

Curriculum Vitae

Dr. Ajay Kumar Singh (M.Tech, Ph.D)

Professor

Department of Bio-Chemical Engineering

School of Chemical Technology

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EDUCATION QUALIFICATION

Ph.D	Dr. APJ Abdul Kalam Technical University (formerly UPTU) Lucknow, India	2015	Thesis title "Design and development of antitumor and anti-angiogenic drugs specially enzyme inhibitors for oral and cervical cancers"
M. Sc. - Biotechnology	C.S.J.M. University, Kanpur	2003	61.75%
M.Tech. -IT (Spec. In Bioinformatics)	Indian Institute of Information Technology, Allahabad	2006	7.45/10
B.Sc. (Zoology, Botany, Chemistry)	Lucknow University	2001	61.16%
Intermediate	Colvin Taluqdar's' College , Lucknow (U.P. Board)	1997	60.1%
High School	Colvin Taluqdar's' College , Lucknow (U.P. Board)	1995	64 %

EMPLOYEMENT EXPERIENCE:

Professor	Harcourt Butler Technical University, Kanpur	11/07/2024- Continue.
Professor	Central University of South Bihar, Gaya	12/09/2023-10/07/2024
Associate Professor	Central University of South Bihar, Gaya	08/02/2016-11/09/2023
Assistant Professor	Amity University Uttar Pradesh, Lucknow Campus	2015-2016
Senior Lecturer	Amity University Uttar Pradesh, Lucknow Campus	2009-2014
Lecturer	Amity University Uttar Pradesh, Lucknow Campus	2006-2009

PUBLICATIONS

2011

1. **Singh A.K.^a, Rath S.K.^b Misra K^a,** "Identification of epitopes in Indian human papilloma virus 16 E6: a bioinformatics approach". J. Virol. Methods. **2011**, 177(1):26-30 (**Impact factor: 2.623**). DOI: 10.1016/j.jviromet.2011.06.006.

2012

2. **Singh A.K., Misra K*,** "In silico approach for designing potent inhibitors against polymerase PB2 (Influenza A virus: H1N1)", Proc. Natl. Acad. Sci., India, Sect. B Biol. Sci.,

(July–September 2012) 82(3):365–373.(Impact factor 0.96)
<https://doi.org/10.1007/s40011-012-0019-z>.

2013

3. **Singh A.K.**, Misra K*, “Human papilloma virus 16 E6 protein as a target for curcuminoids, curcumin conjugates and congeners for chemoprevention of oral and cervical cancers”, International journal “Interdisciplinary Sciences: Computational Life Sciences”. 2013, 5(2)112-118. (Impact factor: 3.492).
<https://doi.org/10.1007/s12539-013-0159-8>.

2017

4. Kumar A, Singh A. K, Ouabain as a potential biofilm inhibitor against staphylococcus aureus. 2017, Antimicrobial Resistance and Infection Control, 6(Suppl-3):52. (Impact factor: 6.454). DOI 10.1186/s13756-017-0201-4.

2018

5. **Singh A.K.**^a Misra K.^b, “2D-QSAR (Quantitative Structure Activity Relationship) Study of Probable Inhibitors for Oral and Cervical Cancers, Generation of Model for Pharmacophore Prediction”. Research & Reviews: A Journal of Drug Design & Discovery, 2018, 5(1)1-13.

2020

6. Kamboj Ma., Singh D.Pc., **Singh A.K.**^d Chaturvedi De.,* Molecular modeling, in-silico docking and antibacterial studies of novel template wangled macrocyclic complexes involving isatin moiety. Journal of Molecular Structure, Elsevier, 2020(1207)127602 (Impact Factor 3.841). <https://doi.org/10.1016/j.molstruc.2019.127602>.
7. Rani, S., **Singh, A.K.**, Paswan, R.R. et al. Preparation, Characterization and Antibacterial Evaluation of Soy Protein Isolate Biopolymeric Films Loaded with Nalidixic Acid. J Polym Environ (2020). Volume 28, pages 1841–1850. [Impact Factor 5.3].
<https://doi.org/10.1007/s10924-020-01729-4>
8. Tiwari S.K., **Singh A.K.**, Singh A, In-silico primer designing and PCR for detection of novel coronavirus-19, Journal of Infection and Public Health, (2020) 13(12),1885-1886, ISSN 1876-0341, (Impact factor : 7.537) doi: 10.1016/j.jiph.2020.10.010.
9. Singh S., **Singh A.K.***. Mutated USP9X-Associated TRIM33 Inhibition in the Metastasis of Gingivobuccal Oral Squamous Cell Carcinoma EJMO. (2020); 4(4): 309-318. DOI: 10.14744/ejmo.2020.70327.

