

HLA-G molecules are constitutively expressed by human synovial fibroblasts and up-modulated in osteoarthritis

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Objective HLA-G molecules are non classical HLA class I antigens expressed as membrane bound and soluble isoforms (sHLA-G) with a restricted tissue distribution and anti-inflammatory functions [1]. Osteoarthritis (OA) is a complex degenerative disease that affects articular cartilage components and causes damage to the entire joint structure including synovium [2]. Since inflammation is involved in the pathogenesis of OA, we have analyzed the expression and the production of HLA-G molecules in “in vitro” cultured synovial fibroblasts (SFs) from OA patients and control subjects.

Design We have analyzed the levels of sHLA-G1 and HLA-G5 isoforms by immunoenzymatic assay (ELISA) in the SFs culture supernatants from six OA patients and six control subjects during a 70 day “in vitro” cultures in the presence and in the absence of lipopolysaccharide (LPS) or recombinant IL-10 (rIL-10). We have confirmed HLA-G modulation by cytofluorimetry and immunofluorescence.

Results Data in ELISA have demonstrated the spontaneous production of sHLA-G molecules by both OA and control SFs. The expression has been confirmed by cytofluorimetry and immunofluorescence. OA SFs produce higher levels of sHLA-G1 and HLA-G5 molecules during the first 23 days of culture in comparison to control SFs. The sHLA-G1 levels further increase over the next 20 days of “in vitro” culture. After LPS and rIL-10 treatments, sHLA-G secretion increases in a similar manner in both OA and control SFs.

Conclusions The production of sHLA-G1 molecules, constitutively expressed by control and OA SFs, is significantly higher in OA than in control SFs, suggesting that these molecules represent a possible molecular target to counteract the synovial joints inflammation.

References

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- [2] Rousseau JC et al. (2007) *Nat Clin Pract Rheumatol*. 3:346–56.

Key words

Synovial fibroblasts, HLA-G, osteoarthritis, IL-10, inflammation