

# UA Researcher Awarded Patent for Breast Cancer Drug Breakthrough

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(PhysOrg.com) -- The treatment is designed to block the interaction of two proteins in cells that cause breast cancer to grow and spread. It targets cancer-specific interactions and has shown no toxicity to normal cells in preclinical tests.

Joyce A. Schroeder, an associate professor in the department of molecular and cellular biology at the University of Arizona, has been awarded a U.S. patent for a first-in-class [breast cancer](#) treatment.

PMIP (which stands for Protein Transduction Domain 4, MUC1 Inhibitory Peptide) is designed to block the interaction of two proteins in cells that cause breast cancer to grow and spread. PMIP targets cancer-specific interactions and has shown no toxicity to normal cells in preclinical tests.

MUC1, an [oncogene](#), is overexpressed in more than 90 percent of breast cancer patients, so blocking this molecule's progression from the initial tumor will keep the cancer from spreading to other parts of the body. The epidermal growth factor receptor, or EGFR, family of proteins makes up a crucial aspect of oncology because it signals not only growth but disregulated growth, or, often, cancer.

"This drug goes into the cell and separates the proteins and puts them back where they belong," said Schroeder, also a Galileo Circle Fellow in the College of Science and an Arizona Cancer Center and BIO5 Institute member.

"Typically, metastatic breast cancer resists therapy. With this drug, we have a strong chance of saving women's lives," she said.

This peptide drug not only blocks the spread of a tumor but reduces its size. "We are hopeful that it may treat patients without the terrible side effects associated with [chemotherapy](#)," Schroder said.

Schroeder said the patent will help move the drug closer to the bedside from the laboratory bench. She and her team are seeking grants to move the drug into clinical trials.

The patent process started in summer 2004. The Arizona Biomedical Research Commission has funded Schroeder's work for six years, and it also funded the patent application activities. ABRC recently awarded Schroeder \$337,500 to investigate new targets in a similar manner to PMIP.

The Arizona Cancer Center is the only National Cancer Institute-designated Comprehensive Cancer Center headquartered in Arizona.

With primary locations at the UA in Tucson, the center has more than a dozen research and education offices in Phoenix and throughout the state and 300 physician and scientist members who work together to prevent and cure cancer.

Provided by University of Arizona

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