



The mission of the CFAR is to provide a multidisciplinary environment that promotes basic, clinical, behavioral and translational research in the prevention, detection and treatment of HIV infection.

#### NEWS BRIEF:

- To read the PEPFAR Scientific Advisory Board Recommendations for the Office of the US Global AIDS Coordinator: Implications of HPTN 052 for PEPFAR's Treatment Programs, visit <http://www.pepfar.gov/documents/organization/177126.pdf>

- Apply for the UNC CFAR Developmental Award! We offer seed grants (one year) of \$5,000-\$20,000, available to faculty/investigators with terminal degrees. Junior and minority investigators are encouraged to apply and applications will be accepted from UNC, FHI, RTI, NC HBCUs and international investigators with a connection to one of the above. The application deadline is May 1, 2012. Email Cathy Enrick at [cathy@unc.edu](mailto:cathy@unc.edu) for more info.

- The AIDS Walk and Ride will take place on Saturday, May 5 on Fayetteville Street in Raleigh. The ride begins at 7:30 a.m. and the walk begins at 3 p.m. Register at [www.aidswalkandride.org](http://www.aidswalkandride.org)

- The 2012 XIX International AIDS Conference will be held from 22 to 27 July 2012 in Washington, DC. For more info, visit: [www.aids2012.org/](http://www.aids2012.org/)

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# Center for AIDS Research

## University of North Carolina at Chapel Hill

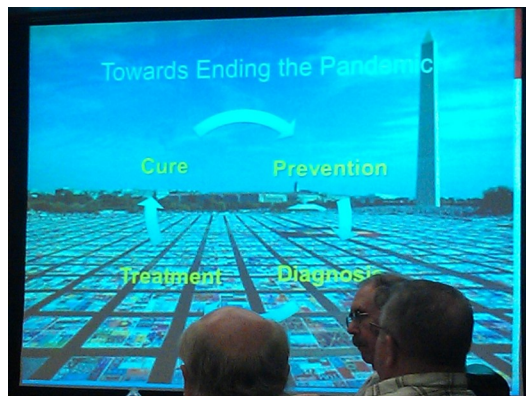
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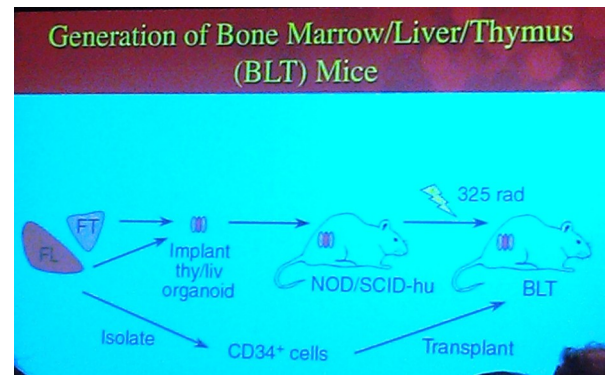
### UNC CFAR Investigators on the Cutting Edge of New Research and Developments

This has been a big year for the UNC Center for AIDS Research. We are on the cutting edge of new research to possibly eradicate the HIV virus, with investigators such as Dr. Myron Cohen, Dr. David Margolis, and Dr. J. Victor Garcia paving the way for change in the field of HIV/AIDS research. At this month's CFAR Community Advisory Board meeting, we had the pleasure of hearing from both Dr. Garcia and Dr. Cohen about their continuing research efforts to stem the HIV/AIDS epidemic.

Dr. Garcia currently works alongside Dr. Margolis to move past the traditional cycle of "treatment, prevention, and diagnosis" and possibly contribute a true cure to HIV infection. However, this has been an incredibly difficult task. Even the word "cure" can mean many different things – an undetectable viremia without antiretroviral therapy (ART), no disease progression or CD4 cell loss, and lack of HIV transmission. Their actual goal is the complete eradication of HIV in the body so that it is no longer able to replicate or be transmitted (to other cells or other persons). Dr. Garcia shared several barriers to the discovery of a functional cure for HIV, such as the presence of latent infected T-cells in the body that, as he describes, are cells



Dr. Victor Garcia presents a new cycle to end the HIV/AIDS pandemic that includes the possibility of a cure



Dr. Victor Garcia illustrates the process of creating a humanized mouse for HIV-related testing

where HIV is "taking a nap" but still present. How do we reach these cells? How do we target the anatomical reservoirs, such as the brain, where medications often fail to reach and eradicate HIV-infected cells? These questions are at the heart of the challenge to find a cure.

Dr. Garcia and Dr. Margolis are currently exploring where residual HIV viral production originates. They are challenged to find ways to ethically test therapies since HIV is a solely human virus, therefore traditional animal testing cannot be employed. However, an exciting new development may help accelerate discoveries from the lab into developing clinical treatments that can be shared with the community. Dr. Garcia is an expert in the creation and use of humanized mice as a research model, and he has been able to reconstitute immune deficient mice with human tissues by giving the mice a bone marrow transplant with human stem cells and implanting a small piece of the human thymus into the animal. Just like humans, mice can be infected with HIV rectally, vaginally, orally, or intravenously, and thus scientists can test human HIV therapy on this model.

