Market resistance slows progress of synthetic malaria drug

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When Paris-based pharmaceutical giant Sanofi started to sell malaria drugs made with the help of genetically engineered yeast in 2014, the move was hailed as a triumph for synthetic biology. The yeast was fermented in a vat to produce a chemical that Sanofi converted into artemisinin, which is used to make leading malaria treatments called artemisinin-based combination therapies (ACTs). Many hoped that the process would offer a cheap and plentiful supply of drugs to tackle a disease that claims almost half a million lives worldwide every year.

Yet Sanofi produced no 'semi-synthetic' artemisinin (SSA) at all in 2015, *Nature* has learned. And the company is now selling the manufacturing site in Garessio, Italy, where it made its SSA.

That such celebrated drugmaking technology — developed with the help of US$64 million from the Bill & Melinda Gates Foundation — stands idle illustrates the complicated web of economic forces that affects the market for malaria drugs. "This is a perfect example of how a new manufacturing process becomes extremely hard to scale up when there is a complex ecosystem of players," says Prashant Yadav, a health-policy researcher at the William Davidson Institute at the University of Michigan, Ann Arbor, who studies the ACT market.

The synthetic-biology route promised to end this rollercoaster by providing a stable and reliable source of artemisinin. Sanofi developed the capacity to produce almost 60 tonnes of the chemical per year — about one-third of global need — and the company hoped to supply other ACT manufacturers with the raw materials.

Read full, original post: Synthetic biology's first malaria drug meets market resistance