

Rapid test for Lyme disease on the way

A bacterial infection of humans and animals transmitted by tick bites, Lyme disease was considered rare when first identified in 1975. But increasing numbers of reported cases have made the disease a public health problem. Because advanced Lyme disease can cause debilitating arthritis, neurological damage and heart problems, researchers are looking for better ways to detect the *Borrelia burgdorferi* bacteria in the blood before these serious complications develop. Early treatment with antibiotics can stop the disease from causing serious health problems.

The rapid diagnostic test reported to be closest to marketing is that developed at Tufts University School of Veterinary Medicine's laboratory in Jamaica Plain, Mass., where scientists say clinical trials of the one-hour test should be well underway by the middle of the year. Andrew Onderdonk and his co-workers are collaborating with Cambridge BioScience of Worcester, Mass., to develop commercially available test kits based on Tufts technology. The veterinary test is scheduled for marketing this year, the human test for 1989.

Onderdonk told SCIENCE NEWS that physicians should test for human infection within days after tick bites occur, while the characteristic skin rash is still present. It also may be prudent, he says, to screen residents in areas where the disease is most prevalent. Those areas include California, Wisconsin, Minnesota and the Northeast.

If supping on sushi, watch that wasabi

If you don't recognize the mound of green "on the side" at the sushi restaurant, it may not be wise to play the fearless forager. A horseradish-like condiment made from an Asian plant, wasabi mixed in small amounts with soy sauce is meant to titillate slumbering taste buds. But for the uninitiated, over-enthusiasm could be a serious matter, says a Bronx, N.Y., physician in the Jan. 8 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

In a letter to the editor, Daniel E. Spitzer of Montefiore Hospital reports the case of a 63-year-old man who found that first taste of wasabi overwhelming. After eating the entire wasabi serving, the diner became pale and confused and began sweating profusely. He then "staggered from the restaurant and collapsed on the sidewalk," says Spitzer, adding that "apart from developing a loathing for sushi, the patient suffered no untoward long-term effects." But Spitzer cautions that such profound physiological responses could be serious in patients with weak blood vessels in the brain or heart. He proposes that "unseasoned diners . . . be told to watch the wasabi."

In Mexico, fetal cells for Parkinson's

Scientists from several medical institutions in Mexico City said last week that they have transplanted brain cells from a human fetus into patients with Parkinson's disease, a condition characterized by lack of the neurotransmitter dopamine. The announcement confirmed earlier reports that Mexican scientists were using the experimental — and controversial — procedure.

To replace the missing dopamine and stop the tremors and muscular rigidity caused by Parkinson's disease, scientists in several countries have been studying the use of cell transplants that might stimulate dopamine production. The studies went beyond animal experimentation last year when the same Mexican researchers announced they had successfully transplanted cells from patients' adrenal glands into their brains (SN: 4/18/87, p.244). Some scientists, however, consider fetal tissue to be a potentially superior alternative. Fetal brain cells, they suggest, might be better than adrenal cells at enhancing dopamine production, and the major surgery involved in

collecting the patient's adrenal cells could be eliminated.

In a letter published in the Jan. 7 NEW ENGLAND JOURNAL OF MEDICINE, the Mexico City group reports on the progress of two Parkinson's patients who received transplants of human fetal tissue last September. Thus far, both have had no adverse complications and have shown "an evident objective improvement" in their symptoms, say the scientists. The fetal cells used came from a 13-week-old fetus spontaneously aborted by a woman with a history of miscarriages.

Although the scientific community thought the transplants were being done in Mexico, this apparently is the first official acknowledgment that such experiments are underway in that country. Last November, Sweden became the world's first nation to publicly announce that its researchers were doing the procedure, which is controversial because of ethical questions and a lack of consensus among researchers as to its usefulness (SN: 11/28/87, p.341).

Potential AIDS treatment 'binds' virus

Treatment with cell-surface molecules that bind the AIDS-causing HIV virus may at least partially block infection by the virus, according to recent results from five independent research groups. CD4 receptors — proteins that seem to serve as "docking sites" for HIV on certain lymphocyte cells — are thought to play a pivotal role in HIV infection. Adding excess CD4, made with genetic engineering techniques, apparently can trick the virus-to-cell binding system and adsorb viruses before they can attack cells, say the scientists.

Groups led by scientists from Harvard Medical School in Boston, the Basel (Switzerland) Institute of Immunology, Biogen Research Corp. in Cambridge, Mass., and Smith Kline and French Laboratories in King of Prussia, Pa., reported their results in the Jan. 7 NATURE. Another research team at Genentech, Inc., in South San Francisco, Calif., and Harvard Medical School reported similar positive results in the Dec. 18 SCIENCE. While the same basic principles apply to all the *in vitro* studies, the different CD4 preparations were made with a variety of recombinant DNA methods, using either insect viruses or mammalian cells inserted with CD4 genes.

Commenting on CD4 in the same issue of NATURE, Robin A. Weiss at London's Institute of Cancer Research at Chester Beatty Laboratories says his studies show the CD4 preparations can inhibit multiple strains of HIV-1, HIV-2 and monkey immunodeficiency viruses. All the authors emphasize that studies using the protein preparations in humans, while a hoped-for consequence of the current work, may show that CD4 is not an appropriate treatment for AIDS.

Taking the shock out of septic shock

Bacteria in the bloodstream can be deadly, overwhelming the body's defenses and causing death from shock-induced organ failure. Scientists studying this difficult-to-treat condition — called septic shock, of which toxic shock syndrome is an example — have most recently focused on factors released by a patient's own cells in response to bacterial toxins. One such factor is cachectin, or tumor necrosis factor (SN: 1/17/87, p.42). Researchers at New York Hospital-Cornell University Medical Center in New York City, Chiron Research Laboratories in Emeryville, Calif., and Rockefeller University in New York City report in the Dec. 17 NATURE that baboons survived if injected with antibody against cachectin two hours prior to injections of bacteria. But other baboons — either treated with the antibody only one hour before bacteria were injected, or not at all — died from organ failure. The results indicate that cachectin is a major factor in fatal shock during blood infection, and suggest a possible therapy, say the scientists.