

Galectin-3 as a Potential Biomarker for Liver Regeneration and Transplant Outcomes

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Purpose of this study was to compare plasma Galectin-3 levels between deceased liver donors and healthy subjects, and investigate the co-expression of Galectin-3 and cell cycle markers in liver tissues from patients with liver cirrhosis.

Methods: Invitrogen Human Galectin-3 ELISA kit was used to analyze circulating levels of Galectin-3 in sera of healthy donors (n = 10) and deceased liver donors (n = 64) collected immediately prior to graft procurement. Unpaired t-test was performed and a p-value <0.05 was considered to be of statistical significance.

Liver tissue samples from patients with liver cirrhosis were stained for DAPI, Galectin3, Ki67 CyclinD1, EPCAM, p21, and p53 and analyzed using inForm® software.

Results: Deceased donors had significantly higher levels of serum Galectin-3 (mean 17.1659 ng/ml, standard deviation 7.525991) in comparison to healthy controls (mean 11.4919 ng/ml, standard deviation 4.480911). Preliminary data shows that in a cirrhotic liver galectin 3 co-localizes with known cell cycle suppressors including p53 and p21. At the same time, regenerative nodules that express EPCAM, a marker of pluripotency, show low levels of Galectin-3.

Conclusion: Galectin-3 is a known inflammatory marker. Here, we are showing that it could also be involved in the regulation of cell cycle in the regenerative liver nodules. This, along with its pro-inflammatory effects could significantly contribute to the outcomes in liver transplant recipients and liver regeneration in patients with chronic diseases.