Lactoferin (La) is an 80-kDa iron-binding glykoprotein. It shares a high degree of homology at amino acid sequence level and also the three dimensional conformation level with transferin. Afinity of Lf to iron is about 260times higher than that of transferin. Lf is present physiologically in exocrine secretions, eg.: tears, saliva, milk, sinovial fluid, seminal fluid and in the secondary granules of neutophils. The precise function of Lf in organism is considered to be very complex and is still a hot subject of scientific disputation. Lf was documented to act as antimicrobial, antiinflamatory and antitumoral agent. These effects are probably based on its iron chelating properties. Similarly La inhibits hydroxyl radical formation via Fenton reaction due to chelation of free iron.

The catecholamine model of myocardial injury, represented by administration of synthetic catecholamine isoprenaline (ISO), posseses many pathophysiological similarities with acute myocardial infarction (AMI). The only possibility for myocardial tissue recovery in AMI represents the reperfusion of ischaemic myocardium. But this process is associated with tissue derangement due to burst of hydroxyl radical catalyzed by free iron (Fenton reaction). Therefore La has been proposed to have potentially positive effects in a catecholamine model of myocardial injury.

In our experiment we studied the influence of Lf on histological features of rat catecholamine model of myocardial injury. Animals were randomly divided into four groups: Control group (saline 1ml kg^{-1}), ISO group (ISO s.c. 100 mg kg^{-1}), La group (La i.v. 50 mg kg^{-1}), lactoferrin+isoprenaline group (i.v. lactoferrin 5 min. before s.c. application of isoprenaline). The myocardial tissue was removed at the end of the experiment and histopathologically analyzed. Normal structure of myocardium was observed in the control group and in the lactoferrin group. Significant pathological changes of the whole myocadium was found in both isoprenaline and isoprenaline+lactoferrrin treated groups. We observed interstitial oedema, inflamatory infiltrate, myocytes with eosinophilic cytoplasm and nuclei changes (pyknosis). The conclusion was, that administration of lactoferrin did not affect morphological changes in myocardium induced by isoprenaline.

The results of our work can be usefull for further study of protective effect of Lf on ischemia-reperfusion injury. It could be useful to improve the farmacokinetics of Lf. The work was supported by Charles University, grant No GA UK 94/2006/C/Faf.