

Press Releases

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[Qteros and UMass Amherst announce the issuance of a U.S. Patent for production of ethanol from a unique microorganism, the Q Microbe™](#)



Qteros, Inc., and the University of Massachusetts Amherst announced today that the U.S. Patent and Trademark Office has issued U.S. Patent No. 7,682,811 titled “Systems and Methods for Producing Biofuels and Related Materials” describing the novel creation of products, including biofuels, through the fermentation of biomass by a unique, naturally-occurring anaerobic microorganism.

The patent is based on the novel Q Microbe™ (*Clostridium phytofermentans*), discovered by UMass Amherst microbiologists Professor Susan Leschine and Research Associate Thomas Warnick. Qteros, the exclusive licensee of the patent, has demonstrated that their Q Microbe™ technology offers ethanol producers significant cost reductions by streamlining the biomass-conversion process, commonly referred to as “consolidated bio-processing” (CBP).

“Integration of our unique Q Microbe™ technology into a cellulosic ethanol plant design allows producers the opportunity to dramatically reduce the capital and operating costs

associated with a biomass-to-ethanol process,” states Kevin A. Gray, PhD, Senior Vice President and Chief Technology Officer of Qteros. According to Gray, “While traditional cellulosic ethanol processes require numerous production steps, including the addition of costly exogenous enzymes, use of the Q Microbe™ lowers costs by simultaneously hydrolyzing polysaccharides into simple sugars and fermenting all of these sugars into desirable products in a single-tank operation.”

“The Q Microbe™ technology offers numerous important advantages over other ethanol-producing microorganisms, which we believe provides the operational foundation for profitable, commercial-scale cellulosic ethanol production,” states John A. McCarthy, Jr., President and CEO of Qteros. “This patent underscores the significance and the unique nature of our technology and represents an important milestone that will further our progress toward commercialization of a robust, low-cost CBP platform for cellulosic ethanol production.”

Specific advantages of this patented technology include, the natural production of all enzymes required to digest biomass into its component sugars, the ability to ferment polymeric forms of sugar resulting in decreased pretreatment costs and more efficient ethanol production, the highly efficient fermentation of all major sugars present in biomass, and the production of ethanol as the primary product of the microorganism’s metabolism. Qteros’ CBP system not only enables the production of fuel-grade cellulosic ethanol in a uniquely streamlined production process, it also results in higher ethanol yields from a given amount of biomass material compared to other methods. To date, the Q Microbe™ has performed efficiently across a broad range of feedstocks that include, wheat straw, sugar cane bagasse, energy crops such as switchgrass, and agricultural residues such as corn stover, cob, and fiber.

All of these advantages improve the economics of ethanol production by reducing capital and operating costs, making this microorganism ideally suited for large-scale production of cellulosic ethanol from a wide variety of non-food plant materials. Additionally, Qteros scientists and engineers continue to improve the performance of the microorganism through genetic modification and process optimization.

Issuance of this patent and the evolving science that underlies it will enable the rapid acceleration and commercialization of Q Microbe™ technology. Qteros’ work in its facilities, as well as ongoing work being done at UMass Amherst, will allow Qteros and its partners to deliver on the promise of low-cost cellulosic ethanol production across the worldwide market.

“We applaud Qteros’ success in advancing the Q Microbe™ technology,” says Nick DeCristofaro, Director of Commercial Ventures and Intellectual Property at UMass Amherst. “Dr. Susan Leschine has been a torch bearer for technology transfer on our campus. The relationship between Qteros and UMass is an excellent example of how industry and universities can work together to bring innovation to the marketplace.”