

MICROBIOLOGY RETREAT 2012

at Thompson Island











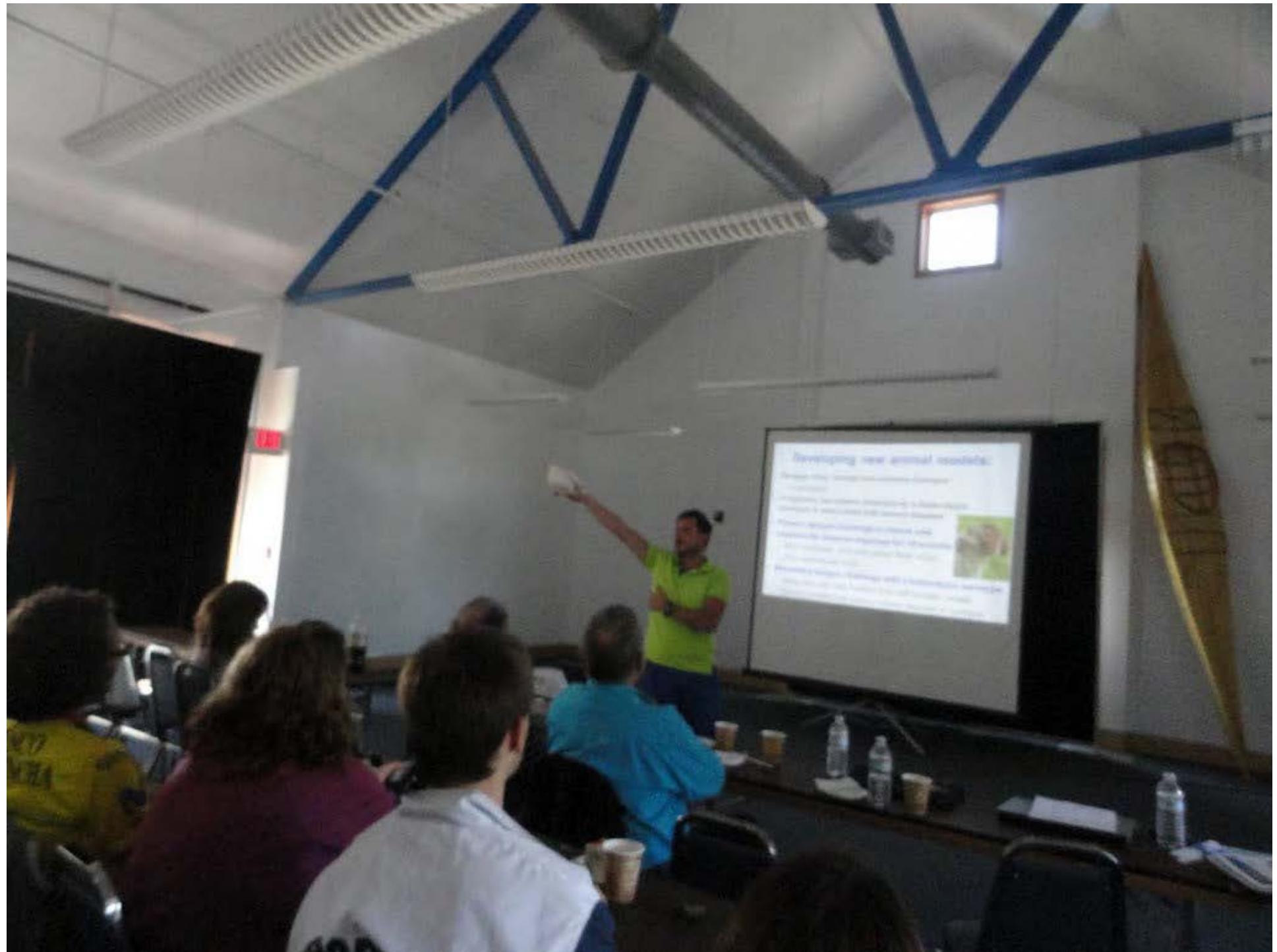


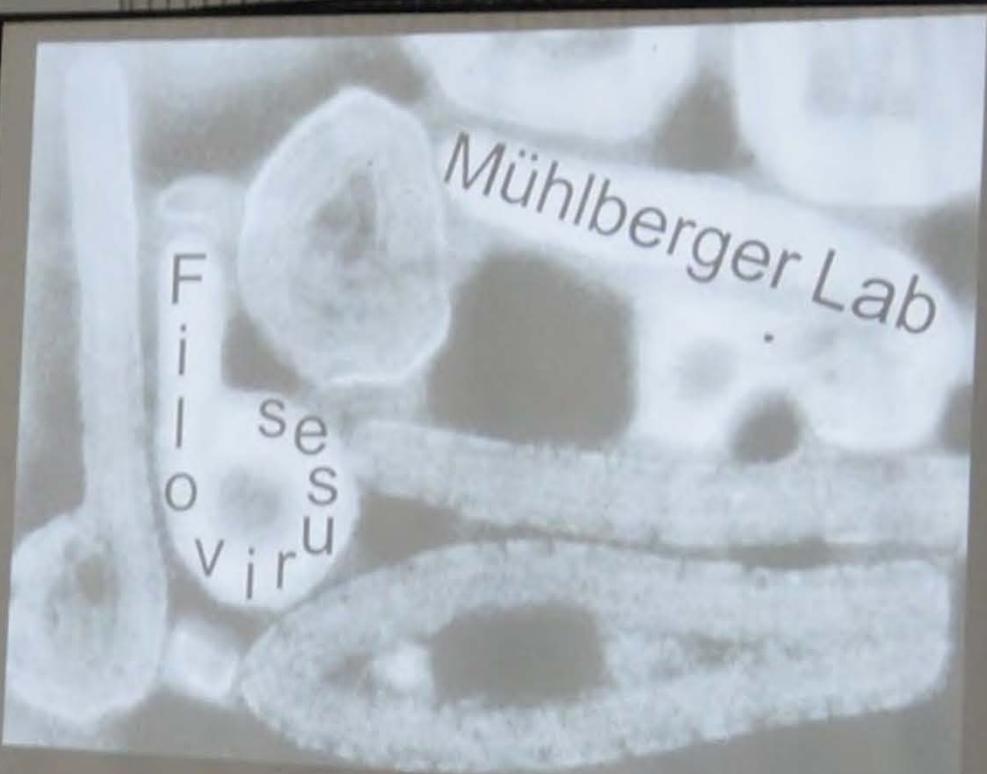












Filovirus HF – Symptoms

- systemic infections
- fatality rates between 23-89% depending on virus species

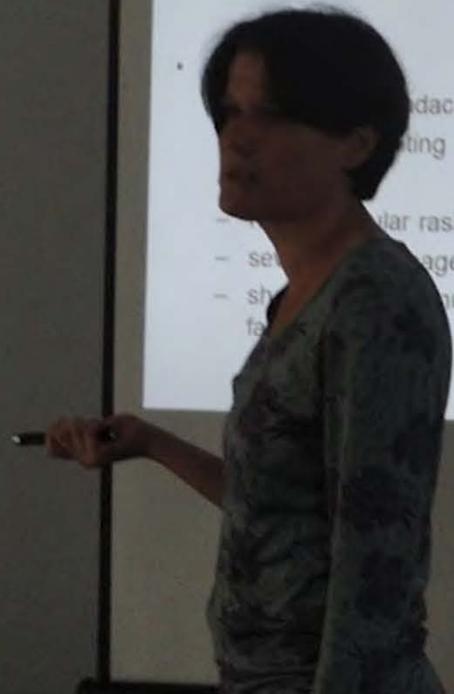
– headache, malaise
– vomiting
– maculopapular rash
– septicemic changes
– shock, multiorgan failure



prominent cutaneous maculopapular rash
(Martin et al., *DMW* 93, 1968)



preagonal stage: hemorrhages
(Stiles and Boelle, *in: Marburg virus disease*, 1971)





