

# DNA Analysis in a Forensic Investigation: Belo Horizonte, Brazil, 1997

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## INTRODUCTION

The city of Belo Horizonte is the capital of Minas Gerais State, the third largest state in Brazil, and is normally considered a calm and peaceful place. However, on June 24, 1997, a riot took place at the entrance to the Minas Gerais Military Police Headquarters, which resulted in one fatality. Because a number of shots were fired from different positions, and a large crowd was present at the scene, the identification of the person who fired the fatal shot was fraught with difficulty. DNA typing was used to complement the other forensic analyses performed during the course of the investigation, with the result that the case was successfully resolved.

## THE INCIDENT

The people of Belo Horizonte will not easily forget the events of June 24, 1997. Since the beginning of the month, a movement for better working conditions and salaries had been growing among the soldiers of the Centennial Military Corporation of Minas Gerais State. The events of the 24th began with a troubled assembly, which quickly escalated out of control as a crowd of about 500 men marched to the corporation command building, the Minas Gerais Military Police Headquarters, which is located beside the Government Palace in Belo Horizonte.

Fearful that the palace or the police headquarters were about to be invaded, the command recruited officials and soldiers from several other cities to defend both institutions. A cordon was formed to try to prevent the crowd from entering the area around both buildings; however, this was easily broken and the protesters were able to make their way to the front of the headquarters, where an armed guard awaited them.

Several of the protest leaders tried to prevent the marchers from advancing further, but at the same time others were inciting the crowd to continue its progress. Troops defending the buildings were ordered to maintain their positions and shoot if necessary. As the situation escalated, five or six shots were fired and a uniformed man fell, gravely wounded, at the entrance to the military headquarters. The wounded man was a Corporal who had been trying to dissuade the protestors from continuing their march toward the building. He was taken to a hospital where, despite several surgeries, he died four days later.

## THE INVESTIGATION

An investigation was begun to try to determine who was responsible for the fatal shot. Blood samples were collected from the floor and ceiling at the entrance to the building. Hairs and tissue fragments, and three intact and two fragmented bullets were also

collected from the scene. A TV station had filmed the entire incident and these tapes were used to help in the investigation. From this evidence, three shooters were identified.

DNA analysis was performed on a tissue fragment from a bullet found in the ceiling, blood samples collected at the scene, and autopsy samples. To accomplish this DNA analysis, the Biology Section of the Laboratory Division received support from Biobrás Diagnosticos in Brazil, and Promega Corporation and the Bode Technology Group in the United States. The Bode Technology Group provided technical support and training for the extraction, purification, PCR amplification and STR analysis of the DNA samples. The amplification reactions were performed using the *GenePrint*<sup>™</sup> PowerPlex<sup>™</sup> 1.1 and FFL Fluorescent STR Multiplex Systems, and the amplified material was detected using a Hitachi FMBIO<sup>®</sup> II Fluorescent Scanner.

The results showed a match between the tissue fragment recovered from the bullet in the ceiling and the victim. From image digitization and photographs, it was then possible to trace a trajectory and identify the shooter responsible for killing the Corporal.

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