

Serum type XII collagen is elevated in patients with solid tumors and is upregulated in cancer associated fibroblasts (CAFs) and normal fibroblasts (NFs) upon TGF β treatment

Marina Crespo-Bravo^{1,2,*}, Annika Hettich^{1,2}, Jeppe Thorlacius-Ussing¹, Thomas R Cox^{3,4}, Morten A. Karsdal¹, Nicholas Willumsen¹

¹Nordic Bioscience, Herlev, Denmark,

²Department of Biomedical Sciences, University of Copenhagen, Copenhagen, 2200, Denmark

³Matrix and Metastasis Lab, Cancer Ecosystems Program, Garvan Institute of Medical Research and The Kinghorn Cancer Centre, Darlinghurst, NSW, Australia

⁴School of Clinical Medicine, UNSW Medicine & Health, UNSW Sydney, Sydney, NSW, Australia



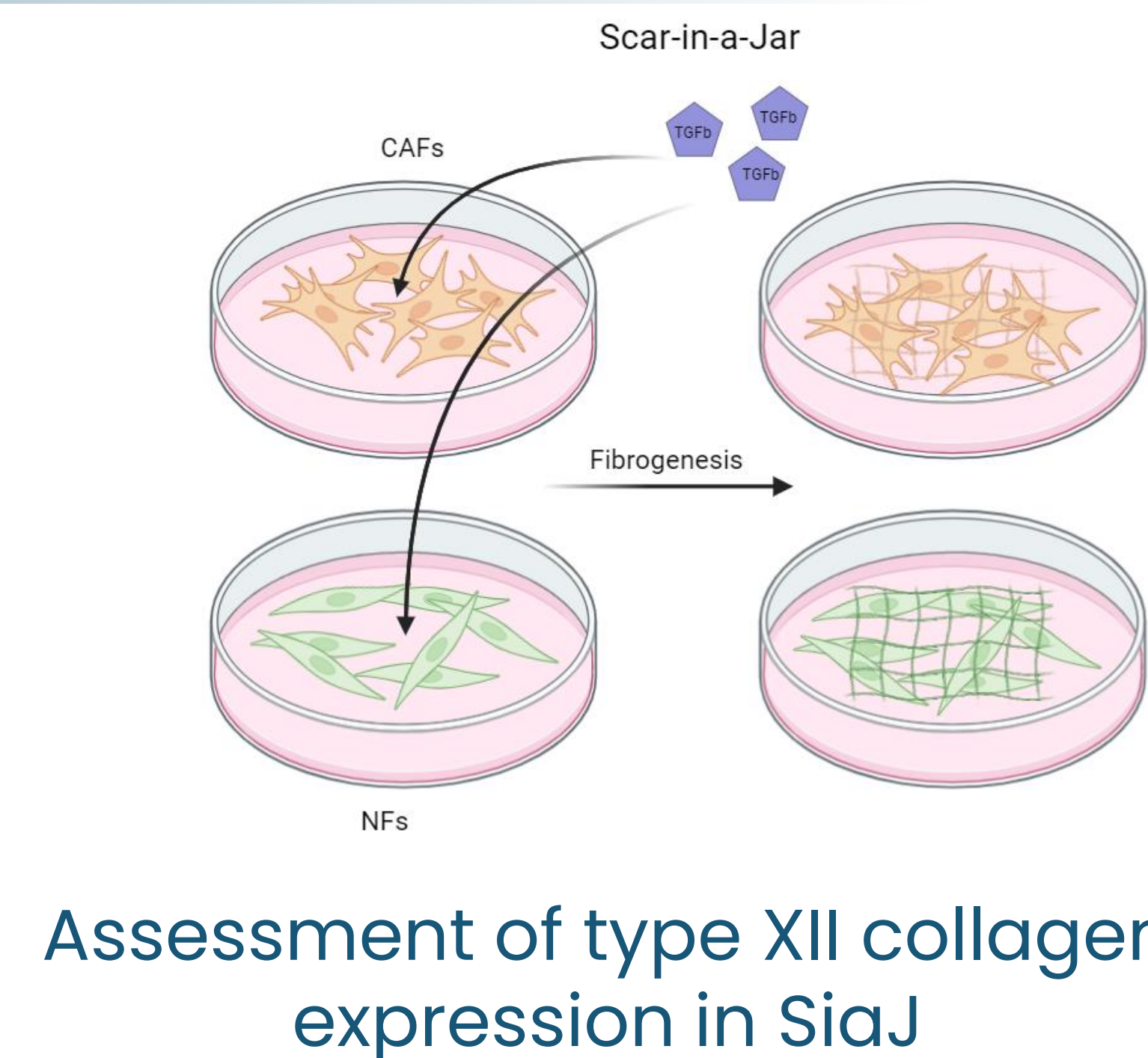
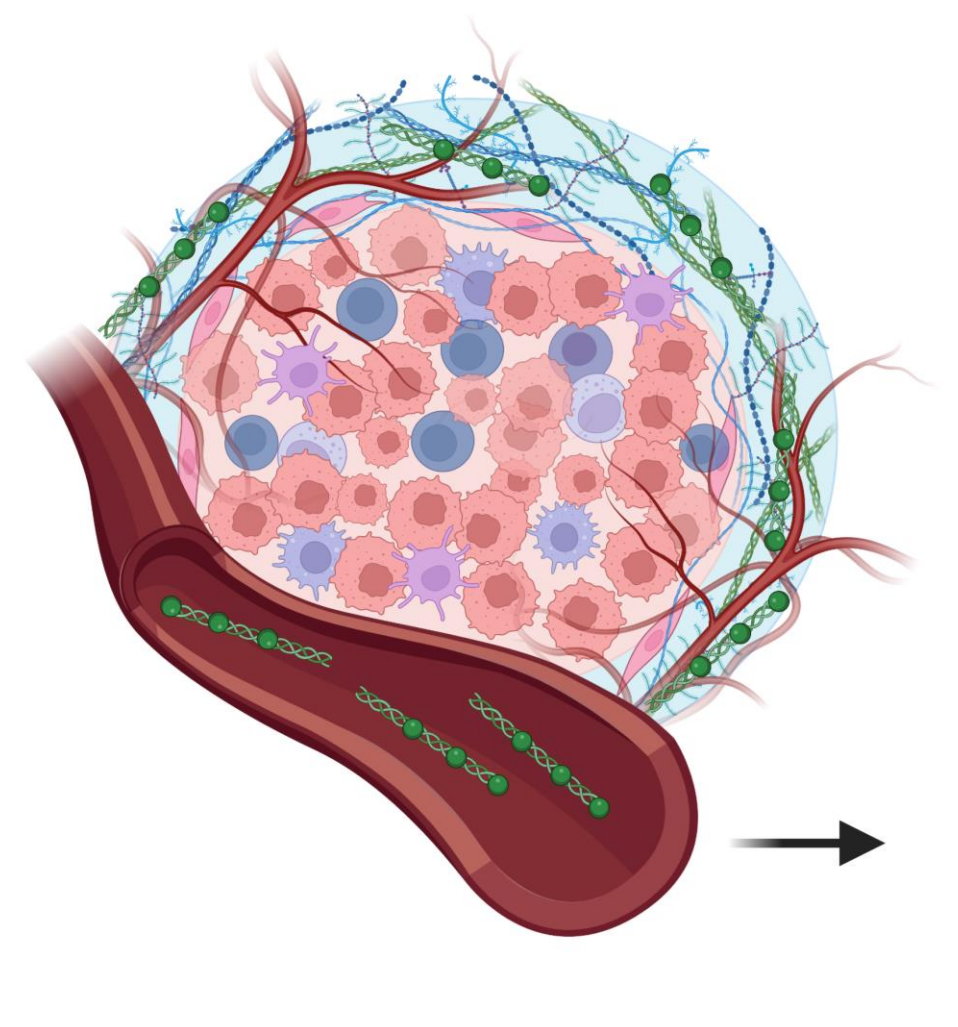
BACKGROUND

