

# Single gene variant in donors may affect survival of transplanted kidneys

October 11 2012

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A single genetic variant in kidney donors' cells may help determine whether their transplanted organs will survive long term, according to a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology (JASN)*. The findings provide new information that might be used to improve transplant longevity by revealing that the genetic make-up of kidney transplant donors affects the survival of transplanted organs.

A transplant recipient must take lifelong immunosuppressive drugs to prevent rejection of the new organ, but these drugs can have serious side effects, including kidney damage. So, ironically, the very drugs needed to prevent kidney rejection can also be toxic to the kidneys. Research suggests that how well certain proteins pump these drugs out of [kidney cells](#) may influence the drugs' kidney toxicity.

Richard Borrows, MB (Queen Elizabeth Hospital Birmingham, in the UK) and his colleagues looked to see if variants in the genes that encode such pumps might influence the health of transplanted kidneys. They investigated the links between donor and recipient gene variants with kidney outcome among 811 immunosuppressant-treated [kidney transplant recipients](#).

Among the major findings:

- One particular variant within the multidrug resistance 1 (MDR-1)

gene in donors was linked to a 69% increased risk for long-term failure of transplanted organs.

- The researchers validated the link in another 3,660 donors, making this the largest study of its kind.
- This variant affects the expression of the protein that the MDR-1 gene encodes, the drug transporter P-glycoprotein.
- No other genetic variants in donors or recipients were linked with organ survival or failure.

"The study of donor, as opposed to recipient, [gene variation](#) is relatively uncommon in the field of transplantation, and it certainly warrants more attention," said Dr. Borrows. He added that a single genetic variant probably has limited effect on its own, but when combined, multiple genetic variants may play an important role in transplant longevity.

**More information:** The article, entitled "Donor ABCB1 Variant Associates with Increased Risk for Kidney Allograft Failure," will appear online on October 11, 2012, [doi: 10.1681/ASN.2012030260](https://doi.org/10.1681/ASN.2012030260)

Provided by American Society of Nephrology

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