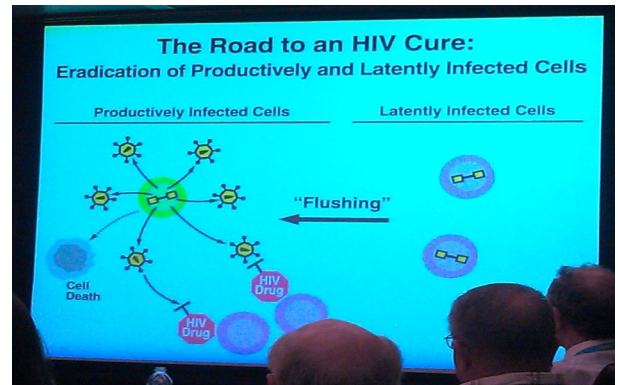
The doctors are working from many angles to eradicate reservoirs of the HIV virus in the body. In the presence of ART medication, when an HIV cell starts replicating and producing HIV, it will die. However,

## Cutting Edge, Cont. from Pg. 1

latently infected cells do not die and do not currently produce new copies of HIV. Dr. Margolis and Dr. Garcia believe they may be able to kickstart these latent cells into starting to reproduce so that they will die in the presence of ART medications. Due to amazing developments in ART over the past several decades, the investigators can more safely experiment with this kickstarting process because ART is so effective in lowering the viral load (the number of active HIV cells in the body). Once the cells are kickstarted, they can be targeted by ART and may be effectively flushed out of the body.

All these efforts are part of an ongoing research collective, the *Collaboratory of AIDS Researchers for Eradication*, comprised of 19 research groups throughout the country. The entire collaborative is directed and coordinated by Dr. Margolis, and it is the largest national collaborative of its kind. It is our hope at the UNC-CFAR that this essential work will continue to flourish and that, with these strong ties to researchers around the country, Dr. Margolis and Dr. Garcia will continue to develop and explore new ways to provide benefit to individuals living with HIV/AIDS. As Dr. Cohen said, "If they cure just one mouse, they could win the Nobel prize".

Dr. Cohen came to the CAB meeting to share the story of new developments derived from the HPTN-052 study. Dr. Cohen's impressive and extensive project received a great deal of media coverage when early results were released that indicated a 96%



**Dr. Victor Garcia explains the process of flushing out latent HIV-infected cells to eradicate the body of the HIV virus**

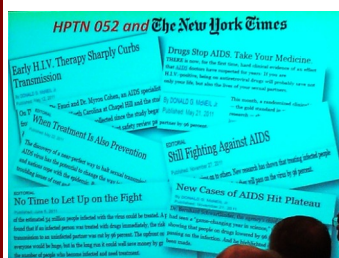
prevention of transmission rate in serodiscordant couples (couples where one individual has HIV and the other does not) with the use of ART used early in infection, at higher CD4 count. Until recently, doctors waited to prescribe ART for patients until their viral load dropped below 350 cell/cubic milliliter of blood. However, since the study results were released, PEPFAR and WHO have stated that it is clinically indicated to start ART as early as possible for individuals living with HIV who have an HIV negative sexual partner. In addition, patients in the HPTN 052 study started on early ART had significant clinical benefit.

Dr. Cohen happily relived the moment of telling the team of investigators for the HPTN 052 project in 13 different



**CFAR Investigator Dr. Victor Garcia, CFAR Investigator and Associate Vice Chancellor for Global Health Dr. Myron Cohen, and CFAR Director Dr. Ron Swanstrom at the quarterly CFAR Community Advisory Board meeting**

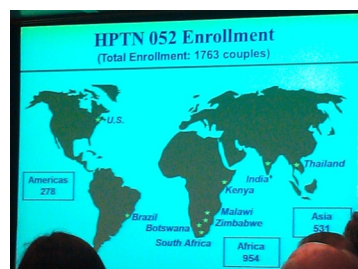
countries that the early results would be released; all were excited about the overwhelming significance of their research findings. The CFAR is greatly looking forward to the further release of the full results upon completion of the HPTN-052 study. We wholeheartedly support Dr. Cohen's comment that "our whole purpose here, in all the work we do, is to move toward an HIV-free generation".



**Dr. Cohen's HPTN-052 study was met with great media excitement when early results were published**



**The HPTN-052 study was named the 2011 Breakthrough of the Year by Science Magazine**



**Dr. Cohen illustrates the global depth and implications of the HPTN-052 study**

### NEW MEDIA NEWS



Join our facebook community to learn more about HIV-related news and events in the triangle! Search for "UNC Center for AIDS Research" and click the "Like" button! Or, go straight to this link: <http://www.facebook.com/UNCCFAR>

Want to brush up on your HIV/AIDS facts and new developments? We now upload free videos from the campus-wide course on HIV/AIDS for you! Watch them at: <http://vimeo.com/channels/unccfar>



We have a new and beautifully improved website! Take a look at: <http://cfar.med.unc.edu/>

Tweet Tweet, it's Springtime! Come follow us on twitter for easy updates and news at: <http://twitter.com/#!/unccfar>

