What is a CFAR?

- Established in 1988 by NIH as one mechanism to address the global crisis of HIV/AIDS
- Provides critical infrastructure support for research not available through other NIH funding mechanisms
- Has evolved over 25 years into a highly sophisticated, collaborative network of the top HIV researchers in the country and internationally
Rates (per 100,000 population) of Persons Living with HIV Diagnosis, by County, 2010

Data Source: Centers for Disease Control and Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Division of HIV/AIDS Prevention.
Miami Ranks #1 in Diagnoses of HIV Infection among U.S. MSAs and Puerto Rico

- Miami, FL MSA ranked 1st in the U.S. in diagnoses of HIV infection in 2011 (46.0 cases per 100,000 population).¹

- As of 12/31/13, more than 1% of the population in Miami-Dade County, FL (Partnership 11a) was living with HIV infection.²

- Blacks are disproportionally impacted, accounting for 37% of adult HIV cases and 44% of adult AIDS cases, yet only 16% of the adult population.²

*Reported in 2013-Florida

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History of AIDS Research at UM

- Many ground-breaking studies in HIV/AIDS in Miami from the beginning of the epidemic- 80’s onwards- but attempts to establish a CFAR were unsuccessful despite multiple attempts

- Year 2000- Dr Eckhard Podack took the initiative towards ramping up AIDS research at UM, with $3m funds
  - creation of BCRI 7th floor for HIV Research
  - recruitment of new HIV researchers
  - my recruitment - summer 2014 - for establishing CFAR

- Summer 2016 UM application successful: 5 year Developmental (D) CFAR grant award, 2007-2012
19 CENTERS FOR AIDS RESEARCH 2007

- University of Colorado
- Vanderbilt/Meharry Universities
- University of Massachusetts Medical Center
- University of Washington
- University of California, San Francisco
- University of California, Los Angeles
- University of Pennsylvania
- University of the Pacific
- Case Western Reserve University/University Hospitals of Cleveland
- Lifespan/Tufts/Brown
- Tufts University
- Brown University
- Penn University of PA/Children’s Hospital/Wistar Institute
- Harvard University
- Albert Einstein/Montefiore
- New York University School of Medicine
- Duke University
- University of North Carolina, Chapel Hill
- Emory University
- University of Alabama at Birmingham
- University of Miami New
Miami transitioned into a full CFAR in June 2012

Miami DCFAR 2007-2012
Miami CFAR 2012-2017

2014 CFAR SITES
NIH Funding Guidelines for CFARs

Base NIH funding for HIV/AIDS makes up the funded research base (FRB). Requirements for eligibility:

TIER 1 = $10M
   Award: $1.5M Annual Total Cost in first year

TIER 2 = $40M
   Award: $2.25M Annual Total Cost in first year

TIER 3 = $80M
   Award: $3M Annual Total Cost in first year
### Growth of UM and HIV/AIDS Research

<table>
<thead>
<tr>
<th></th>
<th>YR1 DCFAR</th>
<th>YR5 DCFAR</th>
<th>YR1 CFAR</th>
<th>YR2 CFAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2007-08</td>
<td>2011-12</td>
<td>2012-13</td>
<td>2013-14</td>
</tr>
<tr>
<td>Total UM Medical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School NIH Funding*</td>
<td>$94.7M</td>
<td>$117.6M</td>
<td>$101.6M</td>
<td>N/A</td>
</tr>
<tr>
<td>FRB &quot;allowed&quot; NIH</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV/AIDS research</td>
<td>$11.6M</td>
<td>$18M</td>
<td>$21M</td>
<td>N/A</td>
</tr>
<tr>
<td>Administrative</td>
<td>0</td>
<td>0</td>
<td>$250k</td>
<td>$668k</td>
</tr>
<tr>
<td>Supplements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Info from Blue Ridge Institute for Medical Research website
CFAR Co-funding Institutes

CFARs are awarded and administered by the NIAID. However, a CFAR award consists of funding from multiple NIH Institutes/Centers.

