

# High school students cheaply reproduced a drug that sells for \$750 a dose

Martin Shkreli has responded.

Martin Shkreli, the hedge fund manager-turned-pharmacological profiteer, rocketed into the national consciousness on the back of an astronomical drug price increase. Daraprim is a medicine used to treat toxoplasmosis, particularly in patients with HIV, and it can also sometimes work as an antimalarial. After Shkreli's Turing Pharmaceuticals acquired the drug in 2015, Daraprim rose in price from [\\$13.50 to \\$750](#). In November, some high-school aged students in Sydney, Australia, synthesized an equivalent drug, at an estimated cost of just \$2 a dosage.

From [Inverse](#):

**The students, from Sydney Grammar School, announced their work on Wednesday at the Royal Australian Chemical Institute NSW Organic Chemistry Symposium. Their research was done with the help of their chemistry teacher together with the University of Sydney chemist Alice Williamson, Ph.D., who collaborated with them through a website called Open Source Malaria, a platform for treating the mosquito-borne disease using readily available drugs. Testing the substance using a technique called spectroscopy showed that the compound they synthesized from scratch—pyrimethamine—was exactly the same as that in Shkreli's drug.**

The students started with \$37 of (4-chlorophenyl)acetonitrile, and synthesized it down to 3.7 grams of pyrimethamine. According to their chemistry teacher, the students did so in a different way than the patented method so that they could [avoid using dangerous reagents](#).

Making a compound once in a school lab is not the same as scaling it up to full production and clearly regulatory hurdles, as Shkreli [smugly](#) reacted on [Twitter].

Shkreli also posted a [video to YouTube](#) of himself reading a polished statement about the promise of STEM education in the coming century. He [compared the teenagers](#) in Australia to [Ahmed Mohamed](#), the teenager last year who assembled a clock and brought it to his school in Irving, Texas, only to be arrested under suspicion of [having made a bomb](#). Feuding about teenagers on the internet is an odd way to encourage future scientists, technologists, engineers, and mathematicians, and it detracts from Shkreli's broader point: making a compound in a school lab, with the help of teachers and advisers, is different than bringing it to market.

Still, in his angry takedown of how the Australian students approached their project, Shkreli misses the broader point: other pathways to the compound exist than the one already patented, and while scale, testing, and labor are indeed costs that drug companies have to cover, none of them are so steep as to require a [5000 percent increase](#) in the price of an existing, life-saving medicine, whose formula already exists.