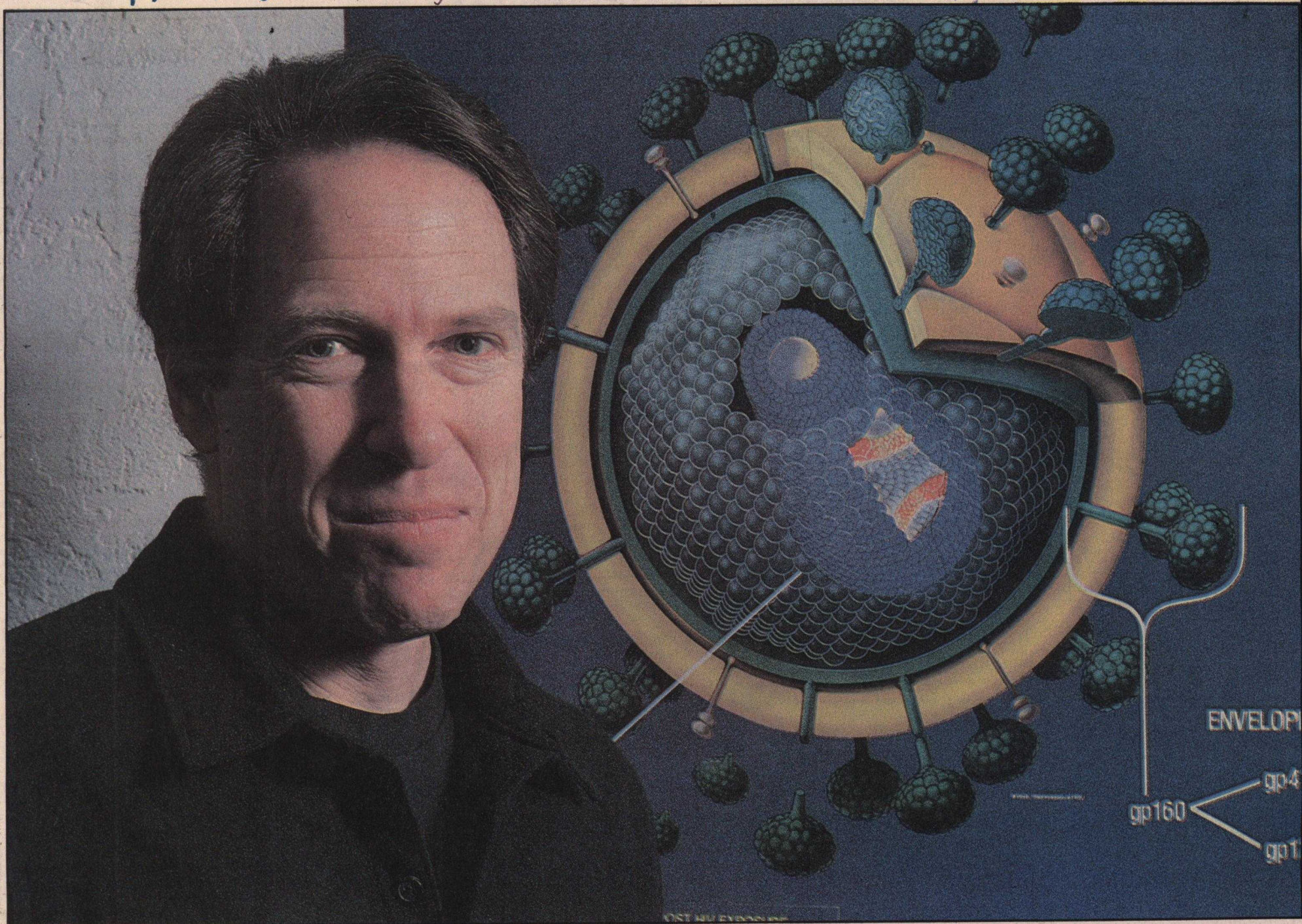


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Shmuel Thaler/Sentinel

Peter Radetsky's new book is about the 'amazing critters' that cause 80 percent of all sickness in the U.S.

Author sheds light on twilight world of viruses

By TRACIE WHITE
Sentinel staff writer

AFTER several days of suffering flu-like symptoms, you finally head to the doctor, only to be told there's nothing he can do. You've got a virus. Go home, take an aspirin and good luck.

"The doctor either says you have a bacteria and gives you an antibiotic or says you have a virus," said Peter Radetsky. And he sends you home to wait out the disease.

"I had been wondering," Radetsky said, "what are these things that no one can deal with?"

