



UDP-GalA ()

wbnF : putative nucleotide sugar epimerase
 ugd: putative UDP-glucose dehydrogenase
 galF : UTP-glucose-1-phosphate uridylyltransferase

GDP-Fuc ()

manB: phosphomannomutase
 manC: GDP-mannose pyrophosphorylase
 gnd: gluconate-6-phosphate dehydrogenase, decarboxylating
 wcaH: GDP-mannose mannosyl hydrolase
 wcaG: GDP-fucose synthetase; GDP-mannose-4-keto-6-D epimerase
 gmd: GDP-mannose 4,6-dehydratase

Glycosyltransferation ()

wcaJ: undecaprenolphosphate glycosyltransferase
 wcaI: putative glycosyl transferase
 wcfG: glycosyl transferase

Sugar modification ()

atf: galactoside *O*-acetyltransferase
 ptf: sensory protein; polysaccharide pyruvyl transferase

Capsule formation ()

wzy: mucoviscosity-associated gene A
 wxz: hypothetical protein
 wzc: putative transmembrane protein
 wzb: putative protein-tyrosine-phosphatase
 wza: putative capsule polysaccharide export protein precursor
 orfX: outmembrane protein

 Hypothetical protein

 ABC transporter



