

# CURRICULUM VITAE

## DR.SAIKAT KUMAR JANA

Ph.D-IIT Kharagpur, School of Medical Science and Technology  
Assistant Professor, NIT Arunachal Pradesh



### Address for communication

Dr. Saikat Kumar Jana.  
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### Professional Experience

- Assistant professor, National Institute of Technology, Arunachal Pradesh (21.07.2015 to Till date)
- Research associate, Indian Institute of Technology, Kharagpur (02.04.2014 to 30.06.2015)

### Academic Achievements

- Ph.D in Medical Biology, School of Medical Science and Technology, Indian Institute of Technology, Kharagpur, India. Mentors: Prof. Koel Chaudhury. (2013)
- M.Sc. in Applied Microbiology, Vellore Institute Of Technology, Vellore, India. Mentor: Prof. Ramkrishna Sen, Indian Institute of Technology, Kharagpur, India. (2006)
- B.Sc.(Hons.) in Microbiology, Panskura Banamali College, Vidyasagar University, India (2004).

### Papers published in peer reviewed journals

- Sangili, A., Kalyani, T., Chen, S.M., Rajendran, K. and **Jana, S.K.**, 2022. Label-free electrochemical immunosensor based on l-cysteine-functionalized AuNP on reduced graphene oxide for the detection of dengue virus E-protein in dengue blood serum. Composites Part B: Engineering, p.109876. **(IF 11.322)**
- Pal A, Biswas S, OK SP, Biswas P, **Jana SK**, Das S, Chaudhury K. Development of an impedimetric immunosensor for machine learning-based detection of endometriosis: A proof of concept. Sensors and Actuators B: Chemical. 2021 Jul 29:130460.**(IF 9.221)**

