Autoimmunity affected by more than a defective immune system
doi: 10.1038/icb.2008.6

Genetic variations affecting organ development and function may determine the susceptibility of an individual to autoimmune diseases such as type 1 diabetes and Sjogren’s syndrome. Research, published online this week in *Immunology and Cell Biology*, suggests that autoimmunity is linked to defective developmental biology as well as a defective immune system.

The prevailing view among immunologists has been that autoimmune diseases are caused solely by a defective immune system that targets substances produced by the body’s own tissues — a phenomenon known as autoreactivity. Denise Faustman and colleagues challenge this view, suggesting that abnormal embryonic development also contributes to autoimmunity. They examined the structure and/or function of the cochlear, salivary glands, pancreas and tongue in a mouse model for type 1 diabetes and Sjogren’s syndrome — two diseases that often co-occur in humans and are associated with hearing loss and tongue abnormalities — and found that a specific developmental lineage of stem cells governs the organs that are selected for autoimmune attack and dysfunction.

If indeed the origin of autoreactivity is dictated by altered embryonic development this would have implications for future autoimmune therapies — by changing the immune response future strategies may be able to prevent the progression of some autoimmune diseases. Adrian Liston investigates the implications of these findings in a related News and Commentary article in the same issue.

Author contacts:
Denise Faustman (Massachusetts General Hospital and Harvard Medical School, Charlestown, MA, USA)
Tel: +1 617 726 4084; E-mail: Faustman@helix.mgh.harvard.edu

Adrian Liston (University of Washington, Seattle, USA)
Tel: +1 206 734 9504; E-mail: liston@u.washington.edu

Editorial contact:
Chris R. Parish (*Immunology and Cell Biology*, Canberra, Australia)
Tel: +61 2 6125 6730; E-mail: christopher.parish@anu.edu.au