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## BREAKTHROUGH SCIENCE

Amyris is using a breakthrough science, called synthetic biology, and traditional chemical manufacturing to address some of our planet's most daunting problems.

### Synthetic Biology

Synthetic biology uses engineering concepts to leverage the power of biology. Through the design and construction of biological systems, we turn organisms into living factories, capable of producing chemicals previously attainable only through expensive extractions or through the use of petrochemicals and other non-renewable resources.

Amyris scientists have developed genetic engineering and screening technologies that enable us to modify the way microorganisms process sugar. By controlling their metabolic pathways, we design microbes, primarily yeast, and use them as living factories in fermentation processes to convert plant-sourced sugars into target molecules. At our labs in California, we utilize proprietary high-throughput processes to create and test thousands of yeast strains a day in order to choose those yeast strains that are most efficient and scalable for industrial production.

### Biofene

Biofene is our building block molecule. Biofene, Amyris's brand of a long-chain, branched hydrocarbon molecule called farnesene (trans- $\beta$ -farnesene), forms the basis for a wide range of products varying from specialty products such as cosmetics, perfumes, detergents and industrial lubricants, to transportation fuels such as diesel and jet fuel.

Biofene provides a number of compelling advantages when compared to petroleum-based oils and chemicals. It is a tailor-made pure hydrocarbon, and unlike the world's finite supply of petroleum, Biofene is renewable, contributing to a sustainable future.

Biofene is just the first of thousands of renewable hydrocarbon molecules made possible by our microbial platform. Before turning to Biofene, we developed and applied our technology to create microbial strains to produce artemisinic acid, a precursor of artemisinin, an anti-malarial therapeutic.

Looking ahead we are developing a fragrance oil, and have a long pipeline of new molecules at various stages of research and development, often in collaboration with our partners and customers.

### INTERESTED IN BIOFENE?



Amyris now sells samples of farnesene to accelerate development of new renewable products and applications

RT @NowiLLC: Congratulations to @Amyris and @Total for completing the first international flight using farnesene jet fuel #biofuel [http://...](#) 5 hours ago

Watch a video of the refueling of GOL using the Amyris-Total renewable jet fuel. <http://t.co/TK2xrXQ80A> H/T @VoeGOLofficial @BoeingAirplanes Jul 31, 2014

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