



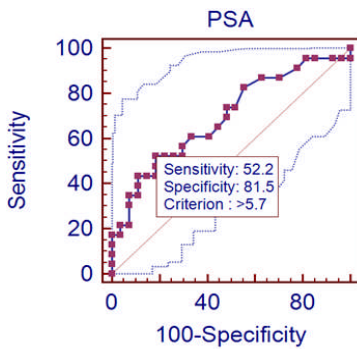
**ES Complex clinical investigation: Prostate cancer Screening Test  
(as reference to the prostate biopsy results): Specificity and Sensitivity**

**Darci Schiavon de Abreu. Bioimpedance and chronoamperometry as an adjunct to prostate-specific antigen screening for prostate cancer. Cancer Management and Research 2011;3 109–116**

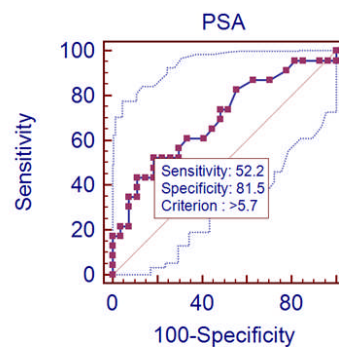
The PSA test had a sensitivity of 73.9% and specificity of 51.9% using a cutoff value > 4 **Fig.1** and a sensitivity of 52.2% and specificity of 81.5% using a cutoff value  $\geq 5.7$  and  $P = 0.03$ . **Fig.2**

The delta of the electrical conductivity (DE) of the left foot-right foot pathway had a sensitivity of 62.5% and specificity of 85.2%, with a cutoff value  $\leq -5$  and  $P = 0.0001$ . **Fig, 3**

Algorithms comprising the delta of electrical conductivity and PSA showed a sensitivity of 91.5% and a specificity of 59.3%, with a cutoff value  $\leq -10.52$  and  $P = 0.0003$ . **Fig, 4**

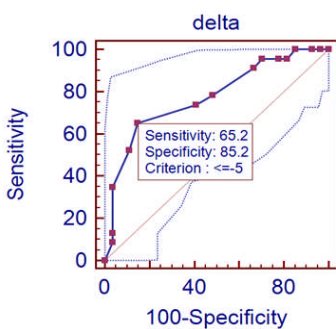


**Figure 1:** Receiver-operating characteristic curve: PSA cutoff value > 4 ng/ml comparing Positive biopsy group versus negative biopsy group



ROC curve	
Variable	PSA
Classification variable	diagnosis
Sample size	50
Positive group :	DIAGNOSIS = 1 23
Negative group :	DIAGNOSIS = 0 27
Standard Error <sup>a</sup>	0.0763
95% Confidence Interval <sup>b</sup>	0.548 to 0.816
z statistic	2.544
Significance level P (Area=0.5)	0.011
<sup>a</sup> DeLong et al., 1988	
<sup>b</sup> Binomial exact	

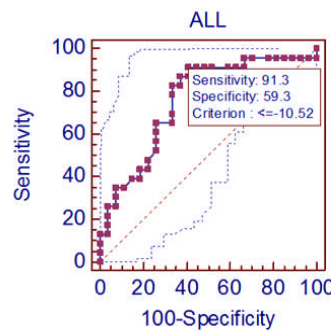
**Figure 2:** Receiver-operating characteristic curve and data analysis: PSA cutoff value > 5.7 ng/ml comparing Positive biopsy group versus negative biopsy group



ROC curve	
Variable	delta
Classification variable	diagnosis
Sample size	50
Positive group :	DIAGNOSIS = 1 23
Negative group :	DIAGNOSIS = 0 27
Disease prevalence (%)	46
Area under the ROC curve (AUC)	0.775
Standard Error <sup>a</sup>	0.0676
95% Confidence Interval <sup>b</sup>	0.634 to 0.891
z statistic	-4.062
Significance level P (Area=0.5)	<0.0001
<sup>a</sup> DeLong et al., 1988	
<sup>b</sup> Binomial exact	

**Figure 3:** Receiver-operating characteristic curve and data analysis. Delta Electrical conductivity \* (DE) value cutoff  $\leq -5$  comparing Positive biopsy group versus negative biopsy group

\*Delta of the electrical conductivity between the pathway conductivity left foot- right foot minus the pathway conductivity right foot-left foot expressed in numeric values from 0-100.



ROC curve	
Variable	ALL
Classification variable	diagnosis
Sample size	50
Positive group :	DIAGNOSIS = 1 23
Negative group :	DIAGNOSIS = 0 27
Area under the ROC curve (AUC)	0.757
Standard Error <sup>a</sup>	0.0706
95% Confidence Interval <sup>b</sup>	0.615 to 0.867
z statistic	3.636
Significance level P (Area=0.5)	0.0003
<sup>a</sup> DeLong et al., 1988	
<sup>b</sup> Binomial exact	

**Figure 4:** Receiver-operating characteristic curve: Test ALL\* cutoff value  $\leq -10.52$  comparing Positive biopsy group versus negative biopsy group

\*ALL= Delta of the electrical conductivity value multiplied by the PSA value.