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## **Embryo defects may give predisposition to diabetes**

- \* 15:45 26 February 2008
- \* NewScientist.com news service
- \* Linda Geddes

Type 1 diabetes is the result of an autoimmune attack on the pancreas, but what triggers the attack in the first place? Immunologists have always blamed defective immune cells, but there may now be an alternative explanation.

Denise Faustman at Harvard Medical School in Boston, US, and her colleagues have found differences in the structure of several organs – including the pancreas – in mice predisposed to develop type 1 diabetes, even before any autoimmune attack takes place.

This suggests that abnormal organ development before birth could predispose certain individuals to autoimmune disease.

Faustman's team noticed before that mice and humans with type 1 diabetes are also more likely to experience hearing loss and Sjögren's syndrome, an autoimmune disease affecting the salivary glands.

Embryonic link

So they examined the pancreas, salivary glands, tongue, cranial nerves and inner ears of mice predisposed to develop type 1 diabetes, and found structural abnormalities in all of them – even in mice lacking an immune system.

Since all of these cells and organs originate from embryonic cells expressing a transcription factor called Hox11, Faustman suggests that mis-production of Hox11 could make the animals more susceptible to autoimmune attack, possibly sensitising their immune systems to attack the organs.

“It challenges the orthodoxy that autoimmunity is solely caused by a defective immune system,” says Faustman, although she adds that immune system defects are probably implicated as well.

Journal reference: Immunology and Cell Biology (DOI: 10.1038/icb.2008.6)

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#### Weblinks

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- \* Sjögren's Syndrome Foundation <http://www.sjogrens.org/>