National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: GLI1 plays a key role in patient prognosis and induces stemness in oral cancer
Speaker	: Dr. Pujarini Dash
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Venue	: LS Seminar Hall
Date and Time	: 04 Apr 2025 (10:30 AM)
Abstract	: Gli1 is a downstream transcriptional factor of Sonic hedgehog pathway in mammalians, and has been recognized as a proliferative indicator of carcinogenesis. However, its actual role in patient prognosis and cancer stemness in oral cancer remains unclear. Therefore, we carried out an analysis to understand the association between Gli1 expression and clinical prognosis in oral cancer patients. Expression of GLI1 was found to be significantly higher in oral cancer patient tissues compared to matched normal tissues. Furthermore, high expression of GLI1 was positively correlated with poor survival among oral cancer patients. Interestingly, in vitro, qPCR and Western Blot analysis showed that, GLI1 expression (both at protein and mRNA level) was the highest in OAC-1 (OCT-4 activating compound) treated oral cancer (FaDu and SCC-9 cell lines) spheroids in comparison to GLI2 and GLI3. The transcript level of stemness related genes including OCT-1, SOX-2, NANOG and SMO was also found to be higher along with elevated GLI1 expression in OAC-1 treated spheroids compared to monolayer cells. However, the ongoing investigation is currently focussed on the role of GLI1 on migration and survival of oral cancer cells by overexpressing and knocking down GLI1 in oral cancer cells. The findings of the study highlight the key role played by GLI1 in cancer stemness and warrants further investigation to use it as a therapeutic target in oral cancer as well as other cancer types.