

## **STANDARDIZING YIELDS FROM BLOOD CARD PUNCHES EXTRACTED WITH DNA IQ™ AND THE BIOMEK 2000 LIQUID HANDLER**

Karen K. Howard, M.S., Heather L. Harrah, B.S. and Terry W. Fenger, Ph.D.

The initiative to increase throughput in DNA databasing laboratories has demonstrated a need to automate routine laboratory processes. Automating DNA extraction is often the first stage in a series to increase throughput. Facilitating the transition requires adopting an automated platform. In this study, the DNA IQ™ System was coupled with the Biomek® 2000 liquid handler for extracting DNA from FTA® and S&S 903 punches. In order to limit the amount of DNA obtained, a silica coated paramagnetic resin was used in the extraction procedure. The resin has a defined DNA capacity and therefore, even in the presence of excess DNA, only a finite amount will bind to the resin. In theory if multiple blood punches are added to each extraction well exceeding the limit of the resin, 100ng of DNA would be extracted resulting in a standardized yield across a 96-well plate. If such standardization is achieved, the subsequent quantification step could then be omitted in databasing applications. In addition to adding excess DNA to each well, standardization required taking into account such variables as age of blood card samples, blood card surface chemistry, number and size of blood card punches, incubation reagent composition, temperature of incubation and elution temperature. Taking these variables into consideration, it is our conclusion that the DNA extraction procedure can be modified to optimize yields.