



## FT3 AND FT4 ASSAYS: A THREE METHOD COMPARISON

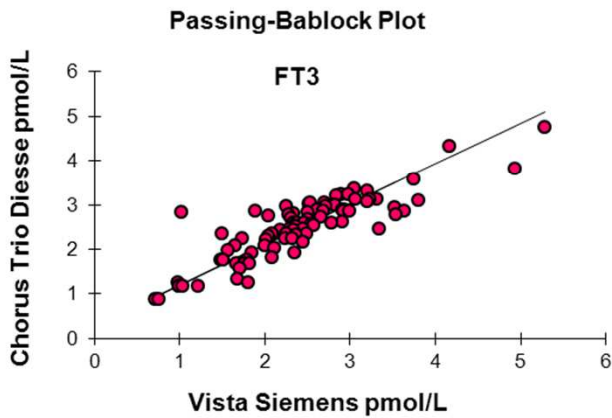
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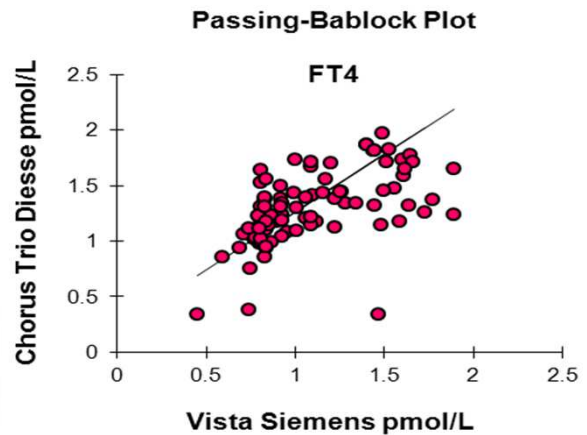
**Introduction:** The measurement of the "free" fraction of T3 (FT3) and T4 (FT4) is useful for better understanding of physiologically active thyroid hormone levels for a more accurate diagnosis of thyroid disease. In this comparative study on FT3 and FT4 analysis methods, we evaluated the performance of the Chorus Trio Diesse compared to Vista Siemens and Diametra.

**Material and Methods:** Eighty-seven random sample serum, enrolled by the daily clinical routine, were assayed for FT3 and FT4 by Chorus Trio Diesse, Diametra and Vista Siemens. Chorus Trio Diesse and Diametra are based on an immunoenzymatic method, while the Vista Siemens immunoassay is a homogeneous chemiluminescent method based on LOCI® technology.

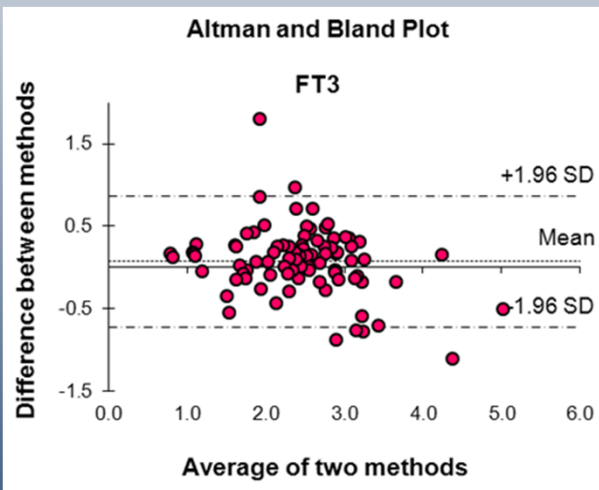
**Results:** The results obtained by comparing the three methods for FT3 are the following: comparing the Chorus Trio Diesse with Vista Siemens, for FT3 Passing-Bablok analysis showed a slope 0.9140 (95% CI 0.8175 to 1.0107); Intercept = 0.2813 (95% CI = 0.0968 – 0.5000), for FT4 showed a slope 1.0403 (95% CI 0.8056 to 1.2941); Intercept = 0.2224 (95% CI -0.0318 – 0.4408). Bland and Altman analysis showed mean differences for FT3 of 0.074 ( $\pm 1.96$  SD = 0.871 and -0.724), and FT4 of 0.199 ( $\pm 1.96$  SD = 0.823 and -0.425). Comparing the Diametra with Vista Siemens, for FT3 Passing-Bablok analysis showed slope 0.7501 (95% CI 0.6060 to 0.9216); Intercept = 0.5684 (95% CI = 0.1314 – 0.8904), for FT4 showed a slope 0.9447 (95% CI 0.8177 to 1.1156); Intercept = 0.2382 (95% CI = 0.0446 – 0.3747), while at the Bland and Altman analysis the mean differences was for FT3 -0.131 ( $\pm 1.96$  SD = 1.207 and -1.469); and FT4 0.072 ( $\pm 1.96$  SD = 0.658 and -0.513). Comparing the Chorus Trio Diesse with Diametra, for FT3 Passing-Bablok analysis showed a slope 0.8165 (95% CI 0.6815 to 1.0015); Intercept = 0.3576 (95% CI = -0.1016 to -0.6930), for FT4 showed a slope 1.0204 (95% CI 0.8314 to 1.2202); Intercept = 0.0716 (95% CI = -0.1897 – 0.3071), while at the Bland and Altman analysis the mean differences was for FT3 of -0.205 ( $\pm 1.96$  SD = 0.947 and -1.358) and for FT4 of 0.126 ( $\pm 1.96$  SD = 0.536 and -0.283).



