Transcription & Translation

$$RNA_{pol} + g_{csgDEFG} \rightarrow RNA_{pol} + g_{csgDEFG} + mRNA_{DEFG} \\ mRNA_{DEFG} \rightarrow CsgD + CsgE + CsgF + CsgG \\ RNA_{pol} + g_{csgBA} + CsgD \rightarrow RNA_{pol} + g_{csgBA} + CsgD + mRNA_{BA} \\ mRNA_{BA} \rightarrow CsgA + CsgB$$

Secretion, Nucleation, Polymerization

$$\varnothing \to SecYEG$$

$$CsgA + SecYEG \to CsgA_{per}$$

$$CsgB + SecYEG \to CsgB_{per}$$

$$CsgD + SecYEG \to CsgD_{per}$$

$$CsgE + SecYEG \to CsgE_{per}$$

$$CsgF + SecYEG \to CsgF_{per}$$

$$CsgG + SecYEG \to CsgG_{per}$$

$$CsgG_{per} \to CsgG_{mem}$$

$$CsgE_{per} + CsgA_{per} \to CsgEA_{complex}$$

$$CsgG_{mem} + CsgEA_{complex} \to CsgG + CsgE_{per} + CsgA_{sec}$$

$$CsgG + CsgB_{per} \to CsgG + CsgB_{sur}$$

$$CsgA_{sec} + CsgB_{surface} \to CsgB_{sur} + CsgA_{nuc}$$

$$CsgA_{nuc} + CsgA_{sec} \to CgA_{pol}$$

Degradation

 $CsgB\to\varnothing$

 $CsgA \rightarrow \varnothing$

 $CsgD \rightarrow \emptyset$

 $CsgE \rightarrow \varnothing$

 $CsgF \rightarrow \varnothing$

 $CsgG \rightarrow \varnothing$