

Meet... Jay Keasling

CHEMICAL ENGINEER, *Berkeley, California*



BORN IN

Harvard, Nebraska

JOB SITE

Lawrence Berkeley National Laboratory and
University of California, Berkeley

FAVORITE TEAM

Nebraska Cornhusker football

FAVORITE FOOD

Beef, but with guilt because of the high energy
cost (eight pounds of corn are needed to
produce one pound of beef)

BEST VACATION

On the beach in Hawaii!

What He's Doing

In 2006, *Discover* magazine named Jay Keasling "Scientist of the Year," recognizing his ingenious plans to re-create life in the lab. He's been featured by *Newsweek*, *Esquire*, and most major U.S. newspapers for his groundbreaking approach to science, and to life.

Keasling wants to use bacteria or yeast as factories to make medicines and other products that people want and need. That includes novel ways to break down pesticides, make biodegradable plastics, and create plant-based fuels.

He is also working out a strategy to get bacteria to make drugs to combat HIV/AIDS. Current therapies target only actively replicating virus but leave behind reservoirs of virus that hide out inside the body.

Keasling is devising a simple, low-cost method for microbes to churn out two plant-based molecules that are known to capture hidden HIV and also block its spread after infection. He is also trying to turn cellulose—found in virtually all plants and the most common organic molecule on the planet—into biofuel.

"We could potentially turn any plant—grass, weeds, even paper waste—into energy."

His Findings

Another of Keasling's many goals is to make an effective malaria drug on the cheap. Although the medicine artemisinin works well against malaria, it is very expensive to produce. Its high cost limits the drug's use in developing countries, where it is needed most.

Keasling is working on getting bacteria to make artemisinin for one-tenth the cost per dose. He recently moved one step closer to this goal by getting microbes to make a precursor molecule that can be then converted to artemisinin.

Meet more interesting chemists at <http://www.nigms.nih.gov/ChemHealthWeb>.