



EFFECT OF *sco2127* INACTIVATION ON DEVELOPMENT AND ANTIBIOTIC PRODUCTION IN *Streptomyces coelicolor*

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Introduction. Carbon catabolite repression (CCR) is one of the main systems controlling the biosynthesis of secondary metabolites in Streptomyces. Previous studies showed that *sco2127* can restore the original phenotype of *S. coelicolor* and *Streptomyces peucetius* var. *caesius* mutants insensitive to CCR [1-4]. Although this suggested that *sco2127* played an important role in CCR, its function remains unclear.

The aim of this work is to compare the development and antibiotic production between the wild-type M145 strain and the Δ *sco2127* deletion mutant of *S. coelicolor* [5].

Methods. R5 media was modified according to [6]. Liquid cultures were performed in shake flasks incubated at 30°C, 200 rpm. Actinorhodin (ACT) and undecylprodigiosin (RED) antibiotic formation was quantified as described elsewhere.

Results. When cultured in plates, the M145 strain showed formation of gray (geosmin) and blue (ACT) pigments, typical of a *S. coelicolor* fully developed colony. The absence of these pigments in Δ *sco2127* suggested that its development was severely affected compared to M145. This development impairment was also observed in liquid cultures, where Δ *sco2127* showed a reduced growth rate as well as considerably less biomass compared to M145 (Fig. 1).

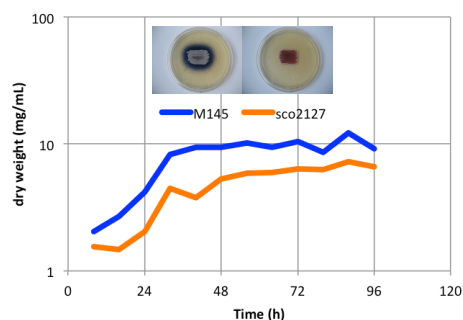


Fig. 1. Growth of *S. coelicolor* M145 and Δ *sco2127* in modified R5 medium supplemented with arabinose 55 mM.

When comparing the ACT formation, Δ *sco2127* produced significantly less antibiotic (only 25%) than the M145 strain at 96 h. Interestingly, the reduction in the ACT production by Δ *sco2127* was retained despite of the increase in glucose concentration (Fig. 2). This also was observed when RED formation was examined (data not shown).

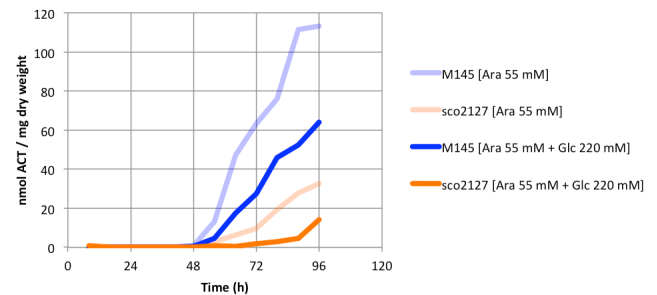


Fig. 2. ACT specific production of *S. coelicolor* M145 and Δ *sco2127* in modified R5 liquid medium.

Due to the unassigned *sco2127* function, we are currently studying the transcriptional effect of the *sco2127* inactivation in *S. coelicolor* at genome-scale. Genes with correlated expression will be further investigated in order to propose a general regulatory network for *Streptomyces* species.

Conclusions. *sco2127* is essential for development and antibiotic production in *S. coelicolor*.

Apparently, *sco2127* is not involved in CCR of antibiotic production in *S. coelicolor*.

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