

biomedical sciences

Cancer and a traitorous chromosome

Both DNA and RNA tumor viruses are known to incorporate their genes into host cells. But incorporation does not always make cells cancerous. Perhaps cellular mechanisms decide whether virus genes transform a cell into a cancer cell. Might transformation depend on one traitorous chromosome?

It might. The first evidence that cancer virus expression depends on a specific chromosome is reported in the December PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, by Carlo M. Croce, Anthony J. Girardi and Hilary Koprowski of the Wistar Institute of Anatomy and Biology. The Philadelphia biologists crossed mouse cells with human cells infected with the "SV 40" cancer virus. If human chromosome C-7 was retained in the hybrid cells that resulted, it was invariably accompanied by the SV 40 antigen. If the chromosome was not retained, the antigen was absent.

"So it seems," Croce told SCIENCE NEWS, "that when the virus genome [genes] get integrated in the C-7 chromosome, at that moment a cell becomes transformed, cancerous. Now we have to try to understand in which way the SV 40 genome gets integrated into that chromosome and induces transformation of the cell."

Vaccine against mental retardation

Of the various viruses suspected of causing birth defects, those known as cytomegaloviruses are among the best documented (SN: 1/12/74, p. 20). In fact, cytomegaloviruses are the best known viral cause of mental retardation. Many women enter pregnancy without antibodies to the viruses and are thus susceptible to infection.

Two British microbiologists, S. D. Elek and H. Stern of St. George's Hospital Medical School in London, now report in the Jan. 5 LANCET that they have developed a vaccine against cytomegaloviruses that can be used to prevent infection during pregnancy.

"The use of such a vaccine in adolescent girls," they propose, "would reduce the incidence of primary cytomegalovirus infection in pregnancy and thus eliminate fetal brain damage due to this cause."

Men as gonorrhea carriers

Women and men alike have pointed out that women have been maligned in various areas of medicine. Physicians are sometimes too hasty in performing radical breast surgery or in tying women's reproductive tubes. Physicians also unfairly accuse women of being the major carriers of the venereal disease gonorrhea, researchers suggest in the Jan. 7 NEW ENGLAND JOURNAL OF MEDICINE.

H. Hunter Handsfield and his colleagues at the University of Washington School of Medicine evaluated the prevalence of gonococcal infections in men. They found that 40 percent of men who had contact with gonorrhea-infected women were infected themselves, but didn't have symptoms. Twenty-eight of the men went without treatment for a week up to a year; 18 remained infected without showing symptoms. The scientists also cultured the bacterium from 59 (2.2 percent) of 2,628 sexually active Army men, and 68 percent of the infected men didn't show symptoms.

They conclude that "asymptomatically infected men constitute a definite reservoir of *N. gonorrhoeae*; a major factor in the current gonorrhea pandemic is the failure of physicians to identify and treat asymptomatic male contacts of women with gonorrhea. . . ."

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natural sciences

By Jiminy—it's not cricket!

While studying the acoustic behavior of two species of mole crickets, entomologists S. M. Ulagarj and Thomas J. Walker from the University of Florida in Gainesville discovered that not only were unmated female crickets attracted to the song calls made by males of their species, but so were other males and mated females. In fact, while broadcasting species-specific songs outdoors, the speakers attracted more mated females than virgin crickets. Males made up 12 percent of the catch and a few crickets of three subfamilies flew to loudspeakers broadcasting mole cricket songs resembling their own.

"We interpret the flight of these individuals (and perhaps of virgin females, too) as dispersive," the researchers write in SCIENCE, "and we suggest that they are using the sexual signaling of males of their species as an indication of a habitat suitable for colonization."

The scientists also note that the attraction of large numbers of mole crickets, by use of loudspeakers, may prove useful in their control. They are considered agricultural pests in southeastern United States.

A Florida resort for turtles

One of the rarest and most beautiful reptile species in the world is the radiated tortoise, with its high-domed black or brown shells splashed with yellow rays. Native to Madagascar, these large animals are considered a food delicacy and consequently have been intensively hunted. Today, they face extinction. Some authorities now believe that the best hope for survival is to breed them in captivity.

Last November, the New York Zoological Society acquired 25 radiated tortoises and established a compound for them in Florida. This is one of the first large colony of radiated tortoises to be established in the United States. Two females have already laid eggs which are expected to hatch this spring.

A haircut for the ladies

When wolf spiderlings emerge from their egg sac, they immediately climb on mother's stomach and settle down for a number of days. Past research has shown that knob-tipped hairs, peculiar to the adult female wolf spider, serve to reduce the irritation of the egg sac and are partly responsible for the young's aggregation behavior. Recently, experiments performed by a research team from Ohio University and from North Carolina's Department of Mental Health give evidence that the knob-tipped hairs also trigger the young's attachment behavior and provides a grasping surface for the inner layer of spiderlings.

When chiffon material covered the abdomens of five female wolf spiders prior to the birth of youngs and five females one day after the youngs' emergence, it took a mean of 5.8 days for the young to settle on the altered area.

When abdominal hair was shaved off five females before the emergence of youngs and five females one day after birth, the newly emerged young took approximately four days to settle on the abdomen while four of the five broods that had one day experience on the mother settled on the shaved area immediately after remounting. All 20 broods eventually settled on clothed and shaved areas. The researchers suggested in SCIENCE that silk threads deposited on the altered areas during the spiderlings' periods of wandering and drinking provided a means of attachment for the spiderlings.

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