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Do urinary-based molecular Biomarker have the ability to predict the grade of non-muscle invasive bladder cancer?

Ahmed Abdalgawad^{*1}, Mahmoud Laimon², Abdelwahab Hashem², Mohamed M. Abdellatif², Dalia Magdy¹, Laila A. Eissa³, Ahmed Mosbah²

¹ Center of Excellence for Genome & Cancer Research, Urology and Nephrology Center, Mansoura, Egypt.

² Urology Department, Urology and Nephrology Center, Mansoura, Egypt.

³ Biochemistry department, Faculty of Pharmacy, Mansoura, Egypt.

- Micro-RNA155 (mir-155), MicroRNA·200b (mir-200b) , human telomerase reverse transcriptase (hTERT), and E2F3 transcription factor had a role in BC pathogenesis.
- A registered prospective trial at [ClinicalTrials.gov](https://clinicaltrials.gov) with ID: [NCT03591367](https://clinicaltrials.gov/ct2/show/NCT03591367) for 64 NMIBC patient To determine the ability of urine-based tumor markers in staging, and grading of NMIBC

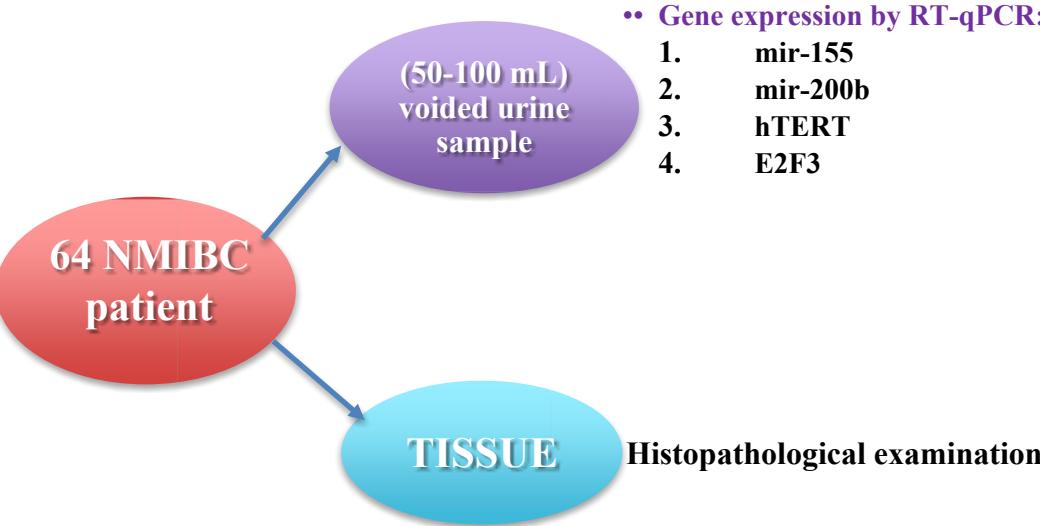


Table 1: Baseline patient and urinary markers characteristics

Variable	LG N = 21	HG N = 43	P value
Baseline patient characteristics (Mean ± SD)			
Age (years)	56.57 ± 12.36	61.21 ± 10.18	0.12
Gender N ⁰ (%)			
Male	14 (66.7 %)	36 (83.7 %)	0.12
female	7 (33.3 %)	7 (16.3 %)	
BMI (kg/m ²)	27.41 ± 3.62	26.14 ± 3.80	0.21
Serum creatinine (mg/dl)	1.37 ± 1.89	1.31 ± 1.13	0.89
Hemoglobin (gm/dl)	12.78 ± 1.66	12.68 ± 1.56	0.82
INR	1.07 ± 0.09	1.09 ± 0.09	0.53
Baseline urinary markers characteristics (Mean ± SD)			
Telomerase	5.46 ± .89	7.93 ± 1.70	< 0.001
E2F3	2.64 ± .45	4.89 ± 1.36	< 0.001
MIR-155	.48 ± .19	.58 ± .21	0.064
MIR- 200b	.28 ± .08	.54 ± .19	< 0.001

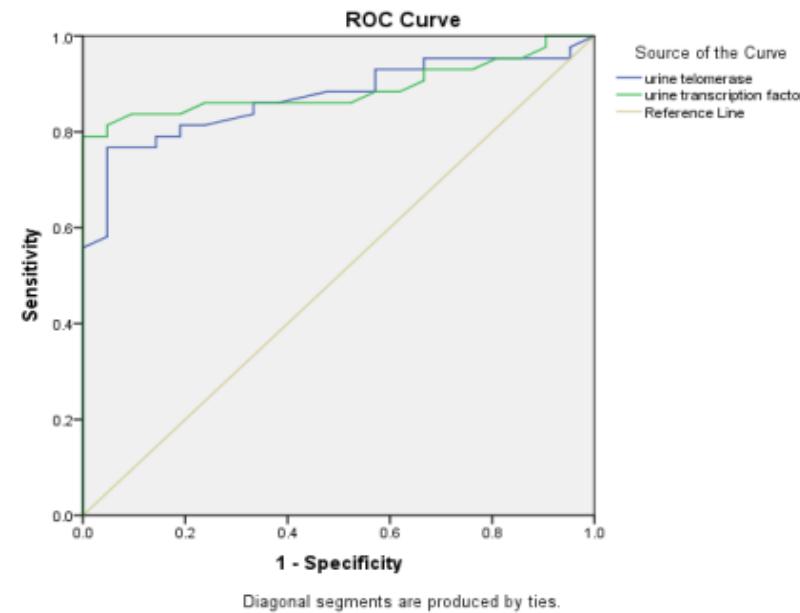


Table 2: urinary markers diagnostics of grade of NMIBC

Test	AUC	Cut off value	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)	Accuracy (%)	P value
mir-155	0.341	0.590	41.86	38.09	58.06	24.24	40.63	0.069
mir-200b	0.122	0.360	23.26	19.05	37.03	10.81	21.88	0.19
hTERT	0.872	5.605	86.05	66.67	84.09	70	79.69	< 0.001
E2F3	0.889	3.055	86.05	76.19	88.09	72.73	82.81	< 0.001

Figure 1: ROC curve of molecular biomarkers done for discriminating NMIBC grades :
human telomerase reverse transcriptase (hTERT) and E2F3.

CONCLUSION

As molecular urinary biomarkers; **E2F3 and hTERT** have the *highest potential* for prediction of the grade of NMIBC to either low or high grade.

