Cancer cell survival is not 'miR-ly' dependent on p53

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Squamous cell carcinoma (SCC) is a common type of skin cancer. In this paper, Leif Ellisen and colleagues at Mass General Hospital investigated the p53-related proteins p63 and p73 in SCC cells, and discovered a feedback loop between p63, microRNAs (miRs), and p73. In a model of SCC, they found that inhibiting one of these miRs decreased tumor growth and made the cells more sensitive to chemotherapy, highlighting a new potential therapeutic target.

Squamous cell carcinoma (SCC) is a common type of skin cancer and remains one of the most resistant to available chemotherapies. Many cancer therapeutic strategies are directed at restoring the function of the tumor suppressor gene p53, because when active, cells are more sensitive to the DNA damage induced by chemotherapy.

Other proteins related to p53, including p63 and p73, have also been implicated in cancer and cell sensitivity to chemotherapy. Both p63 and p73 are overexpressed in SCC, and are thought to play a role in chemoresistance. In new research, Leif Ellisen and colleagues at Mass General Hospital in Boston investigated the relationship between p63 and p73 in human and mouse SCC cells.

They found that p63 negatively regulates the expression of a number of microRNAs (miRs), and that some of these miRs target p73 for inhibition. One of these, dubbed miR-193a, was also positively regulated by p73, suggesting a feedback loop that might promote chemoresistance in these cells. In a mouse model of SCC, the researchers found that

inhibiting miR-193a decreased tumor growth and made the cells more sensitive to the chemotherapeutic agent cisplatin. The researchers believe that these findings identify a pro-survival mechanism in SCC, and may highlight new therapeutic targets in the fight against cancer.

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