

P040 Opticin is an endogenous inhibitor of angiogenesis that interacts with the $\alpha 2\beta 1$ integrin.

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The glycoprotein opticin is associated with the collagen fibrils of the normally avascular vitreous. *In vivo* models have shown that opticin inhibits preretinal neovascularisation (i.e. pathological vascularisation of the vitreous humour) in a concentration-dependent manner and tumour-driven angiogenesis. Furthermore, *in vitro* studies revealed that opticin inhibits capillary morphogenesis by endothelial cells (ECs) in 3D matrices such as Matrigel™ and collagen. Here we show that opticin in solution alters the morphology of ECs spread on collagen. Opticin co-localised with the collagen-induced $\alpha 2\beta 1$ integrin clusters at adhesion contacts prior to their disassembly and disorganisation of the actin network. Cell-based assays indicated that opticin supported EC spreading in an $\alpha 2\beta 1$ integrin- and cation-dependent manner and solid-phase studies demonstrated that opticin binds directly to the A-domain of the $\alpha 2\beta 1$ integrin. Use of monoclonal antibodies raised against the $\alpha 2A$ -domain in cell-based assays indicated that opticin and collagen share a similar binding site on this domain. Together, these data suggest that opticin may act as a negative regulator of the pro-angiogenic signalling of collagen via the $\alpha 2\beta 1$ integrin.