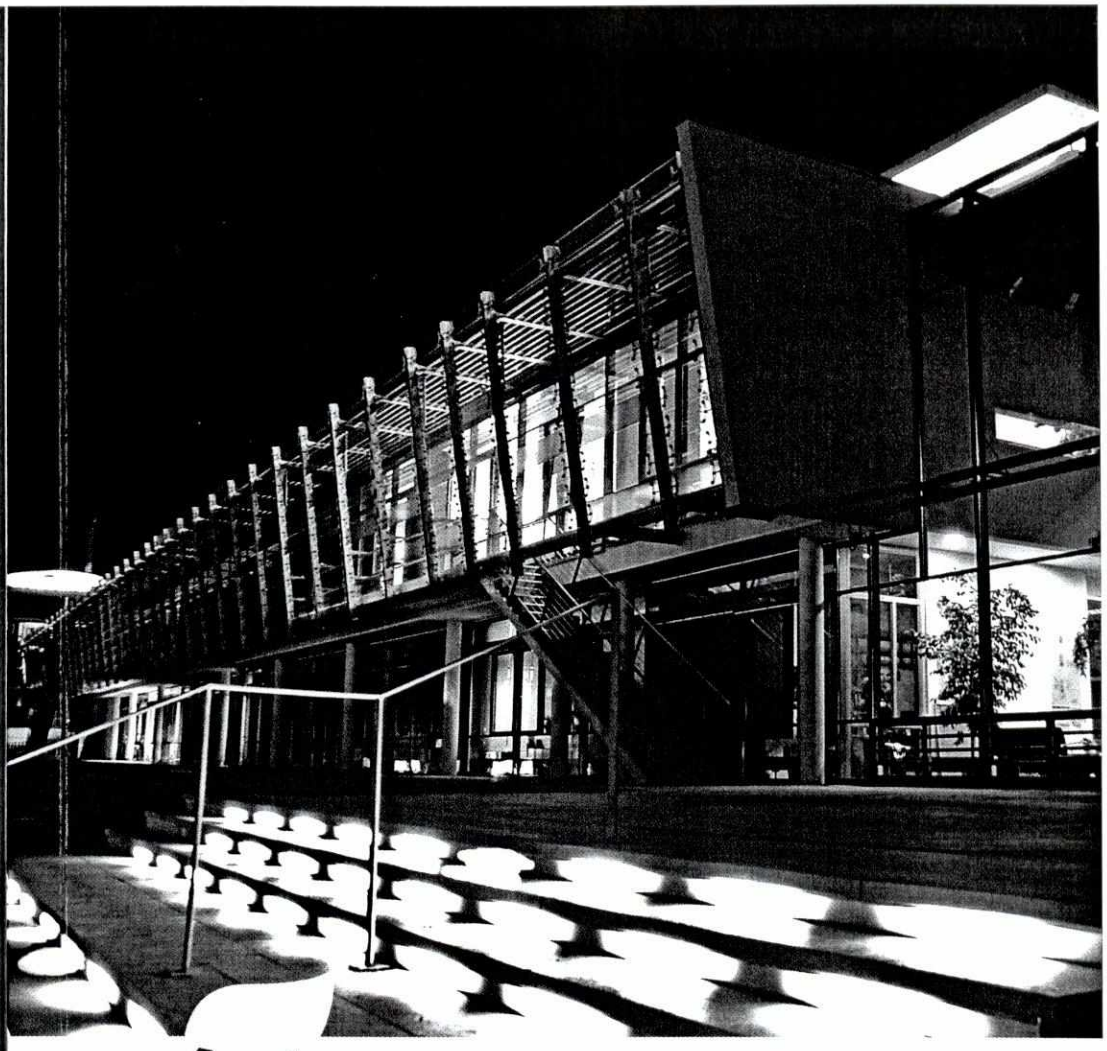

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ntitative determination · diagnosis of anemia

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stasis of iron metabolism in the human
se from duodenal enterocytes, macro
from these cells by binding to ferropor
< of hepcidin- ferroportin is internalized
/, ferroportin loses the ability to export
of this regulatory axis leads to various
of the potential markers for differentia

s a single-step adsorption to the solid
arried out on a reverse phase column
iepcidin expression is detected by SRM
alibration curve is obligatory for exact
od is much faster and robust than com

e accurate diagnosis of anemia by pro
bolism.

nal grant Faculty of Medicine and Dentistry,
part of this project (Institute of Molecular and
l Programme Research and Development for

Changes in proteomic profile of blood plasma of rats after low-level laser therapy

10% 5% 5% 4% 4% 10%
V. Kováčová¹, P. Bober¹, M. Chmelová¹, I. Talian¹, J. Hrubovčák³, D. Petrášová², I. Géci¹, J. Sabo¹ 5%.
60%

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Keywords: blood plasma, two- dimensional gel electrophoresis, proteomics, laser therapy, mass spectrometry.

The laser radiation absorbed by living cells induces the production of reactive oxygen species (ROS). Proteins are major targets for ROS due to of their abundance in biological systems and they are primarily responsible for the most functional processes in cells.

We monitored changes of acute phase proteins (APP) in blood plasma of rats after application of low-level laser therapy (LLLT). The rats were divided in two groups. One group was the control group without irradiation. Rats of second group were irradiated from dorsal side during 9 days by laser diode (wavelength 830 nm , power density 450 mW/cm2, dose 60 J/cm^2 per day). The animals were anesthetized and blood samples were isolated from heart. Blood was separated into individual fractions. Proteins from top fraction of blood (the plasma) were analysed using bottom up approach . Proteins from blood plasma were first separated by two dimensional gel electrophoresis. Gels from electrophoresis were analysed by program PDQuest and individual proteins were identified by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry.

Proteomic analysis of blood plasma showed changes in abundant proteins such as haptoglobin , hemopexin, α-1-antitrypsin and fibrinogen gamma, fetuin A, fetuin B. The increase of positive APP hemopexin (20-70 %) and alpha 1-antitrypsin (40-100 %) was found in irradiated rats in comparison with non-irradiated rats. The biggest increase was shown in case of haptoglobin (520-570 %). At the same time the decrease of the negative phase proteins was observed, namely fibrinogen gamma decreased by (20-40 %), fetuin A by (10-30 %) and fetuin B by (40-50 %). APP are potential variables for monitoring the changes induced by LLLT.

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