

Sushreesangita P. Behera

PhD, Biotechnology

South Asian University, New Delhi, India.

(Established by SAARC Nation)

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Nationality: Indian

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Academic Qualification

2022-Present

Postdoctoral Research Associate

Northwestern University, Chicago, USA.

2015- 2022

South Asian University, New Delhi

Ph.D , Biotechnology

2012- 2014

Utkal University, Odisha, India

M.Sc. in Zoology (First Class- 75%)

2009-2012

Utkal University, Odisha, India

B.Sc. in Zoology (Topper of the Department)

First Authored Research Publication

1. **Sushreesangita P Behera**, Witty Tyagi, Rajiv K Saxena, Carboxyl nanodiamonds inhibit melanoma tumor metastases by blocking cellular motility and invasiveness, *PNAS Nexus*, Volume 2, Issue 11, November 2023, pgad359, <https://doi.org/10.1093/pnasnexus/pgad359>
2. **Sushreesangita P. Behera** and Rajiv K. Saxena (2021) Nanodiamonds inhibit scratchwound repair in lung epithelial cell monolayers by blocking cell migration and inhibiting cell proliferation. *Elsevier*. Volume 341, 2021, Pages 83-93, ISSN 0378-4274, <https://doi.org/10.1016/j.toxlet.2021.01.018>.
3. **Sushreesangita P. Behera** and Rajiv K. Saxena (2020) Suppression of in Vitro Wound Healing Process in Monolayers of Lung Epithelial Cells by Poly-dispersed-acidfunctionalized-single-walled Carbon Nanotubes and Its Mechanism. *Int J Nano Med & Eng*. 5:3.
4. Sahoo D, **Behera SP**, Shakya J, Kaviraj B (2022) Cost-effective synthesis of 2D molybdenum disulfide (MoS₂) nanocrystals: An exploration of the influence on cellular uptake, cytotoxicity, and bio-imaging. *PLoS ONE* 17(1): e0260955. <https://doi.org/10.1371/journal.pone.0260955>.



5. **Sushreesangita P. Behera** and Rajiv K. Saxena (2024). Inhibition of Cancer Cell Invasion and Regulation of Matrix Metalloproteinases by Single-Walled Carbon Nanotubes. (Manuscript in process of communication).
6. **Sushreesangita P. Behera** and Rajiv K. Saxena (2024). Mechanism of Cell Migration during Wound Healing Assay in an *in vitro* cell monolayer. (Manuscript under preparation).
7. **Sushreesangita P. Behera** and Rajiv K. Saxena (2024). Modulation of pulmonary inflammation by Carbon nanoparticles in LPS induced lung injury mice model. (Manuscript under preparation).

Honors and Awards

1. Indian Council of Medical Research (**ICMR**) Fellow (2015 -2020)
2. Council of Scientific & Industrial Research (**CSIR**) (2015)
3. University Grant Commission (**UGC**) Fellowship (2016)
4. Graduate Aptitude Test in Engineering (**GATE**) (2016)
5. Institute of Mathematics and Application Fellowship (**IMA**) (2012-2014)
6. **UGC** Rank Holder Merit list (2012-2014)

Research Skills

Mammalian cell culture techniques, Primary cell culture, **qRT-PCR**, **Western blotting**, **Fluorescence Microscopy**, **Confocal laser scanning microscopy** (quantitative, expertise on live-cell imaging time-lapse microscopy), **In Vivo Bioimaging**, Expertise on mice model of lung cancer metastasis, and lung injury (Intratracheal and Intraperitoneal), Flow cytometry (FACS verse , Melody Sorter, FACS ARIA), **CRISPR gRNA Design**, **Molecular Cloning**, **Subcloning**, **Crispr Screening and Validation**, Tissue sectioning, Zymographic methods (Gelatin, Collagen and Reverse Zymography), **command on the techniques for studying cancer metastasis, cell migration, adhesion, and invasion**, **basic bioinformatic skills**, EVOM2 Epithelial Voltohmmeter, Zeta Sizer, Nanoparticle characterization and functionalization, and fluorophore conjugation methods.

Writing Skills: Manuscript preparation and grant writing.

Teaching skills: Taken practical class of MSc Biotechnology students at South Asian University, New Delhi.

Conference Attended

1. Participated and demonstrated in **Indo-US Workshop** on the topic “Flow cytometry and Metabolomics in studying Infectious diseases in Animals and Humans” held at South Asian University, New Delhi (Feb 2017).
2. Presented poster in **NANOBIOTECK-2018** on the topic “Modulation of cell migration and adhesion by carbon nanoparticles, held at AIIMS, New Delhi (Oct 2018).
3. Presented poster in **Immunocon 2018** on the topic “Modulation of cell migration and adhesion by carbon nanoparticles, held at THSTI, Faridabad (Nov 2018).
4. Nanodiamonds inhibit scratch-wound repair in lung epithelial cell monolayers by blocking cell migration and inhibiting cell proliferation. **Behera SP, Saxena RK, Toxicol Lett. 2021, PMID: 33508333**). **Selected to deliver a talk at the International Conference on Cancer & Oncotherapy, October 2022 in Rome, Italy.**

Media Coverage

1. Nanodiamond Block Tumor metastasis in Mice. **AAAS, Eurekalert, Nov 28, 2023.**
Link: <https://www.eurekalert.org/news-releases/1009111>
2. Carbon Nanodiamonds Inhibit the Escape of Cells From Primary Tumor Mass, Show Potential As Therapeutic Agent for Cancer Metastasis. **The Science Times, Nov 29, 2023.**
Link: <https://www.sciencetimes.com/articles/47392/20231130/carbon-nanodiamonds-inhibit-escape-cells-primary-tumor-mass-show-potential.htm>
3. Using Nanodiamonds to stop Melanoma Tumor Metastases. **AZO Nano, Nov 30, 2023.**<https://www.azonano.com/news.aspx?newsID=40553>
4. Tumor Metastasis is blocked by nanodiamonds. **Drug Target Review, Dec 5, 2023.**
<https://www.drugtargetreview.com/news/112922/tumour-metastasis-is-blocked-by-nanodiamonds/>
5. Nanodiamonds can block Tumor Metastasis in mice, study shows. **Physics.org, Nov 30, 2023.**<https://phys.org/news/2023-11-nanodiamonds-block-tumor-metastasis-mice.html#:~:text=Based%20on%20gene%20expression%20evidence,ability%20to%20enter%20blood%20vessels.>
6. Tiny Diamonds can block the spread of cancer, scientists reveal. **Study Finds.org, Nov 28, 2023.**<https://studyfinds.org/tiny-diamonds-can-block-the-spread-of-cancer-scientists-reveal/>

References

1. Prof. Rajiv K Saxena

Professor, Faculty of Life Sciences and Biotechnology

South Asian University, New Delhi-110021, India

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2. Prof. Prafulla Kumar Mohanty

Vice-Chancellor, Khallikote University

Ganjam, Odisha- 761008

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3. Dr Narsa Machireddy

Research Assistant Professor

Department of Pediatrics

Northwestern University

Illinois-60611, United States

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