Bacterial Innate Immune Evasion Strategies

N. gonorrhoeae



Macrophages
Dendritic Cells



P. aeruginosa



Epithelial Cells



Endothelial Cells



Origins of Drugs: Example Multiple Sclerosis

1993	Interferon-Beta	Anecdotal clinical observation
2000	Mitoxantrone	Chemotherapeutic
2004	Anti-VLA4 (<i>Natalizumab</i>)	Driven by EAE model data
2009	Copaxone	Skewing T cell differentiation?
2011	FTY720 (<i>Gilenya</i>)	Natural products survey, model data
2012	Teriflunomide	Leflunomide metabolite, pyrimidine inhibitor
2013	Anti-CD52 (<i>Alemtuzumab</i>)	Transplant efficacy
2013	BG12	Activity in psoriasis, pilot study in MS
2013	Anti-CD20 (<i>Rituximab</i>)	Indication expansion from RA indication
2013	Anti-CD25 (<i>Daclizumab</i>)	Transplant efficacy, Pilot NIH study

Future While not frequently admitted, MS may be done except for progressive disease and repair efforts e.g. triggering remyelination

Re-purposing of an existing drug
Basic science driven application



Same Strategies for Drug Discovery - Post 2000

• Target validation
• Lead optimization
• Clinical development
• Manufacturing
• Intellectual property
• Business valuation

• Same strategies for drug discovery post 2000

• Same validation
• Same lead optimization
• Same clinical development
• Same manufacturing
• Same intellectual property
• Same business valuation



A woman in a black t-shirt stands at a podium, presenting to an audience seated in rows of chairs. She is gesturing with her hands as she speaks. The audience includes several people, some of whom are wearing shirts with "GORDON" printed on them. The room has a high ceiling with exposed pipes and a large wooden canoe leaning against the wall on the right side.

