



« TB-SPRINT » ref. BMX-TB59

Mycobacterium tuberculosis complex simultaneous spoligo- rif inhA resistance typing

TB-SPRINT (simultaneous spoligotyping, *rpoB*, *katG*, *inhA* loci SNPs typing) is a brand-new technique to control and survey multidrug-resistant TB (*Mycobacterium Tuberculosis*) emergence, shown to be 100% correlated to *rpoB* and *katG* hot-spot sequencing, that can be run in 3h on a single Eppendorf tube. The technique uses the “Dual Allele Probe” principle (DPO) and a 8 primers multiplexed PCR . It consists in a 59-Plex assay to run on Luminex 200® or BioPlex (a 50-Plex MagPix version is also developed). It includes the detection of 43 spacers and 11 SNPs prevalent on *rpoB* (at position 516, 526, 531) and two “spanning” probes that allow the indirect mutation detection of untargeted SNPs at the other positions of the *rpoB* Hot-Spot, and *katG* and *inhA*. The technique was developed and validated on culture extracted DNA of MDR-TB cases and is now in development on clinical samples.

Advantages

- Fast(2h)
- High Throughput (96 wells plates), Cost-effective
- Internal Contrôls (wild-type, mutated alleles)
- Highly Innovating
- Provides simultaneously a medical information
- Useful for epidemiology and an information useful for patient care (to be validated)
- Training by our experts

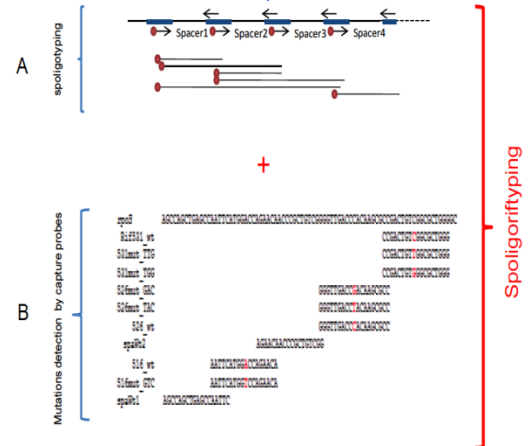
Applications

- Surveillance of multidrug resistant tuberculosis
- Genotyping by spoligotyping
- Surveillance of emergence of MDR-TB clones in some cases in association with 24 VNTR typing.
- Molecular Epidemiological studies of MDR-TB in high burden countries.

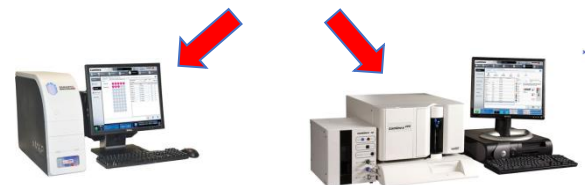
Kit composition

- Positive control DNAs (H37Rv, *M. bovis* BCG P3, MDR1, MDR2)
- 2 primer mix for simultaneous amplification of *rpoB*, *katG*, *inhA* (first mix) and DR locus (second mix)
- Luminex® Microbeads oligonucleotide-coupled and mixed, including 72 different targets either polystyrene xMAP® beads(ref. BMX-SE-BP72) or magnetic MagPlex® (ref. BMX-SE-BM72). Total quantity of microbeads necessary as per request for 100, 250 and 500 assays (depending on your reading device; less beads needed on the MagPix®)
- Streptavidin-Phycoerythrin (SA-PE)

DNA Extraction (from biological samples or culture..)



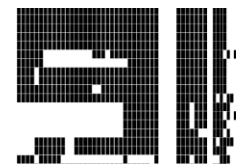
Hybridization on microbeads, detection



MagPix

Luminex 200

Numerical results



Computerized Data management

New product: TB- ULTRA 15-Plex for second-lane TB drug-resistance, 34-Plex for first and second-lane TB drug-resistance. **TB-SPRINT+ QUINOLONES** (*gyrA*), **AMINOGLYCOSIDES**, (*rrs*, *eis*) and **ETHAMBUTOL** (*embB*) genotypic resistance typing (34-Plex and 43-Plex, i.e. 77-Plex in the most extensive version).