



Staff photo by Frank Jacobs III

Joseph Z. Huang, president of MicroDysis Inc., poses in his Trenton office.

Tiny pump has big applications

By **CURT YESKE**
Staff Writer

TRENTON — The Trenton Business & Technology Center functions as an incubator, providing space for companies and individuals with visions of developing their entrepreneurial ideas and other concepts.

One of the potentially biggest things to come out of the incubator may be its smallest.

It is a microscopic peristaltic pump — smaller in width than a penny — developed by scientific researcher Joseph Z. Huang, president and founder of MicroDysis Inc.

Huang says it is the smallest pump in the world. But it could have a huge effect on millions who can't remember or are unable to take medicines in a timely manner. It also has many potential uses outside the delivery of drugs. It could also be used to cool Notebook laptop computers and in the high-technology end of automobile design.

Huang, a West Windsor resident who earned his doctorate in biomedical engineering at Sun Yat-Sen University of Medical Sciences in China, gave up his own research company and patents when he emigrated to this country in the late 1990s.

Huang has more than 20 years experience in biomedical instrumentation, medical devices, genetic analysis research and microfluidic design.

His company delves into the microfabrication of microfluidic devices. He said that conventional methods, largely used in the semiconductor industry, are prone to imperfections, especially in bonding. Huang said his patented 3-D mi-

cromolding has eliminated the drawbacks of the conventional production of micropumps.

Guy DiPierro, president of Chrono Therapeutics Inc. engaged Huang to design the microscopic pump to use in his ChronoDose system.

"This is only the beginning (of the) applications of the pump," Huang said. "It could be used for many types of drugs and fluids connected to medicine. It also could be used in many places in technology such as pumping a coolant throughout a laptop Notebook that can generate much heat when used a long time."

Huang says his peristaltic micropump would be ideal for widespread applications. He said it has a low risk of drug contamination, simple operation, has low maintenance and is cost-effective.

The new technology behind the ChronoDose was developed by the University of Basel in Switzerland. But for the system to function dependably, it needed a reliable pump.

Huang and DiPierro share the patent on the pump. Huang maintains a license for the pump's application in fields other than drug delivery and for uses on animals.

Taneshia Nash Laird, Trenton's director of economic development, said, "This is what the incubator is about. We are happy for the development. But it is so important that they not only have their genesis in Trenton, but that (once in production) they thrive in Trenton.

"We'll do all we can to support them so that people know about their technology."