2022

10. Agnik Haldar, **Singh AK***. The association of long non-coding RNA in the prognosis of oral squamous cell carcinoma (2022). Gene and Genomics, volume 44, pages 327–342 (Impact factor: 2.164). DOI: 10.1007/s13258-021-01194-w.

11. Singh S. **Singh A.K***, Porphyromonas gingivalis in oral squamous cell carcinoma: A review. **(2022)**. Microbes and Infection. 24(3):104925 **(Impact factor: 9.57)** DOI: 10.1016/j.micinf.2021.104925.
12. Haldar A, Yadav K.K., Singh S., Yadav P.K., **Singh A.K*** In silico analysis highlighting the prevalence of BCL2L1 gene and its correlation to miRNA in human coronavirus (HCoV) genetic makeup.**(2022)**. Infection, Genetics and Evolution. **(Impact factor: 4.3)** 99, 105260. DOI:https://doi.org/10.1016/j.meegid.2022.105260.
13. Yadav P.K., **Singh A.K***, A Review of Iron Overload in Beta-Thalassemia Major, and a Discussion on Alternative Potent Iron Chelation Targets. **(2022)**. Plasmatology, Volume 16: 1–9. DOI: 10.1177/26348535221103560. **(Impact factor : 1.2)**.
14. Yadav K. K, Anil Kumar A, **Singh A.K***.A systems biology approach towards oral cancer using computational tools and techniques. Chemometrics and Intelligent Laboratory Systems. 231 (2022) 104709. **(2022) Impact Factor (4.175)** Doi.org/10.1016/j.chemolab.2022.104709.
15. Yadav K.K., **Singh A.K.*** Topology based Protein-protein interaction analysis of Oral cancer proteins. Current Science. (2022) CURRENT SCIENCE, VOL. 123, NO. 10, 25 NOVEMBER 2022. 1216-1224. **(Impact Factor: 1.169)**. Doi: 10.18520/cs/v123/i10/1216-1224.

2023

16. Barik K.¹ Praffulla A K.¹ **Singh A.K.**¹, Kumar A¹, Potential therapeutic targets for combating Mycoplasma genitalium, 3 Biotech (2023) 13: 9. **Impact Factor (2.893)**. https://doi.org/10.1007/s13205-022-03423-9.
17. Singh S., Yadav P.K., **Singh A.K.***, In-silico structural characterization and phylogenetic analysis of Nucleoside diphosphate kinase: A novel antiapoptotic protein of Porphyromonas gingivalis. J Cell Biochem. (2023) Volume124, Issue4, April 2023, 545-556, **Impact Factor (4.48)**. DOI: 10.1002/jcb.30389.
18. Arya P.K., Barik K., **Singh A.K.**, Kumar A., Databases and web resources for neglected tropical disease research, J Appl Pharm Sci, 2023; 13(08):043–054. http://doi.org/10.7324/JAPS.2023.137884, ISSN 2231-3354.
19. Singh S., Yadav P.K., **Singh .A.K***, Structure based High-Throughput Virtual Screening, Molecular Docking and Molecular Dynamics Study of anticancer natural compounds against fimbriae (FimA) protein of Porphyromonas gingivalis in oral squamous cell carcinoma. Molecular Diversity **(2023)** Vol 27(1). **Impact Factor (3.8)** DOI https://doi.org/10.1007/s11030-023-10643-5.
20. Haldar A., **Singh A.K***, A Transcriptomic Analysis to Identify Prevalent lncRNAs in Gingivobuccal Oral Cancer. Indian Journal of Science and Technology 16(14): 1082-1089. https://doi.org/10.17485/IJST/v16i14.2163.

