

Sun Pharma Science Foundation Science Scholar Awards-2023

Applicant name: Kasturi Ganguly, Ph.D Research Scholar, Dept. of Innate Immunity, ICMR-NIRRH

Nominator: Dr. Taruna Madan, Scientist G & Head, Development Research, ICMR-New Delhi

Citation (brief summary) on the Research Work

Onco-immunotherapy via blocking immune check-point inhibitors has revolutionized the treatment landscape of several malignancies, though not in the metastatic castration-resistant prostate cancer owing to potent immunosuppressive and non-responsive “cold” tumor microenvironment (TME). Therefore, our studies considered activation of innate immune signaling as a complementary treatment paradigm for prostate cancer.

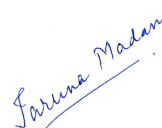
Our study using transgenic adenocarcinoma mouse prostate (TRAMP) model, demonstrated for the first time that the prostate tumor milieu adversely impacts the innate immune surveillance mediated by surfactant protein-D (SP-D). Importantly, exogenous supplementation with recombinant fragment of human SP-D (rfhSP-D) showed significant therapeutic potential by inducing apoptosis and immunogenic cell death in prostate tumor cells and *ex vivo* cultured TRAMP tumor explants. These promising treatment-strategies were shown to transform an immunologically “cold” TME into a “hot” via inducing pro-phagocytic “eat me” signals in tumor-microenvironment leading to active immune surveillance of the tumor.

The present research provides strong evidence for the involvement of innate immunity in the immunomodulation of prostate cancer microenvironment. We believe our research will promote future studies aimed to investigate several innate immune pathways, yet unexplored, and may yield novel approaches to modulate TME for the next generation of cancer immunotherapy.



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