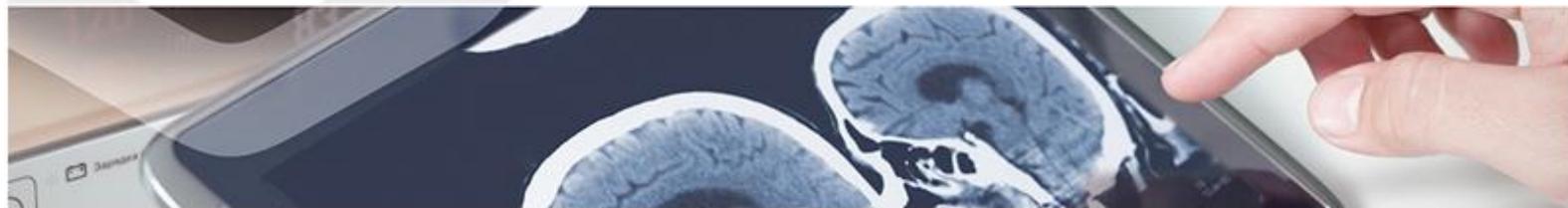
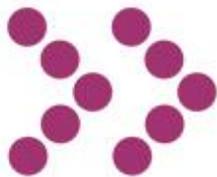


## Industrial Biotechnology

# Streptomyces mutants with high genetic variability

A research team of the Andalusian Public Health System, in collaboration with the University of Seville, CSIC and the University of Sussex, has developed an innovative method for the production of hypermutable actinobacteria.

Oficina de  
**TRANSFERENCIA  
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## Description

Bacterial strains with an increased genetic variability have been used to generate enzymatic variants or mutants adapted to adverse environments. So far, the production of this type of hypermutable strains was limited to specific bacterial species, generally with a classical MMR system (Mismatch Repair) of adjustment of mismatched bases. Other microorganisms such as *Streptomyces*, that do not have a MMR system, were left out of the studies and potential applicability.

Our research group has discovered a new DNA repair system in *Streptomyces*, which is completely different from the MMR described for most of living beings, whose inactivation increases 100 times the mutation rate of *S. coelicolor* over the wild strain and an increase on the recombination rate of divergent DNA sequences (homeologue hyperrecombination).

This innovative method is useful for the production of hypermutable actinobacteria, specifically gram-positive actinomycetale strains, including *Streptomyces* *ssp.*, *Bifidobacterium*, *Nocardia*, *Rhodococcus* and *Mycobacterium* genus



## Advantages

The procurement of *Streptomyces* strains with high genetic variability by mutation and recombination, through the inactivation of the new discovered path, would enable the obtention of:

- Overproductive strains of secondary metabolites such as antibiotics, antitumor, immunosuppressants, antihelminthics, antifungal, herbicides, insecticides, etc.

- More resistant strains to inhibitors of industrial production (physical and chemical)
- Hyperproducing strains of new metabolites by fusing metabolic pathways.
- Mutational studies for the analysis of metabolic pathways since it will enable the obtention of multiple mutations in only one step.

There are no alternative methods because the obtention of *Streptomyces* strains with high genetic variability has not been possible previously.



## Intellectual property

This technology is covered by a Spanish patent application with possibility of international extension.



## Aims

We are looking for a partner interested in a license and/or a collaboration agreement to develop and exploit this innovative technology.



## Classification

Field: Industrial Biotech