



THE UNIVERSITY OF  
**TOLEDO**  
1872

*seeks partner to license*

## **Bioartificial Pancreas**

Diabetes is one of the leading causes of death and disability in the United States. Over 7% of the population has diabetes. Diabetes is a disease in which the body does not produce or properly use insulin, which is needed to convert sugar, starches and other food into energy needed for daily life. When we eat, the pancreas automatically produces the right amount of insulin to move glucose from blood into our cells. In people with diabetes, however, the pancreas either produces little or no insulin, or the cells do not respond appropriately to the insulin that is produced. Glucose builds up in the blood, overflows into the urine, and passes out of the body in the urine. Diabetes is associated with long-term complications that affect almost every part of the body. The disease often leads to blindness, heart and blood vessel disease, stroke, kidney failure, amputations, nerve damage, it can complicate pregnancy, and birth defects are more common in babies born to women with diabetes. There is a need to replace conventional insulin injections with a device that can provide more precise control of blood glucose levels. Thus, a biocompatible and implantable device has been developed that can supply the hormone insulin for the purpose of controlling blood glucose levels in people with diabetes mellitus requiring insulin.

The University of Toledo is currently seeking companies interested in licensing technology relating to a bioartificial pancreas device.

### **Application:**

This application can be used for the treatment of Diabetes and other cellular based therapies

### **Advantages:**

1. Allows for the passage of small molecules including insulin, oxygen and glucose but does not allow the passage of agents of the immune system
2. Incorporates a semi-permeable membrane containing glucose responsive and insulin secreting cells
3. Efficient mass transfer of substances to the insulin secreting cells
4. Provides neovascular formation

**This invention is protected by issued patents:** 5,387,237

5,425,764

5,674,289

5,855,616

### **Contact**

The University of Toledo  
Office of Research Development  
MS 1034  
3000 Arlington Avenue  
Toledo, Ohio 43614

Phone: 419-383-6963

E-mail: [stephen.snider@utoledo.edu](mailto:stephen.snider@utoledo.edu)