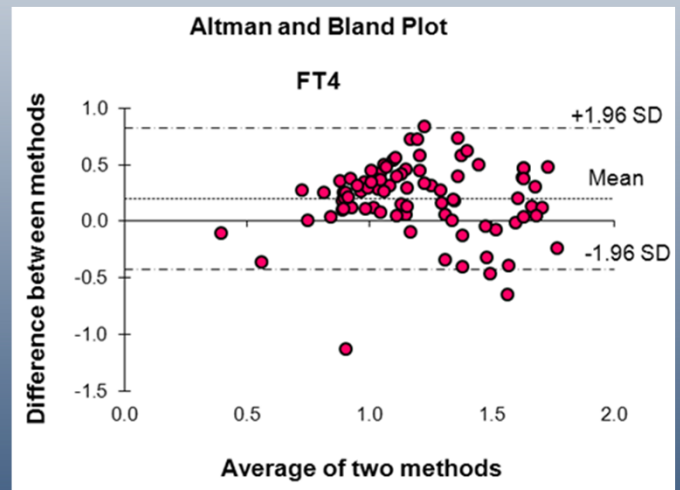
	Coefficient	95% CI of Coefficient	
Intercept	0.2813	0.0968	to 0.5000
Slope	0.9140	0.8175	to 1.0107



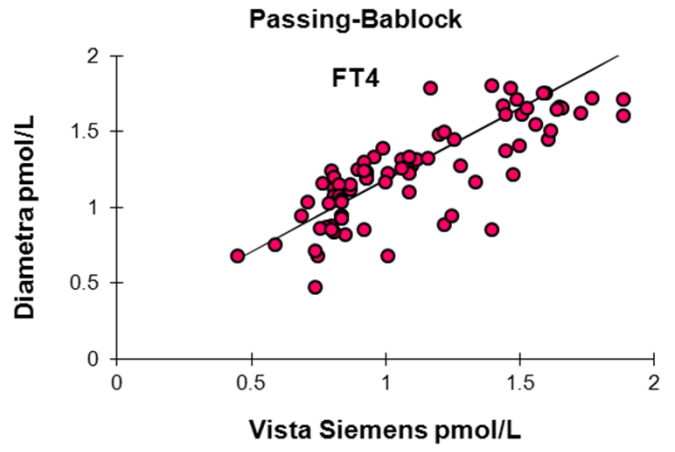
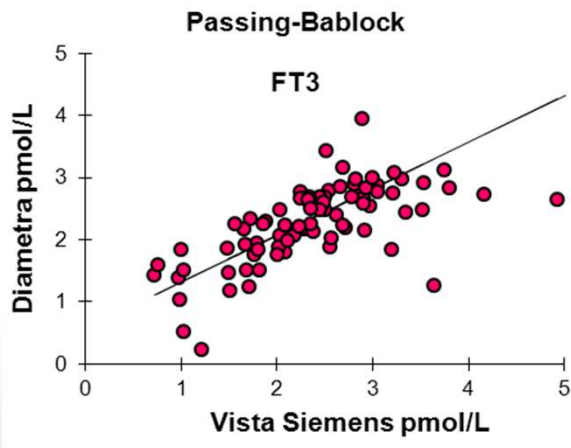
	Coefficient	95% CI of Coefficient	
Intercept	0.2224	-0.0318	to 0.4408
Slope	1.0403	0.8056	to 1.2941



