Spotlight

By Anne Forde

Glycopeptides Antibodies as Biomarkers in Bowel Cancer

Pedersen *et al.*
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Current screening methods for colorectal cancer are expensive and unpleasant for patients. Biomarkers offer a convenient alternative but glycoproteins such as CEA have relatively low specificities and sensitivities. One approach is to look for autoantibodies against posttranslational modifications in cancer cells that have escaped immune tolerance mechanisms.

The authors of this paper, Pedersen *et al.,* previously were able to identify cancer-specific autoantibodies to aberrantly glycosylated MUC1 mucin in a range of cancers. Here, they manage to create an array library that successfully presents a range of glycoproteins and peptides. It comprised glycosylated mucin fusion proteins and short synthetic peptides from 6 different human mucins that are known to be expressed aberrantly in cancer. Sera from 58 colorectal cancer patients and healthy controls were screened for autoantibody reactivity against the library.

IgG and IgA autoantibodies against various aberrant glycopeptides derived from MUC1 and MUC4 were identified in patients which, combined, resulted in a sensitivity of 79% and a specificity of 92%. The presence of these epitopes was confirmed in colorectal tissue samples using specific monoclonal antibodies generated for the purpose.

Interestingly, the cancer-associated autoantibodies identified were directed against a combined glycopeptide posttranslational modification: not the peptide backbone or the carbohydrate residue alone. This study shows the power of identifying new biomarkers. The use of this array methodology that successfully displayed the authentic epitopes could be used to pinpoint further posttranslational modifications that could be important diagnostic biomarkers.