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**BLOOD TESTS RAPID AND INEXPENSIVE WITH INVENTION BY
COLORADO STATE CHEMISTRY PROFESSOR; NEW COMPANY FORMED**

FORT COLLINS – A Colorado State University chemistry professor has developed a way to rapidly test blood for signs of diabetes and cardiovascular disease that could save patients and physicians significant time and money.

Using a combination of chemistry and engineering, Charles Henry and his team utilize patterning techniques developed by the semiconductor industry to inexpensively fabricate microfluidic sample handling devices. The Henry group developed a simple means of detecting analytes within the microfluidic device through electrochemical detection. With this advancement, small sample volumes could be analyzed cheaply, rapidly, and with a high degree of sensitivity. Blood from a simple finger prick, instead of a blood draw, can be analyzed for markers indicative of health conditions such as diabetes and cardiovascular disease.

Henry and his team have created a company called Advanced MicroLabs LLC to commercialize the invention, and Advanced M:icroLabs has licensed the technology from Colorado State University Research Foundation. Advanced MicroLabs is focusing on the growing market called “lab on a chip.” This field promises to perform complicated diagnostic analyses on a small format, rapidly and inexpensively. Analyses that once required large and expensive benchtop equipment can now be performed in a format that fits into one’s hand.

Two government agencies have already embraced the new technology by supporting preliminary research that aims to bring the patent pending technology to the marketplace so that patients may benefit. The National Science Foundation has provided \$600,000 in funding through the Small Business Innovative Research grant program for diabetes related work. The National Institutes of Health has provided an additional \$100,000 grant for cardiovascular disease work. In both cases, the work is done in a

collaborative effort between Advanced MicroLabs and Henry's laboratory at Colorado State University.

“Strides have been made toward improving behavioral patterns that put people at risk of diabetes and cardiovascular disease, but there's still a need to develop methods to detect the onset of disease at the earliest possible stage,” Henry said. “Advanced MicroLabs is developing technology for rapid detection of signs of diabetes and cardiovascular disease that will be inexpensive and require very small samples.”

(The company aims to develop the next generation of diabetic monitoring devices using its lab-on-a-chip technology. Using an integrated microchip, diabetics could someday obtain instant, historic information about glucose levels from the multiple daily measurements they already take as well as markers of long-term glucose regulation and markers of well-known complications.

“Someday, such a test might also provide a more complete analysis for not only diabetes, but also for common complications” said Jeff Myers, a Loveland Colorado consultant and a diabetic himself who is working with Advanced MicroLabs.

“Diabetes has become a major health issue in the United States and around the world and it's only expected to get worse because of lifestyle changes people are making,” said Dale Willard, a co-founder of the company and senior research scientist, who is the company's only full-time employee.

According to the American Diabetes Association, there are 20.8 million children and adults in the United States, or 7% of the population, who have diabetes. According to the World Health Organization, the number of diabetics will double by 2025.

“Our goal is to refine the technology invented at Colorado State and turn it to an effective tool for patients and doctors for regular checkups,” said Willard, who obtained his doctoral degree in chemistry from Colorado State in 1999. “We translate the technology into real-world solutions.”

Lab-on-a-chip can be expanded into many other applications and Henry expects to collaborate with scientists in other colleges at Colorado State University to such as testing aerosols or small particulates in the air. He's working closely with Jeff Collett in

the College of Engineering's Department of Atmospheric Science and a small California company to explore atmospheric applications.

Henry has been an assistant professor of chemistry at Colorado State since 2002. Previously he worked as assistant professor at Mississippi State University. He obtained his bachelor's degree in chemistry from Missouri Southern State College and his doctoral degree in analytical chemistry from the University of Arkansas.

As part of the Colorado economic development plan, the Colorado State Legislatures are considering House Bills 1360 and 1361. These bills would help to better utilize state held resources while at the same time seeding state grown economic development. "We are hoping to ride this wave of support for developing local grown technologies within our state," adds Dr. Willard, "We have a technology that could one day benefit the greater good but is already benefiting Colorado State University and the Colorado economy." Grants awarded to Advanced MicroLabs have supported research within the company as well as original research within the Colorado State University Chemistry Department. Additionally, Advanced MicroLabs employs 3 scientists and 4 undergraduate students. Undergraduate students earn money to support their ongoing education while at the same time gaining experience in a commercial laboratory.