

# Nestin and Klotho protein expression in neuroendocrine tumors of the lung

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## OBJECTIVES

Finding a marker which can possibly be used to establish prognosis and help to adjust the treatment to the type and stage of tumor.

## METHODS

We assessed immunohistochemically the expression of Nestin and Klotho in 40 patients. We retrospectively reviewed patient charts and analyzed multiple variables like tumor size and overall survival time.

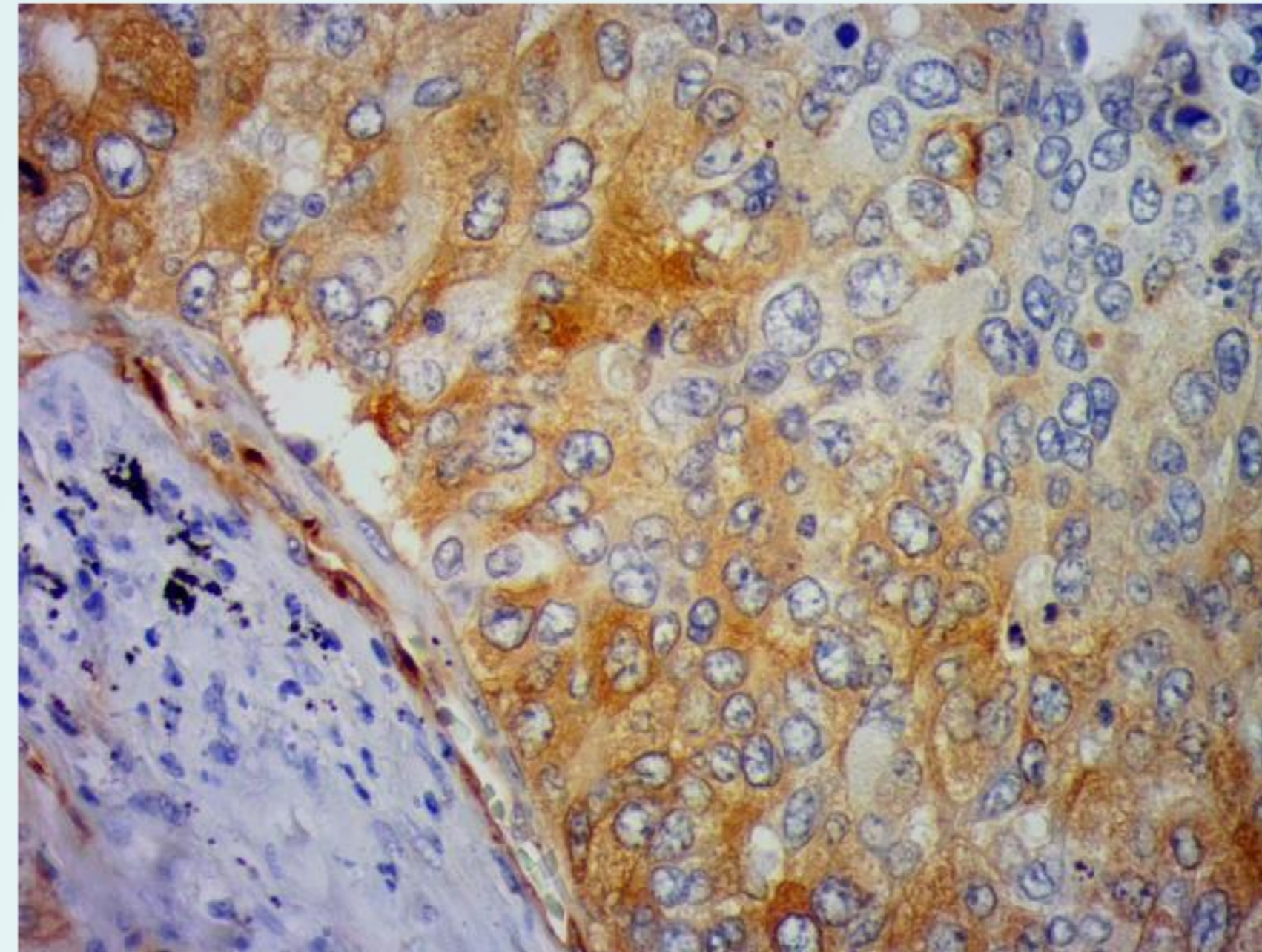


Fig.1 Nestin expression. Immunohistochemical staining (400x).

