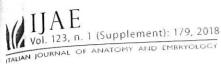
IJAE

Italian Journal of Anatomy and Embryology

Official Organ of the Italian Society of Anatomy and Histology

72° CONGRESSO della Società Italiana di Anatomia e Istologia 72TH MEETING of the Italian Society of Anatomy and Histology

Parma 20-22 september 2018



"and

:to¹, Felicia

, Valentina

no, Palermo,

ntributing

cer thera-

ts, There-

nal mush-

er, prebi-

; research

The aim

'ar. eryn-

ells). Cell

ntrations

27 levels

re evalu-

opically-

exia. We

and the

We sam-

nohisto-

viability

immu-

ient but

n the in

al com-

signifi-

sing for er pro-

py: an

tics: a

ovedrate

Molecular chaperones expression levels and localization in non-tumoral and tumoral thyroid tissues

Francesca Rappa^{1,2}, Celeste Caruso Bavisotto^{1,2}, Antonella Marino Gammazza^{1,2}, Fabio Bucchieri¹, Everly Conway de Macario³, Alberto J.L. Macario^{2,3}, Calogero Cipolla⁴, Giovanni Tomasello¹, Francesco Carini¹, Daniela Cabibi⁵, Claudia Campanella^{1,2}, Felicia Farina¹, Francesco Cappello^{1,2}

1Section of Human Anatomy, Department of Experimental Biomedicine and Clinical Neuroscience, University of

²Euro-Mediterranean Institute of Science and Technology (IEMEST), Palermo, Italy ³Department of Microbiology and Immunology, School of Medicine, University of Maryland at Baltimore-

Institute of Marine and Environmental Technology (IMET), Baltimore, Maryland, USA

*Department of Oncology, Division of General and Oncological Surgery, University of Palermo, Palermo, Italy ⁵Pathology Institute, Department BG. D'Alessandro^, University of Palermo, Palermo, Italy

Papillary thyroid carcinoma (PTC) is the most frequently occurring subtype of thyroid cancer. Exosomes (EXs) secreted from cells to the extracellular environment play an important role in intercellular communication in normality and pathology. Recent data indicates that tumor cells-derived EXs contribute to cancer progression through the modulation of tumor microenvironment [1]. Heat Shock Protein (HSPs) are often overexpressed during carcinogenesis and different studies shown that they can be released by tumors cells and that the mechanism of release is mediated by EXs pathway. In this project we performed an immunomorphological study to investigate Hsp60, 90,70,27 levels expression profile in thyroid tissue from patients with benign goiter (used as benign desease) and patients with PTC. Moreover for each patient, blood samples were collected before and a one week after surgery, to obtain EXs. We performed Western Blotting analysis to verify the presence and the levels of the same HSPs. The immunoistochemistry shown an overexpression of Hsp60,90 and 27 in the PTC cases comparison with peritumoral tissue and with goiter cases. Instead the Hsp70 levels showed no significant changes. In particular Hsp60, 90 and 27 were visible at cytoplasmic and membrane levels. Data regarding exosomal fraction assessment by standard methods (TEM, and WB analysis for Alix) to identify exosomes confirmed their identity. The levels of Hsp60, 90,27 in the exosomes of patients with PTC before surgery were significantly higher than in the exosomes from the same patients after surgery. The data obtained shown that, as demonstrated in other cancer type [2], the HSP levels studied increased in PTC specimens respect to goiter specimens. Moreover the membrane localization of these HSP suggested a their release in tumor microenviroment, in fact we observed exosomal HSP before surgery in PTC patients. The HSP decreases after surgery indicated that if disease recurrence occurs, HSP levels will increase again. For this reason we hipotized that chaperonins could be good candidates as biomarkers of PTC.

References

- [1] Campanella et al. (2015) Heat shock protein 60 levels in tissue and circulating exosomes in human large bowel cancer before and after ablative surgery. Cancer 121:3230-9.
- [2] Rappa et al. (2012) HSP-molecular chaperones in cancer biogenesis and tumor therapy: an overview. Anticancer Res. 32:5139-50.

Key words -

Papillary thyroid carcinoma, exosome, hsp.