November 28, 2011

UGA College of Pharmacy Researcher Gets $467K ACS Grant to Study Melanoma

Mandi Murph, a research scientist at the University of Georgia College of Pharmacy, has received a $467,000 grant from the American Cancer Society for the next four years to study melanoma, a type of skin cancer that has become an emerging health crisis in the United States.

“The incidence of melanoma rose a staggering 619% from 1950 to 2000, coupled with an alarmingly low survival rate for advanced melanoma,” said Murph, an associate professor of pharmaceutical and biomedical sciences. “In 2009 melanoma ranked sixth and seventh, respectively, in the estimated number of new cases in men and in women.

Murph, who also has funding for melanoma research from the Georgia Cancer Coalition, noted that the incidence and mortality from melanoma will likely continue to increase due to the aging Baby Boom population and the higher probability for developing melanoma among those over 70 years old.

“In the past year the Food and Drug Administration has approved three new drugs to treat melanoma,” she said. “With the advancements in drug therapies, both private and public institutions are more eager to provide funds for this serious health hazard.”

Murph’s research uses a two-pronged approach – to test novel compounds to treat advanced melanoma and to study the signaling receptors that promote survival of melanoma. Her previous work supports the hypothesis that two molecular targets within the same signaling pathway represent potential molecular vulnerabilities that can be exploited in melanoma therapeutics.

“We believe that a significant reduction in the viability of advanced melanoma can be achieved by inhibiting metabolism in the lysophosphatic acid (LPA) signaling network by targeting autotoxin (ATX), an enzyme known to generate LPA production,” she said.

Furthermore LPA3 receptors in the LPA pathway have been identified as playing a significant role in melanoma progression. Inhibition of LPA signaling through LPA3 receptors by identifying the structural requirements of the LPA3 receptors should help mediate melanoma cell survival, she noted.

She and her colleagues have already demonstrated a significant reduction in cellular viability in vitro among melanoma cells treated with small-molecule inhibitors developed in their lab. The next step will be testing in vivo pharmacology and pharmacokinetics as a targeted therapeutic strategy against melanoma.

“This is a good time to be studying the disease and we feel fortunate that our research has merited funding. Significant outcomes mean more clinical trials using novel therapeutics and greater potential for treatment and survival,” she added.