



Baffling the body into accepting transplants

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An unexpected discovery made by a Sydney scientist has potential to alter the body's response to anything it perceives as not 'self', such as a tissue or organ transplant.

Stacey Walters, an immunology researcher at the Garvan Institute of Medical Research, has found that by greatly boosting the levels of the hormone BAFF in mice, it is possible to alter their immune systems so that they will accept tissue transplants without the need for any immunosuppression.

The findings have just been published in the *Journal of Immunology*.

Specifically, Stacey has found that mice genetically engineered to produce large amounts of BAFF (B cell activating factor), don't reject transplants.

She has shown that increased numbers of B cells (caused by boosted BAFF levels) in turn stimulate the production of T regulatory cells, which then control T cells, the body's killer cells.

The surprising thing about the results is that B cells, which make antibodies, were not known to have any role in the production of T regulatory cells. Nor would it have been thought possible for them to influence the body's response to a transplant, which has been considered a function of T cells only.

"In normal situations, something has to turn the immune system off once your body's fought an invader, such as a virus. It's the T regulatory cells that come in and say 'enough's enough'," Stacey explained.

Just to make sure it was the B cells that were provoking the changes, Stacey repeated her experiments on a mouse in which B cells were genetically knocked out, but high BAFF levels preserved. She found that when there are no B cells, normal allograft rejection occurs.

Stacey's results give us insight into previously unknown interrelationships between various classes of immune cells. Manipulating these relationships may offer a way of preserving organ grafts in the future without the need for toxic immunosuppressive drugs.

ABOUT GARVAN

The Garvan Institute of Medical Research was founded in 1963. Initially a research department of St Vincent's Hospital in Sydney, it is now one of Australia's largest medical research institutions with approximately 400 scientists, students and support staff. Garvan's main research programs are: Cancer, Diabetes & Obesity, Immunology and Inflammation, Osteoporosis and Bone Biology, and Neuroscience. The Garvan's mission is to make significant contributions to medical science that will change the directions of

science and medicine and have major impacts on human health. The outcome of Garvan's discoveries is the development of better methods of diagnosis, treatment, and ultimately, prevention of disease.

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