



Stanford eCorner

Synthetic Biology in Action

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From an open-source anti-malarial compound to renewable energy resources, Amyris Biotechnologies CEO John Melo explains his enterprise's corporate acts of altruism, as funded by the Gates Foundation. In his words, it's a win-win situation: His organization undertakes innovative science, saves thousands of lives, and conserves natural resources.



Transcript

Our first product is Artemisinin, which is an antimalarial compound that we've licensed to and are partnered with Sanofi-Aventis. That product is intended for the sub-Saharan African market. The success of that product is really something. Most products that we get involved in my history has been you measure success by the amount of gross margin you can achieve or the amount of sales you can achieve in a period of time. With this product, it's really the number of lives you could save. We're targeting 600,000 lives a year. What I consider to be the successful outcome of the Artemisinin project. So that's our first product. It's a project that was initially funded by the Gates Foundation. That's really what has given us the head start on the technology platform that can be adapted and transferred to products beyond the pharma industry.

Our second product is a renewable diesel. The renewable diesel is a pretty unique molecule. It is a hydrocarbon that's fully compatible with today's infrastructure. An interesting way to think about it, it's a renewable replacement for petroleum-based diesel. The product is as good or better than petroleum-based diesel, and it's from a renewable source. So that's our second product. We have jet fuel as a follow-on, and then we have several chemicals - isoprene being one of them - that our markets were looking at for renewable chemicals. Pharmaceuticals are really focused on saving lives, focused on doing our part to have a positive impact on the planet and then looking at what we can do from the renewable plastics or renewable chemical side of the world. On the malaria drug or the Artemisinin, do I understand you right that you're going to sell that at your cost? Actually, we're not going to sell it at all. Our view and our initial agreement with the Gates Foundation was that we would give the technology away for free for distribution to the developing world.

Our view is that as we study the market, we realized that the reason why children die today of malaria beyond catching it; so you've got great opportunity to prevent it, but that's another mechanism. But once they get it, the only reason why they die for the most part is that they can't afford the medicine. So our whole focus has been, "How do we reduce the cost and make it affordable?" We want to do our part to reduce the cost by taking out the cost of the highest ingredient that goes into an act of treatment today. That ingredient was basically \$2.40 to \$2.50 of the cost that we're trying to take down to \$0.24 by taking any margin or taking any sales or license opportunity from the product away from the market. Have the other suppliers in the supply chain, have they agreed to a similar kind of treatment or are they still going to profit from this? I don't think they're in the same mindset that we are. Yes. How did you get in that mindset? Did you have a debate about this? Was it clear and everybody was on one side? How did that conversation go? There was really not much debate. I think the interesting thing about this is it started off as an interesting science experiment. Because of that, there wasn't debate. It was like, wait a second.

We get to do great science. The Gates Foundation gets to pay for it. And we get to distribute it and save lives. What's wrong with that picture? So it started off really on that base of premise. I see.