

CURRICULUM VITAE

Dr. SUNIL KUMAR SINGH

Assistant Professor

Department of Animal Sciences,
School of Basic and Applied Sciences,
Central University of Punjab, Bathinda (CUPB)
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Area of Specialization:

Vascular Biology: Platelet signaling, Thrombosis and Cardiovascular diseases;

Nanomedicine: Biomaterials, Nanobiosensor and Theranostics;

Cardiovascular infection: Infection based Cardiovascular complications

Experience:

Position Held	Place of Work	Start Date	End Date	Total Experience
Assistant Professor	Department of Animal Sciences, Central University of Punjab, Bathinda	20/12/2016	Till date	
Assistant Professor (INSPIRE Faculty)	Department of Biotechnology, Motilal Nehru National Institute of Technology (MNNIT) Allahabad, India	28/01/2013	19/12/2016	3 years 11 months
Guest Research Scientist	Institute for Cardiovascular Prevention (IPEK), Ludwig Maximilians University (LMU) Munich, Germany.	26/06/2015	28/08/2015	2 months

Educational Qualification:

Degree	Institution	Year	Subject
PhD	Department of Biochemistry, Institute of Medical Sciences, Banaras Hindu University, Varanasi-India	2012	Biotechnology
M.Sc.	School of Biotechnology, Banaras Hindu University, Varanasi- India	2005	Biotechnology

Awards/Fellowships/Scholarship:

Selected for UGC-Assistant Professor in Biological Sciences under UGC-Faculty Recharge Programme	2017
NASI-Young Scientist Platinum Jubilee Award	2015
INSA Medal for Young Scientists	2014
DST-INSPIRE Faculty Award	2012

Dr. D. S. Kothari Postdoctoral Fellowship	2012
Foundation of Science and Technology (FCT) Postdoctoral Fellowship, Portugal.	2012
International Travel Grant Award from ICMR and DST	2011
Awarded Best paper award in State level Biomedical Research Competition, organized by Research Cell, CSMMU (KGMC), Lucknow.	2010
Awarded Certificate of Merit in the area of Nanoscience and Technology from DST-UNANST, BHU	2009-2010
CSIR-UGC (JRF)	2007
ICMR (JRF)	2005
Qualified Graduate Aptitude Test in Engineering (GATE) with 97.26 percentile	2004

Teaching Assignments:

Courses taught:

Cell biology, Immunology, Biochemistry, Techniques in life Sciences, Nanobiology, Thermodynamics of biological system

No. of Students Guided/Ongoing:

1. PhD: 2 (Ongoing)
2. MSc 2 (Ongoing)
3. M. Tech. 1 (Completed)
3. B. Tech 5 (Completed)

Name of Student	PhD/ M.Tech	Thesis Title	Status
Ms Priti Singh	PhD	Study of interface between nanosilica and blood coagulation system	<i>Thesis submitted, May 2017</i> at MNNIT Allahabad under joint supervision with Dr. Sameer Srivastava, Assistant Professor, Department of Biotechnology.
Mr.Vivek Kumar Yadav	PhD	Exploration of interface between gram negative quorum sensing molecules and thrombus	On-going at MNNIT Allahabad under joint supervision with Dr. Vishnu Agarwal, Assistant Professor, Department of Biotechnology.
Mr. Krishna Kumar Kashri	M. Tech	Effect of AHLs on Platelet derived microparticle release	Completed

Research Projects:

Status	Title of Project	Name of Funding Agency	Value of Project (in Lakh Rs.)
On-going (2013-2018)	Biocompatible Nanomaterial Based Electrochemical Biosensor for the Detection of Cardiovascular Diseases	Department of Science and Technology	35.0
On-going (2017-2019)	Electrochemically deposited dye coated electrode based biosensor for the detection of hydrogen peroxide	Research Seed Money grant, Central University of Punjab, Bathinda	3.0

List of Publications (Papers / Conference proceedings / Book / Book Chapters / Patent)