EXIT

*Emerging viruses: from basic
science to vaccines and therapeutics*



































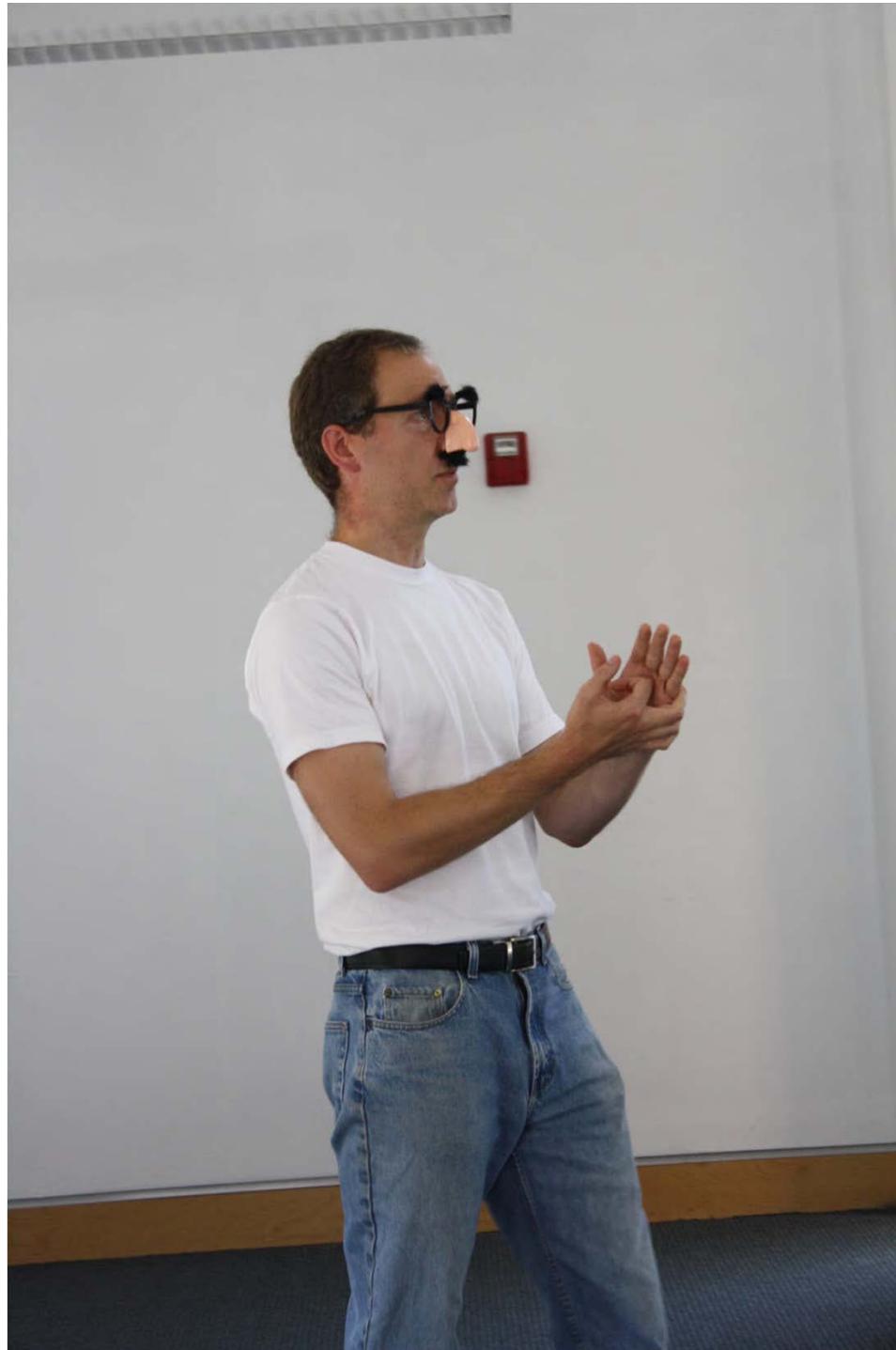




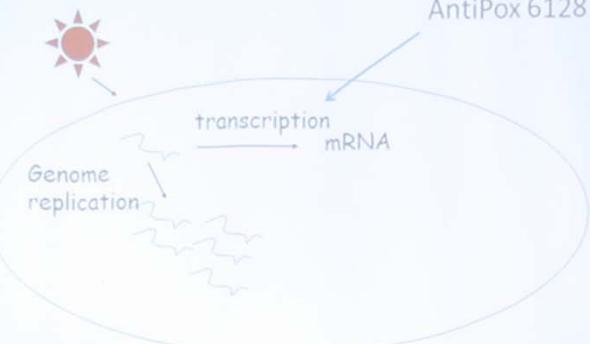




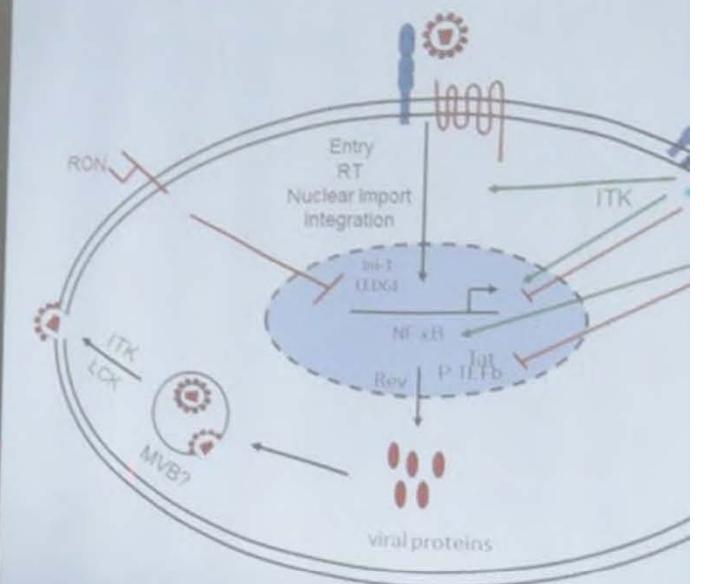




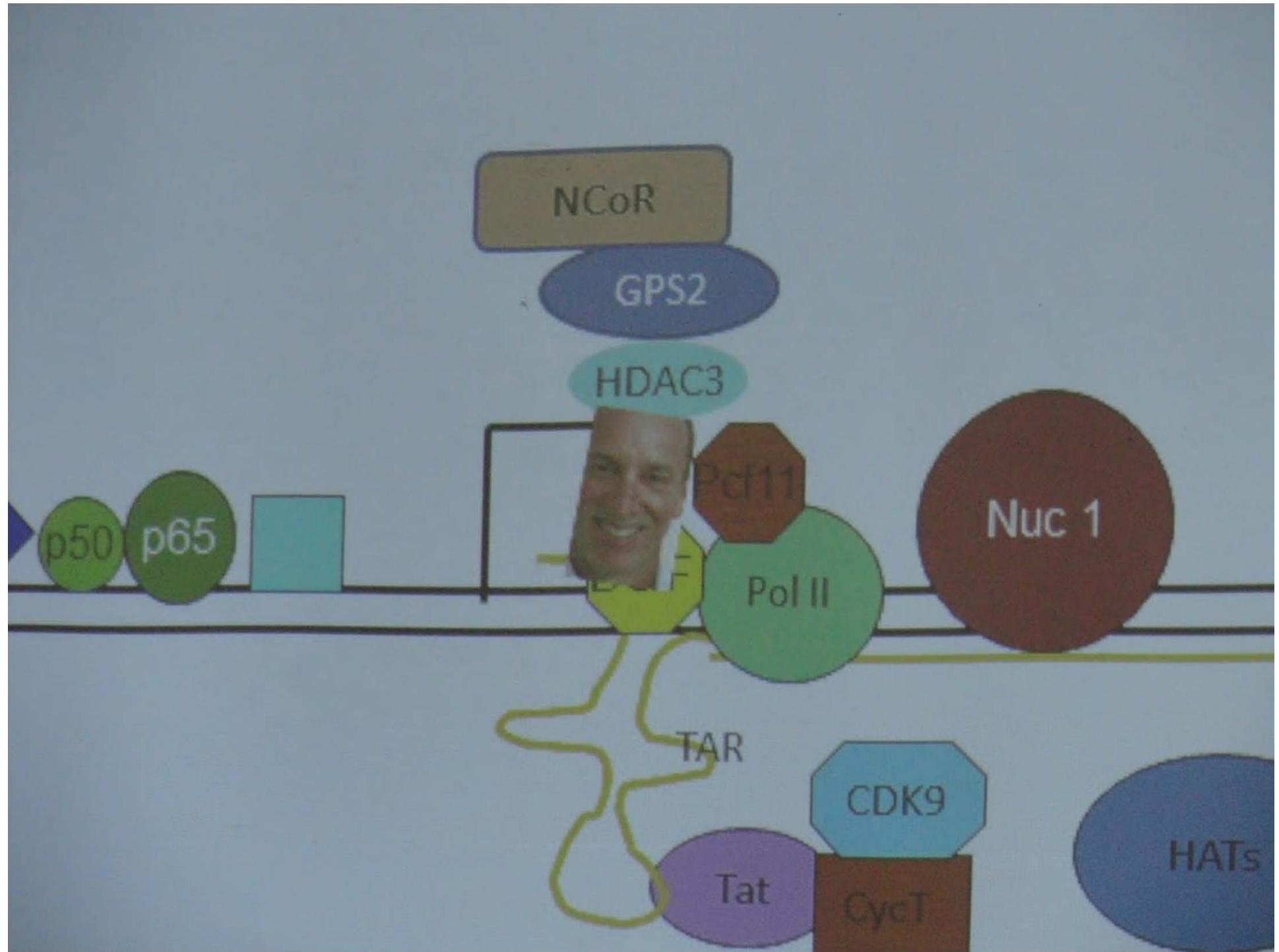
Probes Targeting Poxviruses



CELLULAR SIGNALS AND THEIR IMPACT ON HIV REPLIC



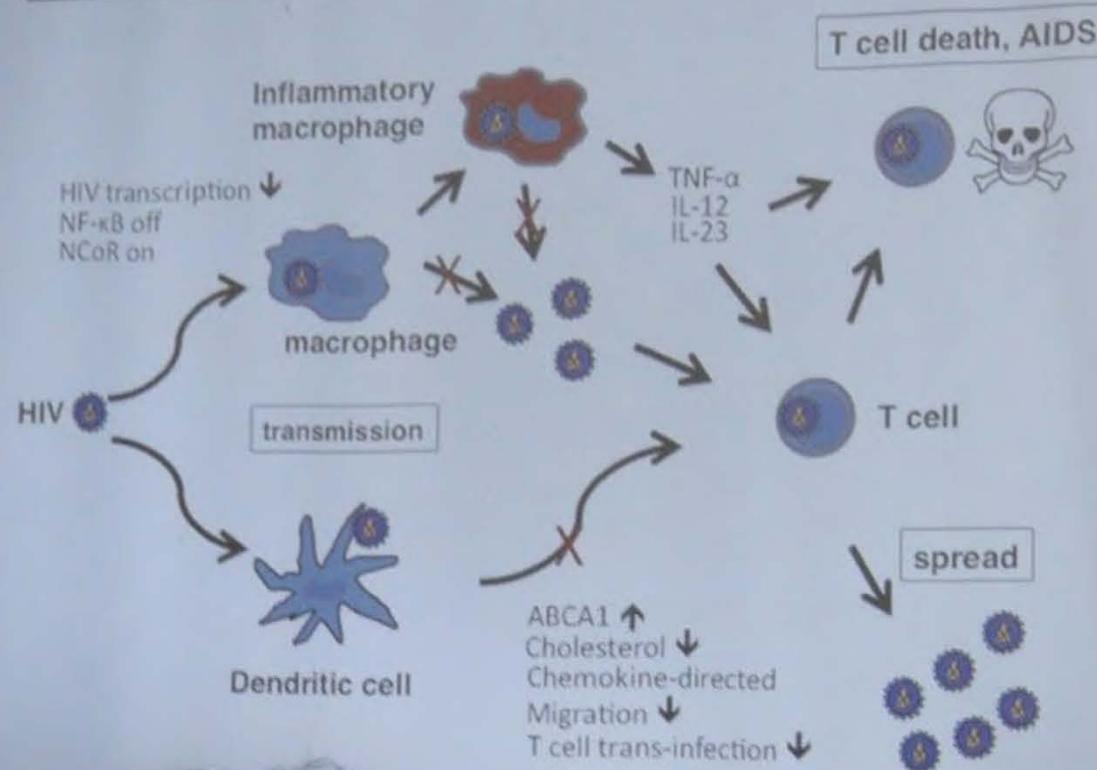
