

# Vanderbilt-Ingram Cancer Center

## New Views of Inflammation, Cancer

October 21, 2011 | Leigh MacMillan

The enzyme COX-2 – normally expressed at low levels – increases at sites of inflammation and in pre-malignant and malignant tumors, making it an attractive target for molecular imaging to diagnose and treat cancer.

Jashim Uddin, Ph.D., Lawrence Marnett, Ph.D., and colleagues are developing novel imaging agents that selectively bind to COX-2. In work featured on the cover of the October issue of [Cancer Prevention Research](#), they describe a series of novel fluorine-containing compounds derived from indomethacin or celecoxib that selectively inhibit COX-2. Incorporation of radioactive fluorine (18-F) into one of these compounds provided sufficient signal for *in vivo* positron emission tomography (PET) imaging.

The 18-F compound was detected at sites of inflammation in animal models, but not in mice missing COX-2. In mice bearing both COX-2-positive and COX-2-negative human tumors, the 18-F compound accumulated only in the COX-2-positive tumor.

The findings suggest that this first COX-2-targeted PET imaging agent will be useful for early detection of cancer and for evaluation of the COX-2 status of pre-malignant and malignant tumors.

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