

SCIENCE CENTER HARVARD UNIVERSITY

RESEARCH LECTURES FOR NON-SPECIALISTS

wednesday, november 28, 2007

8 p.m.

lecture hall d

MOTION: A HALLMARK OF LIFE. FROM MARSUPIALS TO MOLECULES

Motion is usually a way of distinguishing live animals from those that are not, but not always. Just as for the whole animal, motion is an essential part of the function of the cellular components. What about the molecules themselves? Does motion distinguish animate from inanimate molecules? For animals to move, they require energy, which is obtained primarily by using oxygen. So how are whales and dolphins able to use their muscles to dive to great depths, where oxygen is not available? The immediate energy source for muscle function is the molecule ATP. Nature, by evolution, has developed a marvelous rotary nanomotor for the synthesis of this molecule. Experiments and simulations, particularly those with supercomputers, are now revealing the mechanism of this nanomotor and other cellular machines.

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the talks are designed for the interested public