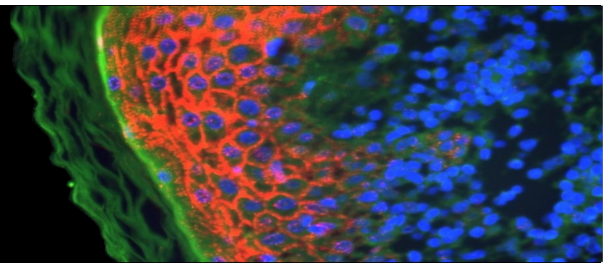
Navinci DIAGNOSTICS



Detection of Interactions Between Glycoproteins in Ovarian Cancer using Navinci Universal

Navinci Universal offers the next generation of *in situ* proximity ligation assays. It was developed to increase the sensitivity and efficiency of detection and will only generate signal after dual epitope binding of the probes. The kit is excellent for investigation of protein-to-protein interaction and can detect rare events which are amplified into clear visible signals. It can also increase the specificity of single protein detection or their post-translational modification by targeting two different epitopes on the same molecule.

MUC16 (CA125) and mesothelin in ovarian cancer

The mucin MUC16 (CA125) is a glycoprotein of high molecular weight which under normal conditions coats the apical surface of epithelial cells in the ovary. However, in ovarian cancer, MUC16 is overexpressed and the CA125 antigen can be measured in serum which is used as a diagnostic and prognostic marker for the disease . The protein appears to be involved in cell adhesion and can bind to the smaller glycoprotein mesothelin. Mesothelin is a cell-surface protein anchored to the cell membrane with a glycolipid and is also overexpressed in different epithelial cancers including ovarian cancer. The binding ability of serum MUC16 to mesothelin is higher in patients with ovarian cancer than with endometriosis and it has been suggested to have a role in the formation of metastases in ovarian carcinoma. Here we show how Navinci Universal is used to investigate the interaction between MUC16 and mesothelin in ovarian cancer tissue.

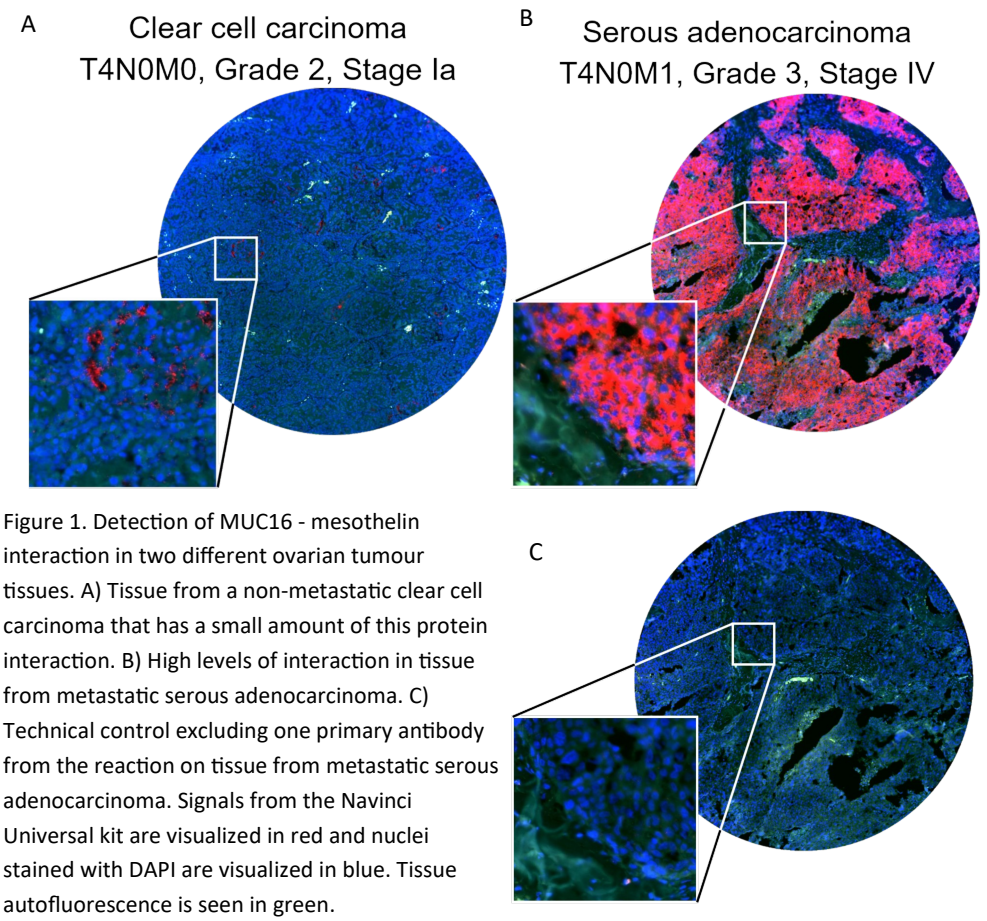


Figure 1. Detection of MUC16 - mesothelin interaction in two different ovarian tumour tissues. A) Tissue from a non-metastatic clear cell carcinoma that has a small amount of this protein interaction. B) High levels of interaction in tissue from metastatic serous adenocarcinoma. C) Technical control excluding one primary antibody from the reaction on tissue from metastatic serous adenocarcinoma. Signals from the Navinci Universal kit are visualized in red and nuclei stained with DAPI are visualized in blue. Tissue autofluorescence is seen in green.

Detecting the interaction of MUC16 and mesothelin in tissue

Interaction of MUC16 and mesothelin were compared in ovarian carcinomas of different grades and stages. The tissues were incubated with primary antibodies from two different species (mouse and rabbit) raised against MUC16 and mesothelin. Two different carcinomas visualized in figure 1 show the relatively low amount of interaction in the non-metastatic clear cell carcinoma (fig. 1A, Grade 2, stage Ia) compared to the metastatic serous adenocarcinoma (fig. 1B, Grade 3, stage IV) were we detect a high amount of interaction between MUC16 and mesothelin. Furthermore, the spatial information on where the signal is located is identified with Navinci Universal. E.g. in the clear cell carcinoma (fig. 1A) the signal appears to be located extracellularly while in the serous adenocarcinoma (fig. 1B) the signal appears membranous and potentially cytoplasmic. For technical control one of the primary antibodies were excluded (fig. 1C) on a consecutive cut from the serous adenocarcinoma tissue.

Conclusion

Navinci Universal is a simple to use kit that can be used to investigate interactions in both cells and tissue with a subcellular resolution.

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or visit us at our homepage: www.navinci.se