medicherla	Molecular Biology Unit, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India
6.	M.Sc. Physics		Department of Physics, Banaras Hindu University, Varanasi, India

Professional recognition, awards, fellowships received

- **Ramalingaswami Fellowship**, Department of Biotechnology, India, (2014-2019).
- **Boehringer Ingelheim Fonds** (**BIF**) Germany**; 2009:** Travel grants fellowship; to perform training under Prof Petri Kursula, (01 March-30 May 2009), University of Oulu, Finland.
- **Boehringer Ingelheim Fonds** (**BIF**) Germany; **2008:** Travel grants fellowship; worked with Prof B.W.Dijkstra (29 March-28 June 2008), University of Groningen, The Netherlands.
- **Boehringer Ingelheim Fonds (BIF)** Germany; **2007:** Travel grants fellowship; worked with Prof David W.Rice, during 15 January to 14 April 2007, University of Sheffield, UK.

- **Senior Research Fellowship from CSIR**, India (Oct 2006- Dec 2009).
- **Junior Research Fellowship from CSIR**, India (Oct 2004 – Oct 2006).
- "**National Eligibility Test**" (**NET**) - 2004 for Junior research fellowship (JRF) Physical Sciences from Council of Scientific and Industrial Research (CSIR), India (Qualified for Shyama Prasad Mukherjee fellowship test).
- Qualified "**Graduate Aptitude Test in Engineering** (**GATE**)-2004" in Physical Sciences with **99.14** percentile and secured an overall India rank of 24th.
- Qualified in "**Joint Entrance Screening Test** (**JEST**) 2004" in Physical Sciences with **92** percentile.

Areas of Research interests:

Chikungunya, dengue and Corona virus pathogenesis, antivirals, diagnostics, Chromatin and diseases, cancer, Epigenetics, Chromatin remodeling, Structural biology of proteins.

List of publications*:*

37. Praveen Kumar Tripathi, Saurabh Upadhyay, Manju Singh, Siva Raghavendhar, Mohit Bhardwaj, Pradeep Sharma, **Ashok Patel**, "Screening and evaluation of approved drugs as inhibitors of main protease of SARS-CoV-2", International Journal of Biological Macromolecules, Volume 164, 2020, Pages 2622-2631, https://doi.org/10.1016/j.ijbiomac.2020.08.166, (Current Impact factor : 5.16; Five impact factor : 5.14)

36. Saurabh Upadhyay#, Praveen Kumar Tripathi#, Manju Singh#, Siva Raghavendhar, Mohit Bhardwaj, **Ashok Patel**, "Evaluation of medicinal herbs as a potential therapeutic option against SARS-CoV-2 targeting its main protease", Phytotherpy Research, *in press* https://doi.org/10.1002/ptr.6802, (Current impact factor : 4.09)

35. Praveen Kumar Tripathi, Anjali Soni, Shiv Pratap Singh Yadav, Ankit Kumar, Nitika Gaurav, Siva Raghavendhar, Pradeep Sharma, Sujatha Sunil, Ashish, B Jayaram, **Ashok Patel**, "Evaluation of novobiocin and telmisartan for anti-CHIKV activity", Virology, DOI: https://doi.org/10.1016/j.virol.2020.05.010 (Current Impact factor : 2.82; Five impact factor : 3.12)

34. Tripathi PK, Singh J, Gaurav N, Garg DK, **Ashok Patel**. "In-silico and biophysical investigation of biomolecular interaction between naringin and nsP2 of the chikungunya virus", *Int J Biol Macromol*. 2020; S0141-8130 (20) 33320-1. DOI: 10.1016/j.ijbiomac.2020.05.165 (Current Impact factor : 5.16; Five impact factor : 5.14)

33. Sunil Kumar, Ruma Karmakar, Ishu Gupta, **Ashok Patel.** Interaction of potyvirus helper component-proteinase (HcPro) with RuBisCO and nucleosome in viral infections of plants, Plant Physiology and Biochemistry, Volume 151, June 2020, Pages 313-322, https://doi.org/10.1016/j.plaphy.2020.03.036, (Current Impact factor : 3.72; Five impact factor : 3.966)

32. Nayak K, Jain V, Kaur M, Khan N, Gottimukkala K, Aggarwal C, Sagar R, Gupta S, Rai RC, Dixit K, Islamuddin M, Verma A, Maheshwari D, Chawla YM, Reddy ES, Panda H, Sharma P, Bhatnagar P, Singh P, Raghavendhar S, **Ashok Patel** , Ratageri VH, Chandele A, Ray P, Murali-Krishna K., Antibody response patterns in chikungunya febrile phase predicts protection versus progression to chronic arthritis, JCI Insight. 2020. doi: 10.1172/jci.insight.130509 (Journal impact factor : 6.205)

