

TECHNOLOGY OFFER

QUICK GENOTYPING METHOD BASED IN INSERTION SEQUENCE 6110 TO ASSESS TUBERCULOSIS CLONE ORIGIN AND RESISTANCES TO ANTIBIOTICS.

BACKGROUND AND TECHNOLOGY DESCRIPTION

Tuberculosis is a major global public health problem recognized by the World Health Organization and they are two main targets for tuberculosis control, detection, and treatment.

The essential factor for controlling the spread of tuberculosis is the ability to diagnose the disease in its early stages and to treat adequately the patients. In order to control better the spread of tuberculosis, it is necessary to identify and treat infected individuals before they become infectious to others through progression to clinical disease. Contact investigation identifies secondary cases of active tuberculosis and latent tuberculosis infection among contacts so that they can begin therapy. Molecular epidemiology links the cases occurring as part of an outbreak.

The gold standard method for contact investigation analysis is genotyping by IS6110-RFLP, a technique difficult to perform and very slow, delaying results more than a week.

The research group composed by biologists and clinical doctors from IGTP and CIBERES discovered a new method for genotyping based in insertion sequence 6110, quick and easy to perform, standardized and reproducible. The method will improve the wide use of this technology in the evaluation of tuberculosis infection transmission chains, relapses/reinfections, and cross contaminations as well as resistance to at least two of the 1st line antibiotics against Tuberculosis, rifampin (RIF) and isoniazid (INH). The method has more commercial possibilities and products derived, and its development can improve

the wide use of this technology allowing a better control of tuberculosis and the share of codified database analysis worldwide.

ADVANTAGES

- Alternative technologies are not considered as reference method. In some cases, these are time consuming, not commercially standardized and/or not enough discriminatory.
- Our genotyping method based in IS6110, has the same discriminatory power than the gold standard, but is much easier and quick to perform (6 hours).
- The method is automated, standardized, and reproducible and needs only a small amount of sample.
- Furthermore, the method, could improve the wide use of this technology allowing a better control of tuberculosis and the share of codified database analysis worldwide.
- The methodology could be used in several fields (such as clinical assistance, public health, and veterinary and basic biology research) for other type of bacteria with specific insertion sequences (IS).

GOAL

The group is looking forward a partnership with a company interested in tuberculosis control in order to develop a whole PoC system, or a kit to be used in conjunction with a pyrosequencer.

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