Treating drug resistant cancer through targeted inhibition of sphingosine kinase

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Scientists at Tulane University School of Medicine, led by Dr. James Antoon and Dr. Barbara Beckman, have characterized two drugs targeting sphingosine kinase (SK), an enzyme involved in cancer growth and metastasis. New treatments specifically attacking cancer cells, but not normal ones, are critical in the fight against cancer. The results, which appear in the July 2012 issue of *Experimental Biology and Medicine*, demonstrate the role of SK in drug resistance and therapeutic potential of SK inhibitors.

"Sphingosine kinase is a relatively new molecular target," says Dr. Beckman "In this study, we show that overexpression of SK promotes resistance to first-line breast cancer therapies, such as tamoxifen. We further found that treatment with the sphingosine kinase inhibitors SKI-II and ABC294640 induced cell death and blocked drug-resistant tumor growth without similar effects in a model system representing relatively normal breast cells."

Molecular therapies, such as those targeting SK, have the potential to improve treatment response rates while simultaneously decreasing side effects. However, Dr. Antoon cautions that "while these results are promising, further study is needed to fully understand the benefits and risks associated with treating drug resistant cancer with these SK inhibitors."

Dr. Steven R. Goodman, Editor-in-Chief of Experimental Biology and Medicine said "Dr. Antoon, Dr. Beckman and colleagues present

exciting results indicating the need for further study of inhibitors of sphingosine kinase as promising new cancer treatments".

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