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LST 3TM12 a genetic relict or a real transporter?

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Organic Anion Transporting Polypeptides (OATP) function as uptake transporters. Particularly the subfamily of OATP1B proteins are well known for their role in hepatic drug metabolism. Indeed, OATP1B1 and OATP1B3 are established determinants with significant clinical influence on pharmacokinetics of substrate drugs. A previously conducted chromosomal analysis revealed an additional gene locus in the area of the two human OATP1B transporters annotated as SLCO1B7. Furthermore, SLCO1B7 has been assumed to be a pseudogene and is a component of an mRNA sequence entitled as LST-3TM12 which consists the beginning of SLCO1B3 and the main part of SLCO1B7. However, preliminary data from the laboratory of Biopharmacy in Basel suggest transcriptional activity. We hypothesized that the mRNA sequence LST-3TM12 could have the same promotor as SLCO1B3, because they start with the same sequence. For this we investigated the 5'UTR. With the methods of RACE, we were able to confirm that the gene SLCO1B7, which is a substantial part of the chimeric mRNA, gets transcribed. However, we failed to sequence the 5'UTR. In a trial while using real-time qPCR we have observed by 48 hours treatment-time an induction through CDCA and an inhibition through triiodothyronine of LST-3TM12 in Huh-7 cells. Under the same conditions we have discovered a similar expression-behavior of SLCO1B3. This brings us closer to the hypothesis that we have shared promotors, but we still need more repeats of the experiment to verify these findings. We also investigated on the protein level with western blot. There we had probably not enough specific antibodies to detect our gene. With this insufficient outcome we cannot testify that those genes are translated. To summarize, it requires more studies to collect information that the mRNA sequence LST-3TM12 encode for a functional transporter.

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