Research Publication: Twenty four (24), **Cumulative Impact Factor:** ~124,

Citations: ~1089, **h-index:** 15, **i10-index:** 16,

Conference proceedings published: 2, **Book:** 1, **Chapters in Books:** Five (5),

Patent: 1 (filed Indian patent)

Research Publication: Twenty four (24)

S. No.	Authors, title, journal, volume, page numbers	Impact Factor
1.	P. Singh, S. Srivastava, S.K. Singh* H ₂ O ₂ sensing through electrochemically deposited Thionine coated ITO thin film Cell Mol Biol (Noisy-le-grand), 2017, vol. 63, 56-59. * <i>Corresponding Author</i> doi: 10.14715/cmb/2017.63.6.12	0.92
2.	A. Srivastava, N. Kumar, P. Singh, S.K. Singh H ₂ O ₂ sensing using HRP modified catalyst-free ZnO nanorods synthesized by RF sputtering Appl. Phys. A , 2017, vol. 123, 453-461, DOI10.1007/s00339-017-1065-4	1.5
3.	M. P. Singh, S. Rai, S. Suyal, S. K. Singh , N. K. Singh, A. Agarwal, S. Srivastava Genetic and epigenetic markers in colorectal cancer screening: recent advances Expert Review of Molecular Diagnostics 2017, vol. 17, 665-685 Doi: 10.1080/14737159.2017.1337511	3.1
4.	P. Singh, S. Srivastava, P. Chakrabarti and S. K. Singh * Nanosilica based electrochemical biosensor: A novel approach for the detection of platelet-derived microparticles, Sensor and Actuators B: Chemical 2017, vol. 240, 322-329 http://dx.doi.org/10.1016/j.snb.2016.08.136 * <i>Corresponding Author</i>	5.4
5.	S. K. Pandey, P. Singh, J. Singh, S. Sachan, S. Srivastava, S. K. Singh* Nanocarbon-based Electrochemical Detection of Heavy metals, Electroanalysis , 2016 vol. 28, 2472-2488, Doi: 10.1002/elan.201600173 * <i>Corresponding Author</i>	2.8
6.	P. Singh, S. K. Pandey, J. Singh, S. Srivastava, S. Sachan, S. K. Singh* Biomedical Perspective of Electrochemical Nanobiosensor, Nano-Micro Lett. 2016, vol. 8, 193-206, DOI 10.1007/s40820-015-0077* <i>Corresponding Author</i>	4.8
7.	S. Chakrabartty, A. Mondal, P. Chakrabarti, S. K. Singh , A. K. Saha and P. Singh, Synthesis of biocompatible TiO ₂ nanodots: Glancing angle deposition technique	1.5

