The role of lactoferrin in the nonspecific immune response on the ocular surface.

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Abstract
Lactoferrin is an iron binding glycoprotein which is abundantly present in human tear fluid. It is also present in other secretions and in the specific granules of the polymorphonuclear leucocyte. The main biological properties of lactoferrin can be ascribed to its very strong binding of iron cations. Receptors for lactoferrin have been found in the intestinal brush border, suggesting that it may play a role in iron absorption from the gut. Macrophages also have a receptor for lactoferrin, which are possibly involved in the transfer of iron to ferritin. More important may be the fact that deprivation of iron from the gut or from the ocular surface limits the availability of iron to microorganisms and thus exerts firm control of the bacterial flora at these sites. Sequestration of iron by this protein can also inhibit the iron catalyzed production of hydroxyl radicals thereby protecting mucosal surfaces from oxydative damage. Lactoferrin has furthermore been shown to play a role in myelopoiesis, primary antibody response, lymphocyte proliferation, cytokine production, ADCC, NK cell activity, and regulation of complement activation.

The observations described above indicate that lactoferrin, besides control of the bacterial flora, may regulate inflammatory reactions occurring on the ocular surface.

PMID: 2129604 [PubMed - indexed for MEDLINE]