New therapy advances lung cancer treatment, personalized medicine

Small RNA molecules, including microRNAs (miRNAs) and small interfering RNAs (siRNAs), offer tremendous potential as new therapeutic agents to inhibit cancer-cell growth.

However, delivering these small RNAs to solid tumors remains a significant challenge, as the RNAs must target the correct cells and avoid being broken down by enzymes in the body. To date, most work in this area has focused on delivery to the liver, where targeting is relatively straightforward.

This week in the journal *Proceedings of the National Academy of Sciences*, researchers at the Koch Institute for Integrative Cancer Research at MIT report that they have successfully delivered small RNA therapies in a clinically relevant mouse model of lung cancer to slow and shrink tumor growth. Their research offers promise for personalized RNA combination therapies to improve therapeutic response.

Using the “KP” mouse model, in which a mutant form of the oncogene KRAS is activated and tumor-suppressor gene p53 is deleted, researchers injected mice with RNA-carrying nanoparticles. This mouse model reflects many of the hallmarks of human lung cancer and is often used in preclinical trials. It was originally developed in the laboratory of Koch Institute Director Tyler Jacks, the David H. Koch Professor of Biology, who is co-senior author of this paper.

Read the full, original story: RNA combination therapy for lung cancer offers promise for personalized medicine