	Journal of nanoscience and nanotechnology , 2016, vol. 16, 8705-8710. http://dx.doi.org/10.1166/jnn.2016.11633	
8.	J. Kailashiya N. Singh, S. K. Singh , V. Agrawal, D. Dash Graphene-based biosensor for detection of platelet-derived microparticles: a potential tool for thrombus risk identification Biosensors and Bioelectronics 2015, vol. 65, 274-280 doi:10.1016/j.bios.2014.10.056	7.7
9.	S. K. Yadav, C. Haldar, S. K. Singh , D. Dash Melatonin regulates splenocytes proliferation via IP ₃ -dependent intracellular Ca ²⁺ release in seasonally breeding bird, <i>Perdicula asiatica</i> . Journal of Receptors and Signal Transduction , vol 34, no. 4 pp 233- 240, 2014 DOI: 10.3109/10799893.2014.885047	1.6
10.	A. Mishra, S. K. Singh , D. Dash, V. K. Aswal, B. Maiti, M. Misra, P. Maiti Self-assembled Aliphatic Chain Extended Polyurethane Nanobiohybrids: Emerging Hemocompatible Biomaterials for Sustained Drug Delivery, Acta biomaterialia , vol. 10, no. 5, pp. 2133-2146, 2014 DOI:10.1016/j.actbio.2013.12.035	6.3
11.	Kumari S.; Singh, M.K.; Singh, S.K. ; Gracio J., Dash, D. Nanodiamond activates blood platelets and induces thromboembolism, Nanomedicine , vol. 9, no. 3, pp. 427-440, 2014, DOI: 10.2217/nnm.13.23	4.7
12.	N.K Singh, S. K. Singh , D. Dash, P. Gonugunta, M. Misra, P. Maiti, CNT Induced β -Phase in Polylactide: Unique Crystallization, Biodegradation, and Biocompatibility, J. Phys. Chem. C , vol.117, no.19, pp 10163–10174, 2013. DOI: 10.1021/jp4009042	4.5
13.	S. K. Singh , M. K. Singh, P. P. Kulkarni, V. K. Sonkar, J.A. Gracio, D. Dash, Amine-modified graphene: Thrombo-protective safer alternative to graphene oxide for biomedical applications, ACS Nano , vol. 6, no. 3, pp. 2731–2740, 2012. DOI: 10.1021/nn300172t	13.9
14.	N.K Singh, S. K. Singh , D. Dash, B.P. Purkayastha, J. Roy, P. Maiti, Nanostructure Controlled Anti-Cancerous drug delivery using Poly(-caprolactone) based Nanobiohybrids, J. Mater. Chem. , vol. 22, pp. 17853-17863, 2012 DOI: 10.1039/C2JM32340K	6.6
15.	S. K. Singh , K. Goswami, R.D. Sharma, M.V.R. Reddy, D. Dash, Novel microfilaricidal activity of nanosilver, International Journal of Nanomedicine , vol.7, pp.1023–1030, 2012. DOI: 10.2147/IJN.S28758	4.3
16.	A. Dash, A. P. Singh, B. R. Chaudhary, S. K. Singh , D. Dash, Effect of Silver Nanoparticles on Growth of Eukaryotic Green Algae, Nano-Micro Lett. , vol. 4, pp.158-165, 2012. DOI:10.3786/nml.v4i3.p158-165	4.8
17.	S. K. Singh , M. K. Singh, M.K. Nayak, S. Kumari, S. Shrivastava, J.A. Gracio, D. Dash, Thrombus inducing property of atomically thin graphene oxide sheets, ACS Nano , vol. 5 no. 6, pp. 4987-4996, 2011. DOI: 10.1021/nn201092p	13.9
18.	S. K. Singh , M. K. Singh, M.K. Nayak, S. Kumari, J.A. Gracio, D. Dash, Size distribution analysis and physical / fluorescence characterization of graphene oxide sheets by flow cytometry, Carbon , vol. 49, pp. 684-692, 2011. DOI:10.1016/j.carbon.2010.10.020	6.3
19.	S. K. Singh , M. K. Singh, M.K. Nayak, S. Kumari, J.A. Gracio, D. Dash, Characterization of graphene oxide by flow cytometry and assessment of its cellular toxicity, J. Biomed. Nanotechnol. , vol. 7, pp. 30-31, 2011. DOI: 10.1166/jbn.2011.1186	4.5

20.	M. K. Nayak, S. K. Singh , A. Roy, V. Prakash, A. Kumar, D. Dash, Anti-thrombotic effects of selective estrogen receptor modulator tamoxifen, Thrombosis and Hemostasis , vol. 106, no. 4, pp. 624-635, 2011. DOI: 10.1160/TH11-03-0178	5.6
21.	S. Shrivastava, S. K. Singh , A. Mukherjee, A. S. K. Sinha, R. K. Mandal, D. Dash, Negative regulation of fibrin polymerization and clot formation by nanoparticles of silver, Colloids and Surfaces B: Biointerfaces , vol. 82, pp. 241-246, 2011. DOI: 10.1016/j.colsurfb.2010.08.048	3.9
22.	S. Shrivastava, T. Bera, S. K. Singh , G. Singh, P. Ramachandrarao, D. Dash, Characterization of novel anti-platelet properties of silver nanoparticles, ACS Nano , vol. 3, no. 6, 1357-1364, 2009. (Published as research highlight by journals <i>NATURE</i> and <i>SCIENCE</i>). DOI: 10.1021/nn900277t	13.9
23.	S. K. Singh , S. Shrivastava, M. K. Nayak, A. S. K. Sinha, M.V. Jagannadham, D. Dash, Stabilization of protein by biocompatible nanoparticles of silver, Journal of Bionanosciences , vol. 3, pp. 88-96, 2009. DOI:10.1166/jbns.2009.1012	---
24.	K. Awasthi, D.P. Singh, S. K. Singh , D. Dash, O.N. Srivastava, Attachment of Biomolecules (Protein and DNA) with Amino Functionalized Carbon Nanotubes, New Carbon Materials , vol. 24, no. 4, pp. 301-306, 2009. DOI:10.1016/S1872-5805(08)60053-0	1.0

