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Improving first and second generation ethanol production with biotech yeast

Currently, the majority of liquid transportation fuel is derived from petroleum, a non-renewable resource. Commercial ethanol production is a proven technology and serves as a renewable alternative to fossil fuels. However, the operating margins of ethanol plants are narrow and significant efforts in research and development have been undertaken to improve the economic viability of the industry. Biotech yeast represent a drop-in solution that can increase ethanol yields and minimize costs without the need for further capital or process modifications. Using advanced molecular biology and genetic techniques Mascoma LLC has successfully created and commercialized a series of bio-tech yeast for use in the corn ethanol industry that minimizes external enzyme addition and increases ethanol product yield. Mascoma has also developed products for the Brazilian sugar cane industry and emerging 1.5 and 2.0 cellulosic ethanol processes. While these products have already demonstrated great progress in the field, vast opportunities still exist to further increase the sustainability of fuel ethanol production and increase profitability through the generation of ever improving bio-tech yeast strains.

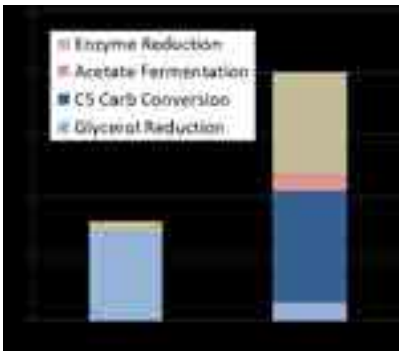

Figure 1. Potential value addition of various bio-tech yeast technologies on corn and cellulosic ethanol production

Biography

Brooks Henningsen has his expertise in molecular biology and genetic engineering. He joined Mascoma, LLC in 2012 following the completion of his Master of Science degree in Biological Sciences. Since joining Mascoma he has worked towards the development of advanced yeast strains and technologies for use in the cellulosic ethanol industry. These technologies include robust C5 sugar utilization and the anaerobic conversion of acetate to value added end-products. He has also spear-headed the improvement of molecular biology techniques at Mascoma to increase strain engineering throughput and efficiency.

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