**Molecular Biotechnology Programme**
**Uppsala University School of Engineering**

**UPTEC X 01 007** | **Date of issue 2001-01**

Author

**Mikael Persson**

Title (English)

# Heterologous expression of a putative transcription factor controlling sporulation in *Streptomyces*

Title (Swedish)

Abstract

*Streptomyces coelicolor* belongs to a family of soil bacteria that grow as long branched hyphae. They are industrially important as producers of a wide range of antibiotics. They also have an interesting developmental life-cycle, including sporulation, reminiscent of that of filamentous fungi. Spores are produced when an aerial hypha synchronously divides into up to 50 pre-spores that continue to differentiate into mature spores. The product of *whiH* is a putative transcription factor that is required for the sporulation process. Genetic data indicates that WhiH controls it's own promoter, and possibly a developmentally regulated promoter of the key cell division gene *ftsZ*. To be able to test this hypothesis biochemically, I have, used site-directed mutagenesis to construct an expression system for wild-type WhiH that lets it be expressed in *E. coli* in a soluble form if co-expressed with the chaperones GroEL and GroES.

Keywords

*Streptomyces*, WhiH, *ftsZ*, transcription factor, expression, site-directed mutagenesis

Supervisors

**Klas Flärdh**
**Department of Cell and Molecular Biology, Uppsala University**

Examiner

**Anders Virtanen**
**Department of Cell and Molecular Biology, Uppsala University**

| Project name | Sponsors |
|---|---|
| Language **English** | Security |
| **ISSN 1401-2138** | Classification |
| Supplementary bibliographical information | Pages **8** |

**Biology Education Centre** Biomedical Center Husargatan 3 Uppsala
Box 592 S-75124 Uppsala Tel +46 (0)18 4710000 Fax +46 (0)18 555217