



Case study

Oragene®/saliva samples enable pharmacogenomics study with psychiatric patients in the Netherlands

The CYP Curacao study group, The Netherlands
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Study overview

The cytochrome P450 super-family of monooxygenases (officially abbreviated as CYP) is a large and diverse group of enzymes that catalyze the oxidation of organic substances. CYPs are the major enzymes involved in drug metabolism and bioactivation and thus are important for determining the optimal dosage for medications. CYP 2D6 and 2C19 primarily metabolise antipsychotics and antidepressants, therefore polymorphisms found in these genes specifically will have a direct effect on the metabolism of psychotropic medication.

The CYP Curacao study group is determining the prevalence of CYP 2D6 and 2C19 polymorphisms in Antilleans using psychotropic medication to determine if screening for these polymorphisms is cost-effective and will lead to better treatment outcomes with less adverse reactions in the Curacao and Netherland populations.

Main challenges

Obtaining compliance with psychiatric patients for blood collection through phlebotomy is difficult and inconvenient. The CYP Curacao research team required a non-invasive sample method that would provide the same high quality DNA as they would obtain using a blood sample. Furthermore, the sample location of Curacao, was 8,000 km away from the research laboratory in the Netherlands, therefore transporting DNA samples would be difficult and expensive with blood collection.



Oragene device prior to collection

Sample ready for transport, storage and processing



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Why Oragene®/saliva collection?

The study team chose to use Oragene/saliva collection kits due to their ease-of-use and high compliance rate for sample collection from psychiatric patients. In addition, Oragene/saliva samples provide easy and cost-effective sample transport back to their laboratory with long-term DNA stability.

Results

Two hundred and sixty-eight samples were obtained using Oragene/saliva collection kits from Antillean psychiatric adult patients in Curacao. Most participants were admitted in the psychiatric hospital or detained in the prison forensic psychiatric department. Sample collection using Oragene/saliva kits was easy and resulted in a tremendous compliance rate. Only eight people denied participation and only three samples had insufficient saliva delivered at collection. After collection, the saliva samples were shipped at room temperature to a laboratory in Rotterdam, the Netherlands, where they were successfully genotyped using the TaqMan® array of the CYP 2D6 and CYP 2C19 polymorphisms.

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