

P025 Nitrate Reduction in *Streptomyces coelicolor*
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Streptomyces coelicolor is classified as an obligate aerobe, however the genome sequence has revealed the existence of three copies of the *narGHJ1* operon, encoding respiratory nitrate reductase. A full complement of molybdenum cofactor genes is also present in the genome, as well as two copies of *narK*, encoding putative nitrate/nitrite transporters. Although we have yet to observe growth by nitrate respiration, *S. coelicolor* is able to survive long periods of anaerobiosis. In an attempt to determine the physiological functions of these respiratory nitrate reductases, we have examined the expression of their respective operons under various conditions. So far, expression of none of the operons is regulated in response to nitrate. Expression of one of these operons (*narGHJ1-2*) is, however, induced by anaerobiosis. The regulation of *narGHJ1-2* is independent of the Rex regulator, which has been shown to sense the NADH-NAD⁺ ratio in *S. coelicolor*. Expression of the *narGHJ1-1* operon appears to be increased in spores, while expression of the third operon is induced in stationary phase. The potential roles of these enzyme complexes in *Streptomyces* physiology will be discussed