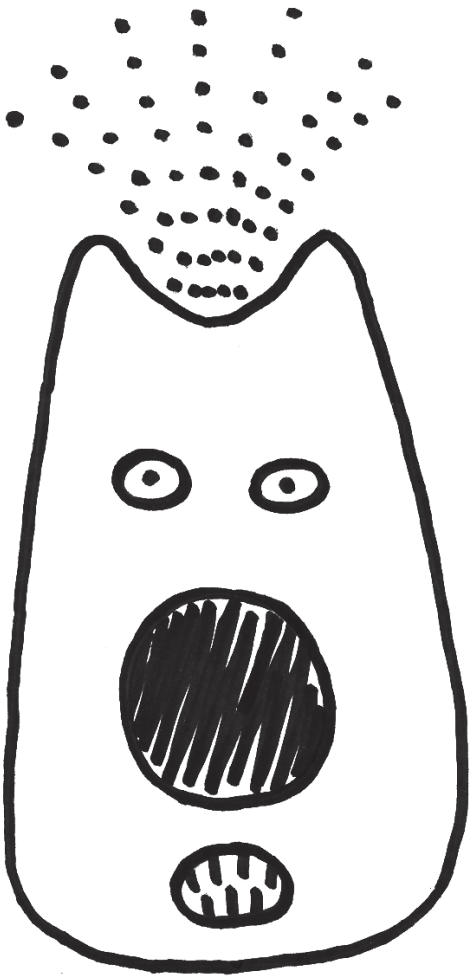
It's a Fit-up!

The Case of the 'Type 1 Diabetes'



Victim: Beta Cell

Profession:
Responsible for secreting the hormone insulin – vital for the absorption of glucose by body cells and for stabilising its levels in the blood.

Location:
The Islets of Langerhans in the pancreas.

Details of the case:
A case of autoimmunity: beta cells are mistaken for foreign tissue and targeted by the immune system – in this case T lymphocytes – resulting in their eventual destruction.

The consequences:
Without insulin, glucose levels in the blood cannot be stabilised and rise, resulting in a condition called 'hyperglycaemia'. This can produce a thickening of the blood, restricting peripheral circulation (e.g. in the limbs and eyes) and damaging the kidneys and other organs. In severe cases, this can result in loss of limbs, blindness and kidney failure. A potentially serious condition that currently has to be controlled by orally administered, or injected, insulin.

How can Immunology help?
One promising current approach utilises a targeted autoantibody to knock-out the T cells responsible for attacking the beta cells. At the same time a protein analogous to insulin is targeted at another group of T cells, known as regulatory T cells (or Tregs for short). These are the diplomats of the immune system, and Tregs specific for insulin, once stimulated, can effectively moderate the actions of the specific effector T cells that they control.

Can you help? Immunology needs you!

http://www.immunology.org/dayofimmunology

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