Radetsky spent the past two years tracking down this elusive, submicroscopic particle. Along with his own experiences at the doctor's office, the discovery of the AIDS virus piqued his interest and led him to write his recently published book, "The Invisible Invaders, the Story of the Emerging Age of Viruses."

FROM COMMON annoying illnesses to deadly ones, viruses are believed to cause 80 percent of all disease in the United States, Radetsky said. Leading the pack of uncontrollable viruses that have been discovered in the past decade is the AIDS-linked HIV virus. Other newly uncovered viruses include cancer viruses, and there's speculation that Chronic Fatigue Syndrome, which causes illness in millions of Americans, also may be caused by a virus.

"Maybe a decade ago we thought we had infectious disease under control," said Radetsky,

a science-writing instructor at UC Santa Cruz and a regular contributor to Discovery magazine. "No one has that optimism any more."

From his home in La Selva Beach, Radetsky researched viruses for two years, conducting interviews nationwide and reading scientific journals.

He stressed that he's not a scientist; he's a writer. He has a doctorate in literature.

He moved from Colorado to Santa Cruz County in 1972. To help support his family and his writing career, he worked as a carpenter and at a winery for several years before UCSC hired him as a science-writing instructor. That's when his fascination with science writing began.

"I write for myself," Radetsky said. "I figure if I can understand it, anyone can understand it."

Radetsky's fascination with the virus spills over into his writing. At times he sounds almost like a science-fiction writer. His goal, he said, was to make the book as intriguing as a mystery novel. He even includes a chapter entitled "Star Wars," which describes the internal battles that the body wages against viral attacks.

"Viruses are amazing critters," he said. "Think of something that's living. It moves, it eats, it excretes, it reproduces. Viruses do none of that. They can't move, they don't need to eat. They are completely at the mercy of their environment. They're in the twilight area between being alive and dead."

THE VIRUS is like an M&M's candy, Radetsky said. The candy shell is composed of protein and the chocolate is the gene material inside. It's a very simple organism. Some are transported by air, some by water, others by bodily fluids. Once inside the human body, the virus is dependent on the body's motions to move it along. On the surface of the M&M — or virus — are little projections that work like keys, Radetsky said. The keys unlock the cells of the body. Sometimes the virus is brought inside and then killed. Other times, the genes of the virus push aside the genes of the cell, which forces the cell to stop making other cells and start making more viruses.

Protection against a virus depends on either preventive vaccines, as in the case of polio or smallpox, or on the body's immune system.

"If it's just a cold it's no big deal," Radetsky said. "The immune system can kill it off."

With the discovery of vaccines, scientists began to believe that infectious disease could finally be controlled.

Parasitic viruses probably have been hanging around since life began, but scientific awareness of viruses began about the turn of the century. The first virus wasn't actually seen until the electron microscope was developed in 1939.

"People discovered that if you survived, say, small pox, you never got it again," Radetsky said. Scientists figured if you could introduce a simulated version of the disease, you could

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Virus

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build antibodies against the real virus when, and if, it came along. A vaccine delivers a high concentration of the weakened or dead virus into the body.

Hailed as one of the greatest discoveries of the time, Jonas Salk discovered the polio vaccine in 1952. Vaccines are now used to prevent rabies, mumps, smallpox, and influenza.

ONE OF THE problems with the AIDS-type virus, is that like the flu virus, it's a "quick change artist," Radetsky said. It changes its appearance so the body can't recognize it and marshal a defense against it. The virus changes the shape of the key-like projections on its surface, and other identifying characteristics.

"It's a brand new critter and the body doesn't have any ammunition in reserve," Radetsky said. That's why you can catch the flu over and over again.

The virus is also incredibly complex and difficult to conquer because it can lie dormant for years,

even while inserting its own genetic code into the body's cells.

But currently, there is hope among researchers that an AIDS vaccine can and will be made, Radetsky said. Researchers at UC Davis and several other medical institutions have successfully used an AIDS vaccine on monkeys.

"The concern is, what if by mistake the vaccine virus goes to work?" Radetsky said. Through the use of genetic engineering, researchers are attempting to make parts of the AIDS virus from scratch. By creating just a piece of the virus and using it as a vaccine, this may be enough to build antibodies without the possibility of actually causing the disease.

Through his research, Radetsky said, he has come to hold a great deal of respect for viruses, and for the scientists that have tracked these particles for decades.

"It seems that viruses may be little bits of ourselves that have escaped and taken on their own existence," Radetsky said. "We're all in this together, all just trying to survive."