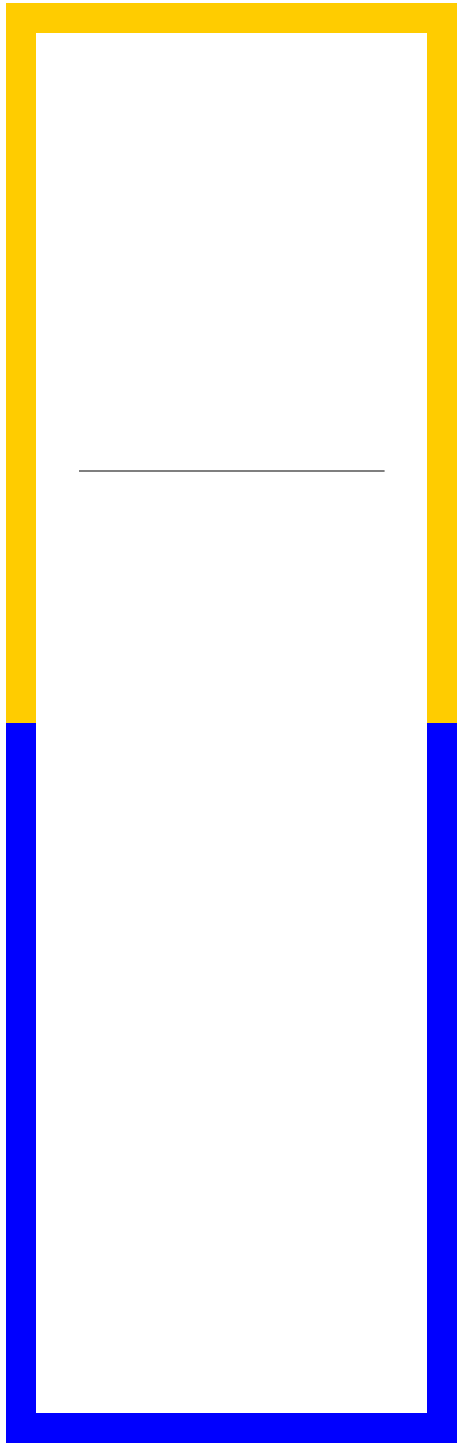
Immunogenicity is a critical risk factor for long-term survival of both deceased and living donor kidney allografts. However, the currently accepted immunogenicity scale is constrained to integer values from 0 to 6 based on the six commonly typed HLA antigen groups. Moreover, due to



Statistically imputed high-resolution HLA types were used for immunogenicity calculation. The HMS/EMS/AMS values were then used as explanatory variables in statistical models of transplant failure rates in these recipients.
Highly immunogenic transplants consistently showed worse long-term survival in comparison with weakly immunogenic transplants. The continuous immunogenicity scale has allowed for reliable estimation of graft failure risk without referring to the actual number of antigenic HLA mismatches. Furthermore, measuring immunogenicity with a continuous scores scale has allowed to find weakly immunogenic transplants with high number of HLA mismatches, whose graft failure rate was comparable to the transplants with low number of HLA mismatches. As a consequence, the number of retrospective weakly immunogenic transplants exceeded the number of transplants with a single HLA mismatch. Kosmoliaptsis immunogenicity scores also showed significant association with the strength of humoral response against the transplant.
Overall, these results indicate that the HLA immunogenicity measured using the Kosmoliaptsis algorithm is a reliable predictor of the kidney transplant long-term survival.

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