31. Naushad Khan, Ruchika Bhat, **Ashok Patel**, Pratima Ray (2020): Discovery of small molecule inhibitors of chikungunya virus proteins (nsP2 and E1) using in□silico approaches, Journal of Biomolecular Structure and Dynamics, DOI: https://doi.org/10.1080/07391102.2020.1731602 (Journal impact factor : 3.22)

30. Sunil Kumar, **Ashok Patel**, Purification and Characterization of Prolyl Hydroxylase 3/Pyruvate Kinase Isoform 2 Protein Complex, Molecular Biotechnology (2019), pp 1-8. https://doi.org/10.1007/s12033-019-00228-9 (Journal Impact factor 2.27).

29. Sunil Kumar, Ashwani Kumar, **Ashok Patel**, "TIM barrel fold and glycan moieties in the structure of ICChI, a protein with chitinase and lysozyme activity", Phytochemistry, Volume 170, February 2020, 112221, https://doi.org/10.1016/j.phytochem.2019.112221 (Current Impact factor : 3.04; Five impact factor : 3.37)

28. Sunil Kumar, Chetna Dhembla, Hariprasad P, Monica Sundd, **Ashok Patel**, "Differential expression of structural and functional proteins during bean common mosaic virus-host plant interaction", Microbial Pathogenesis, Volume 138, January 2020, 10381, https://doi.org/10.1016/j.micpath.2019.103812 (Journal Impact factor 2.91).

27. Sunil kumar; Ruma Karmakar; Dushyant Kumar Garg; Ishu Gupta; **Ashok Patel**, "Elucidating the functional aspects of different domains of bean common mosaic virus coat protein", Virus Research 2019 Sep 13;273:197755, https://doi.org/10.1016/j.viruses.2019.197755 (Journal Impact factor 2.93).

26. Siva Raghavendhar, Praveen Tripathi, **Ashok Patel**," Evaluation of medicinal herbs for Anti-CHIKV activity. 2019, Virology, Volume 533, Pages 45-49. https://doi.org/10.1016/j.virol.2019.04.007 (Current Impact factor : 2.82; Five impact factor : 3.12).

25. Kritika Singh, Praveen Tripathi, Vinay K Singh, **Ashok Patel**, Onkar N Srivastava, Surya K Singh, "In silico analysis of new potent anti-hyperglycemic molecule for Diabetes Type 2 management", International Journal of Peptide Research and Therapeutics, August 2019, p1-12 https://doi.org/10.1007/s10989-019-09905-4 (Journal Impact factor 1.22).

24. Kirtika Verma, **Ashok Patel**," Pyruvate Kinase M2 serves as blockade for nucleosome repositioning and abrogates Chd7 remodeling activity". PLoS One. 2019 Feb 8;14(2):e0211515. doi: https://doi.org/10.1371/journal.pone.0211515 (Journal Impact factor 2.74, Three year impact factor : 3.01).

23. Siva Raghavendhar, **Ashok Patel**, Kabra SK, Lodha R, Ratageri VH, Ray P, " Virus load and clinical features during the acute phase of Chikungunya infection in children" PLoS One. 2019 Feb 1;14(2):e0211036. doi: https://doi.org/10.1371/journal.pone.0211036. (Journal Impact factor 2.82).

22. Richa Arya, Bhaskar Sharma, Chetna Dhembla, Ravi Kant Pal, **Ashok Patel,** Monica Sundd, Biplab Ghosh, Ravindra D Makde, Suman Kundu," A conformational switch from a closed apo- to an open holo-form equips the acyl carrier protein for acyl chain accommodation", BBA - Proteins and Proteomics 2019. Volume 1867, Pages 163-174, https://doi.org/10.1016/j.bbapap.2018.12.001 (Journal Impact factor 2.848).

21. Yupeng Qiu, Robert F. Levendosky, Srinivas Chakravarthy, **Ashok Patel**, Gregory D. Bowman,* and Sua Myong. "The Chd1 Chromatin Remodeler Shifts Nucleosomal DNA Bidirectionally as a Monomer". Molecular Cell (2017), Volume 68, p76–88, 5 October 2017 , http://dx.doi.org/10.1016/j.molcel.2017.08.018 .(Journal Impact factor 14.0).