- Kalyani, T., Sangili, A., Nanda, A., Prakash, S., Kaushik, A. and Jana, S.K., Bio-nanocomposite based highly sensitive and label-free electrochemical immunosensor for endometriosis diagnostics application. *Bioelectrochemistry*, p.107740. (IF 5.76)
- Kalyani T, Nanda A, Jana SK. Detection of a novel glycodelin biomarker using electrochemical immunosensor for endometriosis. *Analytica Chimica Acta*. 2020 Nov 18.(IF 6.911)
- Sangili A, Kalyani T, Chen SM, Nanda A, Jana SK. Label-Free Electrochemical Immunosensor Based on One-Step Electrochemical Deposition of AuNP-RGO Nanocomposites for Detection of Endometriosis Marker CA 125. *ACS Applied Bio Materials*. 2020.(IF 3.25)
- Dhal Ajitesh, Thangapandi Kalyani, Suvankar Ghorai, Niroj Kumar Sahu, and Saikat Kumar Jana. "Recent development of electrochemical immunosensor for the diagnosis of dengue virus NSI protein: A review." *Sensors International* (2020): 100030.
- Saikat Ghosh, Sampad Ghosh, **Jana SK**, and Nabakumar Pramanik. Biomedical Application of Doxorubicin Coated Hydroxyapatite-Poly(lactide-co-glycolide) Nanocomposite for Controlling Osteosarcoma Therapeutics. *Journal of Nanoscience and Nanotechnology*. 2020 Vol. 20 (IF 1.354)
- Nanda A, Thangapandi K, Banerjee P, Dutta M, Wangdi T, Sharma P, Chaudhury K, **Jana SK**. Cytokines, Angiogenesis, and Extracellular Matrix Degradation are Augmented by Oxidative Stress in Endometriosis. *Annals of laboratory medicine*. 2020;40(5):390-7. (IF 4.941)
- Reshmi Dutta a,# ,K.ThangaPandi b,# ,Amallesh Nanda b, Ciyona a , Raj Mahapatra a , ShaireeSanyal a, Shreyosi Bose a , Sumantra Mondal a , Saikat Jana b and SuvankarGhorai.Polyaniline Based Electrochemical Sensor for the Detection of Dengue Virus Infection. *Avicenna Journal of Medical Biotechnology (AJMB)*. 2020 Vol. 20, accepted (IF 1.44)
- Sangili A, Annalakshmi M, Chen SM, Balu S, Kalyani T, **Jana SK**. Synthesis of Flower-Like Iron Oxide Capped Tripolyphosphate for Electrochemical Detection of Carbadox Drugs in Meat. *Journal of The Electrochemical Society*. 2019 Jan 1;166(8):B555-61.(IF 4.316)
- Dutta, M., Singh, B., Joshi, M., Das, D., Subramani, E., Maan, M., **Jana, S.K.**, Sharma, U., Das, S., Dasgupta, S. and Ray, C.D., 2018. Metabolomics reveals perturbations in endometrium and serum of minimal and mild endometriosis. *Nature Scientific reports*, 8. 23 March 2018 8:6466 | DOI:10.1038/s41598-018-23954-7 (IF 4.996)
- B Singh, **SK Jana**, N Ghosh, SK Das, M Joshi, P Bhattacharyya. Metabolomic profiling of doxycycline treatment in chronic obstructive pulmonary disease. *Journal of Pharmaceutical and Biomedical Analysis* 2017 132, 103-108 (IF 3.935)
- S Ningthoujam, **SK Jana**, MP Dutta, R Subhra, SB Goswami. Hybrid Protocol for Molecular Communication in Three States Markov Model. *Journal of Engineering Technology* 2017 (ISSN: 0747-9964) 6 (1), 113-123 (IF 3.588)
- Ghosh P, Singha Roy A, Chaudhury S, **Jana SK**, Chaudhury K, Dasgupta S.. Preparation of albumin based nanoparticles for delivery of fisetin and evaluation of its cytotoxic activity. *International Journal of Biological Macromolecules*, January 2016, 86:408-417.(IF 6.953)
- **Jana SK**, Banerjee P, Das S, Seal S, Chaudhury K. Redox-active Nanoceria depolarize mitochondrial membrane of human colon cancer cells. *Journal of Nanoparticle Research*, May 2014, 16:2441. (IF 2.533)
- **Jana SK**, Chakravarty B, Chaudhury K. Letrozole and curcumin loaded-PLGA nanoparticles: a therapeutic strategy for endometriosis. *J. Nanomed. Biotherap. Discov*. 2014;4(123):10-4172. (IF 3.687)

- **Jana SK**, Chakravarty BN, Chaudhury K. Letrozole and Curcumin Loaded-PLGA Nanoparticles: A Therapeutic Strategy for Endometriosis. **Journal of Nanomedicine & Biotherapeutic Discovery** doi:10.4172/2155-983X.1000123.2014 (IF 3.687)
- **Jana SK**, Banerjee P, Mukherjee R, Chakravarty BN, Chaudhury K. HOXA-11 mediated dysregulation of matrix remodeling adversely affects implantation in women with endometriosis. **Journal of Assisted Reproduction and Genetics** DOI:10.1007/s10815-013-0088-9.2013.(IF 2.829)
- **Jana SK**, Dutta M, Joshi M, Srivastava S, Chakravarty BN, and Chaudhury K. 1H NMR Based Targeted Metabolite Profiling for Understanding the Complex Relationship Connecting Oxidative Stress with Endometriosis. **Bio med Research International**. 2013. Volume 2013 (2013), Article ID 329058, 9 pages <http://dx.doi.org/10.1155/2013/329058>. (IF 3.246)
- Banerjee P, **Jana SK**, Pasricha P, Ghosh S, Chakravarty B, Chaudhury K. Proinflammatory cytokines induced altered expression of cyclooxygenase-2 gene results in unreceptive endometrium in women with idiopathic recurrent spontaneous miscarriage. **Fertil Steril**. 2012;99:179-87. (IF 7.329)
- Chattopadhyay R, Ganesh A, Samanta J, **Jana SK**, Chakravarty BN, Chaudhury K. Effect of follicular fluid oxidative stress on meiotic spindle formation in infertile women with polycystic ovarian syndrome. **Gynecol Obstet Invest**. 2010;69:197-202. (IF 1.281)
- Jaganathan SK, Mandal SM, **Jana SK**, Das S, Mandal M. Studies on the phenolic profiling, anti-oxidant and cytotoxic activity of Indian honey: in vitro evaluation. **Nat Prod Res**. 2010;24:1295-306. (IF 2.861)
- **Jana SK**, K NB, Chattopadhyay R, Chakravarty B, Chaudhury K. Upper control limit of reactive oxygen species in follicular fluid beyond which viable embryo formation is not favorable. **Reprod Toxicol**. 2010;29:447-51. (IF 2.850)
- Das S, Chattopadhyay R, **Jana SK**, Narendra BK, Chakraborty C, Chakravarty B, et al. Cut-off value of reactive oxygen species for predicting semen quality and fertilization outcome. **Syst Biol Reprod Med**. 2008;54:47-54. (IF 3.061)

## Book Chapter

- 1) Adhikary T, Nanda A, Thangapandi K, Roy S, Kumar S. Trends in Biosensors and Role of Enzymes as Their Sensing Element for Healthcare Applications. *Microbial Fermentation and Enzyme Technology*. 2020 May 19.
- 2) Adhikary T, Jana AD, Chakraborty A, **Jana SK**. The Internet of Things (IoT) Augmentation in Healthcare: An Application Analytics. In *International Conference on Intelligent Computing and Communication Technologies 2019* Jan 9 (pp. 576-583). Springer, Singapore.
- 3) **Jana SK**, Banerjee P, Shyam T, Chaudhury K. Alteration in endometrial remodeling a cause for implantation failure in endometriosis. *INTECH OPEN ACCESS "Endometriosis"*, ISBN 979-953-307-888-4 (2011).

## Patent

- 1) Dr. Saikat Kumar Jana & Thangapnadi K “Electrochemical sensor based system adapted for immune response” **Application No. TEMP/E1/5913/2020-KOL**
- 2) Biswas P, **Jana SK**, Chaudhury K. Biodegradable polymer encapsulated Besifloxacin nanoparticles. **Ref No./application No. 9/KOL/2014**
- 3) **Dr. Saikat Kumar Jana** "IN VITRO AUTOMATED GROWTH CHAMBER FOR PLANTS AND MICROORGANISMS" **MP/E-1/54080/2022-KOL Application No 02231047410**

## Publications in Conferences

### International:

- Thangapandi K, Amallesh Nanda and Saikat Kumar Jana "Sensitive electrochemical CA19-9 biosensing based on MWCNT/Fe<sub>3</sub>O<sub>4</sub>/Chitosan composite for endometriosis diagnosis", International Conference on Nanomaterials Driven Advances in Chemical and Biosensors, 2019
- Gautam AS, **Jana SK**, Dutta MP. Automated Diagnosis of Diabetic Retinopathy using image processing for non-invasive biomedical application. In 2019 International Conference on Intelligent Computing and Control Systems (ICCS) 2019 May 15 (pp. 809-812). IEEE.
- Aishwarya Singh Gautam, Saikat Kumar Jana, Manash Pratim Dutta. Automated detection of Diabetic Retinopathy using Biomedical image processing in the Third International Conference on Intelligent Computing and Control Systems (ICICCS-2019), organized by Vaigai college of Engineering during May 15-17, 2019 at Madurai, India
- **Jana SK**, Chaudhury K, Dual drug (letrozole and curcumin) loaded-PLGA nanoparticles: a therapeutic strategy for endometriosis” under Biodiversity and Healthcare section of ICBCS 2016 AT RGU, Arunachal Pradesh on 17th October 2016.
- Jana SK, Chattopadhyay R, Chakravarty B, Chaudhury K. Does oral antioxidant administration improve semen parameters in infertile men. International Conference on Systems in Medicine and Biology IEEE (2010) 978-1-61284-038-3/10/\$26.00 ©2010 IEEE (IF 1.04)
- Jana SK, Chattopadhyay R, Bose G, Chakravarty B, Chaudhury K. A low cost short-term sperm preservation procedure for double IUI in controlled ovarian hyperstimulation cycles. International Conference on Systems in Medicine and Biology IEEE (2010) 978-1-61284-038-3/10/\$26.00 ©2010 IEEE (IF 1.04)
- 1H NMR Based Metabolite Profiling For Understanding The Complex Relationship Connecting Oxidative Stress With Endometriosis. K. Chaudhury, **S. K. Jana**, M. Dutta, M. Joshi, S. Srivastava, B. Chakravarty. American Society Of Reproductive Medicine. **O-485 Pages S372**
- Topological features to the endometrium during implantation window in women with endometriosis : SEM, AFM and OCT study. **SK Jana**, R Chattopadhyay, B Chakravarty, K Chaudhury. *28<sup>th</sup> European Society of Human Reproduction and Embryology* . P-214
- The endometrium is the most significant contributory factor for poor outcome following ART in severe endometriosis—a study using recent technology. S Ghosh, R Chattopadhyay, **SK Jana**,