	Estimate	95% CI	
Lower Limit	-0.724	-0.8740	to -0.5735
Bias	0.074	-0.0129	to 0.1606
Upper Limit	0.871	0.7212	to 1.0217

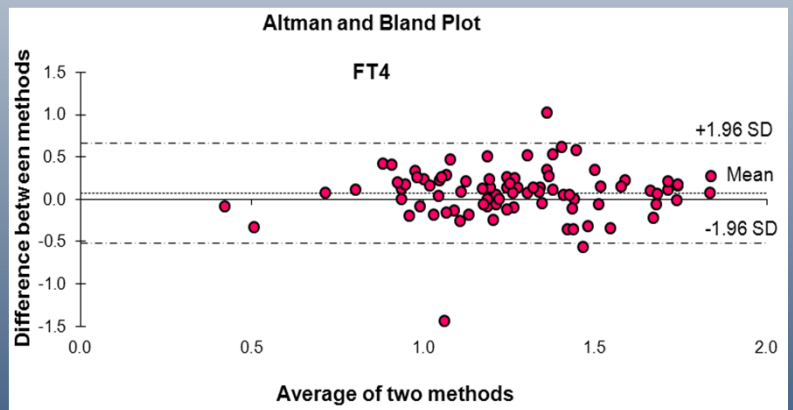
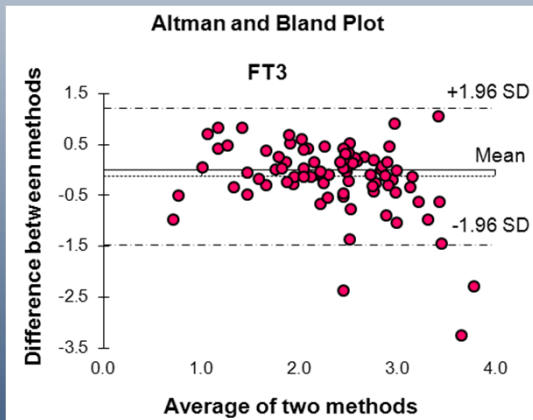


	Estimate	95% CI	
Lower Limit	-0.425	-0.5430	to -0.3066
Bias	0.199	0.1308	to 0.2673
Upper Limit	0.823	0.7048	to 0.9412



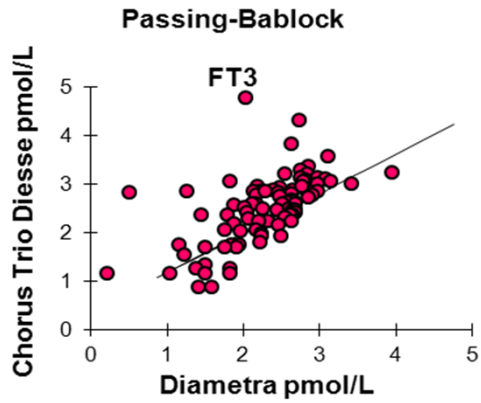
	Coefficient	95% CI of Coefficient	
Intercept	0.5684	0.1314	to 0.8904
Slope	0.7501	0.6060	to 0.9216

	Coefficient	95% CI of Coefficient	
Intercept	0.2382	0.0446	to 0.3747
Slope	0.9447	0.8177	to 1.1156

