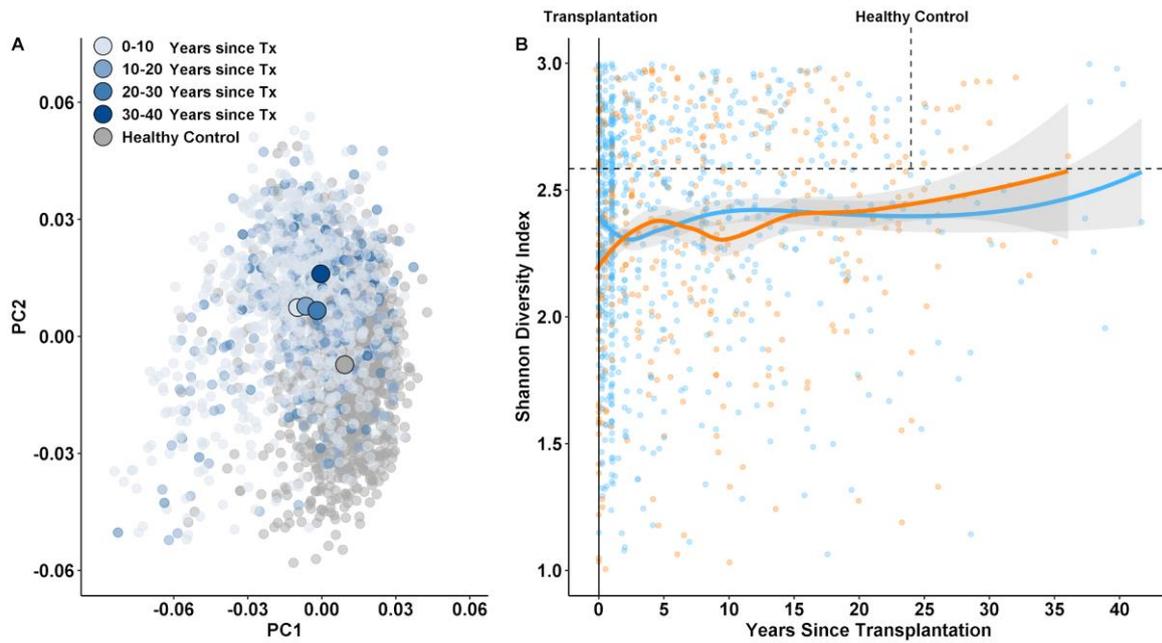
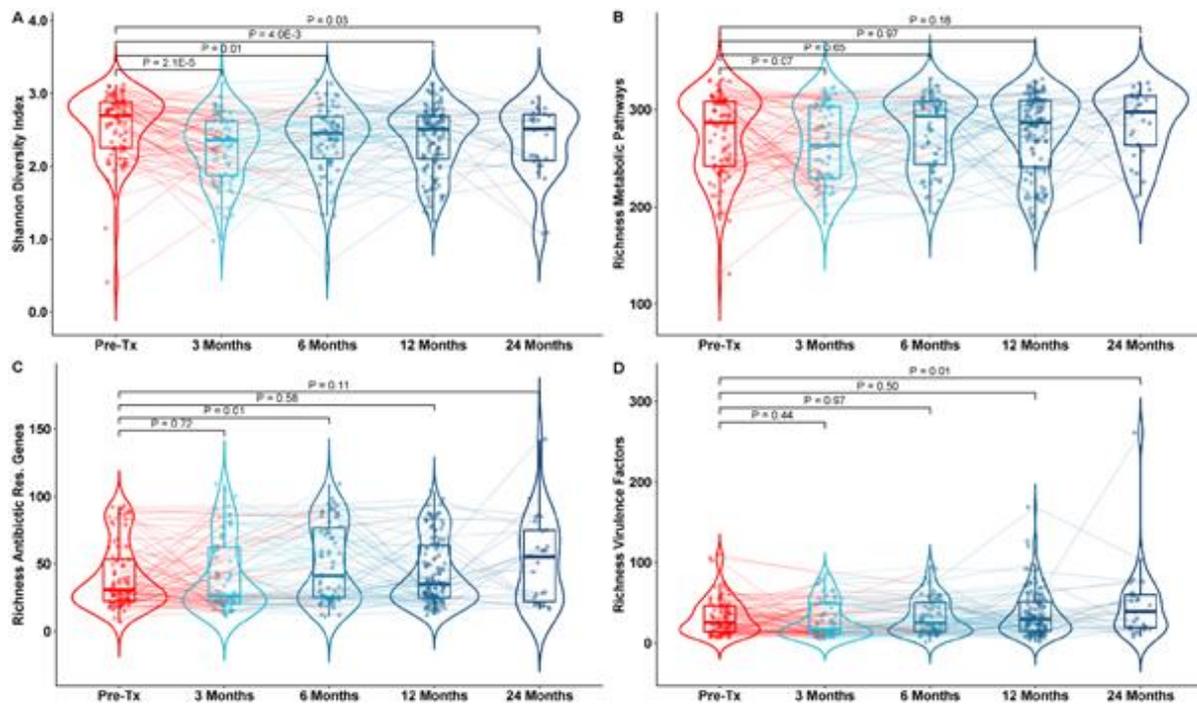


Supplementary Figure 1. Overview of Shannon diversity index analysis in different patient groups. **A**, Violin plot depicting the difference in Shannon diversity index between ESRD patients and HC (Wilcox, $P = 0.98$). **B**, Violin plot depicting the difference in Shannon diversity index between ESLD patients and HC (Wilcox, $P = 1.2 \times 10^{-12}$) **C**, Violin plot depicting the difference in Shannon diversity index between ESRD patients with a high and low MELD score (Wilcox, $P = 0.41$). **D**, Violin plot depicting the difference in Shannon diversity index between ESRD patients with Child-Pugh score B and C vs. A (Wilcox, $P = 0.72$, $P = 0.11$, respectively). **E**, Violin plot depicting the difference in Shannon diversity index between different transplantation indications for ESRD patients, only significant differences were indicated with a P-value (Wilcox, $P = 0.12$). **F**, Violin plot depicting the difference in Shannon diversity index between different transplantation indications for ESLD patients, only significant differences were indicated with a P-value (Wilcox, $P = 0.22$, $P = 1.8 \times 10^{-3}$).



Supplementary Figure 2. Ordination of all samples in relation to time since transplantation **A**, Principal component analysis using the Aitchison dissimilarities on the species levels for time since transplantation in years. The gut microbiome stays dysbiotic up to 20 years post-transplantation. **B**, the Shannon diversity index is depicted against the time post-transplantation. The median diversity for healthy controls is depicted by the dotted line. For LTR the diversity of the gut microbiome initially increases post-transplantation, whereas for RTR the diversity decreases in the first years post-transplantation. In the long-term follow-up after transplantation the Shannon diversity index tends to normalize compared to HC, but it remains significantly lower (Wilcox, $P < 3.1 \times 10^{-9}$). Tx: transplantation.



Supplementary Figure 3. Overview of Shannon diversity index analysis in the longitudinal RTR dataset. Significant was tested using a linear mixed model with patient as a random effect and sampling point as fixed effect. **A**, Violin plot depicting the difference in Shannon diversity index between pre- and post-transplantation time points. **B**, Violin plot depicting the difference in metabolic pathway richness between pre- and post-transplantation time points. **C**, Violin plot depicting the difference in antibiotic resistance gene richness between pre- and post-transplantation time points. **D**, Violin plot depicting the difference in virulence factor richness between pre- and post-transplantation time points.