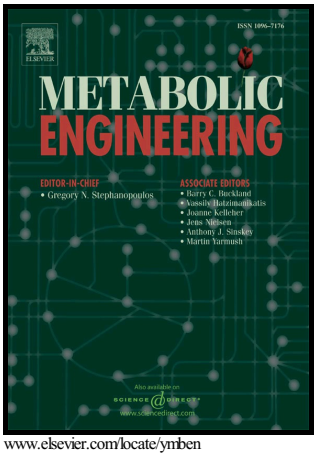

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Metabolic engineering to enhance heterologous production of hyaluronic acid in *Bacillus subtilis*

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Abstract

Hyaluronic acid (HA) is a high-value biopolymer that is produced in large scales using attenuated strains of group C streptococci. However, due to the pathogenicity and fastidious nature of these bacteria, the development of bioprocesses for HA production centered on robust 'Generally Recognized as Safe (GRAS)' organisms, such as *Bacillus subtilis*, is of increased interest. Here, we report metabolic engineering of novel *B. subtilis* strains in which the carbon flux has been partially diverted from central metabolism, i.e. the pentose phosphate pathway (PPP) and glycolysis, into HA biosynthesis. First, an improved base strain of *B. subtilis* was engineered for more effective HA production with less susceptibility to catabolite repression when expressing genes from a xylose-inducible promoter. Subsequently, Clustered Regularly