

Brief CV

Name: Dr. Sandeep Kumar

Designation: Scientist B

Division/Department: Molecular Diagnostics Lab, Molecular Biology Division, ICMR-NICPR.

Educational Qualification: B.V.Sc, M.V.Sc, Ph.D.

Date of Birth: March 29, 1986

Date of Joining ICMR-NICPR: March 3, 2022

Research focus:

- Cancer functional genomics and epigenomics in gynecological cancers (Endometrial cancer, Ovarian cancer).
- Exploring small molecule based non-invasive ways for early cancer detection and development of improved diagnostics.

Member of any national/international research/academic committee:

Fellowships/Awards/Patents (academic/national/international):

- Awarded SERB N-PDF.
- Awarded CSIR-SRF.
- Awarded ICMR-JRF.
- Awarded best thesis award for Master's program.
- Qualified CSIR/UGC National Eligibility Test.

Research publications/Book chapters/Popular articles/op-ed/media coverage (Best 10):

- Sunny Dholpuria, **Sandeep Kumar**, Manish Kumar, Parul Sarwalia, Rakesh Kumar, Tirtha Kumar Datta. 2021. A novel lincRNA identified in buffalo oocytes with protein binding characteristics could hold the key for oocyte competence, *Molecular Biology Reports*, 48(5):3925-3934. DOI: 10.1007/s11033-021-06388-9.
- **Sandeep Kumar**, Manish Kumar, Sunny Dholpuria, Parul Sarwalia, Vipul Batra, Sachinandan De, Rakesh Kumar and T. K. Datta. 2018. Transient Arrest of Germinal Vesicle Breakdown Improved In Vitro Development Potential of Buffalo (*Bubalus bubalis*) Oocytes. *Journal of Cellular Biochemistry*. 119(1): 278–289. doi:10.1002/jcb.26171
- Gaurav Chaubey, **Sandeep Kumar**, Manish Kumar, Parul Sarwalia, A Kumaresan, Sachinandan De, Rakesh Kumar, T K Datta. 2018. Induced cumulus expansion of poor-quality buffalo cumulus oocyte complexes by Interleukin-1beta improves their developmental ability. *Journal of Cellular Biochemistry*. 119:5750–5760. doi: 10.1002/jcb.26688.
- Vipul Batra, Avinash Maheshwarappa; Komal Dagar; **Sandeep Kumar**; Apoorva Soni; Arumugam Kumaresan; Rakesh Kumar; Tirtha Datta. 2019. Unusual interplay of contrasting Selective Pressures on Beta-Defensin Genes Implicated in Male Fertility of



Buffalo (*Bubalus bubalis*). *BMC Evolutionary Biology*. 19. 214. doi.org/10.1186/s12862-019-1535-8. publication.