- SK Goswami, G Bose, M Chakravarty, K Chaudhury and BN Chakravarty. *28<sup>th</sup> European Society of Human Reproduction and Embryology*. P-236
- Implantation failure in endometriosis is mediated by estrogen dependent activation of COX-2. S Thagaraju, **SK Jana**, P Banerjee, B Chakravarty, K Chaudhury. World congress on Gynecological Endocrinology, Mar 7-10, 2012
  - Imaging the endometrium An improved understanding of implantation failure in endometriosis. **SK Jana**, K Chaudhury. *The 15th WABT general conference Invited Talk, china, Dec 05-07, 2011*
  - Exaggerated inflammatory response affects endometrial receptivity in women with idiopathic recurrent spontaneous miscarriage. P Banerjee, **SK Jana**, P Pasricha, K Chaudhury, B Chakravarty. *Fertility and Sterility*, Volume 96, Issue 3, Supplement 1, September 2011, Page S67
  - Aberrant expression of homeobox genes adversely affects implantation in endometriosis. **SK Jana**, P Banerjee, V Pramanik, P Pasricha, K Chaudhury, B Chakravarty. *Fertility and Sterility* Volume: 96 Issue: 3 Supplement: 1, September 2011, Pages: S276-S276.
  - Oxidative stress induced excessive degradation of endometrial matrix in women with endometriosis. **SK Jana**, R. Chattopadhyay, C. Datta Ray, K. Chaudhury, B.N. Chakravarty *European Society of Human Reproduction and Embryology* P-224 (2011)
  - Antioxidant supplements may benefit male infertility. E Subramanian, **SK Jana**, R Chattopadhyay, B Chakravarty, K Chaudhury. *International Conference on Recent Trends In Therapeutic Advancement Of Free Radical Science and 10th Annual Meeting of the Society for Free Radical Research- India S02-144* (2011)
  - Oxidative stress induced alterations in the activity of MMP-2 and -9 in women with endometriosis. **SK Jana**, CD Ray, B Chakravarty, K Chaudhury. *International Conference on Recent Trends In Therapeutic Advancement Of Free Radical Science and 10th Annual Meeting of the Society for Free Radical Research- India S07-141* (2011)
  - Expression of endometrial receptivity markers during implantation window in women with endometriosis. K Chaudhury, **SK Jana**, P Banerjee, S Mukherjee B Chakravarty. *26th European Society of Human Reproduction and Embryology P-272 i 222* (2010)
  - Does in vivo antioxidant administration improve semen parameters in infertile men. **SK Jana**, K Chaudhury, S Das, R Chattopadhyay, B Chakravarty. *International Conference on Reproductive Health (ISSRF) Page 103* (2010)
  - Upper critical level of ROS in follicular fluid for predicting outcome failure in women with endometriosis undergoing IVF. S Das, NK Babu, **SK Jana**, R Chattopadhyay, K Chaudhury, B Chakravarty. *64th Annual Meeting of the Society of the American Society for Reproductive Medicine (ASRM) Nov 08-12 Fert Ster 90(1) S139* (2008)
  - Optimal range of reactive oxygen species (ROS) a useful marker for male infertility evaluation. R Chattopadhyay, B Chakravarty, S Das, **SK Jana**, N Babu, and K Chaudhury *ASRM Volume 88, Pages S372 - S372 R. P-802*, (2007)
  - Reactive oxygen species in various semen categories an useful marker for male infertility evaluation. S Das, R Chattopadhyay, **SK Jana**, Chakravarty BN and Chaudhury K. *ISSRF Feb 19-21* (2007)
  - Correlation of oxidative stress induced sperm membrane abnormalities and DNA damage with ICSI outcome. S Karim, S Das, **SK Jana**, K Chaudhury, R Chattopadhyay, B Chakravarty *ISSRF Feb 19-21* (2007)

