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OPTIMIZATION OF A QIAGEN BLOOD DNA EXTRACTION KIT FOR USE WITH HUMAN BUCCAL SWAB SAMPLES

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In 2005 our laboratory began public testing for National Geographic and IBM's Genographic Project. Our research group had previously used a phenyl/chloroform extraction for maximum recovery of genomic DNA from buccal swab samples. Due to the large number of samples associated with the Genographic project it was necessary to implement automated DNA extraction techniques. After testing several other commercially available kits, we chose to use Qiagen's BioSprint 96 DNA Blood Kit. However the original DNA yields were not sufficient for the variety of applications we perform and were only a fraction of the traditional yields from our organic extraction. Therefore, we elected to optimize the Qiagen BioSprint 96 DNA Blood Kit to increase our DNA yield. The parameters adjusted included changes to the reagent volumes, enzymes, and the modification of the robot protocol. Through optimization of the Qiagen protocol we were able to increase our yield by greater than three fold. We encourage the development of protocols that are optimized to increase DNA yield rather than simply reduce extraction time.