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### VALIDATION OF GENESCAN™ – 600LIZ® SIZE STANDARD FOR FORENSIC APPLICATIONS

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Abstract GeneScan™ – 600LIZ® Size Standard was developed by Applied Biosystems as a new size standard to be used with capillary electrophoresis (CE) systems. Compared to the existing GeneScan™ – 500LIZ® size standard, it covers a broader size range, with a higher density of fragments. There are 36 fragments ranging in size from 20 to 600 bases. This new size standard incorporates improvements in sizing precision, migration, reproducibility, increased assay throughput, and sizing range coverage. GeneScan™ – 600LIZ® size standard may be utilized with all 5-dye AmpFISTR® kit chemistries including AmpFISTR® Identifiler®, AmpFISTR® Yfiler™, and AmpFISTR® SEfiler™. The goal of this presentation is to describe the validation studies performed with the GeneScan™ – 600LIZ® size standard using AmpFISTR 5-dye chemistry on capillary electrophoresis platforms validated for use in forensic community. Validation experiments were designed according to the SWGDAM guidelines and focused on genotyping concordance and fragment sizing. The CE platforms tested included three 16-capillary instruments (3130xl and 3100), three 4-capillary instruments (3130 and 3100- Avant™), and two 1-capillary instruments (310 Mac and NT). Over 100 male and female human DNA samples were amplified with AmpFISTR® Identifiler®, AmpFISTR® Yfiler™, and AmpFISTR® SEfiler™ and genotyped using both GeneScan™ – 500LIZ® and GeneScan™ – 600LIZ® to assess concordance. Allelic ladders were used as samples to evaluate sizing precision and accuracy. Sizing precision was calculated per run as well as per 96-well plate. The mean size of each allele was compared to the results obtained with GeneScan™ – 500LIZ® standard. The results from this validation demonstrate that the GeneScan™ – 600LIZ® size standard provides excellent sizing precision and 100% genotype concordance with results obtained using the GeneScan™ – 500LIZ® size standard. The GeneScan™ – 600LIZ® size standard provides accurate and reproducible data for forensic applications.