

# SAMe is effective in preventing formation of primary liver cancer in rats

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A new study investigated the effectiveness of S-adenosylmethionine (SAMe) in the prevention and treatment of hepatocellular carcinoma (HCC) or primary liver cancer. SAMe, a widely available nutritional supplement, with little known side effects, was found to be effective in preventing the formation of HCC in rats. However, high enough levels of SAMe were not attainable to successfully treat established HCC. The findings are available in the August issue of *Hepatology*, a journal published by John Wiley & Sons on behalf of the American Association for the Study of Liver Diseases.

HCC is the fifth most common cancer and the third most frequent cause of cancer death worldwide. Risk factors for HCC include chronic infection with hepatitis B virus, hepatitis C virus (HCV), dietary aflatoxin, excessive alcohol use, cigarette smoking, diabetes and obesity. The overall 5-year survival for HCC patients is less than 10% and the disease rate is expected to rise due to the high prevalence of HCV in many areas of the world.

Shelly Lu, M.D., of the Keck School of Medicine at the University of Southern California, and colleagues studied the effects of SAMe on chemoprevention and treatment of HCC. In the U.S. the incidence of HCC doubled from 1979 to 1995 and the number of HCC cases for the following 20 to 30 years is projected to increase. "Given these projections, there is a tremendous interest in developing effective chemoprevention strategies," said Dr. Lu. "And an important property of SAMe that makes it an attractive agent for chemoprevention and treatment of HCC is its ability to selectively kill [liver cancer](#) cells," she added.

During the study researchers injected H4IIE cells into rats and found a 1cm tumor developed in the liver two weeks after injection. A regimen of IV SAMe was started one day after injecting the cells and continued for ten days. The researchers

monitored the animals using MRI, ultrasound, and visual inspection to assess the liver tumors.

"Treatment with IV SAMe by continuous infusion significantly reduced the tumor size and significantly prevented tumor development after 11 days," researchers discovered.

Researchers found that if SAMe infusion was started after sizable tumors had already formed it failed to reduce the rate of tumor growth after 24 days of treatment. This is because of a compensatory response of the [liver](#) to metabolize SAMe and prevent its accumulation. "The observation that SAMe failed to exert any therapeutic effect in already established HCC is disappointing," said Dr. Lu. "But whether SAMe can be effective in treating HCC in man remains unclear because this compensatory mechanism may not work properly in human HCC. Nevertheless, effectiveness of SAMe in chemoprevention of human HCC deserves study now."

Source: Wiley ([news](#) : [web](#))

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