<table>
<thead>
<tr>
<th>Institute/Center</th>
<th>Funding FY13</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Institute of Allergy and Infectious Diseases (NIAID)</td>
<td>$7,943,411</td>
</tr>
<tr>
<td>National Cancer Institute (NCI)</td>
<td>$1,235,540</td>
</tr>
<tr>
<td>National Institute on Aging (NIA)</td>
<td>0</td>
</tr>
<tr>
<td>Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)</td>
<td>$1,411,489</td>
</tr>
<tr>
<td>National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)</td>
<td>0</td>
</tr>
<tr>
<td>National Institute on Drug Abuse (NIDA)</td>
<td>$5,679,781</td>
</tr>
<tr>
<td>National Institute of General Medical Sciences (NIGMS)</td>
<td>0</td>
</tr>
<tr>
<td>National Institute of Mental Health (NIMH)</td>
<td>$2,138,376</td>
</tr>
<tr>
<td>Fogarty International Center (FIC)</td>
<td>0</td>
</tr>
<tr>
<td>National Heart, Lung and Blood Institute (NHLBI)</td>
<td>0</td>
</tr>
<tr>
<td>OTHER (NINDS, NINR, OD)</td>
<td>$2,656,225</td>
</tr>
</tbody>
</table>
CFAR Mission

Our mission is to advance HIV/AIDS research by providing scientific leadership and developing an infrastructure that fosters integration of basic and clinical sciences, including behavioral/social sciences, promotes education and mentorship, and partners with the community to prevent, treat and cure HIV/AIDS.
We will stand with you through every step of this journey until we reach the day possible when all men and women can protect themselves from infection, a day when all people with HIV infection have access to treatment to save their lives. The day when no babies born with HIV and AIDS and achieve what once was hard to imagine, an HIV-free generation. That's the world I want for my daughters, that's what we want for our families.” - President Barack Obama, World AIDS Day, December 2, 2013
CFAR Aims

1. Provide scientific and administrative leadership to promote research in HIV/AIDS
2. Develop need-based and efficiently run Cores
3. Provide training, education and research opportunities to junior investigators in HIV/AIDS
4. Engage, inform and partner with our community
5. Leverage existing resources to maximize CFAR research capabilities and recruitment of new faculty
6. Promote collaborations to further the NIH CFAR mission
Miami CFAR Organizational Structure

President of the University
Donna Shalala

University of Miami
Miller School of Medicine
Dean, Pascal Goldschmidt
Interim Executive Dean for Research, Research Training and Innovative Medicine
Omaida Velazquez

Miami CFAR Core A Admin
Director
Savita Pahwa
Co-Director
Margaret Fischl
Co-Director
Mario Stevenson
Senior Administrator
Melanie Weiss
Administrator
Quita Nimrod

Scientific Pilot Review Committee

Core B
Developmental
Gwendolyn Scott
Mario Stevenson

Core C
Clinical Sciences
Margaret Fischl
Charles Mitchell

Core D
Laboratory Sciences
Savita Pahwa
TBN

Core E
Behavioral & Social Sciences
Allan Rodriguez
Michael Kolber
Derek Dykxhoorn

Community Advisory Board

Comprehensive AIDS Program

Shared Resources (All Cores)

External Advisory Committee (Annually)

Internal Advisory Committee (Annually)
Administrative Core Aims

1. Provide administrative and scientific leadership, establish scientific priorities
2. Develop and oversee clinical and basic science Cores for facilitating new and ongoing HIV/AIDS research, maintain vigilance about funding opportunities
3. Establish governance, policies and procedures, strategic planning to achieve CFAR goals
4. Provide organizational structure for communication with NIH Program Office, Cores, CFAR members, UM leadership and UM AIDS Institute
5. Partner with UM Centers, Institutes and Departments in order to disseminate information, promote collaboration, leverage institutional resources and recruit new faculty
6. Organize and coordinate CFAR activities including scientific seminars, symposia, committee meetings, other programs
<table>
<thead>
<tr>
<th>Year</th>
<th>Project Title</th>
<th>Investigators</th>
<th>Department</th>
<th>Budget</th>
<th>Related SAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013-14</td>
<td>Fluidigm Biomark HD and C1 single cell sample prep systems Admin Supp</td>
<td>S. Pahwa</td>
<td>Microbiology &amp; Immunology</td>
<td>$299,500</td>
<td>All</td>
</tr>
<tr>
<td>2013-14</td>
<td>Modeling the response in hepatocytes and kupffer cells to HIV/HCV coinfection Admin Supp</td>
<td>E. Thomas</td>
<td>Cell Biology/Microbiology &amp; Immunology</td>
<td>$153,235</td>
<td>Co-morbidities</td>
</tr>
<tr>
<td>2013-14</td>
<td>Diversity Supplement linked to Thomas Admin Supp-Danielle Turnquest</td>
<td>E. Thomas</td>
<td>Cell Biology/Microbiology &amp; Immunology</td>
<td>$138,150</td>
<td>Co-morbidities</td>
</tr>
<tr>
<td>2014-15</td>
<td>FACSJazz Equipment Supplement</td>
<td>S. Pahwa</td>
<td>Microbiology &amp; Immunology</td>
<td>$220,000</td>
<td>All</td>
</tr>
</tbody>
</table>
CFAR Supported Educational Activities, 2013-