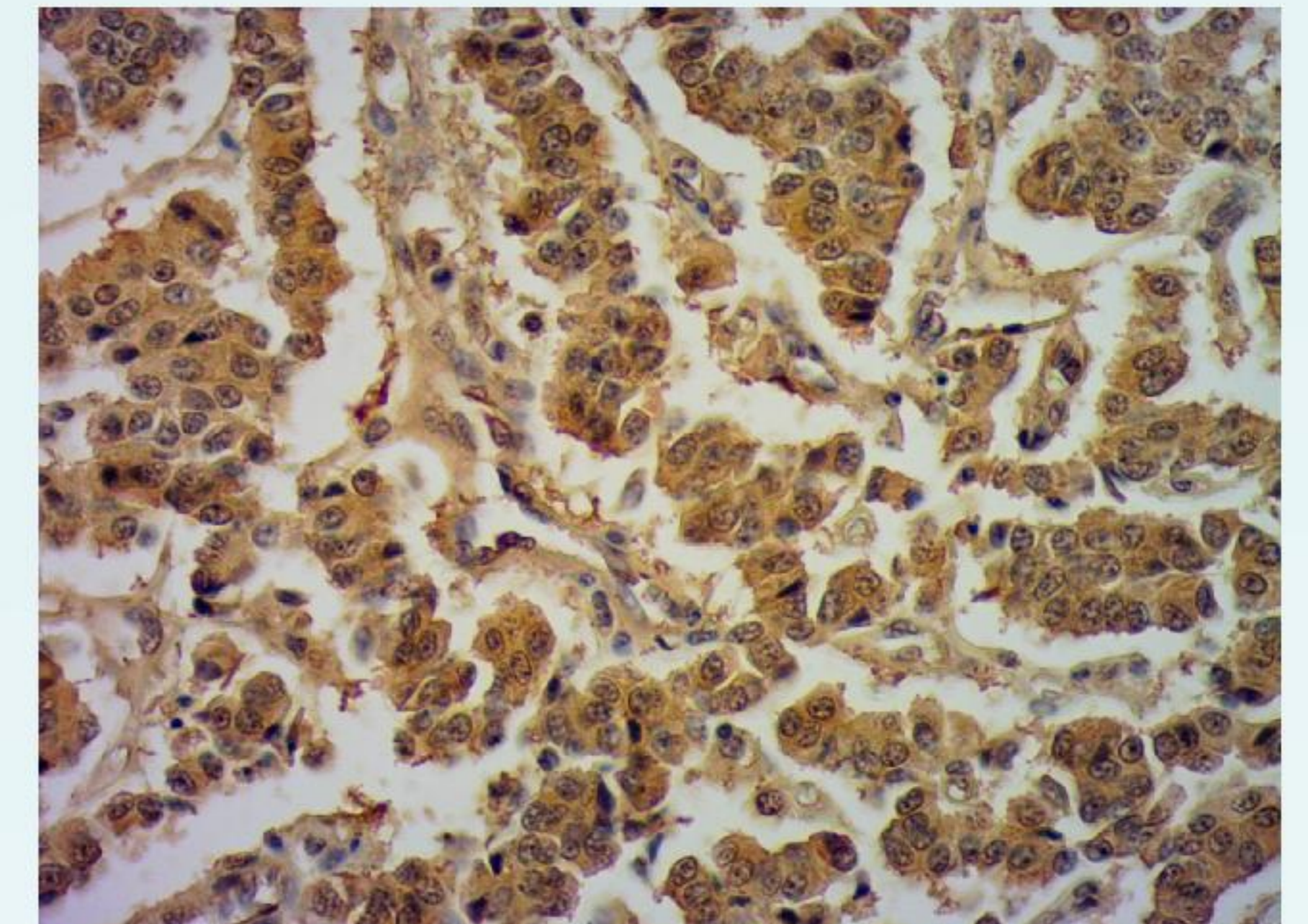


Fig.2 Klotho expression. Immunohistochemical staining (400x).

Female	21 (62.5%)
Male	19 (37.5%)
LCNEC	20 (50%)
Typical carcinoid	6 (15%)
Atypical carcinoid	14 (35%)
Mean age	59.7 (33-78)
Mean size of the tumor	36.1 mm (7-90)
Mean time of the observation	14.5 months
Type of operation:	
Lobectomy	35 (87.5%)
Pneumonectomy	4 (10%)
segment resection	1 (2,5%)
TNM classification:	
Ia	10 (25%)
Ib	7 (17.5%)
Ila	11 (27,5%)
Ilb	5 (12.5%)
Illa	5 (12.5%)
IV	2 (5%)
Alive at the time of analysis	22 (55%)
Cancer-related death	18 (45%)

Tab.1 Characteristics of patients.

