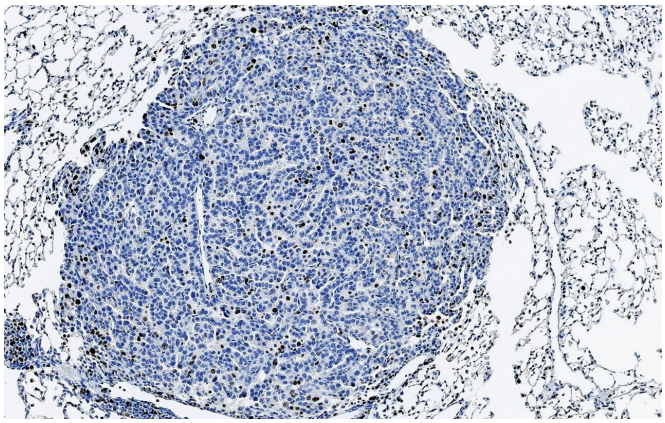
Inhibition of p38 reduces the growth of lung tumors

23 January 2020



Lung tumor stained for proliferating cells (brown). Credit: IRB Barcelona

One of the biggest challenges faced by biomedicine is the development of more selective and efficient cancer treatments. In 2018, 1.7 million people died from lung cancer worldwide, a number equivalent to the population of Barcelona. The high mortality rate of lung cancer reflects the need for the development of treatments that are more efficient.

A study headed by Ángel R. Nebreda, ICREA researcher and head of the Signalling and Cell Cycle Lab at the Institute for Research in Biomedicine (IRB Barcelona) and published in the journal *PNAS* demonstrates that the protein p38 is one of the key elements supporting lung cancer growth. In particular, the study focuses on cells expressing the oncogene Kras, which causes the transformation of a healthy cell into a cancer cell and whose mutations are responsible for approximately 25% of lung cancer cases.

For this study, the scientists have used genetic mouse models that develop lung tumors with the KrasG12V mutation. Using these models, they have observed that p38 inhibition leads to a dramatic reduction in tumor growth and aggressiveness. Furthermore, complementary studies performed with information deposited in cancer genome databases indicate that the patients with lower levels of p38 in tumors have a more favorable prognosis. This function of p38 is related to the production of factors that stimulate cancer cell division and thus enhance tumor growth.

"[The study] shows how tumors exploit a protein, which in principle protects healthy lung cells, for their own progression," says Jessica Vitos, first author of the paper. The result of this study may find therapeutic application. In this regard, "chemical compounds that inhibit p38 function would interfere with the growth of lung cancer cells," she explains.

More information: Jessica Vitos-Faleato et al. Requirement for epithelial p38? in KRAS-driven lung tumor progression, *Proceedings of the National Academy of Sciences* (2020). DOI: 10.1073/pnas.1921404117

Provided by Institute for Research in Biomedicine (IRB Barcelona)