be built within 25 years that would destroy 99 percent of the incoming warheads.

"I believe some research should be supported, but general population protection is a pipe dream," a respondent wrote.

A negatively phrased question, "Scientific review has not played a sufficiently important role in structuring the current SDI program," prompted 60.7 percent of the respondents to "strongly agree" and another 23.8 percent to "agree." One respondent added, "As far as I know, only those physicists where research is supported by SDI funds approve of it."

—D.E. Thomsen

Viral involvement in Kawasaki syndrome?

Researchers from several Harvard-affiliated institutions have found signs of viral involvement in Kawasaki syndrome. The cause of the illness, which can result in heart problems in young children, has remained elusive (SN: 7/6/85, p. 10).

Kawasaki syndrome includes among its symptoms fever and rash. About 15 to 20 percent of children with it develop weakened walls in their coronary arteries. The syndrome is more common in Japan, where it was discovered, than in the United States, which has several hundred cases a year.

Incidence of the disease shows a pattern consistent with an infectious agent — cases tend to occur every few years and are most common in winter and spring. Researchers have focused their attention on a retrovirus, a type of virus that can promote the type of white blood cell growth seen in the syndrome.

The Harvard group detected reverse transcriptase, an enzyme peculiar to retroviruses, in 5 of 14 children with Kawasaki syndrome. The enzyme could not be found in cells from healthy children or children with other fever-related illnesses.

The researchers were able to photograph viral particles in white blood cells through electron microscopy, and they were also able to transfer infection from one cell to another. Their work is described in the Oct. 30 NATURE.

The NATURE report confirms and extends a study in the Sept. 6 LANCET by Stanford T. Shulman and Anne H. Rowley of Children's Memorial Hospital in Chicago. They detected reverse transcriptase in 8 of 18 children with Kawasaki syndrome.

But while both studies indicate the virus is present in diseased children, neither proves it is the cause. "The exact role remains to be elucidated," says Donald Y. M. Leung of Harvard Medical School. Says Rowley, "I'd put it in the realm of an exciting possibility."

—J. Silberner

Roach hormone: Clue to human ancestry?

The strongest hormonal evidence yet of a common ancestry for insects and mammals has been provided by a pair of newly identified neuropeptides, isolated from cockroaches. These chemicals, called leucosulfakinins (LSKs), bear a strong similarity both in structure and function to hormones present in mammals, including humans. The strong similarity between the insect and mammalian neuropeptides, says one of the researchers, Ronald Nachman, is "evidence that our [human] hormones have very ancient roots."

Biochemical similarities between primitive species, like the cockroach, and more recent branchings on the evolutionary tree, like mammals, serve as "molecular clocks" — a means for identifying and tentatively dating the evolutionary divergence of what were once closely related organisms. The high degree of similarity between the LSKs and two hormones present in humans — human gastrin II and cholecystokinin (CCK) — indicates that these neuropeptides represent one of the slowest ticking of the molecular clocks, according to Nachman, a chemist at the U.S. Department of Agriculture (USDA) Western Regional Research Center in Berkeley, Calif.

Both LSK and LSK-II — amino-acid-chain molecules released by the Madeira cockroach's brain — appear to be hormones. Fifty-five percent of LSK's amino-acid sequence is identical to human gastrin II's, half of LSK-II's matches that in the frog neuropeptide caerulin and greater than 40 percent of LSK-II's amino-acid chain matches that of CCK. These are the highest percentages of structural similarity reported between insect and vertebrate neuropeptides, according to the researchers. Even more convincing, Nachman says, is that both LSK and LSK-II contain sulfate groups — a rare occurrence in hormones of any species. This same rare sulfation is present in the vertebrate neuropeptides they resemble.

Moreover, gastrin, CCK and both LSKs stimulate muscle contraction in the digestive tract; gastrin and both LSKs stimulate blood circulation. This homology of function further establishes the neuropeptide link between insects and mammals, Nachman believes. And because the activity of the LSKs has not yet been fully characterized, it's possible they may share even more attributes in common with the mammalian hormones — such as the ability to regulate digestive tract water content, to make organisms feel sated by a meal and to secrete enzymes. Nachman, William F. Haddon and colleagues from two other research laboratories described LSK's structure and function for the first time in the Oct. 3 SCIENCE; LSK-II's have just been published in the Oct. 15 BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS.

"This [work] is interesting in that it shows there's something common to us and insects that goes back 500 million years and has changed so little," says Jerold M. Lowenstein, a molecular-evolution researcher at the University of California at San Francisco. "It gives you insight into how evolution works; it conserves those things that are important and work." David Schooley, a biochemist at the Palo Alto, Calif.-based Zoecon Research Institute, agrees.

Two years ago Schooley coauthored one of the first papers identifying a homology between an insect hormone and a functionally similar mammalian hormone. But such investigations are still rare, notes G. Mark Holman, a collaborator on the LSK work at a USDA lab in College Station, Tex. "Up until about a year ago there were only four insect neuropeptides of known structure," he says. "Now there are approximately 20."

As more are found, Nachman says, one may expect to see more of these biochemical links between distant twigs on the evolutionary tree.

—J. Raloff

New northern sky survey

When astronomers make an image of some part of the northern sky and find something new, they very often check their discovery against the image of the same area in the Palomar Sky Survey. The survey is a series of photographic plates covering the whole northern sky that serves as one of astronomers' most popular reference atlases.

Now a new Palomar Sky Survey is under way. The old one, starting in 1949, took seven years to make. In three decades many stars have changed their positions, and astronomical observing capabilities have improved substantially. The same 48-inch Schmidt camera that did the previous survey will do this one. But now the wide angle telescope-camera has been fitted with a new $380,000 lens to improve its capabilities. The survey will produce 2,682 plates to cover the entire northern sky. Completion is expected by 1991. This time there is a similar Schmidt camera in Australia doing a complementary survey of the southern sky.

The survey is expected to discover a number of new objects, quasars, galaxies, etc., on immediate inspection of the plates as they are developed. The recently reported Comet Wilson was found on one of the first plates (SN: 9/20/86, p. 181). However, nobody sees everything interesting at first look, so the survey's enduring value will be as an archive and standard of comparison for future observations. □