

## **BRAZILIAN MISSING CHILDREN DNA DATABASE**

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The latest statistic report from 2010 concluded that the Brazilian population has passed 190 million people, from which 33% are under 19 years. There are no accurate statistics of missing children or children under some kind of abuse or violence. Numbers ranging from 14 up to 80 thousand disappearances a year are found in the literature. Despite that, there is a consensus that most of the disappearances are due to runaways. However, it is believed that 10 to 15% of the total disappearances, are never found again, becoming an endless source of suffering to their families. Law enforcement agencies often deal with a scenario of scarce traces and misinformation. Once away from home, these children are vulnerable to drug use, physical and sexual abuse and, not so rarely, end up engaging in criminal activities. Moreover, they might be victims of the international human trafficking market, the third most lucrative criminal market in the world.

Since 2008, many efforts have been put together to create a National DNA Database for missing persons. Among them, a project for the identification of missing children, proposed by the Federal Police DNA lab and granted funding by the Brazilian Innovation Agency (FINEP) in 2009. Also in 2009, the Federal Police signed a letter of agreement with the FBI and received CODIS 6.0 software specific for missing person identification, which proved to be a very useful in the “AF447” air crash that same year.

As of now the project has a total of 157 samples, 51% from human remains and 49% family relatives. These samples are not only from Federal Police cases (as Luziânia serial killer case), but also from cases of state police from Goiás, Amazonas, Pernambuco, Tocantins and Sergipe. This integration aims for a national database making possible the comparison of samples from different states. So far, 43 children have been identified by direct comparison with their potential parents. Most cases were solved by autosomal STR markers but in some circumstances mtDNA sequencing was also used. Considering that the majority of the questioned samples were bones (70%), a new screening method based on mtDNA SNPs was developed at our lab, less labor intensive and less expensive, which validated a new panel of SNPs presenting a high discrimination power covering the HVS-I/HVS-II mtDNA regions.

A DNA database network (called RIBPG) using CODIS is now established in Brazil, integrating 16 states and the Federal Police DNA labs. This network is assuredly a very important tool for the identification of missing children in Brazil.

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