Papers Published in Conference Proceedings: 2

1. P. Singh, S. Srivastava, **S. K. Singh***, Cationic surfactant mediated synthesis of MCM-41 type mesoporous silicon oxide nanoparticles, Proceedings of the international conference on multifunctional materials, structures and applications, CIR MNNIT, Allahabad & University of Missouri (MU), Columbia, USA (pp.13-15). McGraw Hill Education, ISBN(13): 978-93-392-2019-8.(Full paper) ***Corresponding author**
2. S. K. Pandey, **S. K. Singh*** and S. Sachan, (2014).Optimization for Effective Removal of Chemical Dyes from Wastewater Using Polymeric Adsorbent, Proceedings of the international conference on multifunctional materials, structures and applications, CIR MNNIT, Allahabad & University of Missouri (MU), Columbia, USA (pp.152-155).McGraw Hill Education, ISBN(13): 978-93-392-2019-8.(Full paper) ***Corresponding author**

Patent Filed/Granted:

1. **S. K. Singh**, P. Singh and P. Chakrabarti, **Filed Indian Patent Application No.: 1687/DEL/2015; dated 05.06.2015 entitled** "Electrochemical process of immuno-based thionine doped nanosilica electrode modification and its use as an enzymatic sensor for electrochemical detection of platelet hyperactivity".

Book: One (1)

1. **S. K. Singh**, D. Dash, Book- Exploration of interface between Graphene sheets and Thrombus biology Editor- Lydia Hoskinson, pp 1-107, ISBN: 978-3-659-89068-0, LAP Lambert Academic Publishing

Book Chapters: Five (5)

1. **S. K. Singh**, P. P. Kulkarni, D. Dash, **Chapter-** Biomedical Applications of Nanomaterials: An Overview, **Book-** Bio-Nanotechnology: A Revolution in Food, Biomedical and Health Sciences, Debasis Bagchi, Manahi Bagchi, Hiroyoshi Mariyama & Fereidoon Shahidi (Eds.), 2013, pp 3-32, ISBN: 978-0-470-67037-8, **Wiley-Blackwell publication.**
2. **S. K. Singh**, P. P. Kulkarni, D. Dash, **Chapter-** Biomedical Applications of Carbon-Based Nanomaterials, **Book-** Bio-Nanotechnology: A Revolution in Food, Biomedical and Health Sciences, Debasis Bagchi, Manahi Bagchi, Hiroyoshi Mariyama & Fereidoon Shahidi (Eds.), 2013, pp445-463 ISBN: 978-0-470-67037-8, **Wiley-Blackwell publication.**
3. **S. K. Singh**, P. P. Kulkarni, D. Dash, **Chapter-** Graphene: Characterization by flow cytometry and Biomedical applications, **Book-** Graphene: Properties, Synthesis and Applications, Zhiping Xu, Ph.D (Ed.) Associate Professor of Engineering Mechanics, Department of Engineering Mechanics, School of Aerospace & Center for Nano and Micro Mechanics, Tsinghua University, Beijing 100084, China, 2011, ISBN: 978-1-61470-995-4, **Nova publication.**
4. **S. K. Singh**, S. Shrivastava, D. Dash, **Chapter-** Metallic Nanoparticles: Biological Perspective, **Book-** Metal Nanoparticles in Microbiology, Mahendra Rai, Nelson Duran and Gordon Southam (Eds.), 2011, pp285-298, ISBN: 978-3-642-18311-9, **Springer publication.**
5. S. Shrivastava, **S. K. Singh**, D. Dash, **Chapter-** Applying Nanotechnology to Human Health, **Book-** Nanotechnology in Health Care, N. Udupa and P. D. Gupta (Eds.), 2009, ISBN: 9380018021, **Shyam Prakashan publication.**

