

INTERNAL VALIDATION OF THE QIAGEN BIOROBOT® EZ1 ADVANCED: AN QUICK, AUTOMATED EXTRACTION SYSTEM

**Fernando Mercedes Fernández¹ M.S. Mireya Hernández Arroyo¹, B.S.,
Carmen A. Tirado Neris¹ M.S., Joseph Bloom^{1,2} Ph.D., José Rodríguez Orengo^{1,3} Ph.D.**

¹*Institute of Forensic Science of Puerto Rico, San Juan, PR*

²*Department of Pharmaceutical Sciences, School of Pharmacy, San Juan, PR*

³*Department of Biochemistry, School of Medicine, University of Puerto Rico, San Juan, PR*

Our current DNA extraction method, organic extraction, requires labor extensive and manual processes that are not automatable for numerous sample manipulations. The incorporation of four Qiagen BioRobot® EZ1 Advanced for the extraction of evidence and reference samples will make the analysis of forensic casework faster, increasing casework throughput and the reduction of hands-on work, decreasing the risk of contamination.

The EZ1 Advanced an automated extraction system based on magnetic-particle technology, combines the speed and efficiency of silica-based DNA purification with the convenient handling requiring minimal "hands-on" preparation utilizing reagent cartridges in an enclosed system, and allow simultaneous processing of 1-6 samples in a single run. The type of samples that can be processed can vary greatly and there is also a variety of different pretreatments, optimized for specific sample types.

The internal validation involves a wide range of sample types including high and low quantity of DNA and casework samples previously extracted by organic extraction. Additional studies included reproducibility, sensitivity, contamination, non-human mixtures, and non-probative samples.