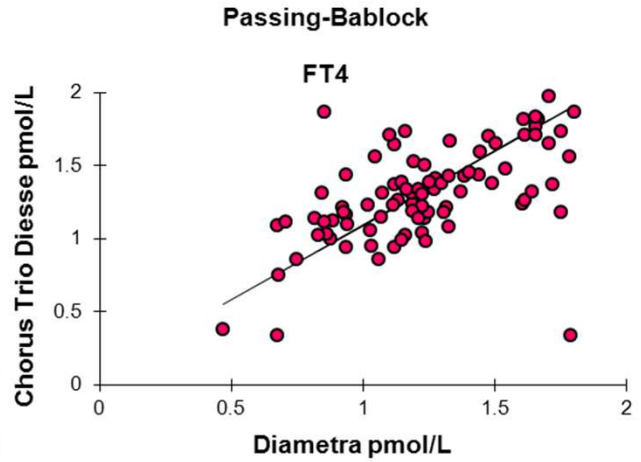


	Estimate	95% CI	
Lower Limit	-1.469	-1.7214	to -1.2174
Bias	-0.131	-0.2769	to 0.0141
Upper Limit	1.207	0.9546	to 1.4586

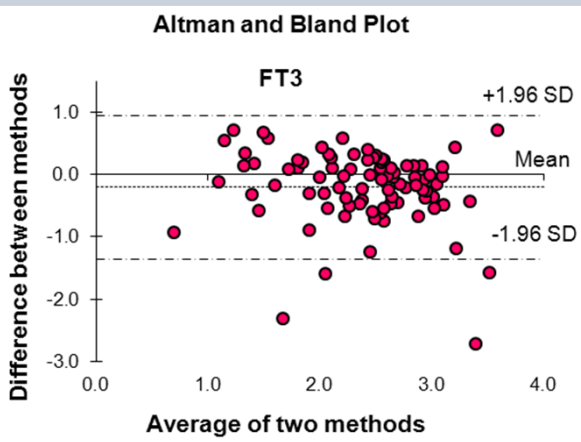
	Estimate	95% CI	
Lower Limit	-0.513	-0.6239	to -0.4021
Bias	0.072	0.0083	to 0.1364
Upper Limit	0.658	0.5468	to 0.7686



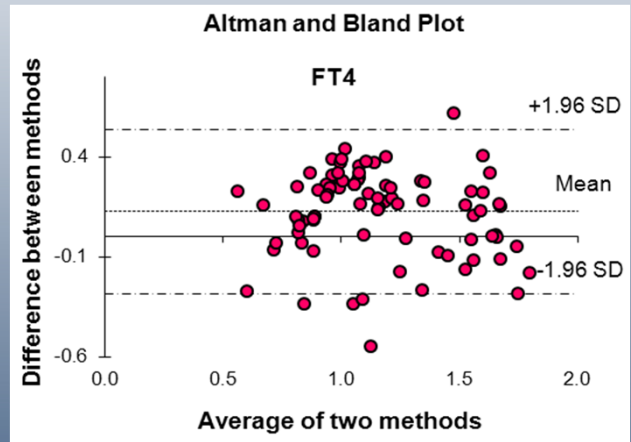
	Coefficient	95% CI of Coefficient	
Intercept	0.3576	-0.1016	to 0.6930
Slope	0.8165	0.6815	to 1.0015



	Coefficient	95% CI of Coefficient	
Intercept	0.0716	-0.1897	to 0.3071
Slope	1.0204	0.8314	to 1.2202



	Estimate	95% CI	
Lower Limit	-1.358	-1.5750	to -1.1408
Bias	-0.205	-0.3306	to -0.0799
Upper Limit	0.947	0.7303	to 1.1645



	Estimate	95% CI	
Lower Limit	-0.283	-0.3607	to -0.2063
Bias	0.126	0.0818	to 0.1709
Upper Limit	0.536	0.4591	to 0.6135

**Conclusions:** The Trio Dicese FT4 and FT3 assays compared to Siemens Vista and Diametra showed good analytical performance. This automated immunoenzymatic method is reliable for small laboratories.