

# Transplantation: 'molecular miscegenation' blurs the boundary between self and non-self

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A new discovery by London biologists may yield new ways of handling the problem of transplant rejection. In a research article published in the November 2008 print issue of *The FASEB Journal*, the scientists confirm the two-way transfer of a molecule (called "MHC") that instructs the immune system to tell "self" from "non-self." By disrupting the transfer of this molecule, newly transplanted organs should become "invisible" to the host's immune system.

Such an advance would be considered a major medical breakthrough because current methods of preventing organ rejection involve weakening the host's immune system, which can lead to life-threatening infections.

"The medical potential of this finding is enormous," says Gerald Weissmann, M.D., Editor-in-Chief of *The FASEB Journal*, "Understanding molecular miscegenation should not only make transplantation more widespread and effective, but also shed light on how microbes disrupt our body's immune apparatus for distinguishing self from non-self."

The researchers made this discovery when they transplanted kidneys or hearts from one set of mice into another, with each set of mice having a different version of the molecule being studied. The researchers then conducted tests to see if the molecules were transferred. In the recipient mice, the donated kidneys or hearts and the host tissue expressed both types of molecules. This is the first time that this transfer has been

shown to happen in a living system.

Wilson Wong, senior researcher on the study from King's College London, states that although the findings are tantalizing, they represent only a very primitive understanding of this phenomenon. Nevertheless, he hopes "that this study will lead to a better understanding of the immune system to benefit the development of new therapies in areas related to transplantation."

Link: <http://www.fasebj.org>

Source: Federation of American Societies for Experimental Biology

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