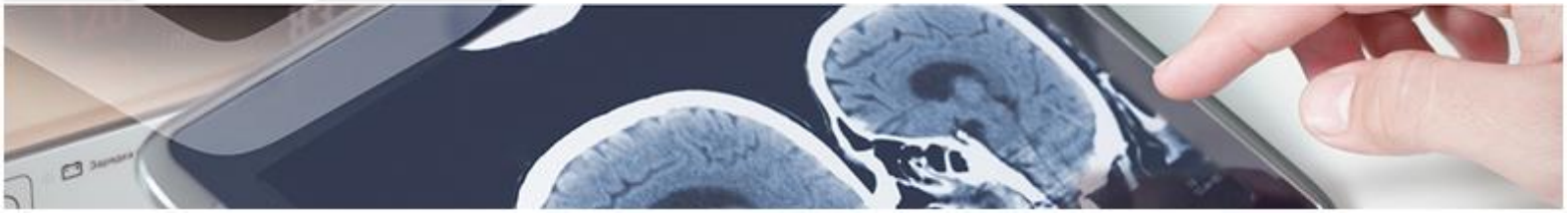
Diagnóstico

Method for detecting antibiotic multiresistant *Mycobacterium tuberculosis* strains

A research group of the Andalusian Public Health System, in collaboration with the University of Seville and the CSIC, has developed an innovative method for predicting the ability of clinical *M. tuberculosis* strains to develop antibiotic resistance, before or during the treatment.

Oficina de TRANSFERENCIA DE TECNOLOGÍA
Sistema Sanitario Público de Andalucía



Description

Currently new anti-TB drugs with not well known efficacy and possible emergence of resistances are being developed. Hypermutable/ hyperrecombinant *M. tuberculosis* strains could be used, for example, in the evaluation and prediction of the future evolution of antibiotic resistances. Furthermore, they would allow detecting the mechanisms and mutations that confer resistance to new anti-TB drugs, their combinations thereof or of already known antibiotics (with partially known targets), both *in vitro* and *in vivo*.

Our research group has identified 10 missense SNPs, five of them conferring a clear hypermutable phenotype, with increases in mutant frequency of one to two orders of magnitude over the wild-type, in the *M. smegmatis* heterologous system. These polymorphisms are present in a gene coding for endonuclease nucS. Thus, a kit based on these SNPs would allow obtaining useful data for identification of *Mycobacterium* strains with an increased capacity of antibiotic resistance development in patients suffering tuberculosis. This would be very useful for establishing personalised therapeutic strategies based on potential pathogen resistance.

Advantages

- The detection of these polymorphisms allows predicting the ability of clinical *M. tuberculosis* strains to develop resistance to antibiotics before or during treatments through a fast assay.
- Enables to the clinician establishing therapeutic strategies based on the prognosis of pathogen resistance.
- Currently, there are no alternative methods available since this resistance mechanism was not known 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: Diagnostics
Pathology: Infectious diseases

JUNTA DE ANDALUCIA
CONSEJERÍA DE IGUALDAD, SALUD Y POLÍTICAS SOCIALES
IBiS INSTITUTO DE BIOMEDICINA DE SEVILLA
FISEVI Fundación Pública Andaluza para la Gestión de la Investigación en Salud de Sevilla

Hospital Universitario Virgen del Rocío. Edificio de Laboratorios, 6ª Planta. Avda. Manuel Siurot, s/n 41013 Sevilla. ESPAÑA ☎+34 955 013 647 MÓVIL: +34 671 597 574
pablo.hervas.exts@juntadeandalucia.es