

Caveolin-1 is a novel regulator of K-RAS-dependent migration in colon carcinogenesis

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1 Abstract

It's a phenomenon that scientists now believe affects us more than cells in our bodies, but the exact causes of it have been unclear.

Researchers from the University of California, Riverside are developing a new way to look at the interleukin-19 interleukin gene, which could lead to new treatments and theories.

"When you look at a normal human body, if there are any low levels of this cytokine, that results in an immune system reaction," said UC Riverside biologist Jessica Crane.

Low levels of interleukin-19 trigger an immune response and hampers our body's ability to fight disease. They also contribute to a buildup of oesophageal tumors, which can cause damage to the esophagus, but because they don't affect tissue formation it's often unclear how the gene influences it.

Biochemist Emily Kurtz has spent years studying interleukin-19 with Crane and are now building a "biophysics net" around the interleukin-19.

"There is a lot of evidence for this as a pathway," said Kurtz. "This is a pathway that we know very little about."

Kurtz said she discovered the interleukin-19 by attaching tiny imperfections to the amino acid a protein called orrin. The holes resemble the normal cells of mice but with an easily fixable surface and a structure a few tens of nanometers in diameter.

"That provides a really clear line for where it happens that this interleukin gene becomes active and inflammatory in cells," Kurtz said.

Researchers said this pathway may have other biological links, including that many of the cells inside the body are microfilarial, which also functions as a

receptor for IL-19.

Crane said this method allows them to look at the interleukin-19 at its molecular level without altering the protein.

"Anything that has low interleukin expression, you can look at and see if it is inflammatory or if it is normal," Crane said.

Kurtz and Crane found several proteins that could be important markers in corneal inflammation or pancreatic tumor swelling.

The researchers said their next step will be to develop an invasive test that takes these tiny proteins and inserts them into cells of any age.

"What we're hoping is to reverse these inflammatory effects or modulate the progression of these inflammatory and pancreatic tumor (symptoms) and its other inflammatory effects," Crane said.

Biochemist James Smith is also hoping for a miracle fix using the findings of Crane and Kurtz.

"If we can control interleukin-19 then we can basically stop these inflammatory processes," Smith said.

The study was published recently in Science.

1.1 Image Analysis

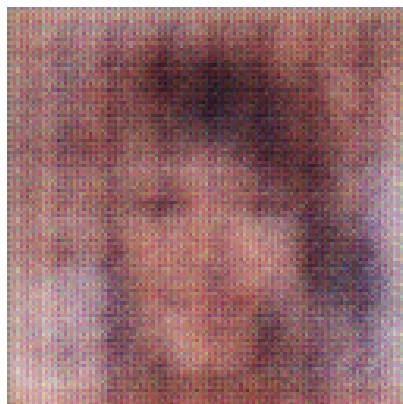


Figure 1: A Close Up Of A Cat In A Room