

BESC - A gene, 088, regulating cellulose hemicellulose biosynthesis and biomass sugar yield

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Technology Summary

Plant cell-wall digestibility is a key determinant of the amount of ethanol or related products that can be extracted during bioconversion or fermentation for biofuel production. Numerous studies have demonstrated that resistance to cell-wall digestibility, i.e., recalcitrance, is controlled by gene networks that affect amounts and ratios of such polysaccharides as lignins, pectins, cellulose, along with various pentose and hexose sugars or their organic derivatives. In turn, the amounts and ratios of these compounds have a direct influence on the amount of simple sugars such as glucose and xylose that can be released during biomass saccharification for subsequent conversion into cellulosic biofuels. Therefore, the ability to genetically alter biomass feedstock composition provides an opportunity to increase fuel yield per unit biomass input, thereby increasing economic viability of plant-derived biofuels. We have identified a gene, POPTR_0014s13940.

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