

**Table S1. Information of the CAZY\_family enriched in *B. fragilis* NCTC9343 and FSHCM14E1 genomes**

CAZY_famil y	Number of genes associated with CAZY functional categories in three strains			Family_known-activities
	NCTC9343	14E1	11BF	
CBM16	5	23	2	Binding to cellulose and glucomannan
CBM32	119	125	108	Binding to galactose and lactose; Binding to polygalacturonic acid; Binding to LacNAc ( $\beta$ -D-galactosyl-1,4- $\beta$ -D-N-acetylglucosamine)
CBM35	28	28	22	A module in a <i>Phanerochaete chrysosporium</i> galactan 1,3- $\beta$ -galactosidase binds to $\beta$ -galactan.
CBM48	13	13	11	glycogen-binding function
CBM50	394	386	364	Binding to chitopentaose.
GH10	19	17	16	endo-1,4- $\beta$ -xylanase; endo-1,3- $\beta$ -xylanase; tomatinase ; xylan endotransglycosylase; endo- $\beta$ -1,4-glucanase
GH20	240	239	228	$\beta$ -hexosaminidase; lacto-N-biosidase; $\beta$ -1,6-N-acetylglucosaminidase; $\beta$ -6-SO <sub>3</sub> -N-acetylglucosaminidase
GH65	68	73	54	$\alpha,\alpha$ -trehalase; maltose phosphorylase; trehalose phosphorylase; kojibiose phosphorylase; trehalose-6-phosphate phosphorylase; nigerose phosphorylase; 3-O- $\alpha$ -glucopyranosyl-L-rhamnose phosphorylase; 2-O- $\alpha$ -glucopyranosylglycerol: phosphate $\beta$ -glucosyltransferase; $\alpha$ -glucosyl-1,2- $\beta$ -galactosyl-L-hydroxylysine $\alpha$ -glucosidase; 1,3- $\beta$ -oligoglucan phosphorylase
GT2	1301	1323	1242	cellulose synthase; chitin synthase; dolichyl-phosphate $\beta$ -D-mannosyltransferase; dolichyl-phosphate $\beta$ -glucosyltransferase; N-acetylglucosaminyltransferase; N-acetylgalactosaminyltransferase; hyaluronan synthase; chitin oligosaccharide synthase; $\beta$ -1,3-glucan synthase; $\beta$ -1,4-mannan synthase; $\beta$ -mannosylphosphodecaprenol-mannooligosaccharide $\alpha$ -1,6-mannosyltransferase; UDP-Galf: rhamnopyranosyl-N-acetylglucosaminyl-PP-decaprenol $\beta$ -1,4/1,5-galactofuranosyltransferase; UDP-Galf: galactofuranosyl-galactofuranosyl-rhamnosyl-N-acetylglucosaminyl-PP-decaprenol $\beta$ -1,5/1,6-galactofuranosyltransferase; dTDP-L-Rha: N-acetylglucosaminyl-PP-decaprenol $\alpha$ -1,3-L-rhamnosyltransferase; alternating $\beta$ -1,3/4-N-acetylmannan synthase

Note: CBM, Carbohydrate-Binding Module; GH, Glycoside Hydrolase; GT, GlycosylTransferase.