

RESEARCH

Five patents filed by CBTBR in 2007

The recent increase in global awareness of multi-drug resistant tuberculosis (MDR-TB) and extensively drug resistant tuberculosis (XDR-TB) has highlighted the need for the development of new and rapid drug-susceptibility diagnostics.

Two provisional patents were filed by the CBTBR in August. These patents describe a novel methodology and a device and thereby form the basis for the development of a rapid diagnostic method for the detection of drug-resistance in *Mycobacterium tuberculosis*.

The first patent describes the identification of mutations conferring resistance through the analysis of the physical properties of an amplified DNA fragment, by high resolution thermal denaturation. Drug-sensitive and drug-resistant isolates can be differentiated according to the shape of the melting curve and can be electronically scored. The sensitivity and specificity of this methodology was shown to be greater than 98% for Rifampicin.

The second patent describes a mixing device which enables two PCR reactions to be done simultaneously within a single tube and the subsequent mixing of the amplification products by inversion. This device will allow the method described in the first patent to be done in this single tube, thereby eliminating the release of amplicons (decreasing the risk of cross-contamination) and presenting an opportunity for automation. This is the first method to describe the detection of drug-resistance within a single PCR reaction tube and cost effective.

Three additional patents were also filed in 2007 (see list below).

The Patents are as follows:

1. A South African Provisional Patent Application (PA144935/P) with the title "Method for the detection of DNA sequence polymorphisms" has been developed during this period and was filed on the 17 August 2007, under the name of Robin Mark Warren, Kim Gilberte Pauline Hoek, Nicolaas Claudius Gey van Pittius, Paul David van Helden and Thomas Caldo Victor
2. A South African Provisional Patent Application (2007/06915) with the title "A mixing device" has been developed during this period and was filed on the 17 August 2007, under the name of Robin Mark Warren, Kim Gilberte Pauline Hoek, Nicolaas Claudius Gey van Pittius, Paul David van Helden and Thomas Caldo Victor
3. A South African patent (PA137469/P2) with the title "Bacterial secretion system and uses therefor" has been filed on the 05th of June 2007, under the name of Nicolaas Claudius Gey van Pittius, Robin Mark Warren and Paul David van Helden.
4. A South African Provisional Patent with the title "Method for the detection and identification of non-tuberculous mycobacteria (NTM)" has been developed during this period. This application still needs to be filed under the name of Nicolaas Claudius Gey van Pittius, Robin Mark Warren, Kim Gilberte Pauline Hoek and Paul David van Helden
5. A United States Provisional Patent Application with the title "DNA Array Specific for the PE and PPE gene families within Mycobacterium spp." was filed on the 07th August 2007 under the names of Mazza, A., Brousseau, R., Mardassi, H., Gey van Pittius, N.C.