Understanding the tumor microenvironment (TME) and extracellular matrix (ECM) is crucial in cancer research due to their impact on tumor progression. Collagens, major ECM components, regulate cell signaling and behavior. type XII collagen is known to be vital for ECM organization. Over-produced by cancer-associated fibroblasts (CAFs), its upregulation correlates with poor survival in various cancers.

This study aimed to develop an ELISA for quantifying circulating type XII collagen as a cancer biomarker.

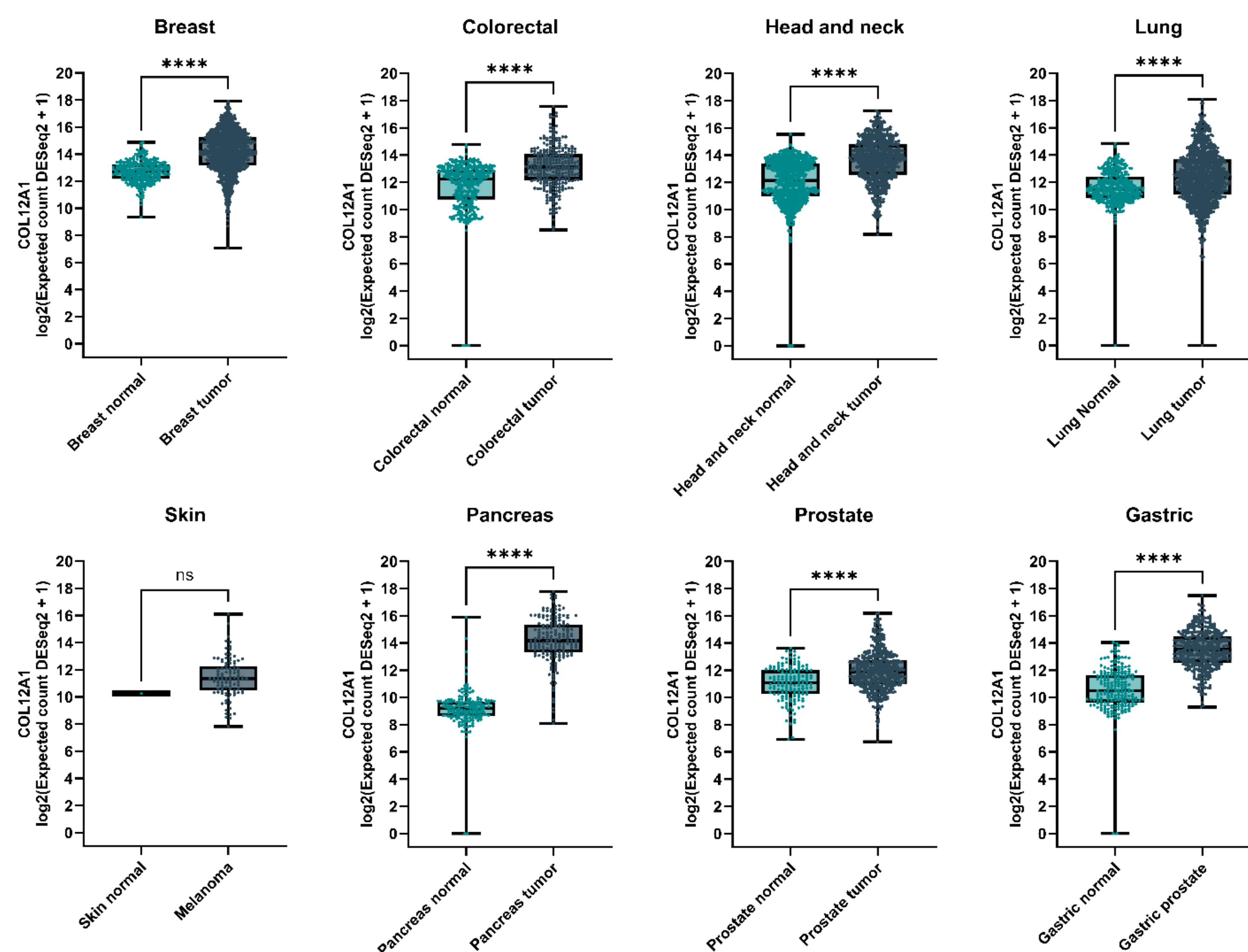
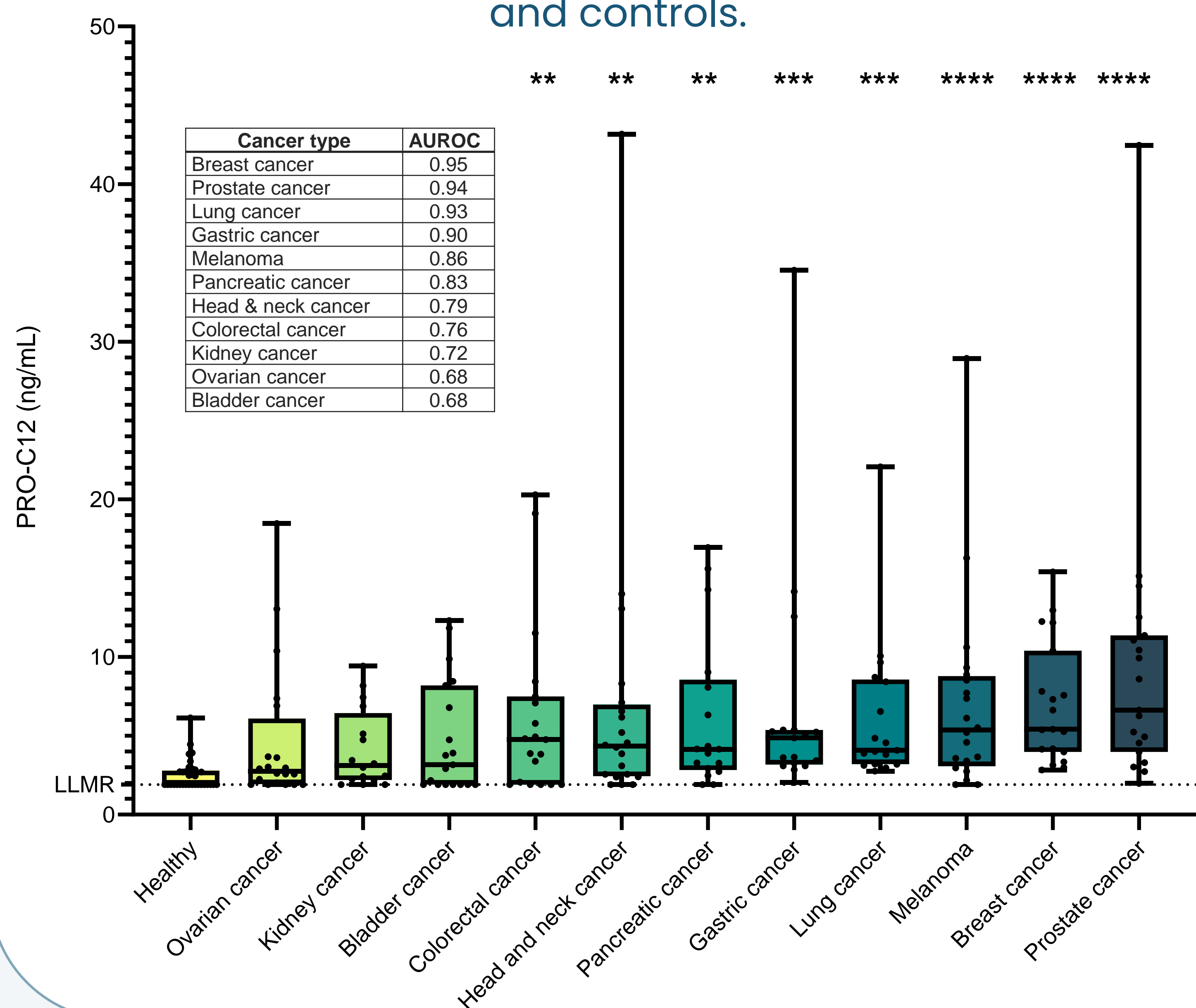
METHODS