- Subas C Jena*, **Sandeep Kumar***, Sandeep Rajput, Bhaskar Roy, Arpana Verma, Arumugam Kumaresan, Tushar K Mohanty, Sachinandan De, Rakesh Kumar, Tirtha Kumar Datta. **2014**. Differential methylation status of IGF2-H19 locus does not affect the fertility of crossbred bulls but some of the CTCF binding sites could be potentially important. *Molecular Reproduction and Development*. 81:350–362. doi: 10.1002/mrd.22303. ***Equal contribution.**
- **Sandeep Kumar**, Sunny Dholpuria, Gaurav Kumar Chaubey, Rakesh Kumar, Tirtha Kumar Datta. 2018. Application of three different approaches for assessment of nuclear membrane dynamics in buffalo oocytes and testing of inhibitors for their meiotic arrest capacity. *Journal of Cytology and Genetics*, 52 (1): 80–85. doi: 10.3103/S0095452718010061.
- Sunny Dholpuria, Manish Kumar, **Sandeep Kumar**, Parul Sarwalia, Sandeep Rajput, Rakesh Kumar, Sachinandan De, T K Datta. **2017**. Differential expression of newly identified long intergenic non-coding RNAs in buffalo oocytes indicating their possible role in maturation and embryonic development. *Journal of Cellular Biochemistry*. 118(7):1712-1721. doi: 10.1002/jcb.25828.
- Sandeep Rajput; **Sandeep Kumar**; Vivek Dave; Ankita Rajput; Haushila Pandey; Tirtha Datta. **2012**. An improved method of bisulfite treatment and purification to study precise DNA methylation from as little as 10pg DNA. *Applied Biochemistry and Biotechnology*, 168 (4):797-804. doi: 10.1007/s12010-012-9820-7
- Arpana Verma, Sandeep Rajput, **Sandeep Kumar**, Sachinandan De, Atish K Chakravarty, Rakesh Kumar and Tirtha Kumar Datta. **2015**. Differential histone modification status of spermatozoa in relation to fertility of buffalo bulls. *Journal of Cellular Biochemistry*. 116(5): 743-753. doi: 10.1002/jcb.25029.
- Bhaskar Roy, Sandeep Rajput, Sarvesh Raghav, Parveen Kumar, Arpana Verma, **Sandeep Kumar**, Sachinandan De, Surender Lal Goswami, Tirtha Kumar Datta, **2012**. A reporter promoter assay confirmed the role of a distal promoter NOBOX binding element in enhancing expression of GDF9 gene in buffalo oocytes. *Animal Reproduction Science*. 135 (1-4):18-24. doi: 10.1016/j.anireprosci.2012.09.006

Book chapters

- Sandhya Sharma, Kuldeep Kumar.... **Sandeep Kumar**.... Kishor Gaikwad. (2022). High-throughput Genotyping Platforms, Genotyping by Sequencing for crop improvement; PP: 22-27. DOI:10.1002/9781119745686.ch2.
- Sandhya Sharma, Nidhi Rawat, **Sandeep Kumar**, Zahoor Mir, Kishor Gaikwad (2020). *Nanotechnology for Food: Regulatory Issues and Challenges*. 978-981-15-2874-3. Springer, Singapore, 367-389.

- Sandhya Sanand, Anshika Tyagi, **Sandeep Kumar**, Gautam Kaul (2018). Smart Mesoporous Nanomaterials With Improved Therapeutic Applications: Therapeutic Application of MSN. ISBN13: 9781522547815, IGI Global. 431-448.

Presentations/Talks/Lectures:

- Delivered a talk on National Breastfeeding Day on August 5, 2022, at ICMR-NICPR, Noida. Topic – “Breastfeeding and Breast Cancer – Molecular links”.
- Delivered a talk in Journal Club on July 19, 2022, at ICMR-NICPR, Noida. Topic – “The Metastatic spread of breast cancer accelerates during sleep”.

Ongoing projects

1. **Title: Advent of Omics technologies in precision diagnostics and targeted therapeutics**
 - a. Name of funding agency: Department of Health Research (Program for Support to Institutes for Imparting Training)
 - b. Role: PI
 - c. Duration of project: 3 years
2. **Title: Decoding the long non-coding RNA (lncRNA) landscape in PCOS and PCOS-linked gynecological oncogenesis.**
 - a. Name of funding agency: Institutional/ Intramural
 - b. Role: PI
 - c. Duration of project: 2 years

Brief Biosketch (100 words): My work is focused on decoding the epigenomic pathophysiology in different gynecological cancers, especially ovarian and endometrial cancer for the identification of potential clinical biomarkers which might be used for the development of improved diagnostics. Further, we are also working to explore small molecules and RNA-based methods for early and precision cancer detection. Besides, we also wish to employ and establish genome-editing technologies for deciphering novel mechanisms of non-coding RNA dysregulation in oncogenesis, and also in the development of novel AI-based precision diagnostics and targeted therapeutics

Member of the following institutional committees at ICMR-NICPR:

- Annual Report and SAC Organizing Committee
- Need Assessment Committee
- Repair and Maintenance Committee
- Transportation Committee

Contact me at:

Email: sandeep.k@icmr.gov.in sksharmas165@gmail.com

Office phone number: