Comparison between HbA1c analyzed using capillary electrophoresis, HPLC, immunological and enzymatic methods

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Background. Hemoglobin A1c (HbA1c) is an essential marker for assessment of glycemic control in diabetes patients. The aim of this study was to evaluate the agreement between different HbA1c methods in use and the new Capillarys 3 Tera, using fresh patient samples.

Method. We used routine blood samples to compare HbA1c analyzed with Capillarys 3 Tera, Roche Tina-Quant HbA1c Gen 3, BioRad Variant II Turbo (3 sites), Mono S® and Abbott Architect enzymatic method. The comparisons were made as a pairwise assay comparisons with the Capillarys 3 Tera assay.

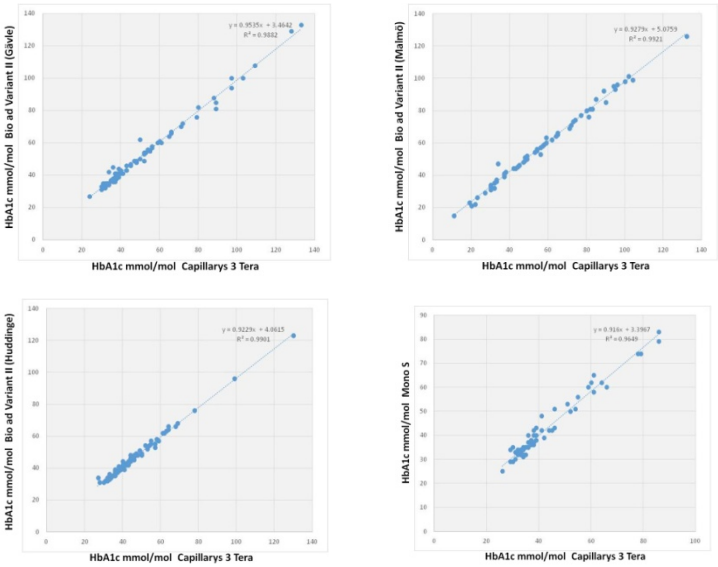

Figure 1. Correlation plots between Capillarys 3 Tera and 3 BioRad Variant II Turbo users and one Mono S user.

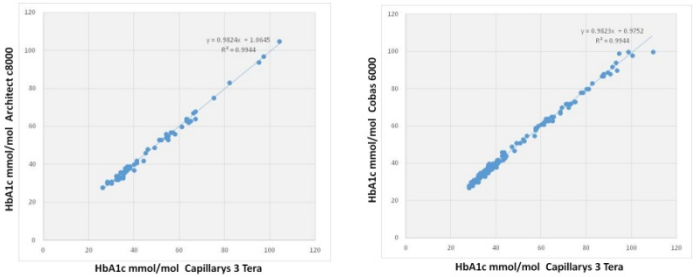

Figure 2. Correlation plots between Capillarys 3 Tera and enzymatic (Architect) and immunological (Cobas 6000) HbA1c determinations.

Results. The linear correlations between the HbA1c methods are presented in Figure 1 (comparison with chromatographic methods) and Figure 2 (comparison with enzymatic and immunological methods).

Conclusion. Generally, there is a very good correlation between the different HbA1c methods and the best agreement was found in the 50-70 mmol/mol interval. Above and below this range the methods separated into 2 groups, one consisting of Capillarys 3 Tera, Roche Tina-Quant and Abbott enzymatic method and the other group consisting of BioRad Variant II Turbo, Tosoh G8 and Mono S®.