21. Barik, K., Arya, P.K., **Singh, A.K.**, Kumar A., Identification of phytochemical inhibitors targeting phosphate acetyltransferase of *Mycoplasma genitalium*: insights from virtual screening and molecular dynamics studies. *Mol Diversity* (2023). **Impact Factor (3.8)**. <https://doi.org/10.1007/s11030-023-10681-z>.
22. Yadav P.K. Singh S., **Singh .A.K***, 3D-QSAR-based, pharmacophore modelling, virtual screening, and molecular docking studies for identification of hypoxia-inducible factor-1 inhibitor with potential bioactivity, *Computers in Biology and Medicine*, Volume 166, November 2023, 107557. **Impact Factor (7.7)**. <https://doi.org/10.1016/j.combiomed.2023.107557>.
23. Rani P., Yadav P.K., **Singh A.K.**, Nayak S, Kumar K.D, Kumar R., Structural, Material and Antibacterial Properties of Quercetin Incorporated Soy Protein Isolate Films and its Binding Behaviour through Molecular Docking, *Biopolymers*, 2023. e23569. **Impact Factor (2.2)**. <https://doi.org/10.1002/bip.23569>.
24. Rani S, Haldar A, **Singh A.K.**, K. Kumar K. D, Kumar R., Exploring 2, 2'- Bipyridine as an Additive for Soy Protein Isolate Biopolymeric Films. *Journal of Scientific Research of The Banaras Hindu University*. Volume 67, Issue 4, 2023, 1-5. DOI: 10.37398/JSR.2023.670404.

2024

25. Arya, P.K., Barik, K., **Singh, A.K.**, Kumar A, Molecular docking and simulation studies of medicinal plant phytochemicals with *Leishmania donovani* adenosylmethionine decarboxylase. *Journal of Applied Biology & Biotechnology* Vol. 12(1), pp. 219-228, Jan-Feb, 2024. DOI: 10.7324/JABB.2024.151432.
26. Yadav P.K. Singh S., **Singh .A.K***. Pharmacophore-based computational study on inhibitor of TMPRSS6 as hepcidin modulator in an iron overload of beta-thalassemia. 2024, *MOLECULAR SIMULATION*. <https://doi.org/10.1080/08927022.2024.2302022>. **(Impact factor : 2.3)**
27. Singh J., Teotia S., **Singh A.K.**, Arya M.*, Rout A.K., Behera B.K., Majumder S*. Whole genome sequence analysis of shallot virus X from India reveals it to be a natural recombinant with positive selection pressure. 2024, *BMC Genomic Data*, 25:42, <https://doi.org/10.1186/s12863-024-01196-z>. **(Impact Factor : 2.9)**.
28. Singh N., Yadav P.K., Singh A.K., Gupta D.* and Gupta G.1*, Molecular Docking and Dynamics Simulation study for Anticancer Phytoconstituents inhibiting breast cancer. 2024, *Research Journal of Biotechnology*, Vol. 19 (7) July (2024), 40-56. <https://doi.org/10.25303/1907rjbt040056>.
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BOOK CHAPTERS:

2012

1. **Singh A.K¹**, Bhargava A¹, Gaur R², “Role of Bioinformatics in Microbial study “by in book titled “**Microbial Application**” (Eds. Gaur R., Malhotra S. and Pandey R.R.) I.K. International Publication, New Delhi. **2012**. ISBN: 9789381141014
2. Bhargava A¹, **Singh A.K¹**, Gupta V.K. and Gaur R., “Microbes for Heavy Metal Remediation”, in book titled **Biotechnology of Microbial Enzymes** (Eds. Gaur R., Malhotra S. and Pandey R.R.) I.K. International Publication, New Delhi. **2012**. ISBN: 9789381141014
3. **Singh A.K.** Gupta V.K., “Biological Databases for Microbial Pathways and Enzymes for pathogenesis” in Book titled **Biotechnology of Microbial Enzymes** (Eds. Vijai Kumar Gupta and Manimaran Ayyachamy (National University of Ireland, Galway, Ireland), **2012** Nova. International Publ, New Delhi. ISBN: 978-1-62100-197-3.
4. **Singh A.K.**, Bhargava A., Kaur G., Sharma A., Misra K., Bioinformatics tools and resources for cancer diagnosis and drug development. In book titled “**Horizons in cancer research**” **2012**, vol 51 Publishers **Nova International USA**.

