GALECTIN-8 INCREASES EXTRAVILLOUS TROPHOBLAST CELL MIGRATION

Janko Legner[1], Žanka Bojić-Trbojević[1], Milica Jovanović Krivokuća[1]

[1]Institute for Application of Nuclear Energy, INEP, University of Belgrade, Belgrade, Serbia

Introduction

Trofoblast cells are the specific cells of the placenta, organ necessary for the growth and development of the fetus. During the first trimester of pregnancy extravillous trophoblast cells undergo differentiation which leads to the invasion of trophoblast cells into the maternal decidua and subsequent remodeling of the uterine spiral arteries. This complex and controlled physiological process at the feto-maternal interface involves various molecules including galectins.

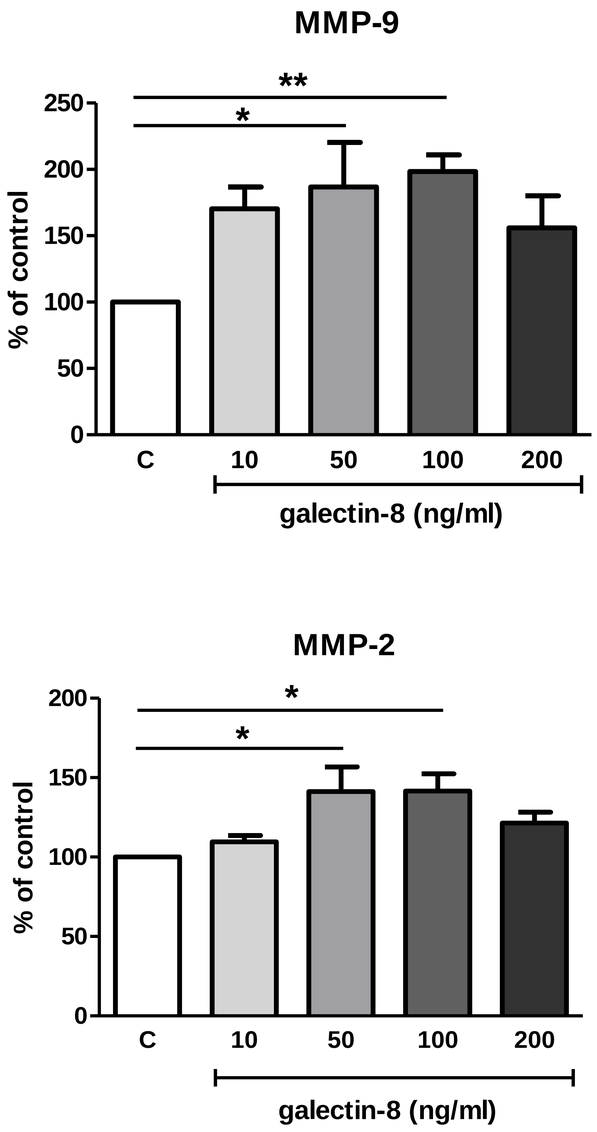
Galectin-8 is expressed by extravillous trophoblast cells throughout the invasive pathway of trophoblast differentiation, where it may play a role in the organization of extracellular matrix and the modulation of cell adhesion. No direct data, however, are yet available regarding its involvement in trophoblast function.

This study was conducted to investigate the effects of exogenously added rhGal-8 on extravillous trophoblast cell line HTR-8/SVneo cell viability, cell migration and production of crucial molecular mediators of trophoblast invasion - matrix metalloproteinases (MMP)-2 and -9.

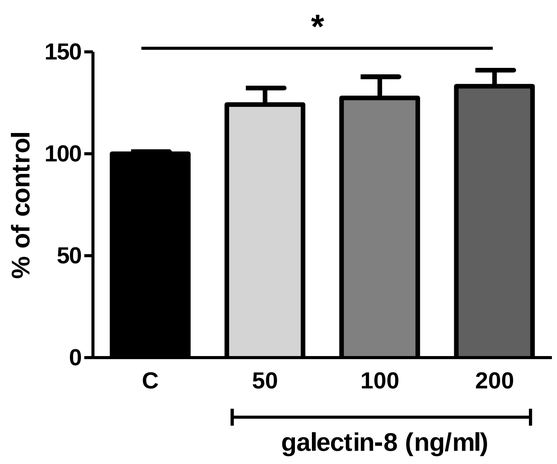
Material and methods

- Cells- Extravillous trophoblast cell line HTR-8/SVneo derived from first trimester placental tissue explants was used as a model
- Cell viability was assessed by MTT assay
- Cell migration was measured using a wound healing „scratch“ assay
- Levels of MMP-2 and MMP-9 were determined semi-quantitatively by SDS-PAGE gelatine zymography and subsequent densitometric analysis of obtained zymograms

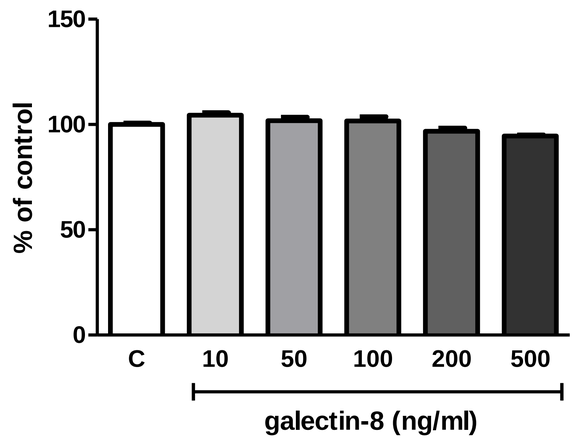
Results



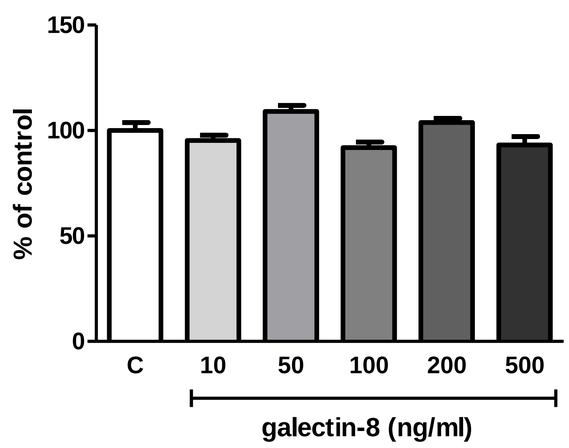
The effect of galectin-8 on the levels of MMP-2 and MMP-9 in HTR-8/SVneo cell conditioned media following 24h of treatment. Data are expressed as mean+SEM. *p<0.05; **p<0.01



The effect of galectin-8 on HTR-8/SVneo cell migration following 24h of treatment. Data are expressed as mean+SEM. *p<0.05



The effect of galectin-8 on HTR-8/SVneo cell viability after 24h of treatment. Data are expressed as mean+SEM.



The effect of galectin-8 on HTR-8/SVneo adherent cell number after 24h of treatment. Data are expressed as mean+SEM.

Conclusion

Exogenously added rhGal-8 enhanced migration of HTR-8/SVneo cells *in vitro*, but had no effect on cell viability or adherent cell number. Based on these findings it can be proposed that rhGal-8 might exert stimulatory effect on trophoblast cell migration, mediated at least in part through the increase of MMP-2 and MMP-9 gelatinolytic activity.

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