2. Organized CFAR Seminar Series with invited speakers throughout the year, also shared seminars with UM Departments/Centers (Micro, Pathology, ID, SCCC)
3. Co-hosted HIV Elite Controllers Mini Symposium in conjunction with Department of Pathology- April 2014
4. Upcoming Annual Miami CFAR HIV Symposium- April 2015
5. Upcoming 18th International KSHV Workshop- June/July 2015
Key Partnerships within UM

Centers, Institutes, Hospitals
- Sylvester Comprehensive Cancer Center
- Clinical & Translational Science Institute
- Institute for Human Genomics
- Center for Computational Science
- Center for Aging
- Biomedical Nanotechnology Institute (BioNIUM)
- UMH, VA and Jackson
- Schiff Center for Liver Diseases

Departments
- Medicine
- Pediatrics
- Microbiology/Immunology
- Pathology
- Public Health Sciences
- Psychiatry & Behavioral Sciences
- Biochemistry & Molecular Biology
- Cell Biology
- School of Nursing & Health Studies
- Ob/Gyn
- Anesthesiology
- Biostatistics
CTSI Collaborations

1. “The Federation”
   – Long term goal: develop a centralized grant application, review and research resource for the Medical School to find all developmental award information in one location
   – Current initiative: CTSI Reviewer Incentive Program

2. Community Outreach Federation: (CFAR, Jay Weiss/SCCC, CTSI)

3. Marketing resources

4. Mentoring Lectures

5. UF/CFAR/CTSI initiatives

6. CTSI K12 awards in HIV/AIDS Research
   – **FY13** Dr. Ivan A. Gonzalez- Pediatrics, Division of Infectious Diseases & Immunology: “Evaluation of the Immunosenescence in Perinatally HIV and Behaviorally HIV Infected Cohorts”
   – **FY14** Dr. Natasa Strbo- Microbiology & Immunology: “Humanized mouse model as a translational platform for development of new HIV vaccine approaches.”
Miami CFAR Cores

- Developmental Core (B)
- Administrative Core (A)
- Clinical Sciences Core (C)
- Laboratory Sciences Core (D)
- Behavioral / Social Sciences Core (E)
Developmental Core (B) Leadership

Gwendolyn Scott, MD
Director, Division of Pediatric Infectious Disease and Immunology
Professor of Pediatrics
Director, K12 program, CTSI

Research Interests:
• Pediatric HIV/AIDS, pathogenesis and treatment
• Prevention of perinatal transmission of HIV
• Clinical trials of new antiretroviral agents and immune therapies in infants, children and adolescents
• Long term follow up of 1) uninfected infants born to HIV infected women 2) HIV perinatally infected children

Current FRB Projects:
UM1AI069451 NIAID 2013-2020

Mario Stevenson, PhD
Professor of Medicine
Chief, Division of Infectious Diseases

Research Interests:
• Functions of viral accessory genes and identification of inhibitors
• Mechanisms of viral persistence and role of myeloid cells in viral persistence under ART
• Cellular factors influencing virus-host cell interplay

Current FRB Projects:
4R33AI088595-04 NIAID 2010-2016
5R01MH093306-03 NIAID 2011-2016
1P01MH100942-01-8716 NIAID
U19AI096109-03 NIAID
1. Provide funding for pilot studies that will develop preliminary data for peer-reviewed research applications. Support will be targeted to:
   a) junior investigators/experienced post doctoral fellows
   b) investigators new to HIV/AIDS research
   c) HIV research activities of newly recruited faculty
   d) feasibility studies
   e) emerging research opportunities

2. Develop a mentorship program targeted toward US and international trainees and faculty interested in a career in basic, behavioral or clinical HIV/AIDS research, encouraging involvement in existing projects within the CFAR and collaborative international protocols.
## Developmental Core Awards

<table>
<thead>
<tr>
<th>Year</th>
<th># of Awards</th>
<th>Total Funds Awarded</th>
<th>Amount per Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFAR Year 1 (2012-13) Pilot Awards</td>
<td>4</td>
<td>$165,000</td>
<td>Varied (30k-50k)</td>
</tr>
<tr>
<td>CFAR Year 2 (2013-14) Pilot Awards</td>
<td>7</td>
<td>$300,000</td>
<td>Varied (40k-50k)</td>
</tr>
<tr>
<td>CFAR Year 2 (2013-14) Harrington Awards</td>
<td>6</td>
<td>$260,000</td>
<td>Varied (35k-50k)</td>
</tr>
<tr>
<td>CFAR Year 2 Travel Awards</td>
<td>2</td>
<td>$1,500</td>
<td>$750</td>
</tr>
<tr>
<td>CFAR Year 2 Student Research Awards</td>
<td>5</td>
<td>$10,000</td>
<td>$2,000</td>
</tr>
<tr>
<td>CFAR Year 3 (2014-15) Pilot Awards</td>
<td>7</td>
<td>$270,000</td>
<td>Varied (30k-50k)</td>
</tr>
</tbody>
</table>
Miami CFAR Cores

