

# Hybrid lemurs take issue with geneticists

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her weight in two weeks, Simons said.

According to geneticist Dr. Andrew Hamilton, "Just what Monte and Gaia mean for some commonly accepted theories about the effects of chromosomal arrangements isn't clear yet."

But Hamilton—who worked on Monte's jigsaw-puzzle genetics for six months in the Department of Anatomy's laboratory—suggested that the hybrids could be an indication that "some

chromosomal changes may not produce strict genetic barriers between different primate species, and that hybrids may not be at a reproductive disadvantage as much as we thought."

## Cronus no scientist

In normal breeding, a lemur or other animal receives identical sets of chromosomes, the transmitting agents of hereditary information, from each parent.

During the process of egg or sperm cell formation in the offspring, these identical

chromosomes pair together again. Only one of each pair goes into each individual reproductive cell. Thus each reproductive cell contains only one-half of the animal's chromosomes.

In further reproduction, these will pair with a like number of chromosomes from a mate.

Hamilton said he and other researchers thought that Cronus couldn't be fertile because fully 24 of his 52 chromosomes have no normal pairing partners needed for producing reproductive cells.

Cronus, of course, didn't know that. He mated with Huni and the rest is something of a landmark in primate biology.

## Unusual pairing

Extensive studies finally revealed that Cronus's unmatched 24 chromosomes managed to form eight "pairs" of three chromosomes each, Hamilton explained.

The 24 chromosomes consisted of eight metacentric (X-shaped) chromosomes and 16 acrocentric (V-shaped) chromosomes.

"During the process of sperm formation," he said, "each of these eight metacentric chromosomes that Cronus got from his father paired with two acrocentric chromosomes from his mother."

When the three-chromosome "pairs" split later in the process of sperm cell production, either one metacentric or two acrocentric chromosomes went to an individual cell.

## 22 to 30 chromosomes

Hamilton said Cronus can theoretically produce normal sperm containing anywhere from 22 to 30 chromosomes, depending on whether the metacentric or

two acrocentrics of each odd pair of chromosomes go to a particular sperm cell.

"In Monte's case," the researcher added, "his father donated a sperm containing 27 chromosomes, including three of the metacentric and ten of the acrocentrics involved in the odd-pairing formations."

The result: Monte has 57 chromosomes, 27 of them from Cronus and 30 from his mother Huni, as would be expected. Researchers haven't determined Gaia's chromosome count yet.

## Only packaging differs

Hamilton said Cronus's fertility suggests that parental chromosomes contain essentially the same genetic material, "except for the way it is packaged."

He noted that the chromosomal arrangement of Lemur macaco (44) differs from that of Lemur fulvus (60) only in the number of metacentric and acrocentric chromosomes.

"What apparently happened in the course of evolution," Hamilton said, "is that a number of acrocentric chromosomes in Lemur fulvus or a similar species joined together to reduce the chromosome number from 60 to the 44 found in Lemur macaco."

Hamilton said he and several other researchers believe Monte and Gaia will be fertile, raising the possibility of producing third-generation hybrids.

Research work on the genetics of the hybrids is being supported by the National Institutes of Health and the National Science Foundation, Hamilton said.



MONTE AND FRIEND—Monte the lemur welcomes the attention of Suzanne Lassiter, an animal caretaker in the Primate Center. Monte's parents' respective chromosome numbers vary by 16. (Photo by Jim Wallace)



June 2-9, 1978

The Medical Center Calendar lists lectures, symposia and other activities of interest to faculty, staff and students. Notices should be sent to Box 3354 no later than one week prior to publication. If last minute scheduling makes it impossible to send a written notice in time, please call 684-4148.

## Friday, June 2

1 p.m.

Network for Continuing Medical Education (NCME). Programs on "Management of Patients on Respirators," "The New Vegetarian" and "Giant Cell Arteritis: Diagnosis and Treatment." View in Rm M405 at Duke and Rms D3008, C6002 and C7002 and Bldg 16 at the VA Hospital.

3:30 p.m.

Irwin A. Brody Fund for the History of Neurosciences. Dr. Richard Cytowic, resident in neurology, "The Neurological Illness of Maurice Ravel," History of Medicine Reading Rm, Seelye G. Mudd Bldg.

## Wednesday, June 7

1 p.m.

NCME, See Fri., June 2, for programs and viewing areas.

## Thursday, June 8

4 p.m.

Anatomy Seminar. Dr. Keith A. Crutcher, Dept. of Neurology, VA Hospital, "Adrenergic receptors in the rat hippocampus," Rm 273, Sands Bldg. Coffee and cookies at 3:45.

## 'Young Scientist' again cited

The American Society for Pharmacology and Experimental Therapeutics has awarded its John J. Abel Award in Pharmacology to Dr. Robert J. Lefkowitz, professor of medicine.

Lefkowitz received the award, which consists of a bronze medal and \$2,000 donated by the Eli Lilly drug company of Indianapolis at the society's annual spring meeting in Atlantic City.

The award is presented annually to stimulate fundamental research in pharmacology and experimental therapeutics by young investigators.

Lefkowitz, 35, was selected for his contributions to the field of hormone and drug receptor research.

Receptors are groups of chemicals usually located on cell surfaces that can combine specifically with hormones, drugs, viruses and other substances. They are believed to act as anchors to allow the body to interact with various naturally occurring and foreign substances.

The Duke scientist has been credited with pioneering a new approach to the study of receptors using radioactive labels.

Lefkowitz is a 1966 graduate of the Columbia University College of Physicians and Surgeons who served as a teaching fellow at Harvard Medical School before being named to the Duke faculty in 1973.

In April this year, he was chosen from among outstanding faculty members aged 35 years or younger at American medical schools to receive the Passano Foundation's prestigious Young Scientist Award for 1978.

## BICP class on tour

Twenty-five students from Richmond Senior High School in Rockingham are touring the medical center today. The students are members of a Biomedical Interdisciplinary Curriculum Project (BICP) class and are accompanied by one of their teachers Sarah Hamilton and their principal Herman Williams. BICP is sponsored by Duke, the Fayetteville Health Education Foundation and the N.C. Department of Public Instruction. Three other high schools also have BICP classes (see *Intercom*, 2/3/78).



"Certainly I could bend over and touch my toes, but your office has an exceptionally deep floor."