Bellwether Magazine

Volume 1
Number 37 *Summer 1995*

Article 10

7-1-1995

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A team of researchers at the University of Pennsylvania has developed a technique for transplanting immature sperm cells directly into the testis of infertile animals, and demonstrated that the immature cells will grow and develop into normal mature sperm. The technique holds great promise for biomedical science as scientists seek new tools to eradicate genetically transmitted diseases.

The process was developed by Dr. Ralph Brinster, Richard King Mellon Professor of Reproductive Physiology at Penn's School of Veterinary Medicine. The research was reported in two articles in the November 22, 1994 issue of the Proceedings of the National Academy of Sciences. Working with mice, Brinster and his team have found that the donor cells will multiply and re-populate the recipient's testis, giving the animal the ability to transmit the donor's genes to offspring.

The technique focuses on a population of primitive cells known as spermatogonial stem cells. These cells replicate throughout the life of the animal, from birth to old age, giving rise to cells that develop into mature sperm cells. Brinster's work now makes this population of cells available for experiments in ways not possible before.

"These cells undergo self-renewal throughout life, and have the ability to transmit genes to successive generations. In this sense, they can be thought of as immortal," Brinster said. "Learning how these spermatogonial cells differentiate and the factors that influence the direction they take can teach us about normal and abnormal development, and thereby contribute to our understanding of disease," he said. According to experts, Brinster's findings will allow scientists to gain insight into reproductive cell development.

"Dr. Brinster's work will provide new impetus for studying cellular control of spermatogenesis and for manipulating the germ line of farm animals. I anticipate that these investigations will set new directions for research at the School of Veterinary Medicine," said Dr. Alan Kelly, dean of Penn's School of Veterinary Medicine. "We are immensely proud of Dr. Brinster. His research is extremely exciting and has very important ramifications for veterinary medicine and animal agriculture," Kelly said.

For his contributions in establishing methods to grow and manipulate germ cells in the laboratory as well as his use of this research to study development, Brinster has received many honors, including election to Membership in the National Academy of Sciences. In addition, he has received the New York Academy of Sciences Award in Biological and Medical Sciences, the Distinguished Service award of the U.S. Department of Agriculture, the Pioneer Award from the International Embryo Transfer Society, and the Charles-Leopold Mayer Prize, the highest prize of the French Academy of Sciences.

Harold H. Fehr Emergency Service Pavilion

On December 7, the Harold H. Fehr Emergency Service Pavilion at the Veterinary Hospital of the University of Pennsylvania was dedicated. Made possible by a major planned gift by Harold H. Fehr, a 1923 graduate of the University's Wharton School, the Emergency Service was completely renovated to meet the demands of the high case load.

In 1981, when VHUP opened its doors, the Emergency Service anticipated handling about 4000 cases annually. Since then, the case load increased to more than 8,000 patient visits per year, making VHUP's E.S. the busiest such service in an university veterinary teaching hospital in the nation. As the case load grew so did the number of nurses, residents and clinicians, and as technologies advanced, more pieces of sophisticated diagnostic and treatment equipment were added. Space became tight and the area needed to be enlarged and renovated to comfortably accommodate the patient load.

Plans were prepared to change the layout of the Emergency Service, to enlarge the treatment room, and to create an isolation ward accessible from the treatment area. Space was gained by eliminating a corridor and reducing the size of three exam rooms.

During the renovation, Emergency Service took over a number of exam rooms and the treatment room in the clinic area of VHUP. There was no downtime for E.S.- patients arrived at all hours of the day and night and were treated in temporary quarters.

By the evening of December 15 owners and patients were using the new waiting area and care was provided in the brand-new larger treatment room. The Harold H. Fehr Emergency Pavilion now rivals the most advanced trauma/emergency treatment and diagnostic center in human medicine.

The Emergency Service at VHUP, one the busiest areas of the hospital, is the cornerstone of the Center for Veterinary Critical Care (C.V.C.C.), the first wholly integrated small animal critical care unit in the world.