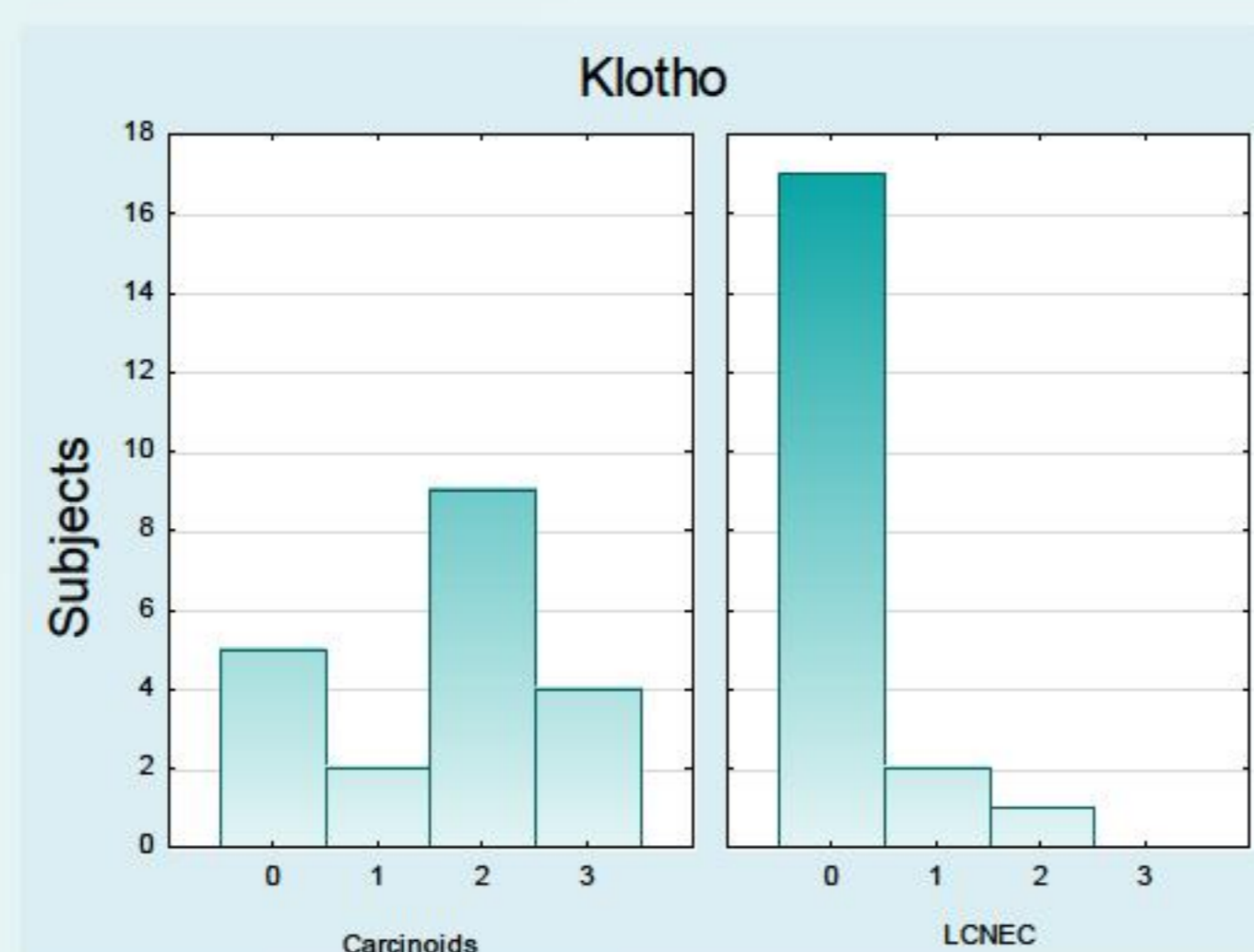


Fig.3 Klotho expression in carcinoids and LCNEC. (0:0-5%; 1:6-25%, 2:26-60%, 3:61-100% of tumor cells)

