

## Oxidized lipid glycerophosphocholines augment cancer growth and impact cancer therapies in a platelet-activating factor-receptor dependent pathways

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Exposure of pro-oxidative stressors producing reactive oxygen species (ROS) generate potent oxidized lipid glycerophosphocholines with platelet-activating factor (PAF) agonist activity. Several studies including ours have shown that these PAF and PAF-like species activate cellular G-protein coupled receptor, the PAF-receptor (PAF-R) and mediate pro-oxidative stressors induced systemic immunosuppression. We have shown that PAF-R agonists augment the growth of subcutaneously implanted murine tumors including melanoma in a PAF-R dependent manner via targeting tumor microenvironment associated immunosuppressive regulatory T cells (Tregs). As several cancer therapies including chemotherapy and radiation therapy act as potent pro-oxidative stressors, we demonstrated that chemotherapy and radiation therapy generate PAF and other oxidized PAF-R agonists in melanoma cells and tumor xenografts in a process blocked by antioxidants. In a murine dual tumor model, our studies demonstrate that intratumoral injection of chemotherapy or ionizing radiation (IR) to one tumor augments the growth of other (untreated) tumors in a PAF-R dependent manner in a process blocked by COX-2 inhibitors and/or depleting antibodies against Tregs. Importantly, we measured significant PAF-R activity as well as total PAF in perfusates or tumor tissues collected post-chemotherapy or post-IR from cancer patients. Taken together, these studies indicate the importance of the PAF-R mediated pathway in modulating tumor growth and treatment effectiveness and suggest its implication as a promising approach for cancer treatment.

### Biography

Ravi P Sahu has done his B.S at the University of Allahabad, Allahabad, India and M.S at the Dr. R.M.L. Avadh University, Faizabad, India. Dr Ravi P Sahu has completed his Ph.D. at the Sanjay Gandhi Post Graduate Institute of Medical Sciences, India and Postdoc in Cancer Chemoprevention at the University of Pittsburgh Medical Center, USA. Currently, Dr. Sahu is working as an Assistant Professor in the Department of Pharmacology & Toxicology at the Wright State University

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