USL, firm to produce twin research monkeys

NEW IBERIA — Researchers from the University of Southwestern Louisiana and Helix International Corp. will be working jointly here and in Baton Rouge to produce identical twin rhesus monkeys — a species used extensively in AIDS research.

If successful, their project could greatly reduce the number of animals necessary for scientifically accurate medical research, dealing with the problems of both cost and scarcity of primates.

A $50,000 grant to Helix from the Small Business Innovation Research program, through the National Institute of Child Health and Human Development, supports the research. Helix is a biotechnology research and marketing company in Baton Rouge.

Scientists from USL and Helix will work at the USL New Iberia Research Center and at the Helix agricultural biotechnology complex in Baton Rouge.

According to principal investigator Steven Voelkel, director of animal science at Helix, there is an increasing need worldwide for non-human primate research models for diseases such as acquired immunodeficiency syndrome, as well as for other biomedical research.

The use of twin primates can greatly reduce experimental error, he explains, increasing the accuracy and efficiency of experimentation while reducing both the cost and the number of animals necessary to conduct research.

Using genetically identical twins would eliminate biological variations which usually require checking and rechecking of experiment results on different animals.

One study cited the use of one set of identical twins in cattle as equivalent to 22 unrelated animals under similar experimental conditions. The major hindrance in the use of twins is their relatively infrequent occurrence in nature, Voelkel says. Twinning rates reported for rhesus monkeys range from zero to one percent.

The techniques may also be useful in the captive breeding of endangered and threatened species of primates.

In the process, embryos will be removed from rhesus monkeys, microsurgically bisected into genetically identical twins, and transferred to recipient female monkeys.

No surgery will be used in either the removal or the transfer.

The refinement of this process will enhance the feasibility of using embryo splitting technologies to produce twin offspring.

Although the project idea was conceived jointly, USL has been working on the base technology for several years.

During the past two years, Dr. Lora Lana Goodeaux, a co-investigator on the project and an associate professor of animal science at USL, has been developing the non-human primate reproductive physiology program at USL-NIRC. She has developed a technique to recover embryos without surgery — a process which had not been previously performed successfully on rhesus monkeys.

Goodeaux will work with Voelkel in conducting embryo recoveries and transfers in the project.

Voelkel, who will direct the research, will also conduct micromanipulation of the embryos.

He has seven years experience in applied embryology and expertise in both surgical and non-surgical techniques for the recovery and transfer of embryos in domestic farm animals.

The research will take place in Helix's agricultural biotechnology complex in Baton Rouge, and at USL-NIRC.