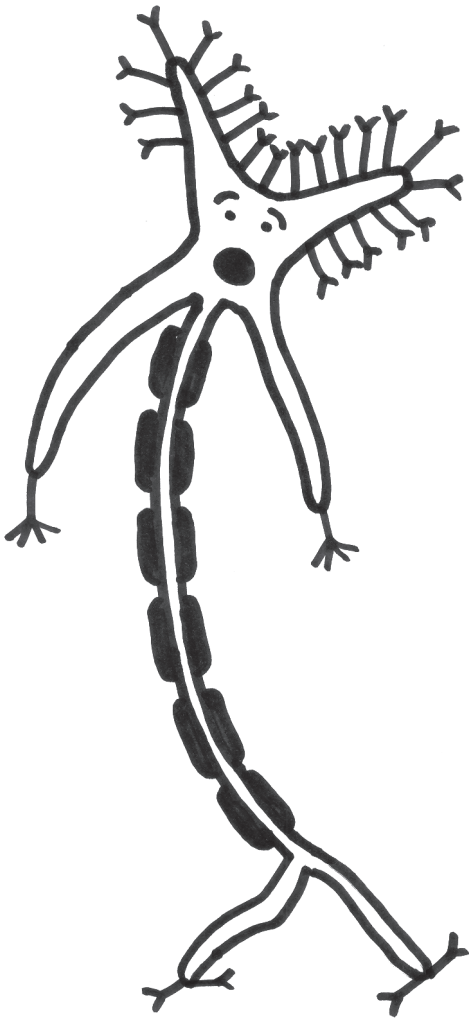


It's a Fit-up!

The Case of the 'Multiple Sclerosis'



Victim: **Neurone**
(AKA 'Nerve Cell', 'Brain Cell')

Profession:

Controls and transmits electrical impulses to muscles and other neurones in order to generate movement and control other body functions. In the brain known as a 'brain cell'.

Location:

Throughout the brain and central nervous system.

Details of the case:

Neurones transmit nerve impulses via long projections called axons. In vertebrates, the axon is covered by a sheath composed of a protein called myelin, which greatly increases the speed of the impulse. In multiple sclerosis (MS), the immune system appears to target myelin and degrade it. This reduces the speed and efficiency of nerve impulses. Further damage may occur due to inflammation.

The consequences:

The symptoms of MS can be wide ranging and serious: loss of feeling and sensitivity in the limbs, difficulty with movement and coordination, muscle degeneration, and blindness due to optic nerve damage. Symptoms may be progressive, or involve attacks followed by varying degrees of recovery.

How can Immunology help?

A very difficult case, as the precise triggers and molecular targets are not clearly understood. Possibly an example of 'self' directed cells that are not deleted, but normally closely regulated – but regulation has broken down. Currently, inflammation can be controlled by steroids, but not the direct effects of immunity. More specific therapies (interferon, immunoglobulins) are expensive and their effectiveness has been questioned. The hope lies perhaps with regulating the sensitivity of the immune system to induce tolerance, or in manipulating cell signals specific to the progression of the disease. There is still a lot of work to do in understanding and treating this serious condition.

Can you help? Immunology needs you!