2015

5. **Singh A.K.**, Misra K. "Next Generation Sequencing developments in cancer research by Bioinformatics approaches" in book **Horizons in cancer research**", Publishers **Nova International USA**. **2015**, ISBN: 978-1-63482-627-3.

2017

6. **Singh A.K.** “Advances in Computer Aided drug designing” in book “**Biotechnology Recent trends and emerging dimension**”, Ed. Atul Bhargava and S. Srivastava Publisher **Taylor and Francis**, **2017**CRC press. ISBN: 9781138561083.

2020

7. Halder A., Yadav K , Katara P. , **Singh A.K.** * “**Bioinformatics resources for the prediction of cancer prognosis and its recurrence**, in book “Recent Trends in computational Omics Concept and Methodology, Ed. Pramod Katara, July **2020** (pg. 347-370). Nova Science Publisher, USA. ISBN: 978-1-53617-941-5.

2021

8. Haldar A., **Singh A.K.*** “**Next-Generation Sequence Analysis for Clinical Applications**, in Book Titled “1st Edition Translational Bioinformatics Applications in Healthcare Edited By Khalid Raza, Nilanjan Dey. 2021. ISBN 9780367705701, 23-40. CRC press. Taylor and Francis group.

2023

9. Singh S., Yadav P.K., **Singh A.K.***, “**Role of bacterial infection in cancer genomics**” in Book Titled “**Integrative Approaches to Biotechnology**” Edited by Editors: Atul Bhargava and Shilpi Srivastava. **2023**, ISBN 9781003324706, CRC Press (Taylor and Francis).

2024

10. Yadav K., Singh A.K.*,”**Integrative Omics Approach for Identification of Genes Associated with Disease**” in book Titled: **Integrative Omics: Concepts, Methodology**

and Application Editors/Authors: Manish Kumar Gupta, Pramod Katara, Ram Singh, Sukanta Mondal, 2023, (Elsevier).

PROJECTS COMPLETED

S. No	Title of Project	Funding Agency	Amount (INR)	Duration	Current Status
1.	Evaluation of Human Papilloma Virus in Breast Cancer and its Clinico- pathological Significance (As Co-PI)	RMLIMS, Lucknow	2,00,000 /-	2 Years	Completed
2.	Networking programme for enrichment and update of plant chromosome database for spermatophytes and Archegoniate. (As Co-PI)	DBT, New Delhi	1,93,29000 /-	3 Years	Completed
3.	Insilico study on potent inhibitors against iron overload and Cardiac arrhythmia in beta thalassemia (As PI)	ICMR, New Delhi	3243848 /-	3 Years	Completed

Ph.D. SUPERVISION

1)	Dr. Agnik Halder	(CUSB1803375001-2019 Batch)	An epigenetic and transcriptomic study on ncRNA role in oral cancer inhibition (Awarded)
2)	Dr. Keerti Kr. Yadav	(CUSB1803375003 –2019 Batch)	Identification of inhibitors against oral cancer targets through systems biology approach (Awarded)
3)	Dr. Suchitra Singh	(CUSB1903375006 -2020 Batch)	Insilico Inhibitors screening against virulence factors of <i>Porphyromonas gingivalis</i> in oral squamous cell carcinoma (OSCC)" (Awarded) •
4)	Dr. Piyush Kr. Yadav	(CUSB2003375005 -2021 Batch)	Virtual screening and selection of leads against the iron overload and Cardiac Arrhythmia in Beta Thalassemia major (Awarded)

ADMINISTRATIVE EXPERIENCE

Programm coordinator:	B.Tech Biotechnology	(2007-2008)
	B.Tech Bioinformatics	(2009-2013)
Dy. Dean Student Welfare	Amity Institute of Biotechnology	(2007-2010)
Nodal Officer, BSACS	CUSB, Gaya	(2016-2019)

MEMBERSHIP

1. Member of Bioinformatics Society of India.
2. Life Member of UPASTA (Uttar Pradesh Association for science and Technology Advancement)
3. Life Member of IACSIT [International Association of Computer Science and Information Technology], Singapore, December 2012.

