



A Mutation in the Rat Adenomatous Polyposis Coli Gene within the Human Mutation Hotspot Region

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a strain of rats that more accurately recapitulates colon cancer in humans than previous mouse models.

Overview

Humans with mutations in the *Adenomatous Polyposis Coli (APC)* gene develop hundreds or even thousands of adenomas in the colon, which often lead to colorectal cancer. Mouse models of human intestinal cancer also acquire multiple adenomas; however, the lesions are primarily in the small intestine and do not metastasize.

The Invention

UW-Madison researchers have developed a strain of rats that more accurately recapitulates colon cancer in humans. They used *N*-ethyl-*N*-nitrosourea mutagenesis to create a truncating mutation in the rat *APC* gene at a site corresponding to the mutation hotspot region of the human ortholog. This germline mutation was confirmed by sequencing and has been transmitted to approximately half the offspring of the founder male. Unlike existing mouse models, these rats develop multiple adenomatous polyps in the colon, more faithfully imitating human colorectal cancer.

Applications

- Enhances our ability to study colorectal tumor initiation, progression, physiology and potential therapies

Key Benefits

- Tumors are limited to the colon, in contrast to current mouse models.
- *APC* truncation mimics the mutation hotspot region in human colorectal tumors.
- *APC* mutation generated in a completely inbred Fisher-344 line of rats.

Additional Information

For More Information About the Inventors

- [Michael Gould](#)

Tech Fields

- [Research Tools : Animal & disease models](#)

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