

Antiradiation Vaccine

Experiments with an antiradiation vaccine made with urease, an enzyme from the jackbean plant, have been successful with animals

► AN ANTIRADIATION VACCINE that could protect people from radioactive fallout has been effective with mice. An enzyme called urease, produced by the jackbean plant, was the source of the vaccine.

"This is the first time an approach has been developed that can prepare an animal or human weeks or months ahead of time," said Dr. Willard J. Visek of the New York State College of Agriculture, a contract college of the State University at Cornell.

Dr. Visek and Dr. Hung Chen Dang found that only 30% of the immunized mice die from a dose of cobalt gamma radiation that kills about 80% of untreated mice.

The scientists explained that when jackbean urease is injected into an animal, it reacts by producing antibodies to fight the intruder, thus building resistance.

The antibodies also inhibit the interaction between urease, which is produced by bacteria in the digestive system and urea, which is excreted in the urine. Therefore the production of ammonia within the intestinal tract is greatly reduced.

Freeing the body from growth-retarding ammonia is associated with

building resistance against the harmful effects of radiation. Although the exact relationship is not known, since ammonia and radiation both act on cells, it appears that the elimination or reduction of ammonia enables the cells to better fight the radiation. The ability to form new blood cells is vital in radiation disease.

Antiurease injected into the animals comes from rabbits inoculated with urease. Plant urease was first isolated in pure form by the late Dr. James B. Sumner, a biochemist at Cornell, who shared the Nobel Prize for this work in 1946 and with whom Dr. Visek studied.

While at the University of Chicago, Dr. Visek used urease inoculations on about 40 human patients with liver disease, and found that halting the flow of ammonia into the liver helped to fight the disease. The immunization reduced or eliminated the need for antibiotics and allowed an increase in protein intake that is crucial for maintaining body defenses.

The findings were reported at the meeting of the Federation of American Societies for Experimental Biology in Atlantic City.

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Cornell University

IRRADIATION STUDY—Prof. Willard J. Visek, M.D., animal scientist, New York State College of Agriculture, Cornell University, points to a lead weight and shield where cobalt will be attached for irradiation of mice as Dr. Hung Chen Dang, research associate, looks on. The scientists have found an antiradiation vaccine that is effective with mice and may also protect humans from radioactive fallout.

Use of Silver Solder May Be Hazardous

► THE HOBBYIST who uses silver solder containing cadmium metal may be flirting with a serious health hazard and not know it, said Dr. Paul Joliet, chief of the U. S. Public Health Service's division of accident prevention.

Recent deaths related to the use in industry of silver solder containing cadmium underscore the need for hobbyists to be aware of the danger when using cadmium solder in home workshops. Cadmium, when overheated, vaporizes and produces cadmium oxide—a highly dangerous fume which can cause death even when inhaled in small quantities.

Dr. Joliet emphasized that the risk lies in the fact that the fumes of cadmium are practically odorless and lethal doses can be inhaled without any irritation or discomfort that would give warning. In addition, it may take from four to eight hours for serious symptoms to develop.

Cadmium is used in only certain types of silver solder. The commonly used tin-based solders do not present this hazard. Whenever cadmium-based solder is used, precautions should be taken to avoid breathing the solder fumes, and to assure the work area is well ventilated.

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INVENTION

Inventor of the Year Worked on Pacemaker

► MANY VICTIMS of heart attacks are now alive because their heart beat is regulated by a pacemaker powered by a tiny mercury battery.

Dr. Samuel Ruben, who developed the life-saving power source, as well as some 300 other patented devices, was honored as "Inventor of the Year for 1965" by the Patent, Trademark and Copyright Institute of George Washington University, Washington, D. C.

Among Dr. Ruben's other important inventions is the dry electrolyte condenser now used in virtually every radio and television set as well as in the starters of most electric motors. Dr. Ruben also developed a rectifier tube.

Both of these devices are used in huge numbers in all kinds of electronic equipment. More than 300 million electrolytic condensers are produced each year.

Additional inventions by Dr. Ruben include a flexible wire with ceramic insulation that is virtually indestructible, and a rectifier that is the basis of one-hour battery rechargers and of high-current resistance welders.

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