**National:**

- 1) Non-invasive predictive marker of Pregnancy Induced Hypertension by CD Ray, R Mukherjee, **SK Jana** and K Chaudhury *52 nd All India Congress of Obstetric and Gynecology*; CS DAWN Prize (2009)
- 2) The significant role of reactive oxygen species in infertility by S Das, R Chattopadhyay, **SK Jana**, BN Chakravarty and K. Chaudhury. *95th Indian Science Congress* **102** (2008)
- 3) Bacterial adhesion depends on the surface roughness of intra ocular lens by P Biswas, S Sengupta, **SK Jana**, P Banerjee, K Chaudhury *69th All India Ophthalmology Conference* **FP1389 , B05049** (2011)

### Awards and Recognitions

- 1) Non-invasive predictive marker of Pregnancy Induced Hypertension by CD Ray, R Mukherjee, **SK Jana** and K Chaudhury *52 nd All India Congress of Obstetric and Gynecology* **CS DAWN Prize** (2009)
- 2) BACTERIAL ADHESION DEPENDS ON THE SURFACE ROUGHNESS OF INTRA OCULAR LENS by P BISWAS, S SENGUPTA, **S K JANA**, P BANERJEE, K CHAUDHURY *69th All India Ophthalmology Conference* **FP1389 , B05049** (2011). This paper was conferred with the **AIOS COL. RANGACHARI AWARD** for the BEST PAPER of ALL Sessions. This paper was also judged the **BEST PAPER of INFLAMMATION** Session.
- 3) **Early Career Research Award Grant from SERB, DST**(2016)

### Teaching Assistant

- **Classes taken on Infertility and Assisted Reproductive Technology for the course Masters in Medical Science and Technology at Indian Institute of Technology, Kharagpur.**

### Nominations and Invitations

- **Life member of The Indian Science Congress Association; Member ID L29281**
- **Advisory Committee member ICMR, Arunachal Pradesh**
- Acted as active **Scientific member** of panel discussion under “**INNOVATIONS in OPHTHALMOLOGY**” 31<sup>st</sup> August 2014.
- Imaging the endometrium An improved understanding of implantation failure in endometriosis. **SK Jana**, K Chaudhury. *The 15th WABT general conference* **Invited Talk, china, Dec 05-07, 2011**

### Reviewer /editorial Board

- Reviewer of **European Journal of Obstetrics & Gynecology and Reproductive Biology**
- Editorial board membership of **International Journal of Innovative Developments in Engineering and Applied Sciences**
- Reviewer of **Reproductive Science**
- Reviewer of **Scientific Report Nature**

