

## TENOMODULIN MRNA LEVELS ARE CORRELATED WITH SERUM AND MRNA LEVELS OF INFLAMMATORY MARKERS - THE GENOBIN STUDY

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We have shown that tenomodulin (TNMD) mRNA-levels decrease along weight reduction, and correlate with insulin resistance and that SNPs of the TNMD gene associate with the risk of type 2 diabetes (T2DM) and central obesity. TNMD contains a Brichos-domain suggesting a chaperone-like function. Chaperones contribute in inflammation, present in obesity, insulin resistance and T2DM. The aim was to examine the possible relationship between TNMD and inflammatory markers in subjects with metabolic syndrome.

Seventy-five overweight or obese subjects aged 60±7 years with impaired fasting glucose or impaired glucose tolerance and two other features of metabolic syndrome underwent a 33-week lifestyle intervention. Fasting serum cytokines and acute phase proteins (IL-6, IL-10, sensitive C-reactive protein (sCRP) and amyloid A (SAA)) were measured. Total RNA extracted from subcutaneous abdominal adipose tissue (AT) and peripheral blood mononuclear cells (PBMCs) was converted to cDNA for quantitative real-time PCR analysis.

TNMD mRNA was detected only in AT. In men, TNMD expression correlated positively with serum concentrations of IL-6 ( $r=0.41$ ,  $p=0.019$ ) and sCRP ( $r=0.34$ ,  $p=0.048$ ) at baseline. An inverse correlation was observed between baseline TNMD expression and change in AT SAA expression ( $r=-0.46$ ,  $p=0.018$ ). In women, the TNMD expression levels correlated positively with AT SAA expression ( $r=0.35$ ,  $p=0.045$ ), and negatively with PBMC IL-10 expression ( $r=-0.42$ ,  $p=0.033$ ) at week 33. All correlations were BMI-independent.

The negative correlation between TNMD and anti-inflammatory IL-10 and positive correlations between TNMD and pro-inflammatory IL-6 and acute phase proteins suggest that TNMD may be involved in inflammation related to obesity, metabolic syndrome and T2DM.