

New old drug fights colon cancer

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A new Tel Aviv University drug, based on an older generation antibiotic, may provide doctors with an effective and innovative method of treating colon cancer in both its incipient and full-blown stages -- and minimize the need for painful, uncomfortable colonoscopies and surgical polyp removal.

Dr. Rina Rosin-Arbesfeld of TAU's Sackler School of Medicine has shown in preclinical studies that a common antibiotic can suppress the growth of [colon cancer](#) polyps in mice. Her aim is to reformulate the drug for use as a preventative therapy -- or, in stronger doses, in combination with chemotherapy and radiation to fight existing cancers until they're gone. The current formulation reduced the size of the polyps in about 80% of the mice she studied, and on average the animals lived 30% longer than those who were not given the antibiotic.

"My experience shows that colon cancer is particularly aggressive," says Dr. Rosin-Arbesfeld. "Our new drug may be able to slow down polyp growth so that it never manifests to full-blown colon cancer." She is currently preparing the results of her recent study for an upcoming issue of the journal *Gut*.

Taking genes to the repair shop

The antibiotic acts in a genetic fashion. In diseases like [cystic fibrosis](#) (CF) and [muscular dystrophy](#), [antibiotics](#) from the aminoglycoside family can repair damaged or mutated DNA. For her new study, Dr. Rosin-Arbesfeld looked at a closely-related but less toxic family of antibiotics

from the Macrolide family that achieves the same therapeutic results.

Dr. Rosin-Arbesfeld focused on a gene associated with colorectal cancer, the APC gene, and noticed that the mutation types in colorectal cancer are similar to those in the CF gene. Noting that old generation antibiotics are effective in fighting CF, she studied its effects on colon cancer as well. She found that the drug partially repaired faulty genes in mice with colon cancer. Benefits from using old generation and out of circulation antibiotics means that the new therapy will not interfere with current antibiotics used for today's bacterial infections.

At first she thought about using the antibiotic as a preventative therapy, but later investigated its efficacy in treating full-blown cancer and found it similarly effective.

A fast track to getting the drug to market

Ramot, TAU's commercial transfer company, has filed for a patent for the new use, and because the antibiotic has already been on the market, Dr. Rosin-Arbesfeld expects the new drug could be developed quickly. The preclinical results are encouraging and Ramot is currently talking with potential partners to bring this drug to experimental trials in humans, a critical step before it can be made more widely available.

"For many years it's been known that a specific family of antibiotics does more than kill bacteria," says Dr. Rosin-Arbesfeld. "They affect biological systems in the body and repair mutated genes. In directing my work towards the treatment of cancer, I can help save lives."

Source: Tel Aviv University ([news](#) : [web](#))

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