

Supplementary material II-S5

List of functional genes and their functional attributes

Function in the carbon cycle	Functional gene name	Specific functional gene function
Carbon catabolism	abfA	Hemicellulose
	apu	Starch
	cex	Cellulose
	chiA	Chitin
	ipu	Starch
	lig	Lignin
	manB	Hemicellulose
	mnp	Lignin
	mxaf	Methane production
	naglu	Cellulose
	pox	Lignin
	pqq-mdh	Methane production
	sga	Starch
	xylA	Hemicellulose