1. Developmental Core (B)
2. Administrative Core (A)
3. Clinical Sciences Core (C)
4. Laboratory Sciences Core (D)
5. Behavioral / Social Sciences Core (E)
Clinical Sciences Core (C) Leadership

Margaret Fischl, MD
Professor, Department of Medicine
Director, Special Immunology section of AIDS Clinical research Unit

Research Interests:
• HIV Treatment/Clinical trials
• Therapeutic Vaccines
• Women and HIV

Current FRB projects:
1U01AI103397-01 NCI, NIAID, NICHD, NIDA, NIMH 2013-2017
UM1AI069477 NIAID 2013-2020

Charles Mitchell, MD
Professor of Clinical Pediatrics

Research Interests:
• Pathophysiology of HIV disease
• Co-morbidities secondary to TB and other OI,
• Viral oncology

Current FRB projects:
5R01AI091521-03 NIAID 2011-2016

Kris Arheart, PhD or EdD??
Biostatistics SubCore Director
Clinical Core Aims

• Assist with the design, management, implementation and analysis of clinical studies
• Assist basic science and clinical investigators with the collection of specimens (peripheral blood, limited mucosal samples (rectal, cervicovaginal) and data from clinically characterized subjects.
• Assist with NIH grants, CFAR Developmental grants and pilot projects related to HIV pathogenesis and treatment studies.
• Mentor new/early investigators
Laboratory Sciences Core (D)

Savita Pahwa, MD
Professor of Microbiology and Immunology (Pediatrics and Medicine)
Director, Core D

Geoff Stone, PhD
Assistant Professor, Microbiology and Immunology,
Coordinator, Core D

Mario Stevenson, PhD
Chief of Infectious Diseases
Professor, Department of Medicine
Investigator, Core D

Mark Cameron, PhD
Director of Genomics, Vaccine & Gene Therapy Institute of Florida (VGTI)
Co-Director, Core D

IMMUNOLOGY

VIROLOGY/ELUTRIATED MONOCYTES

GENOMICS and BIOINFORMATICS
1. To provide access to specialized, innovative and standardized immunologic assays for HIV/SIV immunopathogenesis and vaccine research

2. To provide consultation and access to genomic and bioinformatic platforms.

3. To provide special virology assays and elutriated monocytes to CFAR investigators

4. To promote educational activities and to provide consultation/training for new CFAR-supported developmental grant awardees, students.

5. To assist in development of repositories of clinical cohorts

6. To help build the scientific areas of research
### Core D

#### Aim 1: Assays

<table>
<thead>
<tr>
<th>Expertise</th>
<th>Assays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptive Immunity</td>
<td>• B&amp;T cell memory/naïve subsets (flow cytometry)</td>
</tr>
<tr>
<td>Immune Activation</td>
<td>• Activated T or B cells</td>
</tr>
<tr>
<td>Immune Regulation</td>
<td>• Regulatory T cells, Th17 cells, Tfh cells</td>
</tr>
<tr>
<td>Immune Exhaustion</td>
<td>• B and T cell checkpoint receptors/ligands</td>
</tr>
<tr>
<td>T and B cell phenotype and function</td>
<td>• FACS-based apoptosis assays</td>
</tr>
<tr>
<td>Plasma cells and Ab secreting cells</td>
<td>• HIV/CMV-specific intracellular cytokines</td>
</tr>
<tr>
<td></td>
<td>• Prolif., CFSE dye dilution, phosphoflow, degranulation.</td>
</tr>
<tr>
<td></td>
<td>• Cytokines/Ab secreting cells by ELISpot</td>
</tr>
<tr>
<td>Thymus emigrants</td>
<td>• T Cell Receptor Excision Circle (TREC) assay</td>
</tr>
<tr>
<td>Innate Immunity</td>
<td>• Natural Killer Cell assay and subsets,</td>
</tr>
<tr>
<td></td>
<td>• Dendritic cell subsets and function (Stone)</td>
</tr>
<tr>
<td>Soluble Mediators/Biomarkers</td>
<td>• Cytokines in supernatants, plasma</td>
</tr>
<tr>
<td>General cellular physiology</td>
<td>• HIV &amp; Flu Ab.</td>
</tr>
<tr>
<td>Immune activation and inflammation</td>
<td>• qPCR for immune genes (cytokines, regulatory genes)</td>
</tr>
<tr>
<td>Gut: Microbial Translocation</td>
<td>• Serum LPS, sCD14, 16S ribosomal DNA</td>
</tr>
<tr>
<td>Purified Cell Preparations</td>
<td>• Purified T and B cell (subsets), cell sorting, PBMC</td>
</tr>
<tr>
<td>Biorepository: PBMC, Plasma</td>
<td>• Storage in liquid nitrogen, LDMS system</td>
</tr>
<tr>
<td>Immune Protection Correlates</td>
<td>• Transcriptomics/Bioinformatics (M Cameron/R Sekaly, VGTI)</td>
</tr>
<tr>
<td>Virology/Molecular biology</td>
<td>• HIV cellular DNA and 2LTR circles (Stevenson)</td>
</tr>
<tr>
<td>HIV reservoirs</td>
<td>• Elutriated, monocytes (Stevenson)</td>
</tr>
<tr>
<td>Purified Cell Preparations</td>
<td>• HIV infectivity Assay</td>
</tr>
<tr>
<td>HIV permissiveness</td>
<td>• HIV infectivity Assay</td>
</tr>
</tbody>
</table>

