LONG NON-CODING RNA, MGAT3-AS1, IN KIDNEY DISEASE AND PREDICTION OF ALLOGRAFT FUNCTION

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Background
Long non-coding RNA may modulate DNA, RNA, and proteins, may affect specific RNA transcription processes and cellular functions. It is unknown whether there are changes of long non-coding RNA with underlying kidney diseases, i.e., glomerulonephritis or diabetic nephropathy. The main objective of our project was to investigate the intronic antisense long non-coding RNA, 1,4-mannosylglycoprotein 4-N-acetylgalcosaminytransferase antisense RNA1 (MGAT3-AS1), in mononuclear cells from patients at the first postoperative day after kidney transplantation.

Conclusions
Long non-coding RNA, MGAT3-AS1, may modify the clinical outcome after renal transplantation.

Results
The expression of MGAT3-AS1 was similar in patients with glomerulonephritis, diabetes mellitus, hypertension, interstitial nephritis, polycystic kidney disease, and others/unknown (p=0.81; Kruskal-Wallis test: Figure 1). In 80 patients with glomerulonephritis we observed a correlation of MGAT3-AS1 with the relative fall of plasma creatinine at the first postoperative day (Spearman r=-0.23; p<0.05), but not in 22 patients with diabetes mellitus (Spearman r=0.19; p=0.39). In the entire group we observed a correlation of MGAT3-AS1 with estimated glomerular filtration rate (eGFR) 6 months after transplantation (Spearman r=0.18; 95% CI -0.32 to -0.03; p<0.05).

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Methods
We prospectively investigated 209 incident kidney-graft recipients with AB0-incompatible living donors, living donors, and deceased donors at the first postoperative day. MGAT3-AS1 levels were measured in mononuclear cells using qRTPCR.

Figure 1. Box-and-whiskers (5 to 95% percentile) plot depicting MGAT3-AS1 in mononuclear cells in incident kidney transplant recipients according to underlying kidney disease.