20. Nodelman I.M., Bleichert F., **Ashok Patel.** , Ren R., Horvath K.C., Berger J.M., Bowman G.D. (2017) Interdomain communication of the Chd1 chromatin remodeler across the DNA gyres of the nucleosome. *Mol Cell.* Jan 19, 2017. 65, p447–459. doi: 10.1016/j.molcel.2016.12.011 ((Journal Impact factor 14.0)

19. Monica Tyagi, Nasir Imam, Kirtika Verma & **Ashok Patel**. "Chromatin remodelers: We are the drivers!!" Nucleus, 2016, volume 7, pp 388-404 (Journal Impact factor 2.45)

18. Ilana M. Nodelman, Kyle C. Horvath, Robert F. Levendosky, Jessica Winger, Ren Ren, **Ashok Patel**, Ming Li, Michelle D. Wang, Elijah Roberts and Gregory D. Bowman. "The Chd1 chromatin remodeler can sense both entry and exit sides of the nucleosome" Nucleic Acids Research, 2016 1–12 , 44, 7580-91 doi: 10.1093/nar/gkw406 (Journal impact factor 9.11).

17. Ming Li , Arjan Hada , Payel Sen , Lola Olufemi , Michael A Hall , Benjamin Y Smith , Scott Forth , Jeffrey N McKnight , **Ashok Patel** , Gregory D Bowman , Blaine Bartholomew , Michelle D Wang. "Dynamic regulation of transcription factors by

nucleosome remodeling" eLife Sciences 06/2015; 4:e06249. DOI:10.7554/eLife.06249 · (Journal impact factor: 9.32).

16. Ilana Nodelman , Kyle Horvath , Jessica Winger , Robert Levendosky , **Ashok Patel** , Ming Li , Michelle Wang , Gregory Bowman. "The Chd1 Chromatin Remodeler can Sense a Protein Bound at the Edge of the Nucleosome and is Sensitive to DNA Unwrapping" Biophysical Journal 01/2015; 108(2):539a. DOI:10.1016/j.bpj.2014.11.2955 · (Journal impact factor: 3.97).

15. Ming Li , Payel Sen , Lola Olufemi , Arjan Hada , Michael A. Hall , Benjamin Y. Smith , Scott Forth, Jeffrey N. McKnight , **Ashok Patel** , Gregory D. Bowman , Blaine Bartholomew , Michelle D. Wang. "Dynamic Regulation of Transcription Factors by Nucleosome Remodeling" Biophysical Journal 01/2014; 106(2):76a. DOI:10.1016/j.bpj.2013.11.498 · (Journal impact factor: 3.97).

14. Torigoe, Sharon E, **Ashok Patel**, Mai T Khuong, Bowman, Gregory D, Kadonaga, James T. " ATP-dependent chromatin assembly is functionally distinct from chromatin remodeling ATP-dependent Chromatin Assembly Is Distinct from Chromatin Remodeling." eLife 2013; 2: e00863. DOI: http://dx.doi.org/10.7554/eLife.00863 (Journal impact factor: 9.32).

13. **Ashok Patel**, Srinivas Chakravarthy, Seamus Morrone, Ilana M. Nodelman, Jeffrey N. McKnight and Gregory D. Bowman. "Decoupling nucleosome recognition from DNA binding dramatically alters the properties of the Chd1 chromatin remodeler". Nucleic Acid Research December 2012, 41, 1637-1648. Publisher: Oxford Journals. doi: 10.1093/nar/gks1440 (Journal impact factor 9.11).

12. Srinivas Chakravarthy, **Ashok Patel** and Gregory D. Bowman. "The basic linker of macroH2A stabilizes DNA at the entry/exit site of the nucleosome" Nucleic Acid Research June 2012, 40, 17, 8285-8295. Publisher: Oxford Journals doi: 10.1093/nar/gks645. (Journal impact factor 9.11).

11. **Ashok Patel**, Jeffrey N. McKnight, Pavol Genzor, and Gregory D. Bowman, "Identification Of Residues In Chromo-Helicase-DNA-Binding Protein 1 (Chd1) Required For Coupling ATP Hydrolysis To Nucleosome Sliding " Journal of Biological Chemistry. (JBC) December 2011,VOL. 286(51), pp 43984-43993 Publisher: American Society for Biochemistry and Molecular Biology, doi/10.1074/jbc.M111.282970. (Journal impact factor 4.65).

10. Ravi Prakash Yadav, **Ashok Patel** and M.V. Jagannadham, "Neriifolin S, a Dimeric Serine Protease from Euphorbia neriifolia Linn: Purification and Biochemical characterization" Food Chemistry December 2011 132, 1296–1304. Publisher: Elsevier DOI. http://dx.doi.org/10.1016/j.foodchem.2011.11.107. (Journal Impact factor: 3.39).

