

# Renal cancer drug temsirolimus shows promise against mesothelioma

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A drug commonly used to treat kidney cancer may increase the effectiveness of chemotherapy for mesothelioma, according to a study published in the May issue of the *Journal of Thoracic Oncology*.

Temsirolimus, a kinase inhibitor, blocks the action of mammalian target of rapamycin (mTOR), a protein that regulates cell growth, which can slow tumor growth. It's used to treat advanced [renal cell carcinoma](#).

But researchers in Austria have found that temsirolimus also may slow the growth of malignant pleural mesothelioma cells. Mesothelioma, a [cancer](#) that is usually caused by exposure to asbestos and may not appear until 30 to 50 years after exposure, frequently resists [chemotherapy](#) and [radiation treatment](#).

The researchers found that temsirolimus strongly blocked mTOR-mediated signals and had a cytostatic, or growth-stopping, effect on all mesothelioma cells. However, mesothelioma cells that were resistant to cisplatin, a widely used chemotherapy drug, showed hypersensitivity against temsirolimus.

That suggests that mTOR inhibitors like temsirolimus might be a promising treatment strategy either in combination with chemotherapy or as second-line treatment after chemotherapy failure.

"Malignant mesothelioma is a severe human malignancy characterized by a very bad prognosis, with a mean patient survival time of less than

one year," said Professor Walter Berger, PhD, of the Institute of Cancer Research at the Medical University of Vienna. "This unacceptable situation is mainly caused by late diagnosis combined with a distinct resistance to all forms of systemic therapy available so far.

Mesothelioma is frequently caused by asbestos exposure and unfortunately -- based on the long latency period -- the incidence peak lies, despite the ban on asbestos, still ahead. Consequently, novel therapeutic options for this devastating disease are urgently needed.

"In our preclinical study, published in the JTO, we were able to demonstrate that inhibition of the major oncogene mTOR is active against human mesothelioma especially after development of chemotherapy resistance both in vitro and in vivo," Berger said. "These results suggest the initiation of clinical trials involving mTOR inhibitors as a novel anti-mesothelioma strategy."

Provided by International Association for the Study of Lung Cancer

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