

Statement of Research Achievements, if any, on which any Fellowship has already been Received by the Applicant:

My research is at the cutting edge of nanomedicine, in developing and exploring the utility of use-inspired polymeric biomaterials and nanomaterials with the potential to revolutionize the field of drug discovery based on nanotechnology. Based upon my research, **yes, I have been awarded following prestigious international and national awards / fellowships:**

1. Awarded **INTERNATIONAL “USERN LAUREATE”** for the year 2023 (*World’s Best Scientist below 40 years*) in the biological sciences (5000 USD cash price). **First Indian** received this award (10th November 2023 at Yerevan, Armenia) on 8th USERN Congress and Prize Awarding Festival [*among more than 90,000 applications from all over the world and applications have been carefully reviewed by more than 70 top 1% well-known scientists*].
2. **Awarded Careers360 “Faculty Research Award”** for the Most Outstanding Researcher in the country in the field of Medicine (6th October 2023).
3. Awarded Best poster award (third position) on poster presentation in the Graduate and Postdoctoral Research Symposium (23 March 2016) at **Wayne State University, Graduate school, Detroit, MI, USA** (INTERNATIONAL).
4. Awarded most prestigious “**SERB-RAMANUJAN FELLOWSHIP**”.
5. Listed in the “**WORLD’S TOP 2% SCIENTISTS**” list for the year 2020, 2021, 2022, and 2023 in the field of “Pharmacology & Pharmacy” published by Stanford University, USA.
6. Received 7 research grants from various funding bodies [ICMR (4), SERB-DST (1), CCRUM (1) & UGC (1)] with the cumulative amount of 2.573 Crore INR.
7. **Young Innovator Award (Gold medal)** in 1st International Conferences on Innovative Pharmacy & Pharmaceutical Sciences 2012 (ICIPPS-2012).
8. Awarded first position on oral presentation in the DST & DBT sponsored national seminar on “Nanobiotechnology” (2013) at Guru Ramdas Khalsa, Institute of Science & Technology, (M.P.).
9. Awarded “Excellence Research Award” (2014) second position in the MPCST sponsored national seminar at Adina Institute of Pharmaceutical Sciences, Sagar (M.P.)
10. Awarded twice “fellowship for training of Young Scientist” (2013-14) of M.P. Council of Science and Technology at the 28th M.P. Young Scientist Congress.
11. Awarded ICMR-SRF fellowship for pursuing PhD 2012.
12. Awarded AICTE-JRF fellowship for pursuing M. Pharma 2007.
13. International Travel Award from DST (New Delhi) 2012.
14. International Travel Grant from INSA (CCSTDS, Chennai) 2012.
15. International Travel Award/Grant from CSIR (New Delhi) 2018.
16. Awarded ICMR-SRF fellowship for pursuing PhD 2012.
17. Awarded AICTE-JRF fellowship for pursuing M. Pharma 2007.

Brief citations on the research works for which the applicant has already received the fellowships:

Awarded INTERNATIONAL “USERN LAUREATE” for the year 2023 (*World’s Best Scientist below 40 years*) in the biological sciences (5000 USD cash price). **First Indian** received this award (10th November 2023 at Yerevan, Armenia) on 8th USERN Congress and Prize Awarding Festival for the following research:

P. Kesharwani*, A. Sheikh, M.A.S. Abourehab, R. Salve, V. Gajbhiye, A combinatorial delivery of survivin targeted siRNA using cancer selective nanoparticles for triple negative breast cancer therapy, J. Drug Deliv. Sci. Technol. 80 (February 2023) 104164. <https://doi.org/10.1016/J.JDDST.2023.104164>, (Impact factor: 4.5)

Summary: Triple-negative breast cancer (TNBC) is one major type of cancer for which there has been no effective therapy to date. An important reason for it being the lack of expression of important receptors such as estrogen, progesterone and human epidermal growth factor receptor-2 (HER-2). There is no FDA approved targeted treatment available till date leading to high rate of proliferation and multi-drug resistance. Here, we developed doxorubicin (Dox) (chemotherapeutic) and lycopene (LCP) (chemo-protective) loaded polyamidoamine (PAMAM) dendrimer as an extensive anti-survivin siRNA nanocarrier (DLP/siRNA). The developed dendriplex was characterized by FTIR, DSC, NMR, Zetasizer and AFM. In vitro study depicted an elevated apoptosis rate and tumor cell uptake rate for this formulated dendriplex. Additionally, the gel retardation technique confirmed the siRNA-protecting ability of dendrimer from nuclease. Most importantly, the silencing of survivin siRNA as observed in the cancer cell population with the combined effect of chemotherapeutic and chemo-protective agents inhibited the cancer cell stemness and suppressed the tumor growth without causing cardiac toxicity in the TNBC xenograft model. Altogether, this combinatorial approach of gene delivery and chemotherapy with an application of chemo-protective effect suggests an enhanced therapeutic efficacy in the treatment of triple-negative breast cancer.

A combinatorial delivery of survivin targeted siRNA using cancer selective nanoparticles for triple negative breast cancer therapy

Authors	Prashant Kesharwani, Afsana Sheikh, Mohammed AS Abourehab, Rajesh Salve, Virendra Gajbhiye
Publication date	2023/2/1
Journal	Journal of Drug Delivery Science and Technology
Volume	80
Pages	104164
Publisher	Elsevier
Description	Triple-negative breast cancer (TNBC) is one major type of cancer for which there has been no effective therapy to date. An important reason for it being the lack of expression of important receptors such as estrogen, progesterone and human epidermal growth factor receptor-2 (HER-2). There is no FDA approved targeted treatment available till date leading to high rate of proliferation and multi-drug resistance. Here, we developed doxorubicin (Dox) (chemotherapeutic) and lycopene (LCP) (chemo-protective) loaded polyamidoamine (PAMAM) dendrimer as an extensive anti-survivin siRNA nanocarrier (DLP/siRNA). The developed dendriplex was characterized by FTIR, DSC, NMR, Zetasizer and AFM. <i>In vitro</i> study depicted an elevated apoptosis rate and tumor cell uptake rate for this formulated dendriplex. Additionally, the gel retardation technique confirmed the siRNA-protecting ability of dendrimer from nuclease ...