9. Ravi Prakash Yadav, **Ashok Patel**, M.V. Jagannadham "Purification and Biochemical characterization of a chymotrypsin-like serine protease from Euphorbia neriifolia Linn" Process Biochemistry 2011; 46, 1654-1662. Publisher: Elsevier doi.org/10.1016/j.procbio.2011.05.013.(Journal Impact factor: 2.52).

8. **Ashok Patel**, Ravi P. Yadav, Viivi Majava, Inari Kursula, Petri Kursula "Structure of the Dimeric Autoinhibited Conformation of DAPK2, a Pro-Apoptotic Protein Kinase" Journal of Molecular Biology (JMB), April 2011; 409(3): 369-83 Publisher: Elsevier. doi: 0.1016/j.jmb.2011.03.065. (Journal Impact factor: 4.33).

7. **Ashok Patel**, Vijay K. Singh, Ulrich Bergmann, Medicherla V. Jagannadham, Petri Kursula, "Purification, crystallization and preliminary X-ray crystallographic analysis of MIL, a glycosylated jacalin-related lectin from mulberry (Morus indica) latex" Acta crystallographica. Section F, Structural biology and crystallization communications, March 2011; F 67(Pt5): 608-12. Publisher: International Union of Crystallography, doi: 10.1107/S174430911101013X. (Journal Impact factor: 0.55).

6. **Ashok Patel**, Vijay K. Singh, Ravi P. Yadav, Arthur J.G. Moir, Medicherla. V. Jagannadham "Purification and characterization of a new chitinase from latex of Ipomoea carnea" Process Biochemistry. December 2009; 45; 5, 675-681. Publisher: Elsevier. doi.org/10.1016/j.procbio.2009.12.016. (Journal Impact factor: 2.52).

5. **Ashok Patel**, Vijay K. Singh, Ravi P. Yadav, Arthur J.G. Moir, Medicherla. V. Jagannadham" ICChI, a glycosylated chitinase from the latex of Ipomoea carnea" Phytochemistry, August 2009; 70; 1210-1216; Publisher: Elsevier doi: 10.1016/j.phytochem.2009.07.005. (Journal Impact factor: 3.05).

4. **Ashok Patel**, Niels van Oosterwijk, Vijay K. singh, Henriette J. Rozeboom,Kor H. Kalk, RJ Siezen, M. V. Jagannadham, Bauke W. Dijkstra "Crystallization and preliminary X-ray analysis of carnein, a serine protease from Ipomoea carnea" Acta crystallographica. Section F, Structural biology and crystallization communications, 2009; F 65, 383-385. Publisher: International Union of Crystallography, doi: 10.1107/S1744309109008288. (Journal Impact factor: 0.55).

3. **Ashok Patel**, Vijay K. Singh, A. J. Moir, Medicherla V. Jagannadham "Biochemical and Spectroscopic Characterization of Morning Glory Peroxidase from an Invasive and Hallucinogenic Plant Weed Ipomoea carnea" Journal of Agricultural and Food Chemistry, 2008, 56, 9236–9245.; Publisher: American Chemical Society DOI: 10.1021/jf801699y. (Journal Impact factor: 2.91).

2. Vijay K. Singh, **Ashok Patel**, A. J. Moir, Medicherla V. Jagannadham "Indicain, a dimeric serine protease from Morus indica cv. K2" Phytochemistry, 2008, 69, 2110-2119. Publisher: Elsevier DOI: 10.1016/j.phytochem.2008.05.005. (Journal Impact factor: 3.05).

1. **Ashok Patel**, Vijay Kumar Singh, Medicherla V Jagannadham "Carnein, a serine protease from noxious plant weed Ipomoea carnea (morning glory)" Journal of Agricultural and Food Chemistry 2007, 55, 5809-5818, Publisher: American Chemical Society. DOI: 10.1021/jf063700h (Journal Impact factor: 2.91).

Contribution in COVID-19:

1. Evaluation of medicinal herbs as a potential therapeutic option against SARS-CoV-2 targeting its main protease

https://doi.org/10.1002/ptr.6802

https://home.iitd.ac.in/news-tea-haritaki.php

https://indianexpress.com/article/education/tea-haritaki-may-act-as-potential-therapeutic-options-against-covid-19-iit-delhi-study-6486686/.

2. Screening and evaluation of approved drugs as inhibitors of main protease of SARS-CoV-2

https://doi.org/10.1016/j.ijbiomac.2020.08.166

https://home.iitd.ac.in/news-teicoplanin.php

https://www.hindustantimes.com/delhi-news/teicoplanin-an-antibiotic-could-be-potential-medicine-for-covid-19-iit-delhi-research/story-N6RFIN2h8lxQ2GC5sP1JSP.html