



# Drug Shows Potential to Treat Diseases and Rebuild Damaged Tissue

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While studying colon cancer at Case Western Reserve University, cancer geneticist Sanford Markowitz and his lab discovered a protein that seemed to suppress tumor growth in the colon. But after further investigation, the team realized that while high levels of the protein could in fact prevent tumor growth, low levels could promote stem cell growth and tissue regeneration. "As soon as we recognized that biology, it became exactly clear what you wanted to be able to do," says Markowitz, which was to alter protein levels in order to improve tissue regeneration. "So we set off to find a drug that could do that."

To propel their discovery forward, Markowitz received pilot funding through the Harrington Discovery Center at University Hospitals in Cleveland, Ohio. The award was designed to support physician scientists in the early stages of commercializing new therapeutics. This initial support helped the team build a portfolio, but it also made them realize they needed more financial support.

Coincidentally, University Hospital and Case Western Reserve had just partnered with the NIH to offer proof-of-concept grants to support drug development. "As soon as we saw the grant description, we realized this was the answer to our prayer," says Markowitz, who received funding through the NIH Centers for Accelerated Innovations at Cleveland Clinic (NCAI-CC) in 2014.

The NCAI-CC grant money allowed the team to scale up synthesis, perform toxicology studies, and purchase necessary safety assays. Once they published their findings in the journal *Science*, investors took interest. Markowitz says the package they presented to funders was a compelling one "because we had a dedicated budget specifically earmarked for moving this technology toward commercialization. We couldn't have done it otherwise."

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NCAI-CC NIH Center for Accelerated Innovations at Cleveland Clinic

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In 2017 Markowitz teamed up with the incubator Accelerator Life Science Partners to found Rodeo Therapeutics. The company raised a total of \$14 million in venture capital funding from 2017 to 2019, which funded tissue regeneration studies in larger animals. In March 2021 Rodeo was acquired by biopharmaceutical company Amgen for \$55 million with future contingent milestone payments worth up to \$666 million. Amgen plans to complete animal safety studies and then move the drug into clinical trials.

Markowitz thinks the drug will find use in a range of areas—from treating diseases like pulmonary fibrosis and inflammatory bowel disease, to returning degraded muscle strength, protecting the kidneys from damage and speeding up bone marrow transplant recovery. “I think this is going to wind up being a molecule that will work across the board to protect tissues from injury and multiple different diseases,” says Markowitz.

“[NCAI-CC] provided us the enabling seed money to take an idea and prove that it had real potential to be turned into a human therapeutic. It provided us the money and the credibility to take the essential first steps.”