Non-invasive measurement of type XII collagen \rightarrow **PRO-C12 ELISA**

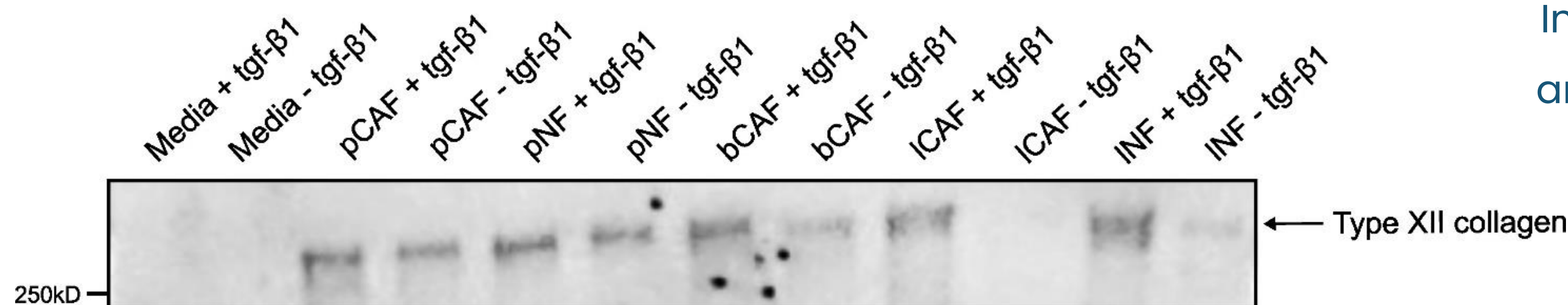


RESULTS

PRO-C12 levels were significantly elevated in patients with various cancers compared to healthy controls and effectively distinguished between cancer patients and controls.



Our findings were corroborated by matching the results with *COL12A1* gene expression data from TCGA and GTEx initiatives.



Increased type XII collagen expression in both CAFs and NFs upon TGF- β 1 stimulation \rightarrow **potential role of TGF- β 1 in modulating the expression of type XII collagen in cancerous and normal tissue microenvironments.**

* p<0.05 ; ** p<0.01; *** p<0.001; **** p<0.0001



Contact: Marina Crespo-Bravo, mcb@nordicbio.com

Disclosures: MAK and NWI are employed at Nordic Bioscience and may be shareholders.

CONCLUSION

This study unveils a promising avenue for harnessing PRO-C12 as a non-invasive serum biomarker, enabling the quantification of type XII collagen fragments in cancer patients. Further investigations are warranted to explore the potential of PRO-C12 across different cancer types and disease stages, shedding light on its multifaceted role in cancer development.