- **B&T cell memory/naïve subsets (flow cytometry)**
- **Activated T or B cells**
- **Regulatory T cells, Th17 cells, Tfh cells**
- **B and T cell checkpoint receptors/ligands**
- **FACS-based apoptosis assays**
- **HIV/CMV-specific intracellular cytokines**
- **Prolif., CFSE dye dilution, phosphoflow, degranulation.**
- **Cytokines/Ab secreting cells by ELISpot**
- **T Cell Receptor Excision Circle (TREC) assay**
- **Natural Killer Cell assay and subsets,**
- **Dendritic cell subsets and function (Stone)**
- **Cytokines in supernatants, plasma**
- **HIV & Flu Ab.**
- **qPCR for immune genes (cytokines, regulatory genes)**
- **Serum LPS, sCD14, 16S ribosomal DNA**
- **Purified T and B cell (subsets), cell sorting, PBMC**
- **Storage in liquid nitrogen, LDMS system**
- **Transcriptomics/Bioinformatics (M Cameron/R Sekaly, VGTI)**
- **HIV cellular DNA and 2LTR circles (Stevenson)**
- **Elutriated, monocytes (Stevenson)**
- **HIV infectivity Assay**
Core D Service Utilization (9/2013- 8/2014; Yr 7+)

- Plasma collection and storage: 5 projects (15405 samples)
- Equipment and space usage: 3 projects
- Systems Biology services (VGTI): 4 projects
- Assay development: Gene profiling (Fluidigm): 4 projects (11 samples)
- Molecular Biology and Virology Services: 6 projects
- Gut Microbial translocation and analysis of Cytokines, Chemokines and Soluble Mediators in plasma or supernatants: 8 projects (971 samples)
- Flow cytometry for phenotype and function: 6 projects (321 samples)
- Viral infectivity assay: 1 project (5 samples)
- PBMC isolation and cryopreservation: 7 projects (4994 samples)
- PBMC shipping: 2% (44h) for 2 projects (584 samples)
- Elutriated monocyte distribution: 15 projects
- Systems Biology services (VGTI)
- Assay development Gene profiling (Fluidigm)
- Molecular Biology and Virology Services
- Gut Microbial translocation and analysis of Cytokines, Chemokines and Soluble Mediators in plasma or supernatants
- Flow cytometry for phenotype and function
- Viral infectivity assay

Total 2768h. [Not included in this pie are meetings and consultations, 187h; training 125h; SCCC flow core, 1568h]
1. Fluidigm BioMark HD (299K)

Fluidigm Road Show in November 2014: A weeklong event with a seminar and demonstrations with the equipment the rest of the week—Collaborative effort with Sion Williams (Neurology) and Eric Weider, Oncogenomics (SCCC)

Heat map displaying Ct values for 9,216 individual PCR reactions performed in a 96.96 Dynamic Array chip.
Behavioral Core (E) Leadership

**Director**
Allan Rodriguez, MD
Professor of Clinical Medicine (& Dept of Public Health Sciences)

Research Interests:
- Antiretrovirals
- HIV and Drug Abuse

Current Projects:
- HRSA

**Co-Director**
Michael Kolber, MD, PhD
Professor of Medicine
Vice Chair of Medicine for Clinical Affairs
Director, Comprehensive AIDS Program
Clinical Director of HIV, Infectious Diseases, Dept of Medicine

