

A novel monoclonal antibody against embryonic shark cartilage proteoglycans has been produced and characterized in our laboratories. The earlier investigation showed that it recognized the chondroitin sulfate C (CS-C, chondroitin 6-sulfate). Further investigation using the micro-array oligosaccharides, a novel oligosaccharide sequencing technique and computer modeling showed that WF6 epitope contained DCCC and CCAD oligosaccharide sequences (Figure 1). This antibody was applied to use as a biomarker for cartilage degradation both *in vitro* and *in vivo* studies.

The determination of the WF6 epitope level in normal human serum demonstrated that it was the age related changes. This epitope's level was also significantly higher in serum samples of arthritis, anterior cruciate ligament damage, animal model of hydrocortisone intra-articular injection, anterior cruciate ligament transection model and genetic disease of hip-dysplasia (dog), than aged match normal samples. It was also used to investigate the cartilage degradation in the explant cartilage culture induced by interleukin-1 β model.

The intervention of cartilage degradation and molecular mechanism of gene expressions by novel substances of semi-synthetic chitosan polysulfate and Thai medicinal plant extracts will be presented.

Keywords: Monoclonal antibody, chondroitin sulfate epitope, cartilage degradation, biomarker, Thai medicinal plant extract