Robert D. Maurer Distinguished Lecture Series 2010

Facing the Growing Threat of Bioterrorism

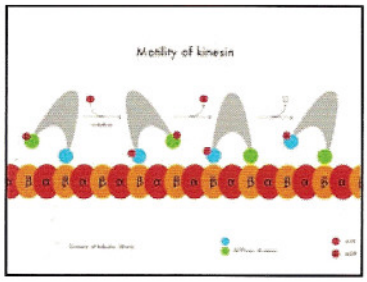
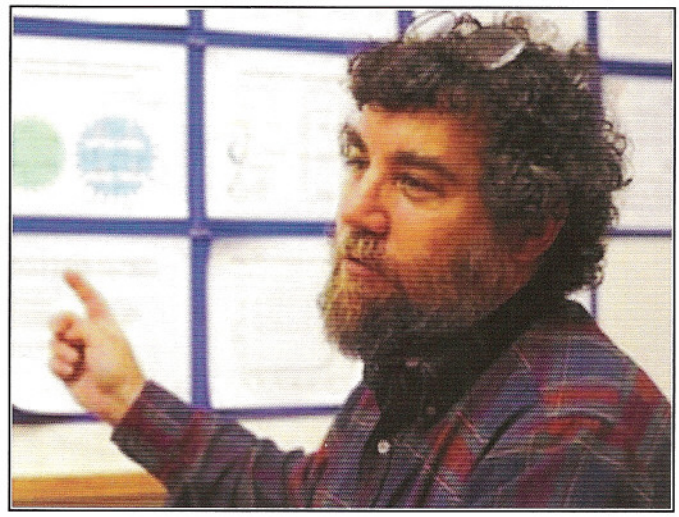


Diagram from "Kinesin" article, Wikipedia, the Free Encyclopedia

Steven M. Block

S.W. Ascherman Professor of Sciences
Departments of Applied Physics and Biology
Stanford University



Giffels Auditorium

Public Lecture, free and open to the public

7:30 PM - 9:00 PM
Thursday, March 18, 2010

Reception after lecture
Parking in Harmon Deck will be validated

The extraordinary pace of modern biotechnology makes it necessary to contemplate a whole new generation of biological weapons, including those based on genetically-engineered pathogens. At the same time, our nation -- along with the world at large -- struggles to cope with ongoing threats posed by the current generation of biological weapons and also by naturally-occurring infectious diseases, which are by no means under control. Much of the thinking behind our effort to limit biological weaponry has been influenced by a legacy of nonproliferation approaches developed during the past half-century to limit the spread and use of nuclear weapons.

Unfortunately, nuclear and biological weapons of mass destruction differ in fundamental ways, and so, therefore, do the most effective strategies to counter these. Ironically, recent legislative efforts to regulate pathogens seem to be doing more to damage our nation's ability to muster nimble defenses against bioweaponry than to inhibit the access of a potential adversary to these same weapons. Inevitably, the key to countering threats posed by bioweapons, as well as emerging infectious diseases, will come from the development of a powerful national health infrastructure, and not, for example, from an ability to preclude or preempt most future attacks. This talk will contemplate the future of bioweapons and the most effective strategies for combating these. There's much work to be done, but also grounds for optimism.

Dr. Steven M. Block, professor of both Applied Physics and Biological Sciences at Stanford University, is a member of the scientific advisory group JASON. Block has been elected to the U.S. National Academy of Sciences (2007) and the American Academy of Arts and Sciences (2000). He has won the Max Delbruck Prize of the American Physical Society (2008), as well as the Single Molecule Biophysics Prize of the Biophysical Society (2007). He served as President of the Biophysical Society during 2005-6. Work in his lab has led to the direct observation of the 8nm steps taken by kinesin and the demonstration that these steps consume only a single molecule of adenosine triphosphate (ATP) as fuel, up to applied loads on the motor enzyme of several picoNewtons (pN). While consulting for the United States government through JASON, Block has researched the many threats associated with bioterrorism and headed influential studies on how advances in genetic engineering have impacted biological warfare.

Sponsored by the Physics Department
Fulbright College of Arts and Sciences