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Preventing Lung Scarring May Extend Lives of Lung Cancer Patients

Los Angeles – Researchers have found that using a special type of drug called a pharmaceutical monoclonal antibody to block the integrin beta6-TGF-beta pathway prevents a serious side effect of radiation therapy for lung cancer patients – pulmonary fibrosis (scarring of the lungs), thereby extending patients' lives and improving their quality of life, according to a study presented at the Plenary I session on October 29, 2007, at the American Society for Therapeutic Radiology and Oncology's 49th Annual Meeting in Los Angeles.

“The toxicity of pulmonary fibrosis limits the amount of the radiation dose that can be safely given to patients,” said Simon Cheng, M.D., Ph.D., an author of the study and a radiation oncologist at New York University Medical Center in New York. “These study results may lead to more effective radiation therapies for advanced lung cancer, which is the leading cause of cancer deaths in the U.S.”

More than 50 percent of patients receiving radiation therapy for advanced lung cancer develop radiation-induced lung fibrosis, a painful side effect that can affect patients' quality of life and, in some cases, can be fatal. Pulmonary (lung) fibrosis involves inflammation and scarring of the lungs causing patients to feel short of breath, have a chronic dry cough, feel fatigue and pain in the chest, and suffer loss of appetite and weight loss. Over time, fibrosis causes the air sacs of the lungs to be replaced by scar tissue, causing difficulty breathing and an irreversible loss of the tissue's ability to transfer oxygen into the bloodstream.

This study involved mice treated with a 14 Gy single dose of radiation to the lungs. Researchers wanted to determine if using an antibody to block integrin beta6 (a specific activator of the transforming growth factor (TGF-beta) signaling pathway), could prevent the onset of radiation-induced pulmonary

fibrosis. The study shows that mice that were given integrin beta6 monoclonal antibodies did not develop radiation-induced lung fibrosis, while the control group of mice developed the lung condition.

“Fibrosis is a very serious side effect that often keeps doctors from giving patients a full dose of radiation for fear that the serious problems caused by fibrosis will outweigh the good done by the radiation. If further studies conclude that this drug can indeed prevent fibrosis in lung cancer patients, I believe researchers are a huge step closer to curing this disease,” said Dr. Cheng.

For more information on radiation therapy for lung cancer, visit www.rtanswers.org.

The abstract, “*The Integrin-TGFbeta Axis: Inhibition of Integrin Alphav Beta6 Prevents Radiation-induced Lung Fibrosis*,” will be presented in the Plenary I session at 2:00 p.m., Monday, October 29, 2007. To speak to Study Author Simon Cheng, M.D., Ph.D., please call Beth Bukata or Nicole Napoli October 28-31, 2007, in the ASTRO Press Room at the Los Angeles Convention Center at 213-743-6222 or 213-743-6223. You may also e-mail them at bethb@astro.org or nicolen@astro.org.

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