Research Interests:
- Cellular immunology
- Immune pathology of HIV
- HIV prevention
- HIV retention in care
- HIV linkage to care
- HIV reservoirs

**Co-Director**
Derek Dykxhoorn, PhD
Associate Prof, Dept of Human Genetics (and Microbiology and Immunology)
Co-Director, Center for Molecular Genetics, HIHG

Research Interests:
- The impact that genetic and epigenetic variations have on the transmission
- Infection and replication of HIV-1

Current FRB Projects:
4R33AI088601-03 NIAID 2010-2016
1. Promote active involvement with South Florida community representatives and organizations in the Miami CFAR

2. Provide CFAR investigators with consultation and resources to enhance recruitment and retention of community and clinic-based study participants with attention to “hard to reach populations” e.g. drug abusers

3. Expand the opportunities for behavioral and social scientists to collaborate with clinical scientists.

4. Build the prevention scientific area of research
Summary: Miami CFAR Cores

- **Administrative Core (A)**
  - Funding for pilot studies
  - Mentoring program

- **Developmental Core (B)**
- **Clinical Sciences Core (C)**
  - Biostatistics
  - Biological specimens/clinical data
  - Human subjects research (regulatory & recruitment)
  - Phlebotomy, tissue collection, data management & research pharmacy services

- **Laboratory Sciences Core (D)**
  - Three facilities for assays: Immunology, Virology, Genomics and bioinformatics
  - Access to PBMC, purified lymphocyte subsets and elutriated monocytes and clinical cohort sample repository (PBMC, plasma)
  - Consultation/Equipment

- **Behavioral / Social Sciences Core (E)**
  - Promote involvement with community
  - Enhance recruitment and retention of research participants
  - Expand opportunities for collaboration of behavioral and social scientists with clinical scientists
  - Enhance recruitment and retention of research participants
  - Expand opportunities for collaboration of behavioral and social scientists with clinical scientists
  - Promote involvement with community
  - Enhance recruitment and retention of research participants
  - Expand opportunities for collaboration of behavioral and social scientists with clinical scientists
Miami CFAR Scientific Priorities
Scientific Areas of Research (SARs)

1. HIV Prevention and Drug Abuse
2. HIV and Women
3. Vaccines and Immunology
4. HIV Therapeutics and Cure/Reservoirs
5. AIDS Malignancies (SWG)
6. Co-Morbidities and Co-

Selection based on Opportunities, FRB and disease pathogenesis
Pathogenic events in HIV Infection

**Acute**
- Potent Immune response, BUT--- too little, too late
- Immunologic escape from CTL
- Extensive destruction of gut CD4 T cells and barrier function
- Establishment of HIV reservoir
- Early treatment reduces reservoir size

**Chronic Phase**
- Latent HIV Reservoir

- Early treatment reduces reservoir size
- Immunologic escape from CTL
- Extensive destruction of gut CD4 T cells and barrier function
- Establishment of HIV reservoir

**Eclipse Phase**
- 100d
- 1 year
Virus controlled with combination ART but problems persist

- Gut damage persists leading to microbial translocation
- Inflammation, immune activation, immunologic deficits despite virus suppression
- In treated patients, risk of non-AIDS illnesses is greater than AIDS-defining illnesses
Vicious Cycle of HIV Disease - Chronic HIV Infection

Gut Microbial Translocation

Co-Infections CMV, EBV

Viral Persistence

Immune Dysregulation

Inflammation and Immune Activation

Fibrosis in lymph nodes

Faster “aging”

Immune exhaustion

? HIV Persistence

Poor Immune reconstitution

End-organ disease, non-AIDS complications
Virus rebounds after treatment discontinuation

Plasma HIV RNA copies/ml

Acute Phase

Eclipse Phase

Entr

Latent HIV Reservoir

6 mo

years

START

STOP

HAART

Chronic Phase
Glimmer of hope: HIV eradication is possible in chronic HIV

The Berlin patient

BMT with d32 CCR5 homozygous HIV resistant cells

Limit of detection

Entry

100d

years
1. HIV Prevention and Drug Abuse

Leaders: A. Rodriguez, D. Feaster (Core E)
- Primary and Secondary Prevention
- Drug Abuse in the HIV population

