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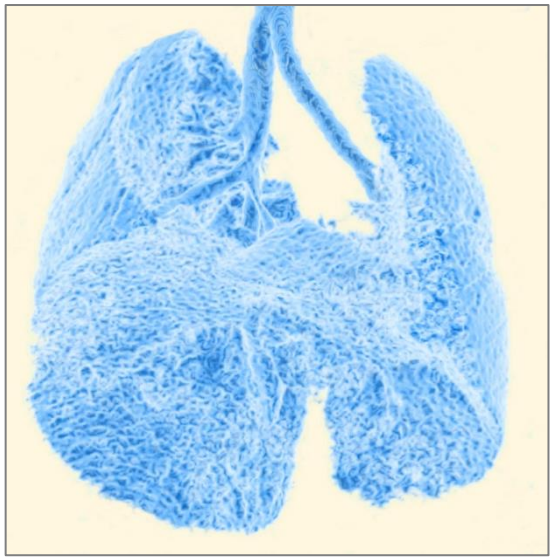
Pkm1: potential new target for deadly lung cancer

MIYAGI CANCER CENTER RESEARCH INSTITUTE.

New report of how glucose is metabolized in small-cell lung cancer opens avenues for molecular-targeted therapy



A team of Miyagi Cancer Center Research Institute (MCCRI) investigators in Japan has discovered a key molecule regulating glucose metabolism in a subset of lung cancers, namely small-cell lung cancer (SCLC). SCLC accounts for about 15% of lung cancers, and patient prognosis in these cases is poorer than that of patients with other types of lung cancer. Importantly, SCLC patients have not benefited from recent advances in cancer therapy as their tumors display few druggable targets. The researchers have shown that a glycolytic enzyme called Pkm1 confers metabolic advantages to tumor cells and is required for SCLC proliferation. Their findings are published in the journal ***Cancer Cell*** on-line today.

Until now, Pkm1 has not been thought to be required for cancer cell proliferation. Using a genetic approach in rodents, however, this study showed that Pkm1 promotes, rather than limits, cancer cell proliferation. Pkm1 in fact activated glucose catabolism in tumor cells, enhancing malignancy. Moreover, the group found that SCLC cells, one of the deadliest cancers known, specifically express Pkm1 at high levels, unlike other cancer types. They also showed that active glucose metabolism promoted by Pkm1 is required to sustain SCLC proliferation. These are unanticipated findings, since many in the field previously thought that limiting glucose catabolism is a prerequisite for tumorigenesis.

"Our team has long observed that Pkm1 boosts, rather than inhibits, tumor cell growth in various experimental models of SCLC," says Nobu-hiro Tanuma, an oncologist and leader of the research group. "Our new study explains this apparent discrepancy between our results and that of others in the field by convincingly reporting that Pkm1 overall promotes, rather than inhibits, tumor cell proliferation in this type of lung cancer. These findings strongly suggest that Pkm1 and factors related its activity are potential targets to treat SCLC."

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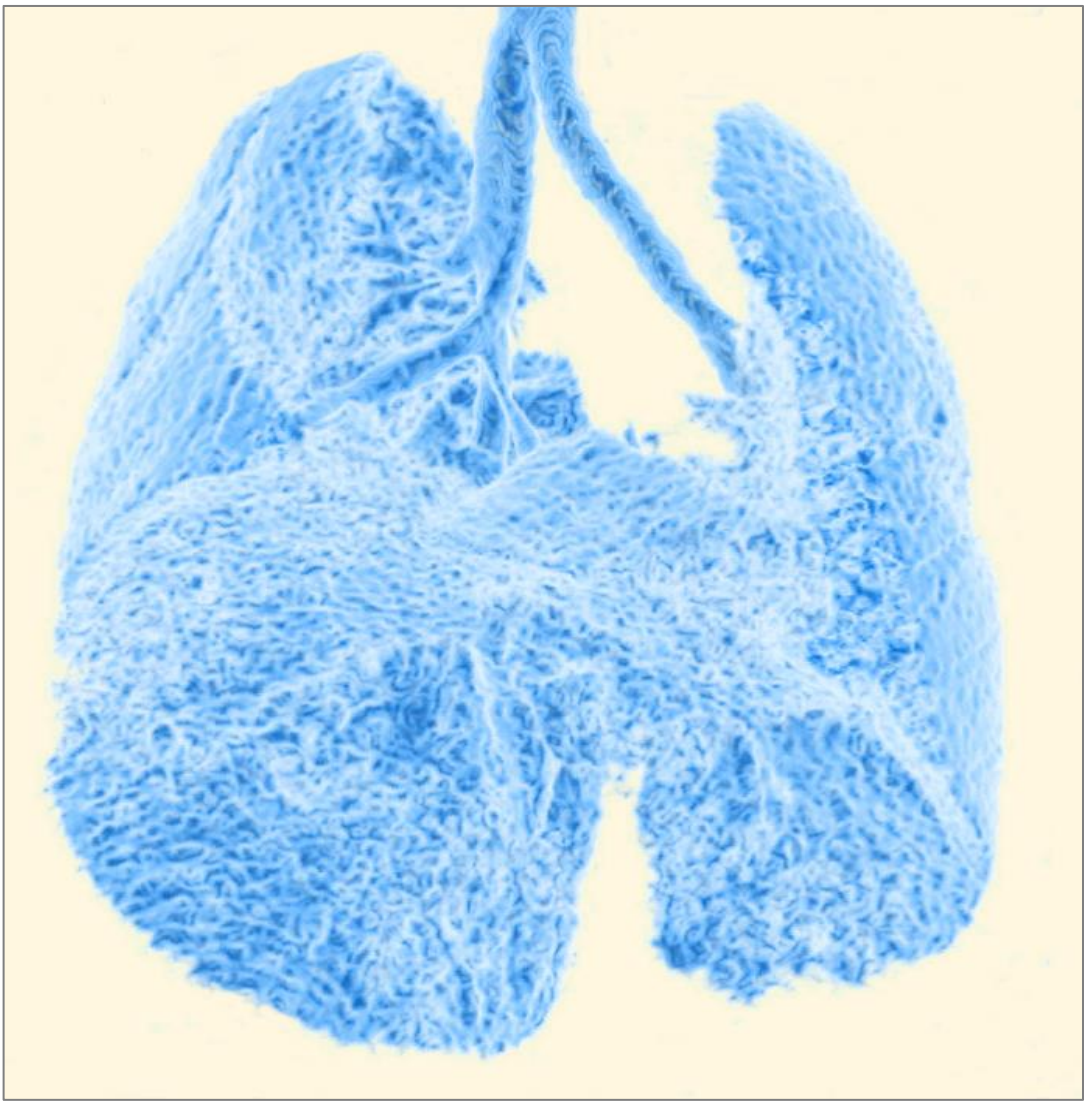
Pkm1: potential new target for deadly lung cancer (IMAGE)



CAPTION

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CREDIT

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