

# Scientists identify natural anti-cancer defenses

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Canadian researchers have discovered a novel molecular mechanism that prevents cancer. In the December 11 edition of the prestigious journal *Molecular Cell*, scientists from the Université de Montréal and the Université de Sherbrooke explain how they found that the SOCS1 molecule prevents the cancer-causing activity of cytokines, hormones that are culprits in cancer-prone chronic inflammation diseases such as Crohns, in smokers and people exposed to asbestos.

"Excessive cytokine activity promotes [cancer](#)," says Dr. Gerardo Ferbeyre, senior author and a Université de Montréal biochemistry professor. "Discovery of these mechanisms will enable scientists to design a cancer-prevention strategy for people with chronic inflammatory diseases and lead to better understanding of the human body's natural defenses against cancer."

The research team didn't anticipate that SOCS1 would turn out to be linked to p53, the master regulator of natural anticancer defenses. "We were surprised to realize that SOCS1 was directly linked to p53," says first author and Université de Montréal student, Viviane Calabrese.

"Our team showed that SOCS1 is a direct regulator of the p53 gene and that in its absence the p53 pathway is significantly disabled," says Dr. Ferbeyre, noting the p53 gene is frequently lost in human cancer patients as it is SOCS1.

The new research suggests that the effects of SOCS1 loss in patients

might also disable the p53 tumor suppression pathway. The research team also showed that the reintroduction of SOCS1 into tumor cells locked them into a permanent dormant state known as cell senescence preventing them from multiplying wildly as is typical of cancer cells. "With this study, we provide new hope of finding a treatment to activate natural anticancer defenses in people at risk of suffering from cancer prompted by chronic inflammation," concludes Dr. Ferbeyre.

More information: The study, "SOCS1 Links Cytokine Signaling to p53 and Senescence," published in [Molecular Cell](#).

Source: University of Montreal ([news](#) : [web](#))

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