Mahendra Kumar (R01)
HIV-1 INFECTION IN METHAMPHETAMINE ABUSERS: ENDOCRINE OUTCOMES

Seth Schwartz (R01)
THE ROLE OF CULTURE IN THRIVING AND RISK BEHAVIOR IN HISPANIC ADOLESCENTS

Stephen Weiss (R01)
INCREASING AVAILABILITY AND ACCEPTABILITY OF CIRCUMCISION IN ZAMBIA

Deborah Jones (R34)
POSITIVE CONNECTIONS

Deborah Jones (R01)
IMPLEMENTING COMPREHENSIVE PMTCT AND HIV PREVENTION FOR SOUTH AFRICAN COUPLES

Jose Szapocznik (U10)
FLORIDA NODE ALLIANCE OF THE DRUG ABUSE CLINIC TRIALS NETWORK

Guillermo Prado (R01)
FAMILIAS UNIDAS STAGE III STUDY: PREVENTING SUBSTANCE ABUSE IN HISPANIC YOUTH

Howard Liddle (R01)
JUVENILE OFFENDER HIV PREVENTION AND DRUG ABUSE SERVICES
There are three primary goals for the NHAS:

- Reducing HIV incidence
- Increasing access to care and optimizing health outcomes
- Reducing HIV-related health disparities

12 Cities Project and ECHPP:
Enhanced Comprehensive HIV Prevention Planning and Implementation for Metropolitan Statistical Areas Most Affected by HIV/AIDS
FOR IMMEDIATE RELEASE:
Thursday, 12 May 2011, 11 am EST

Initiation of Antiretroviral Treatment Protects Uninfected Sexual Partners from HIV Infection (HPTN Study 052)

96% reduction in risk of HIV transmission
Leaders: M. Fischl (Core C), D. Jones
- WIHS
- IMPAACT
- International Research

2. HIV and Women

Kathryn McCollister (R01)
ECONOMIC EVALUATION OF RECOVERY MANAGEMENT CHECKUPS FOR WOMEN OFFENDERS (RMC-WO)

Margaret Fischl (U01)
MIAMI WOMENS INTERAGENCY HIV STUDY (WIHS)

Gwendolyn Scott (UM1)
UNIVERSITY OF MIAMI PEDIATRIC PERINATAL HIV/AIDS CLINICAL TRAILS UNIT

Maria Alcaide (K23)
VAGINAL PRACTICES IN HIV POSITIVE WOMEN IN ZAMBIA A BIO-BEHAVIORAL INTERVENTION

Deborah Jones (R01)
IMPLEMENTING COMPREHENSIVE PMTCT & HIV PREVENTION FOR SOUTH AFRICAN COUPLES
Vaccines and Immunology SAR

3. Vaccines and Immunology

- Leaders: R. Desrosiers, M. Farzan (Scripps)
- Primate Studies
- Humanized Mouse
- New approaches to vaccine design, adjuvants
- Gene-based molecular adjuvants for HIV vaccines

Ronald Desrosiers (R01)
IMMUNOGLOBULINS DELIVERED BY AAV VECTOR FOR THE PREVENTION OF SIV INFECTION

Savita Pahwa (R56)
VACCINE-INDUCED MEMORY CD4T CELLS AND HIV RESERVOIRS

Ronald Desrosiers (R01)
FUNCTIONAL ROLE OF O-GLYCOSYLATION OF HIV-1

Ronald Desrosiers (R37)
GAMMA-2 HERPESVIRUSES AS VACCINE VECTORS FOR AIDS
SAR 3. Vaccines and Immunology: Ongoing vaccine and related research projects

Gp96-Ig-HIV: Heat shock protein chaperon for presenting vaccine antigens to DC, NK cells and activate CD8 T cells: Podack/Strbo

Novel inhibitors of HIV-1 infection that can be used with adeno-associated virus (AAV) to prevent a new infection, or supplement antiviral therapies- Michael Farzan (Scrips)

• Contribution of individual viral genes to AIDS pathogenesis
• Recombinant herpesvirus as a vaccine approach for AIDS
• Use of AAV as vector to deliver antibodies of defined specificity for prevention and therapeutic purposes Desrosier

Others

• T follicular helper cells and IL-21 as an immunomodulator- Pahwa
• Replication defective HIV-1 Vaccine (HIVAX) in HIV+ patients on cART (Ph 1 study completed): Fischl
• Gene-based molecular adjuvants for HIV vaccines – Stone

Yellow fever viral vector vaccines; protection in Elite Controllers (NHP): Watkins

Vif 102-214 / Nef 45-210
Vif 1-110 / Gag 178-258
HIV Therapeutics and Cure/Reservoirs SAR

Leader: M. Stevenson, TBN
• Technology-ddPCR
• Therapeutic Vaccine-Human Trial
• New RFA issued on reservoirs