A man in a black t-shirt and khaki shorts stands on the left, gesturing towards the projection screen. In the foreground, the back of a person's head is visible, looking at the presentation.



making
novel
links



Ligand activation of PPAR γ or LXR disrupts the immune cell/HIV network



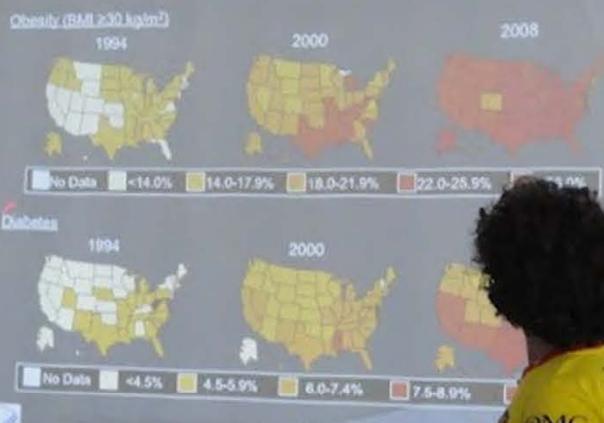
Contemporary Art



Dr. Lakra (Retrato de mujer con calaca), 2007.



Age-adjusted Percentage of U.S. Adults Who Were Obese or
Who Had Diagnosed Diabetes



Age-adjusted Percentage of U.S. Adults Who Were Obese or
Who Had Diagnosed Diabetes

Obesity ($BMI \geq 30 \text{ kg/m}^2$)

1994



2000



2008



Diabetes

1994



2008

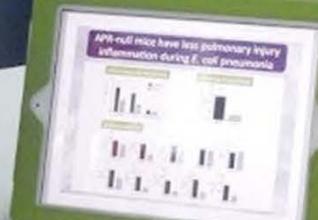


CDC









SHARE
PEACE
DISCOVER

BEACON HILL
CHARLES RIVER
OLD NORTH CHURCH

BEAUTY
CREATE
DREAM





















































































