



Leading the way in **Combating Bioterrorism**



Bal Ram Singh, Ph.D.

As the nation grappled with the reality of anthrax and the probability of additional threats of bioterrorism, the importance of research by scientists like Bal Ram Singh, professor of chemistry/biochemistry and marine science, reached unprecedented proportions. The United States Army Medical Research and Materiel Command granted Dr. Singh \$1,107,060 for a three-year study of “Receptors of botulinum neurotoxins.” Dr. Singh will examine clostridium botulinum, the producer of the most toxic protein known to humankind, botulinum neurotoxin (BoNT). Because of their extreme toxicity, BoNTs are on the top of the list of biological warfare threats (Class A agents). Therefore, an understanding of the BoNT’s mode of action is critical to the creation of antidotes against botulism, in general, and against biothreats of botulism, in particular.

The research will focus on designing antidotes against botulism based on the identity and structure of the receptor. The receptor can also be used as a BoNT capturing agent in a biosensor for the detection of different BoNT serotypes. Both issues are critical for defense preparedness. During the anthrax scare, Dr. Singh shared his scientific expertise with numerous media outlets. He is the director for the joint UMass Dartmouth/UMass Lowell doctoral program in chemistry and UMass Dartmouth’s Center for Indic Studies. Dr. Singh has published two books, over 100 research articles, given 200 presentations, 60 invited lectures worldwide, and had three patents filed. Dr. Singh has supervised 18 graduate students, including 4 at the Ph.D. level. His students have garnered 23 external awards. Dr. Singh was the first recipient of UMD’s Scholar of the Year Award in 1995, and in 1997, he was honored as a Henry Dreyfus Teacher-Scholar. His specialty areas include physical biochemistry of biological macromolecules. Dr. Singh received his Ph.D. from Texas Tech University.