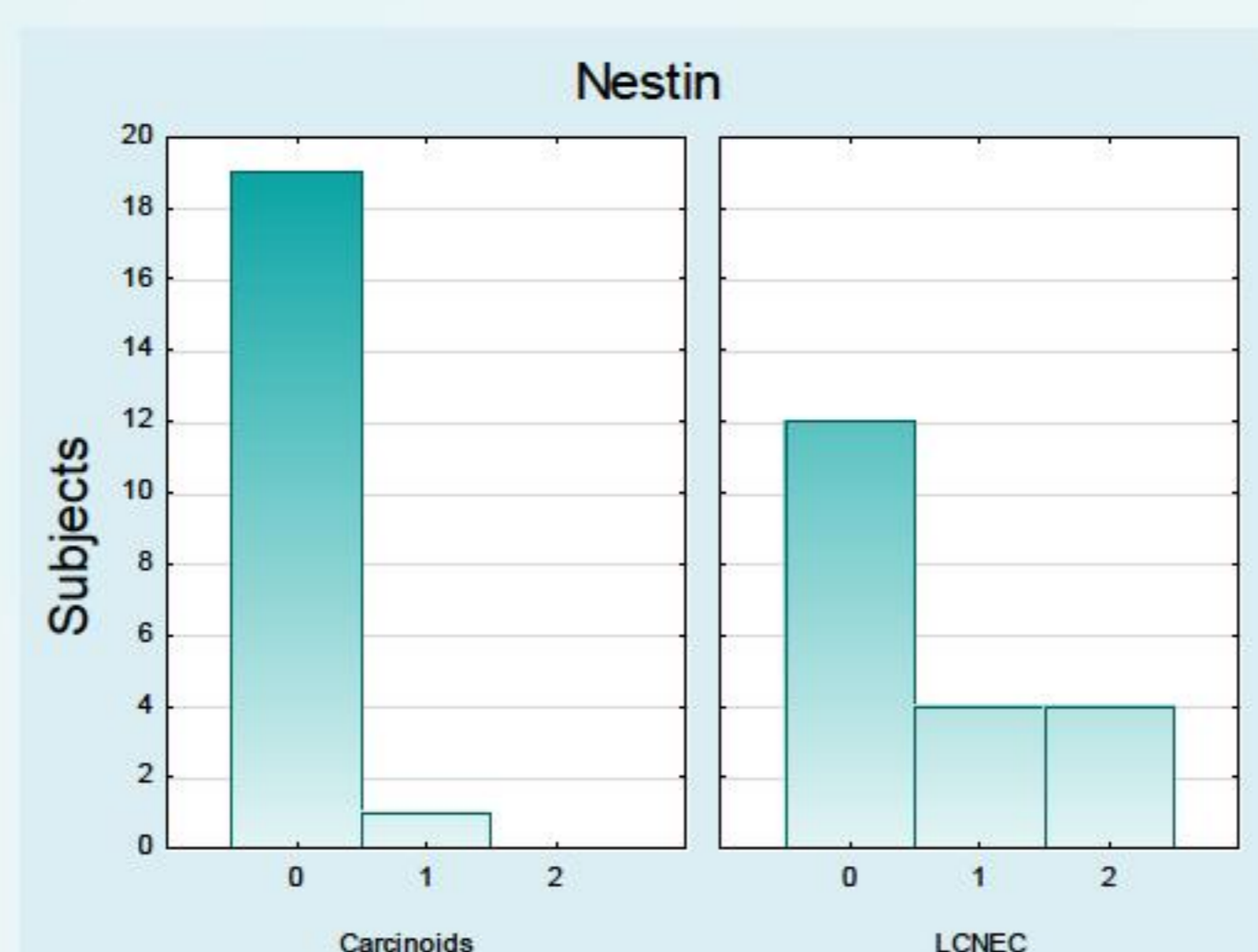


Fig.4 Nestin expression in carcinoids and LCNEC. (0:0-5%; 1:6-25%, 2:26-60%, 3:61-100% of tumor cells)

## RESULTS

We did not disclose correlation between Klotho, nestin expression and Ki-67, initial tumor size, TNM stage, overall survival in carcinoid tumors and LCNEC. Nestin expression was correlated with the patient's age in LCNEC group ( $p=0.048$ ,  $r=-0.44$ ). When comparing the level of expression of Klotho in carcinoids and LCNEC, it was significantly higher in the first group ( $p<0.0001$ ). Additionally, nestin expression was more pronounced in LCNEC than carcinoids ( $p<0.0080$ ).

## CONCLUSIONS

Carcinoids usually defined by indolent clinical behavior are characterized by higher Klotho expression, then LCNEC. Adversely, nestin expression is more pronounced in aggressive LCNEC. It points to a conclusion that, both Klotho and nestin might be useful as a possible biomarkers. Further studies, on a larger group of patients should be conducted.

## References

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