UCSD chemist honored for efforts to improve drugs

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Murray Goodman, a professor of chemistry and biochemistry at the University of California, San Diego, has received an award from the American Chemical Society for his efforts to improve drugs to relieve pain, combat rejection in organ transplantation, and treat illness with fewer side effects.

The Ralph F. Hirschmann Award in Peptide Chemistry, sponsored by Merck Research Laboratories, was presented to Goodman today during the chemical society's national meeting in San Francisco.

In his laboratory, Goodman and colleagues are investigating methods that mimic the action of peptides, smaller versions of proteins. These molecules help direct processes in the body as diverse as transmitting signals in the brain to destroying an invading virus.

"The question we ask is how do they do it, and how can we improve on it--that is, make a drug more selective and more potent," said Goodman.

Among the drugs under study in Goodman's lab is opium-derived morphine, used to treat chronic pain. Aside from potential addiction and tolerance consequences, this drug also can inhibit digestion and breathing.

"We're interested in the possibility of taking nature's opioids, such as endorphins, and trying to make them more potent and effective, but would hopefully not involve the defects of morphine," explained Goodman.

The work in his lab involves the use of computer simulations to design and analyze new candidate drugs, and various sensing techniques to determine their molecular structure. Goodman then takes the candidates to colleagues in pharmacology, oncology, and other clinical sciences to learn how they act in living cells.

"That way we can relate the structure of the synthetic molecule to its biological properties," he said. "That tells us things to consider for the next generation of compounds."

Some other candidate drugs Goodman is investigating include painkillers, anti-cancer agents, and a structural protein called collagen currently in clinical trials.

The American Chemical Society, with a membership of 150,000 chemists and chemical engineers, was founded in 1976. The society is recognized as a world leader in fostering science education and research, and in promoting public understanding of science.

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