DNA Vaccines And HIV / AIDS
Ricardo Belmontes, James Ham, Ricardo Paz, Emily Scott-Solomon
Advisors: Professors Jill Rulfs and Helen G. Vassallo

Over 33 Million People Live with HIV/AIDS Worldwide

HIV is a retrovirus that infects T-cells which are central in adaptive immunity. It enters a cell by attaching to the CD4 receptor and the CXCR4 or CCR5 co-receptor. The HIV infection causes the body to lose cell immunity. The current treatment for HIV/AIDS, a triple cocktail which combines protease and reverse transcriptase inhibitors, costs about $10,000-$15,000 a year. However, the protease inhibitors increase the risk of cardiovascular disease and sudden heart failure in middle-aged HIV/AIDS patients.

Creating the Vaccine: Funding

While the cost of delivering a DNA vaccine to a patient is cheap, the initial discovery cost of the vaccine is in the millions. In 2000, contemporary pharmaceutical companies estimated the cost of creating a new drug was $403 million. Two potential HIV / AIDS vaccine trials were scheduled, estimated to cost $140 million and $63 million dollars. In order to create a vaccine, additional funding would be needed from outside sources:

- The Bill and Melinda Gates Foundation
- Private foundations
- Universities and research centers
- National Institute for Health (NIH):
  - Estimated budget in 2008 is $2,905,219,000 with $596,195,000 allocated for AIDS/HIV research.

References: