**Galectins in cancer: jacks of all trades**

Roy Heusschen1, Iris Schulkens2, Joséphine Muller1, Arjan Griffioen2, Yves Beguin1, Victor Thijssen2,3, Jo Caers1

1Laboratory of Hematology, GIGA-Research (B34), University of Liège, Avenue de l’Hopital 1, Liège, Belgium; 2Angiogenesis Laboratory, Department of Medical Oncology, VU University Medical Center; 3Department of Radiation Oncology, VU University Medical Center, Amsterdam, the Netherlands

E-mail: r.heusschen@ulg.ac.be

Galectins are a family of proteins characterized by the presence of one or two carbohydrate recognition domains that enable galectins to bind to beta-galactoside containing glycoconjugates. Aberrant galectin expression has prognostic value for patient survival in several malignancies and individual galectin family members have been shown to exert multiple roles in the context of tumor biology. We previously reported on the regulation of galectin expression during endothelial cell activation1. Here, we show increased galectin-9 protein levels in the endothelium of different tumors types2. Endothelial cells were found to express 5 galectin-9 splice variants, two of which have not been reported before. The expression of these splice variants appears to be differentially regulated upon endothelial cell activation. The function of galectin-9 isoforms in endothelial cell biology appears to depend on the concentration and the environmental context in which they are presented to the cells. Finally, we propose a model in which a decrease in intratumoral galectin-9 levels confers resistance to apoptosis and facilitates metastasis while galectin-9 in the tumor vasculature maintains its role in angiogenesis and tumor immune escape3.

(1) Thijssen et al., Am J Pathol 172(2):545-53, 2008; (2) Heusschen et al., Biochim Biophys Acta 1842(2):284-92, 2014; (3) Heusschen et al., Biochim Biophys Acta 1836(1):177-85, 2013