## **SESSION CHAIR**

**Biodiversity and Healthcare section of ICBCS 2016 at Rajiv Gandhi University, Arunachal Pradesh on 17th October 2016**

## **Workshops**

**Workshop on research methodology organized by ICMR at Itanagar ,4th December 2015**

**Workshop on “Capacity building in grant writing skills and effective management of Intellectual Property Rights (IPR) in Biotechnology by universities and research institutions in the North East Region” at Hotel Tosum, Papum Pare, Arunachal Pradesh from 28th – 30th September 2016. North Eastern Region-Biotechnology Programme Management Cell (NER-BPMC) for promotion of Biotechnology in the North Eastern Region of India through Biotech Consortium India Limited (BCIL)**

**Workshop cum hands-on training Formulation of cosmetic products using tea extract 22nd and 23rd April, 2019**

**Sponsored by MOEF - NMHS**

## **Current Sponsored Projects**

**Project Title: “HPV Associated Cervical Cancer early screening kit development ”**

**Principal Investigator: : Dr. Saikat Kumar Jana,**

**Co-Principal Investigator: Dr. Suvankar Ghorai, Dr. Ranajit Kumar Mandal, Dr. Debabrata Barmon**

**Sponsor: DBT**

**Amount: Rs. 3136800/-**

**Project Title: “IOT and paper based smart diaper to improve quality of life of the disabled and elderly people”**

**Principal Investigator: : Dr. Saikat Kumar Jana**

**Co-Principal Investigator: NA**

**Sponsor: DST TIDE**

**Amount: Rs. 3600133/-**

**Project Title: “Centre for Skill Development in Appropriate Technology”**

**Principal Investigator: : Prof. P. Mahanta**

**Co-Principal Investigator: Dr. Saikat Kumar Jana**

**Sponsor: NECTAR (DST)**

**Amount: Rs. 100 crore**

**Project Title: “Development of sustainable technology for production of biomass pellet based fuel and herbal by- product from residue of pruned tea plant: Augmenting rural development”**

**Principal Investigator: Dr. Saikat Kumar Jana**

**Co-Principal Investigator:**

**Sponsor:** National Mission On Himalayan Studies (NMHS)

**Amount:** Rs. 4890880/-

**Project:** “Development of DNA Aptamer/peptide based Dengue virus Paper based diagnostic kit”

**Principal Investigator:** Dr. Saikat Kumar Jana

**Sponsor:** Indian Council of Medical Research (ICMR), NEW DELHI

**Amount:** Rs. 19.55 lakhs

**Project:** “Proteomic biomarkers based sensing device for minimally invasive diagnosis of endometriosis”

**Principal Investigator:** Dr. Saikat Kumar Jana

**Co-Principal Investigator:** Dr. Koel Chaudhury , IIT Kharagpur

**Sponsor:** DBT, NEW DELHI Twinning

**Amount:** Rs. 59.35 lakhs

**Project:** “Identification of suitable serum proteomic biomarkers based electrochemical immunosensor for diagnosis of endometriosis”

**Principal Investigator:** Dr. Saikat Kumar Jana

**Sponsor:** DST (SERB)

**Amount:** Rs. 33,30,510 /-

**Project:** “Phytochemical, Pharmacognostic and Nutritional characterisation of the Panax species (Araliaceae) from the Eastern Himalayan Region, India for Addressing Medicinal, Trade and Regional Livelihood Security Issues”

**Co- Principal Investigator:** Dr. Saikat Kumar Jana

**Sponsor:** DBT, NEW DELHI Twinning

**Amount:** Rs. 75.13 lakhs

**Project:** Start-up center in NIT Arunachal Pradesh

**Project Coordinator:** Dr. Saikat Kumar Jana

**Sponsor:** DST and MHRD

**Amount:** 1.5 cores

**Project:** Fabrication of IL-10 based electrochemical immunosensor for Diagnostics of Endometriosis

**Project Coordinator:** Dr. Saikat Kumar Jana

**Sponsor:** MHRD TEQIP-III

**Amount:** Three lakhs

*Saikat K. Jana.*