

## C11

### **The Putative Sigma (YlaC) and Anti-Sigma Factors (YlaD) from *Bacillus subtilis***

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Two open reading frame designated as *ylaC* and *ylaD* in the *Bacillus subtilis* genomic sequencing project, were cloned using pRB374 vector which is shuttle vector in *E. coli* and *B. subtilis*. YlaC and YlaD have the sequence homology to SigX and SigW to YbbM, respectively, which are known to be ECF sigma and anti-sigma factor, respectively.

The YlaD have CXXC motif and transmembrane domain in C-terminal region. CXXC motif may be concerned in active site to sigma and anti-sigma factor interaction and C-terminal region act as anchor and intermediate of signal transduction. The Overexpressed strains of *ylaC* and *ylaD* genes showed the retardation of initiation of exponential growth stage with the reduced sporulation rate and cell density at stationary stage. The promoter::*gusA* fusion protein for *ylaC* and *ylaD* genes was expressed under condition that was LB broth containing 0.1 mM MnCl<sub>2</sub> or 1 mM paraquat and 5 mM H<sub>2</sub>O<sub>2</sub>. From this result, we propose that YlaC and YlaD may exert physiology effects on the growth, especially on the sporulation of *B. subtilis*