Abstract 3029: Plasma hPG_{80} (circulating Progastrin) levels in cancer patients in Nigeria: Prolevcan study

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Background:

Progastrin is a tumor-promoting peptide which is detectable in the blood of patients with different cancers. hPG_{80} (circulating progastrin) is produced by cancer cells. Recently, it was reported that hPG_{80} is detected in the blood of cancer patients, suggesting its potential utility for cancer detection. In this Nigerian study, we assessed the performance of hPG_{80} in diagnosed cancer patients versus healthy volunteers.

Methods:

Plasma samples of 50 patients with breast (n=41) and colorectal (n=9) cancer, aged from 26 to 70 years, were assayed for hPG_{80} levels with the $DxPG_{80}$ kit from ECS-Progastrin. The diagnostic performance (ROC AUC) of hPG_{80} was assessed compared to 50 healthy volunteers aged from 21 to 38 years.

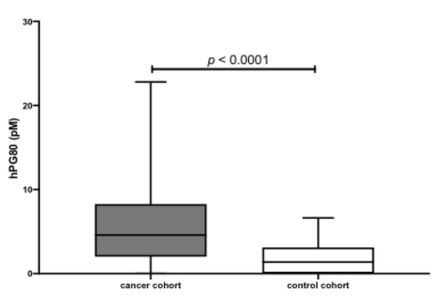
Clinical and pathological characteristics

		Breast cancer	CRC	Healthy Donors
		N	N	N
		n = 41	n = 9	n = 50
Age, years	Median (range)	50 (27-70)	57 (26-70)	29 (18-38)
Gender	Male	0	4	14
	Female	41	5	36
Menopause		19	/	0
Histological type	Ductal carcinoma	34		
	Others	8		
Immunohistochemical profile	Triple negative	11		
	HR positive	10	/	
	Other or unknown	20		
Clinical stage	I	2		/
	II	4		
	III	35	5	
	IV	0	3	

Results:

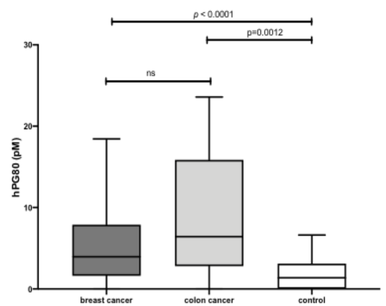
Plasma hPG_{80} levels were significantly higher in cancer patients compared to controls (median values: 4.59 pM (IQR: 2.02-8.27 pM) vs 1.37 pM (IQR: 0-3.11 pM), $p < 0.0001$). The median value of hPG_{80} level was 3.96 pM (IQR: 1.61-7.89 pM) for breast cancers and 6.43 pM (IQR: 2.80-15.86 pM) for colorectal cancer (CRC) patients. ROC AUC for all cancers, breast cancer and colorectal cancer were 0.75, 0.74 and 0.82, respectively. There was no correlation between hPG_{80} blood levels and age or CA15.3 levels.

All cancers combined cohort *vs* control



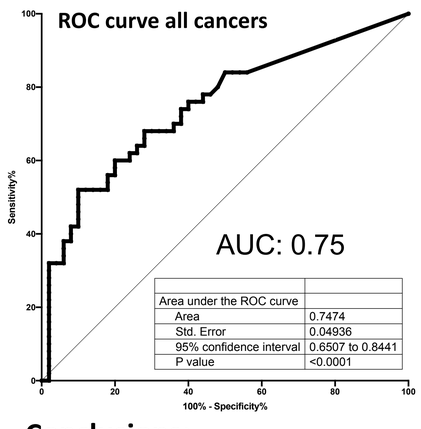
	cancer cohort	control cohort
Number of values	50	50
Minimum	0.000	0.000
25% Percentile	2.018	0.000
Median	4.590	1.370
75% Percentile	8.273	3.113
Maximum	28.26	30.24
Range	28.26	30.24
Mean	6.361	2.301
Std. Deviation	6.612	4.475
Std. Error of Mean	0.9350	0.6329

Breast and CRC cancer cohorts *vs* control



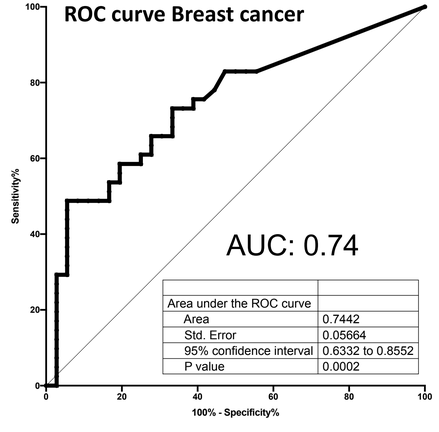
	breast cancer	colon cancer	control
Number of values	41	9	50
Minimum	0.000	0.000	0.000
25% Percentile	1.615	2.800	0.000
Median	3.960	6.430	1.370
75% Percentile	7.890	15.86	3.113
Maximum	28.26	23.58	30.24
Range	28.26	23.58	30.24
Mean	5.811	8.869	2.301
Std. Deviation	6.129	8.444	4.475
Std. Error of Mean	0.9572	2.815	0.6329

ROC curve all cancers



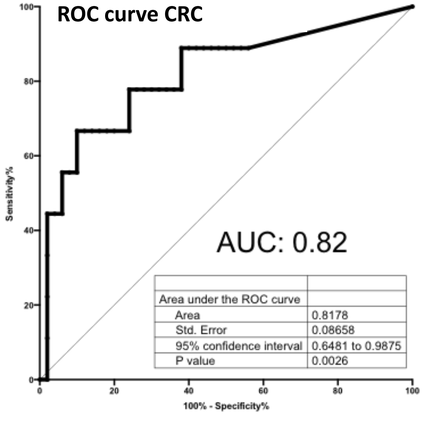
Area under the ROC curve	
Area	0.7474
Std. Error	0.04936
95% confidence interval	0.6507 to 0.8441
P value	<0.0001

ROC curve Breast cancer



Area under the ROC curve	
Area	0.7442
Std. Error	0.05664
95% confidence interval	0.6332 to 0.8552
P value	0.0002

ROC curve CRC



Area under the ROC curve	
Area	0.8178
Std. Error	0.08658
95% confidence interval	0.6481 to 0.9875
P value	0.0026

Conclusions:

Plasma hPG_{80} is a simple and relatively affordable blood test, it shows potential utility as a biomarker for cancer detection, monitoring and treatment assessment.

Further prospective studies are needed to explore and confirm its potential.