4. Member of International association of Engineers, Hong Kong, Since October 2014.
 5. Life Member of World Academy of Science, Engineering and Technology
 6. Member (2018-19) Institute Innovation Council under MHRD.
 7. Life Membership of Bioinformatics and Drug Discovery Society (BIDDS) (**Membership number - BIDDS17-290**) (Date of Membership: 09/02/2021)
 8. **Senior Member** of Hong Kong Chemical, Biological & Environment Engineering Society (HKCBEEES). (Date of Membership:07/02/2023)
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REVIEWER OF JOURNALS:

1. Engineering in Life Sciences (Wiley, IF =3.4)
 2. Computers in Biology and Medicine(Elsevier, IF= 6.6)
 3. Interdisciplinary Sciences: Computational Life Sciences(Springer, IF =3.4)
 4. Biochemical Genetics (Springer , IF 2.2)
 5. Gene Reports (Elsevier, IF 0.176)
 6. Engineering of Life Sciences (IF 3.4)
 7. Archives of Oral Biology (Elsevier, IF 2.6)
 8. International Journal of Cancer (Wiley, IF 7.3)
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EDITORIAL BOARD MEMBER:

1. Journal of immunology and vaccination ELYNS Publishing Group, USA. (<https://www.elynsgroup.com/journal/editorial-board/journal-of-immunology-and-vaccination>).
 2. Appointed as Editor of Indira Gandhi Open University (IGNOU, New Delhi) Course : Genetics and Animal Biotechnology (MZO).
 3. Guest Editor of BIOCELL (**Impact Factor: 1.11**).(SCI, SCOPUS indexed), Tech Science Press (TSP).
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INVITED TALK

PRESENTATIONS/ INVITED TALKS (International, National & State level)

2006

1. Invited lecture on “Introduction biological database and their advantages” in training Programm on Tools and languages for Database Development during 9-10 November, 2006 at Biotech Park, Lucknow.

2007

1. Invited lecture in training Programm on “Bioinformatics tools and their application in Biological research” during 15-17 February 2007 at Biotech Park, Lucknow.
2. Invited lecture in workshop on “Structural Bioinformatics” during 08-09 June 2007 at Biotech Park, Lucknow.
3. Invited lecture in workshop on “Bioinformatics applications in genomics and proteomics” during September 13- 15 2007 at Biotech Park, Lucknow.
4. Invited lecture in workshop on “Principles and applications of Bioinformatics in Biotechnology” during 10-11 December 2007 at Biotech Park, Lucknow.

2008

5. Invited lecture in workshop on “Bioinformatics: Insilico study of DNA and protein structure and function” during 07-08 March 2008 at Biotech Park, Lucknow.
6. Invited lecture in workshop on “Computational tools and database for genomics and proteomics” during 27-29 May 2008 at Biotech Park, Lucknow.
7. Invited lecture in workshop on “Bioinformatics in Molecular Modelling, Data Analysis and Systems Biology” during 08-09 August 2008 at Biotech Park, Lucknow.
8. Invited lecture in workshop on “In-Silico Analysis of Bio Molecules and Drug Designing” during 6-8 November 2008 at Biotech Park, Lucknow.

2009

9. In silico study of interactions of curcumin and its naturally occurring analogs with Human papilloma virus 16 E6 protein: designing of a herbal drug for oral and cervical cancer Ajay Kumar Singh+ and Krishna Misra* accepted for Oral and Poster Presentation in “1st International Conference in Bioinformatics and Computational Biology (BICoB 2009) held in holiday Inn Downtown- Superdome, New Orleans, Louisiana, USA, from April 8-10, 2009.
10. Invited lecture on “Introduction to Bioinformatics with Hands on Internet Browsing and Data Searching” 9-10 January, 2009 at ND University of Technology, Kumarganj, Faizabad.
11. Invited lecture in workshop on “Bioinformatics and its application in RNAi” during 17-19 February, 2009 at Biotech Park, Lucknow.
12. Invited lecture in workshop on “Bioinformatics Application and Current Approaches” during 10- 12 June, 2009 at Biotech Park, Lucknow.
13. Invited lecture in workshop on “Role of Chemoinformatics, Pharmacoinformatics & Bioinformatics in Rational Drug Designing” during 08- 10 October 2009 at Biotech Park, Lucknow.