Conferences and Scientific Presentations

International

1. Presented a paper entitled "*Exploration of interface between nanotechnology and thrombus biology*" in the International conference on Nanoscience and Nanotechnology "Aligrah Nano - IV" March 08-10, 2014, at Aligarh Muslim University, Aligarh.
2. Presented a paper entitled "*Size distribution analysis and physical / fluorescence characterization of graphene oxide sheets by flow cytometry*" in the International conference on Nanomaterials & Nanotechnology "ICNANO 2011" December 18-21, 2011 at Conference Centre at University of Delhi, India.

3. Presented a paper entitled "*Thrombus inducing property of atomically thin graphene oxide sheets*" in the International conference on Nanoscience and Technology "ChinaNano-2011" September 7-9, 2011, at China National Convention Center (CNCC), Beijing, China.

National

1. Presented a paper entitled "*Characterization of Anti-platelets properties of Silver nanoparticles*" in the *State level Biomedical Research Competition, 13th November 2010 organized by Research Cell, CSMMU (K GMC), Lucknow.*
2. Presented a paper entitled "*Stabilization of protein by biocompatible nanoparticles of silver*" in the symposium on "Recent Advances in Nano- Materials and their Applications" March 7-9, 2009 at BHU, Varanasi.
3. A poster entitled "*Carbon Nanoelectrode arrays Based Electrochemical biosensor for the detection of Pathogens*" was presented in "National Symposium on Medicinal plants: Role of Bioinformatics and Biotechnology" organized by Department of Biotechnology, Birla Institute of Technology, Mesra on 3-5 August'2006

Workshop/Training

1. One Day Workshop on "*Nanoscience and Nanotechnology*" organized by Banaras Hindu University, Varanasi, India in March, 2006.
2. Training on "*Bioinformatics: genomics and proteomics*" at IIT Kharagpur from 22nd-23rd September 06.
3. Three day seminar cum workshop on "*Emerging Trends in Drug Design and Molecular Modeling*" at Department of Pharmaceutics, Institute of Technology BHU from 1st- 3rd April 09.
4. Attended the XXIV National Training Programme in *Electron Microscopy for Scientific Investigators* conducted by the Department of Anatomy Electron Microscope Facility at AIIMS from 3rd to 18th November 08.
5. Training on "Basic Flow cytometry Training Course on BD FACSCalibur from 3rd-5th May 2010
6. Actively participated in the "Lieca Workshop on Confocal & Live Cell Imaging Microscopy" conducted at the National Centre for Biological Science, GKVK Campus, Bangalore from 16th to 18th September 2013.

Invited Talks

1. Delivered invited talk on "Nanosilica based biosensor for detection of platelet microvesicles: a potential tool for thrombus risk identification" in the International conference on "Innovations and Translational Dimensions: Food, Health and Environmental Biotechnology" [Biosangam-2018] at Motilal Nehru National Institute of Technology Allahabad during March 09 - 11, 2018.
2. Delivered invited talk on "Exploration of cross talks between nanomaterials and vascular components for the theranostics applications" in the International conference on "Pollution and It's Control through Agriculture, Pharmacy, Science and Technology" at Swami Vivekanad University, Sagar, M.P. during February 27-28, 2018.

