

UNIVERSITÀ DEGLI STUDI DI SALERNO



Dipartimento di Medicina e Chirurgia

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XIV Ciclo

TESI DI DOTTORATO

La Pentraxina 3: un potenziale marcatore di danno endoteliale nell'ipertensione arteriosa

Coordinatore
Ch.ma Prof. Amelia Filippelli

Candidato
Albino Carrizzo

Tutor
Ch.mo Prof. Carmine Vecchione

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Abstract (ENG)

Background - The pentraxin 3 (PTX3) is a protein of the acute phase of inflammation which represents the prototype of the long pentraxins. In the last years, numerous studies have correlated the elevated plasma levels of PTX3 with cardio- and cerebrovascular diseases and recently with high blood pressure. To date, there are no studies showing whether PTX3 is able to exert a direct action on the vascular component. **Methods**

and Results - Through in vitro experiments of vascular reactivity and ultrastructural analysis, we have shown that PTX3 induces, *per se*, dysfunction and morphological changes in the endothelial layer through the the complex P-selectin / metalloproteinase-1 (MMP1). In vivo studies have shown that the administration of PTX3 in wild-type mice induces endothelial dysfunction and increased blood pressure, an effect which is absent in the P-selectin knockout mice. Finally, by ELISA technique, we demonstrated that hypertensive patients (n = 31) have higher plasma levels of PTX3, P-selectin and MMP1 compared to normotensive patients (n = 22).

Conclusion - Our data show, for the first time, the direct role of PTX3 on vascular function and blood pressure homeostasis, identifying the molecular mechanisms involved. The results obtained in humans, suggest that PTX3, P-selectin and MMP-1 may be new biomarkers to predict the onset of vascular dysfunction in hypertensive patients.