Critical Kaposi's growth factor identified

A new study from the laboratory of AIDS-virus codiscoverer Robert C. Gallo adds an intriguing clue to the medical mystery of Kaposi's sarcoma. The work provides a valuable focus for researchers attempting to develop drugs against this cancer-like proliferation of blood vessels and skin cells, which has become a hallmark of AIDS.

Once associated primarily with elderly Jewish or Mediterranean men and with people on immune-suppressing drugs, Kaposi's sarcoma mushroomed into a U.S. epidemic as the AIDS virus (HIV) became prevalent. Today, it is at least 20,000 times more common in people with AIDS than in the general U.S. population and 300 times more prevalent in AIDS patients than in other immunosuppressed groups. Despite years of intensive investigation, researchers have yet to identify what triggers the sarcoma.

In 1988, Gallo and his co-workers reported they had discovered a way to grow Kaposi's cells in culture, allowing researchers to study the cells' growth requirements (SN: 10/29/88, p.283). Their preliminary work showed that the cells grew only in the presence of an unidentified growth factor released from HIV-infected white blood cells. Now, in the May 3 NATURE, they report the identity of that critical factor.

The culprit appears to be a viral protein called tat. Produced by HIV-infected white cells, tat empowers the virus to complete its replication cycle inside those cells. The new research, led by Barbara Ensoli of the National Cancer Institute in Bethesda, Md., is the first to show that tat can escape from HIV-infected cells and that a viral regulatory protein can directly stimulate the growth of Kaposi's cells, Gallo told SCIENCE NEWS.

Although the culture studies suggest tat is critical to either the genesis or the progression of Kaposi's sarcoma in HIV-infected people, the finding may also prove compatible with a somewhat radical hypothesis suggested earlier this year (SN: 2/3/90, p.78). In the Jan. 20 LANCET, researchers at the Centers for Disease Control in Atlanta proposed that at least some cases of Kaposi's may result from an as-yet-unidentified, sexually transmitted agent. They based their suggestion on epidemiologic evidence that Kaposi's sarcoma is much more prevalent in patients who got AIDS sexually than in those who got AIDS from intravenous drug use or from contaminated blood products. This hints that Kaposi's sarcoma may arise from a sexually transmitted agent that is frequently passed along with HIV but doesn't survive well when passed intravenously.

Also in the Jan. 20 LANCET, scientists at the New York University Medical Center described case histories of six homosexual or bisexual young men who had Kaposi's sarcoma despite negative HIV tests, again supporting the possibility of an independent, sexually transmitted causative agent. Taking into account similar reports by other researchers, the team hypothesized that a Kaposi's-causing organism may have become widespread among homosexual men at about the same time as the HIV epidemic took hold.

It remains to be seen whether a mystery organism indeed triggers Kaposi's sarcoma – with or without HIV's help – and whether that organism codes for the production of a tat-like protein. In the National Cancer Institute experiments, only tat-producing cells supported Kaposi's sarcoma growth in culture, and anti-tat antibodies (which bind up available tat in the culture medium) blocked it. Still, Gallo says, "whether tat is enough *in vivo*, we don't know."

In any case, he concludes, the latest findings provide additional incentive to develop drugs that block tat's activity – a goal already high on AIDS researchers' priority list, since tat is critical to HIV replication. – *R. Weiss*

Experimental method lowers multifetal risk

The joyful news of a pregnancy can turn to anguish for women who learn they are carrying a dangerously large number of fetuses. In the past, such women faced a draconian dilemma: They either aborted the entire pregnancy or carried the fetuses to term under the threat of premature delivery of very tiny babies plagued with severe health problems.

Last year, researchers at the Mount Sinai School of Medicine in New York City reported a controversial study of 17 twin pregnancies in which they terminated a severely defective fetus in the uterus, leaving its healthy twin undisturbed (SN: 5/6/89, p.278). Now, in separate reports in the May OBSTETRICS AND GYNECOLOGY, the Mount Sinai team and a California physician describe using variations of the same experimental method to terminate one or more healthy fetuses in the first trimester of risky multifetal pregnancies. The technique gives both mothers and surviving fetuses an improved shot at a normal pregnancy and a healthy future, but it also raises ethical questions.

Lauren Lynch, Richard L. Berkowitz and their colleagues at Mount Sinai studied 85 pregnant women who elected the procedure while carrying three to nine fetuses. All 85 had conceived after treatment with fertility drugs or *in vitro* fertilization, either of which can increase the odds of a multifetal pregnancy.

Using an ultrasound scanner to visualize fetal position, the researchers inserted a needle into the chest of a fetus and injected potassium chloride to stop the fetal heart. In most cases, the team continued the procedure until only two living fetuses remained in the uterus. The dead fetuses shriveled and were expelled during regular delivery.

In 45 of the 85 cases studied, the women went on to have healthy babies; another 32 women had not yet delivered at the time of data analysis. The remaining eight women miscarried, but the researchers say those losses did not result from the procedure. There were no infant deaths during delivery or during the risky first week after birth, and no adverse physical effects among the mothers, the team says.

Khalil M.A. Tabsh of the School of Medicine at the University of California, Los Angeles, used the same procedure with 40 women carrying triplets, quadruplets or quintuplets. In all but two cases, the women elected to have their pregnancy reduced to twins. Most of the 28 women who had delivered by the time Tabsh analyzed his data bore healthy infants. Two babies died, one due to severe prematurity, he adds.

While the two reports focus on safety factors, many believe the ethical aspects of the still-experimental procedure add a new facet to the abortion debate. Most medical experts agree that four or more fetuses crowded together in the uterus raise the risk that some will die soon after birth and others will survive with permanent disabilities. Such pregnancies also strain the mother's overall health and can result in life-threatening complications such as hemorrhage.

But the medical aspect of the risk-benefit equation becomes murkier for triplet pregnancies. In those cases, there is conflicting scientific evidence regarding the risk to the mother or the fetuses. "You are then off in the realm of parental preference," says ethicist Susan M. Wolf of the Hastings Center in Briarcliff Manor, N.Y. In the United States, mothers may elect to terminate fetuses for any reason during the first trimester, she adds.

Lynch says parents considering the experimental procedure knew nothing about the gender or genetic characteristics of the fetuses, and the decision regarding which fetuses to terminate is based solely on their proximity to the mother's abdominal wall, a safety factor in the procedure.

In an editorial accompanying their report, Lynch and Berkowitz suggest calling the procedure "multifetal pregnancy reduction." They say the term used in the past, "selective reduction," upsets parents and misleads the public by implying the procedure involves a kind of "Sophie's choice." – *K.A. Fackelmann*