




भारत सरकार / Government of India
परमाणु ऊर्जा विभाग / Department of Atomic Energy
होमी भाभा राष्ट्रीय संस्थान / Homi Bhabha National Institute
राजा रामन्ना प्रगत प्रौद्योगिकी केन्द्र
Raja Ramanna Centre for Advanced Technology



HBNI Faculty Profile

Name	<i>Alok Dube</i>	
Designation	<i>Professor</i>	
Research Area	<i>Photodynamic therapy, Targeted drug delivery, cancer cell biology, confocal imaging, biomolecular spectroscopy</i>	
Research Profile	<i>Photo-biological effects of narrow bandwidth light; PDT of cancer and opportunistic pathogens using chlorophyll derivative and its conjugates: Our studies demonstrated that Chlorin p_6 (Cp_6) is a potential PDT agent and delivery of Cp_6 via histamine receptors improves its tumor selectivity and PDT efficacy. Use of Cp_6-polylysine conjugate for antibacterial PDT has also been evaluated and inactivation of antibiotic resistant bacteria and healing of wounds in diabetic mice has been demonstrated. In recent studies, use of copper iodide complex of Cp_6 as multimodal agent for X-ray synchrotron photoactivation therapy, PDT and MRI imaging has been reported and patented. Current research work: Characterization of Near-infrared absorbing chlorophyll derivative for anticancer and antimicrobial PDT.</i>	
Ten Selected Recent Publications		
1.	Parihar, A., Dube, A., 2022. Structural alterations in cell organelles induced by photodynamic treatment with chlorin p_6 -histamine conjugate in human oral carcinoma cells probed by 3D fluorescence microscopy. Luminescence, doi.org/10.1002/bio.4307, Early Access.	
2.	Sharma, M., Dube, A. & Majumder, S.K. 2021. Antibacterial photodynamic activity of photosensitizer-embedded alginate-pectin-carboxymethyl cellulose composite biopolymer films. Lasers in Medical Science, 36, pp.763–772.	
3.	Parihar A., Shrivastava R., Dube A., 2021. Interaction of Cp_6 -his and Cp_6 with bovine serum albumin and liver microsomes: Spectroscopic and molecular docking studies, Journal of Photochemistry and Photobiology, 5, pp. 100013.	



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4.	Sarbadhikary P., Dube A., 2017. Enhancement of radiosensitivity of oral carcinoma cells by iodinated chlorin p6 copper complex in combination with synchrotron X-ray radiation. <i>Journal of Synchrotron Radiation</i> , 24(6), pp.1265-1275.
5.	Sarbadhikary P., Dube A., 2017. Iodinated chlorin p6 copper complex induces anti-proliferative effect in oral cancer cells through elevation of intracellular reactive oxygen species. <i>Chemico-Biological Interactions</i> , 277, pp.137-144.
6.	Sarbadhikary, P., Dube, A., 2017. Spectroscopic investigations on the binding of an iodinated chlorin p(6)-copper complex to human serum albumin. <i>Photochemical Photobiological Sciences</i> , 16, pp.1762-1770.
7.	Sarbadhikary P., Dube A., Gupta P. K., 2016. Synthesis and characterization of photodynamic activity of an iodinated Chlorin p6 copper complex. <i>RSC Advances</i> , 6, pp.75782-75792.
8.	Sahu K., Sharma M., Dube A., Gupta P.K., 2015. Topical antimicrobial photodynamic therapy improves angiogenesis in wounds of diabetic mice. <i>Lasers in Medical Science</i> , 30, pp. 1923-1929.
9.	Sahu K, Sharma M, Sharma P, Verma Y, Rao KD, Bansal H, Dube A, Gupta PK., 2014. Effect of poly-L-lysine-chlorin P6-mediated antimicrobial photodynamic treatment on collagen restoration in bacteria-infected wounds. <i>Photomedicine and Laser Surgery</i> , 32:23-29.
10.	Parihar A., Dube A., Gupta P.K., 2013. Photodynamic treatment of oral squamous cell carcinoma in hamster cheek pouch model using chlorin p6-histamine conjugate. <i>Photodiagnosis and Photodynamic Therapy</i> , 10, pp.79-86.