**Transcription and Translation**

$RNA_{pol} + g_{bcsABCD} \rightarrow RNA_{pol} + mRNA_{ABCD}$

$mRNA_{ABCD} \rightarrow bscA + bscB + bscC + bscD$

**Activation**

$\varnothing \rightarrow$ c-di-GMP

c-di-GMP + $BscA \rightleftharpoons BscA_{act}$

c-di-GMP + $BscB \rightleftharpoons BscB_{bound}$

**Cellulose synthesis**

$\varnothing \rightarrow$ glucose

glucose + glucokinase $\rightarrow$ glucokinase + Glc-6-P

Glc-6-P + PGM $\rightarrow$ PGM + Glc-1-P

Glc-1P + UTP + UGPase $\rightarrow$UGPase + UDP-glucose

$bscA_{act} + bscB_{bound} + bscC + bscD \rightarrow$ bcs

UDP-Glc + ($\beta$-1,4-glucose)$_n$ + bcs $\rightarrow$ UDP + ($\beta$-1,4-glucose)$_{n+1}$ + bcs

**Degradation**

$bcsA \rightarrow \varnothing$

$bcsB \rightarrow \varnothing$

$bcsC \rightarrow \varnothing$

$bcsD \rightarrow \varnothing$

c-di-GMP $\rightarrow \varnothing$