In *Our Cells, our Selves* you are invited to a science bedtime story with 7-year old Sylvie who is discovering the wonders of the immune system.

Sylvie’s mother tells a story that takes us back hundreds of millions of years to explore Life’s balance of getting food while avoiding dangerous bacteria. Take a journey with a few familiar (and some very unfamiliar) organisms to learn how these two processes co-evolved. As we explore the human immune system, we learn that errors may occur under rare circumstances, leading to autoimmune diseases like Type 1 Juvenile Diabetes. The story closes with a look at the future of regenerative medicine and the potential for cures!

Get more info at [www.sepa.duq.edu/ocos](http://www.sepa.duq.edu/ocos)
Some scientists and doctors think that juvenile diabetes is an auto-immune disease. T cells get confused and see the insulin-making cells in the pancreas as inflamed and infected, and decide that they must be destroyed.

As organisms became more complex and specialized, the harder the immune system’s job became. So, new kinds of cells evolved to be more specific - the T and B cells!

Immune cells can be found near the lining of the gut:

Islet cells in the pancreas. The pancreas makes metabolism more efficient. In particular, it has special islet cells that make insulin that helps all the body’s cells absorb sugars.

In the future, doctors and scientists may treat juvenile diabetes with regenerative medicine treatments. Each person has a lot of ‘young cells’ that can grow up to become any cell type that the body needs. These young cells or stem cells may be useful in replacing a patient’s insulin-producing islet cells.

Life evolved over hundreds of millions of years, taking a myriad of shapes and forms, always striving for a balance between getting food and protecting itself. These are two of the most fundamental processes in all animals: the metabolism and the immune system!

Metabolism is the process that converts food from the environment to useful energy for life. The immune system is found in different cells and tissues that work together. They collect information to distinguish cells and particles that belong to the body from those that may be harmful, like sick or dead cells or outsider particles like bacteria or viruses.

Swallowing cells are the basis for metabolism and the immune system! When cells started to work together as simple animals, some swallowing cells specialized to carry out different roles. Some took on the role of digestion, and others became good at moving around and eating intruders that could harm the body. So, what was once a method for nutrition became also a method for defense!

Swallowing cells are the basis for metabolism and the immune system! When cells started to work together as simple animals, some swallowing cells specialized to carry out different roles. Some took on the role of digestion, and others became good at moving around and eating intruders that could harm the body. So, what was once a method for nutrition became also a method for defense!

The B-cell is a special swallowing cell – it can only swallow one type of outsider. This allows the body to identify WHAT kind of outsider is in the body.

The T-cell can read the swallowing cells to determine what they have eaten. The T-cells are like referees that gather information that can be shared with the rest of the immune system and then help decide what course to take.

Memory is the most important part of our immune system’s vast intelligence. After the specific immune cells deal with something harmful, they can circulate around our bodies for years and maybe forever, remembering what is harmful and what is not so we don’t get sick from the same thing twice.

In the future, doctors and scientists may treat juvenile diabetes with regenerative medicine treatments. Each person has a lot of ‘young cells’ that can grow up to become any cell type that the body needs. These young cells or stem cells may be useful in replacing a patient’s insulin-producing islet cells.

Learn more on-line at www.sepa.duq.edu/regmed

Download free game
www.sepa.duq.edu/games