

# Decontamination Kidney with for Transplantation with Ultraviolet-C Radiation

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This work represents the next phase in an ongoing series of studies, focusing on harnessing photonic techniques in conjunction with organ support machines during kidney transplantation. The importance of this work focuses on mitigating the risk of contamination from donor to recipient. Currently, kidney diseases are a public health problem, and many organs are contaminated by pathogens, rendering them unusable for transplant. All these problems reflect the increase in patients on the waiting list for an organ. The search for solutions to increase the number of available organs becomes the motivation for this study. Through this research, we aim to demonstrate the feasibility and efficacy of this innovative approach, ultimately enhancing the safety and success of kidney transplant procedures. The UV-C technique demonstrates remarkable efficacy in reducing 100% of the microbial load in the preservation solution in less than 2 h of irradiation during organ perfusion. Furthermore, preliminary experiments with Ps80% in the preservation fluid suggest an increase in bacterial release after organ maceration. This underscores the potential for enhancements in the circulating decontamination process of porcine kidneys in HTK preservation solution through the combined application of ultraviolet C light irradiation and Ps80%. Notably, UV-C remains an excellent technique for decontaminating *S. aureus* in the liquid phase along with Ps80%.