

Drug induces abortion

Therapeutic abortion is a comparatively safe procedure when performed by a competent physician under sterile conditions. Nevertheless surgery inevitably entails some risk, and there is always the possibility of damage to the uterus or of infection.

A drug-induced abortion would circumvent that risk. But in spite of occasional reports of imminent success, researchers in the past have been unable to find a safe and effective chemical abortifacient.

From recent experimentation with a class of hormone-like regulatory agents called prostaglandins, there is evidence that one, prostaglandin F-2 alpha, can abort a fetus up to five months old while causing only mild side effects such as diarrhea in the mother. About a year ago, scientists from the Upjohn Co. in Kalamazoo, Mich., reported that in monkeys PG F-2 alpha causes regression in the corpus luteum, a yellow endocrine body essential to the maintenance of pregnancy (SN: 1/18/69, p. 64).

In the Jan. 24 NATURE, two research teams report that PG F-2 alpha induces abortion in women. Drs. S. M. M. Karim and G. M. Filshie found it was effective in 14 of 15 patients at King's College Hospital in London. And Dr. Marc Bygdeman and his colleagues at the Karolinska Institute in Stockholm report success in treating one of four women into whom the drug was injected.

STRUCTURE

ATP in three dimensions

Adenosine 5'-triphosphate (ATP) is a chemical that provides energy for cell metabolism in all living organisms. At Cambridge University in England, a team of scientists lead by Dr. Olga Kennard has successfully grown single crystals of ATP and submitted them to analysis by X-ray crystallography to determine the three-dimensional structure of the energy molecule.

In the Jan. 24 NATURE, the scientists report the specific location of all but the hydrogen atoms in ATP crystals. Generally, X-ray crystallography is unsuitable for picking up these tiny atoms. Recently, Dr. Benno P. Schoenborn of the Brookhaven National Laboratory in Upton, N. Y., showed that they can be identified by a similar technique using neutrons (SN: 12/6, p. 536).

VIROLOGY

Test for hepatitis virus

Serum hepatitis, a sometimes fatal inflammation of the liver, can be transmitted to an individual if he receives a transfusion of blood carrying a virus known as both the serum hepatitis virus and the Australian antigen. It is only recently that the virus was detected and identified in the blood of hepatitis victims and carriers (SN: 6/14, p. 574).

Ideally, all blood in banks should be screened for the presence of the virus, but because standard tests can take one to seven days, it is impractical. A new test, which can be run in an hour or two and identifies from 60 to 90 percent of blood donors who are carriers, may make routine screening possible. Under the direction of Dr. Alfred M. Prince of the New York Hospital-Cornell

Medical Center, who developed the test, the New York Blood Center will evaluate the techniques.

At a recent symposium on virology in New York, Dr. Prince explained that for the test, antibodies to the serum hepatitis virus are combined with a drop of serum from a donor's blood. If a characteristic precipitate forms, the donor is identified as a carrier. Although a positive reaction would mean that the donor's whole blood could not be used, certain components including gamma globulin and albumin could be separated out and safely used.

The symposium was sponsored by the Gustav Stern Foundation.

ANIMAL HUSBANDRY

Vaccine for chicken cancer

Marek's disease costs poultry dealers in the United States \$150 million a year. It is a common and highly contagious form of leukosis, cancer of the lymph system, and is caused by a herpes virus.

There is no evidence that it can be transmitted from chickens to man, but the question is not fully resolved. The Food and Drug Administration, with scientists from the Department of Agriculture, is investigating the problem now in light of an Agriculture report recommending that chickens bearing the virus be banned from sale only if they have visible tumors and are unesthetic.

At the same time, a vaccine is under investigation that may diminish incidence of the disease. Dr. H. Graham Purchase of the USDA's Regional Poultry Research Laboratory in East Lansing, Mich., says that the vaccine, acting by some unknown mechanism, prevents chicks from developing cancer but does not keep them from harboring the infectious herpes virus.

"The mechanism of protection is unknown, but is thought to be different from any so far described," he reported to the Stern symposium.

The vaccine itself is different from most. Instead of containing the herpes virus for Marek's disease, it contains a related virus isolated from turkeys.

Vaccinated chicks continue to be infected by the Marek's disease virus and the virus is able to multiply in the host, yet the disease never develops.

VIROLOGY

Standard for cancer-causing potential

Many DNA viruses cause cancer in animals. Others, while not actually inducing malignancy, are able to transform normal cells. In the process, this second type of virus may acquire a new tumor-causing potential.

At the Stern symposium, Drs. Fred Rapp and Ronald Duff of the Hershey Medical Center in Pennsylvania reported an inexpensive laboratory test for predicting the cancer-causing potential of viruses. Defective particles of a monkey virus, SV40, have been extensively characterized in animal studies (SN: 10/4, p. 308). In culture, they transform normal cells at a rate that correlates with their tumor-causing potential in animals. A series of other viruses previously characterized in hamsters did the same. "Thus the ability of a virus to cause tumors in vivo (in animals) can now be measured by its ability to transform cells in vitro (in a laboratory culture)," Dr. Rapp says.