2012

14. Human papilloma virus 16 E6 protein as a target for curcuminoids, curcumin conjugates and congeners for chemoprevention of oral and cervical cancers” in “International Conference and Exhibition on Computer Aided Drug Design & QSAR” during October 29-31, 2012 at Double Tree by Hilton Chicago-North Shore, USA.
15. Invited lecture in workshop on “Drug Discovery, Design methods and Applications” during 11-13 September 2012 at Biotech Park, Lucknow.

2013

16. National Conference on “BioLife: The Evolving Multidisciplinary Life Sciences”(NCBL 2013), held at Shruti Auditorium, SGPGIMS (Sanjay Gandhi Postgraduate Institute of Medical Sciences), Lucknow, on 9th-10th March 2013.
17. Invited lecture in workshop on “Role of Bioinformatics in Agriculture and Health care” during 20-22 June, 2013 at Biotech Park, Lucknow.

2017

18. **Invited as speaker** in National Conference on “Development and advancement in conservation, propagation and sustainable utilization of medicinal plants (DSUMP 2017)” on “Bioinformatics Resources for Medicinal Plants in Biological Research” during 20-21 January, **2017** held at Gautam Buddha University, Greater Noida.

19. Participated as panelist in 6th International conference on Human Value in Higher Education held at IIT –Kanpur during 10-12 February, **2017**.

2018

20. Invited as resource person in national workshop on bioinformatics held on 24-25 January, 2018 at St. Xavier's college, Mapusa, GOA.

21. Invited Lecture on "Time Line Approaches for Insilico Drug Designing" in National workshop on protein purification and its sustainable application in drug designing and agro waste management at SHUATS, Allahabad during 3-9 October, 2018.

2019

22. Invited lecture on "Role of Bioinformatics in medicinal plants research" in National Workshop DBT, Ministry of Sc. & Tech., Govt. of India sponsored "Horizon of Bioinformatics in Environmental Management and Biodiversity Conservation" at Tilak Manjhi Bhagalpur Univeristy, Bhagalpur during 7-9 January, 2019.

2020

23. Invited Lecture on "Bioinformatics resources for structure and sequence alignment tools." In Faculty Development Program on "Bioinformatics and computational biology: Introduction and Approaches" under the auspices of the "DBT Star College Scheme" on 11 Dec, 2020 organized during 9th December, 2020-15th December 2020; organized by Departments of Botany and Zoology, and Chemistry. Chaudhary Mahadeo Prasad College, University of Allahabad.

2022

24. Invited Lecture on "Oncoinformatics Approaches for oral cancer : A demand for oral cancer" organized by Society of Bioinformatics and Biological Sciences (SBBS) in collaboration with Applied research and Development Organization (ARDO) in National E-Conference on "**Emerging Trends in Agricultural & Biological Sciences (ETABS-2021)**" organizing during January 14-15, 2022.

25. Invited Lecture on "**Phylogenetic resources for exploring the connectivity and variation analysis: An Bioinformatics Approach**" organized by National Institute of Pharmaceutical Education and Research (NIPER), Hyderabad and sponsored by DBT and Telangana state council of science and technology (TSCOST) in Faculty Development Programme, workshop on "**Molecular Docking, Virtual Screening & Computational Biology**" held from March 28 to April 08, 2022.

2024

26. Invited Lecture on "**Proteomics to Systems Biology**" organized by Dev Bhoomi Uttarakhand University in National Conference on "**5 days Hands-on Training workshop in Bioinformatics focusing on Genomics, Metagenomics and Proteomics Analysis**" organizing Bioinformatics focusing on Genomic and Proteomic Analysis sponsored by DST-SERB under Accelerate Vigyan from 29th January 2024- 4th February 2024.

(Dr. Ajay Kumar Singh)