3. Delivered invited talk on "Exploration of the interface between carbon nanostructures and thrombus biology" in Self-Financed Short Term Course on Advances in Bioscience and Bioengineering during October 19-25, 2016 in the Centre for Medical Diagnostic and Research, Motilal Nehru National Institute of Technology Allahabad.
4. Delivered invited talk on "Biomedical potential of Electrochemical Nanobiosensor" in Self-Financed Short Term Course on Advances in Applied Biotechnology during October 13-19, 2016 organized by Department of Biotechnology, Motilal Nehru National Institute of Technology Allahabad.
5. Delivered Invited talk on "Introductory Nanobiotechnology" for M.Sc. Food Technology from 01st June to 30th June 2016 at Centre of Food Technology, University of Allahabad.
6. Delivered invited lecture on "Application of Nanotechnology in Agriculture" in short Term Course on "Genomics for Crop Improvement" organized by Department of Biotechnology, Motilal Nehru National Institute of Technology Allahabad during December 23-29, 2015.
7. Delivered Invited talk on "Biomedical Perspective of Electrochemical Nanobiosensor: Recent Trends and Challenges" in National symposium on Innovations in Product Design (IPD) during 11-13 May 2015 at IITDM Jabalpur, India.
8. Delivered Invited talk on "Electrochemical nanobiosensor: An innovative tool for food pathogen and toxin detection" in UGC sponsored refresher course on "Food safety and Public Health" for faculty from 29th March to 18th April 2015 at Centre of Food Technology, University of Allahabad.
9. Delivered Invited talk on "Electrochemical Nanobiosensor: Recent Trends and Challenges" in Self-Financed Short Term Course on NanoBiotechnology dated January 23-29, 2015 organised at Department of Biotechnology MNNIT Allahabad.
10. Delivered Invited talk on "Blood Platelets: Key Players In Cardiovascular Diseases" in Self-Financed Short Term Course on Biotechnology, Health and Diagnostics during January 24-28, 2015 in the Centre for Medical Diagnostic and Research, Motilal Nehru National Institute of Technology Allahabad.
11. Delivered Invited talk on "Blood Platelets – Bacterial Pathogen Interactions: Role in Cardiovascular Infections" in Self-Financed Short Term Course on Microbial Technology and Biofilms: Avenues and Applications (10-14 Jan 2015) at Department of Biotechnology MNNIT Allahabad.
12. Delivered Invited talk on "Application of nanotechnology in Cancer Therapy and Diagnosis: Recent trend and challenges" in National Seminar on Recent Trend in Cancer Research sponsored by ICMR and NIPER Hazipur organised at NIPER Hazipur on 20th September 2013.

Conferences/ Workshops/Symposium Organized: 3

Short Term Course Organized: (2)

Conducted self-sponsored **short term course** as **organizing coordinator** at Department of Biotechnology, MNNIT Allahabad on

1. **Frontier in Biotechnology** (28th May to 1st June 2013)
2. **Human Health and Environmental sustainability** (4th June to 8th June 2013).

International Conference organized: (1)

1. Conducted *International conference on Translational Biotechnology* as **organizing coordinator** at Department of Biotechnology, MNNIT, Allahabad (4th February to 6th February 2016).

Editorial/Reviewer Position

- **Since 2015: Editor Board Member**, International Journal of Scientific Research and NanoTechnology (IJSRNT)
- **Since 2014: Editor Board Member**, International Journal of Chemical and Biological Sciences (IJCBS)
- **Since 2013: Associate Editor**, World Research Journal of Cell Biology, Bioinfo Publications
- **Since 2015: Reviewer**, Journal of Nanoscience and Nanotechnology (JNN)
- **Since 2015: Reviewer**, Carbon Journal, Elsevier
- **Since 2012: Reviewer**, Agricultural Research, Springer
- **Since 2011: Reviewer**, Journal of Nanoparticle research, Springer
- **Since 2016: Reviewer**, Scientific Reports, Nature publications

Membership in Scientific Society

- **Since 2014:** The Indian National Science Congress
- **Since 2012:** Indian Peptide Society
- **Since 2011:** Indian Society of Cell Biology
- **Since 2011:** The Cytometry Society
- **Since 2012:** Biotechnology Research Society of India