**Global Challenges/Chemistry Solutions  
Combating Disease: First dual-action compound kills cancer cells, stops them from spreading**Combating disease . . .  promoting public health … providing clean water and safe food . . . developing new sources of energy . . . confronting climate change. Hello, from the American Chemical Society — the ACS. Our more than 163,000 members make up the world’s largest scientific society. This is “Global Challenges/Chemistry Solutions: New Solutions 2013.” Global Challenges 2013 updates the ACS’ award-winning podcast series.  
  
Today’s solution is the first potential drug to pack a lethal one-two punch against melanoma skin cancer cells. Hit number one destroys cells in the main tumor, and the second hit blocks the spread of the cancer to other sites in the body.

The report appears in the journal ACS Chemical Biology.

The researchers explain that spread of melanoma and other forms of cancer beyond the original location — a process called metastasis — makes cancer such a serious disease.   
  
Here is Nathan Luedtke, Ph.D., who is with the University of Zurich in Switzerland, and is the lead author of the paper:

*“Photodynamic therapy, which involves administering a drug that kills cancer cells when exposed to light, is already available. But the therapy only works on the main tumor and has other important drawbacks.”*

In light of this problem, Luedtke’s team set out to find an improved approach to photodynamic therapy.

*“We had successful tests in laboratory mice of one compound that we synthesized that not only killed melanoma cells, but also stopped them from metastasizing by blocking a key signaling pathway. The compound provides the first example of a preclinical candidate possessing both of these properties.”*

**Smart Chemists/Innovative Thinking**

Smart chemists. Innovative thinking. That’s the key to solving global challenges of the 21st century. Please check out more of our full-length podcasts on wide-ranging issues facing chemistry and science, such as promoting public health, developing new fuels and confronting climate change, at [www.acs.org/GlobalChallenges](http://www.acs.org/GlobalChallenges).

Today’s podcast was written by Michael Bernstein. I’m Katie Cottingham at the American Chemical Society in Washington.