Divergent effects of the major mast cell products histamine, tryptase and TNF-alpha on human fibroblast behaviour.

Fibroblast proliferation is a key process in tissue remodeling and mast cells (MCs) are thought to play a crucial role. Having established that the three major MC products, tryptase, histamine and TNF-alpha (TNF) are normally present in human skin MCs, which are in close proximity to dermal fibroblasts, we studied their individual effects on cell cycle-controlled human dermal fibroblasts (HFFF2). These cells express receptors (H1, PAR2, TNFR1/2) for the major MC mediators, but only tryptase or a PAR2 agonist peptide stimulated proliferation and gene expression. TNF was antimitic, and histamine, while elevating intracellular Ca2+ levels at high concentrations, did not affect proliferation. We conclude that MC products but also composition and numbers of respective receptors on fibroblasts are crucially responsible for fibroproliferative events.