Margaret Fischl (UM1)
MIAMI HIV/AIDS CLINICAL THERAPEUTIC AND VACCINE TRIAL UNIT

Gwendolyn Scott (UM1)
UNIVERSITY OF MIAMI PEDIATRIC PERINATAL HIV/AIDS CLINICAL TRAILS UNIT

Lawrence Friedman (U01)
ADOLESCENT MEDICINE TRIALS NETWORK FOR HIV/AIDS INTERVENTION (ATN)-SITE 12

David Watkins (R37)
THE FUNCTIONAL SIGNIFICANCE OF CTL ESCAPE

Mario Stevenson (R01)
THE ROLE OF MYELOID CELLS IN VIRAL REPLICATION, PERSISTENCE AND NEUROINVASION

Mario Stevenson (P01)
PRECLINICAL DEVELOPMENT OF HIV-1 VIF ANTAGONISTS

David Watkins (R24)
MHC-BOUND, SIV-DERIVED, CTL AND HTL EPITOPES

David Watkins (R24)
MHC TYPING OF MACAQUES USED IN AIDS RESEARCH

Steven Deeks (U19)
MOLECULAR MECHANISMS OF HIV PERSISTENCE IN MACROPHAGES AND IDENTIFICATION

Mario Stevenson (R33)
EXPLORING THE ROLE OF VIF ANTAGONISTS IN PREVENTING SEXUAL HIV TRANSMISSION
AIDS Malignancies SWG

Leaders: E. Mesri, C Ramos
- Harrington Program
- International Collaborations
- Clinical trials

Ronald Mitsuyasu (UCLA U01) University of Miami Core Site for AMC
**JC Ramos (AMC Clinical Trials)**

Enrique Mesri (R01)
Role of RAC and Reactive Oxygen Species in Kaposi Sarcoma Viral Oncogenesis

Ron Desrosiers (P01)
Gamma 2 Herpes viruses

NCI Supplement for CFAR-SCCC Pilot Grants (6 projects awarded Dec 2013) $226,500

6. Co-morbidities and Co-infections

Leaders: E. Thomas, S. Pahwa
- HIV and Aging
- NeuroAIDS
- HCV
- Cardiovascular

Charles Mitchell (R01)  
MICROBIAL TRANSLOCATION & ALTERATIONS IN GUT MICROBIOMES IN HIV INFECTED CHILDREN

Tracie Miller (R01)  
MITOCHONDRIAL DETERMINANTS OF METABOLIC DISEASE IN HIV-INFECTED CHILDREN

Shuanglin Hao (R01)  
HIV AND NRTIS-INDUCED PAINFUL PATHOGENIC MECHANISMS AND GENE THERAPY

Savita Pahwa (R01)  
ANTIBODY RESPONSES IN HIV AND AGING

Derek Dykxhoorn (R33)  
TARGETED SIRNA DELIVERY AS AN ANTI-HIV MICROBICIDE

Glen Barber (P01)  
REGULATION OF INNATE IMMUNE RESPONSES

Savita Pahwa (R21)  
IMMUNE ACTIVATION IN VIROLOGICALLY SUPPRESSED INDIAN HIV-INFECTED PATIENTS

Michal Toborek (R01)  
INTERPLAY BETWEEN CART, HIV, ANDamyloid at the BLOOD-BRAIN BARRIER

Michal Toborek (R01)  
HIV-1 AND amyloid beta interactions at the blood-brain barrier
Highlights: Miami CFAR International Research

1. Dominican Republic
   & Puerto Rico
2. Argentina
3. Haiti
4. Italy
5. India
6. Zambia
7. Zambia
8. Zambia
9. South Africa
10. Brazil

Chakhtoura
(Dev) HPV-subtype and distribution in HIV positive women post treatment for cervical dysplasia in Haiti

Watkins
(P01) Yellow Fever, rDNA (EP+IL-12 and rAd35 as Vectors for AIDS Vaccine Development Project 2

Mesri
NCI Supplement HIV/AIDS Associated Malignancies

Pahwa
(R21) Immune Activation in Virologically Suppressed Indian HIV-Infected Patients

Mitchell
(R01) Microbial translocation & alterations in gut microbiomes in HIV infected children

Weiss
(R01) Increasing Availability and Acceptability of Circumcision in Zambia
(Dev) The Influence of HIV on Placental HPV Infection

Alcaide
(K23) Vaginal Practices In HIV Positive Women in Zambia: A Bio-Behavioral Intervention

Weiss
(R01) Implementing Comprehensive PMTCT and HIV Prevention for South African Couples

Jones
(R01) Implementing Comprehensive PMTCT and HIV Prevention for South African Couples

Mitchell
Antibody responses in HIV-infected Children

Pahwa
(R01) Microbial translocation & alterations in gut microbiomes in HIV infected children

Pahwa
(R01) Implementing Comprehensive PMTCT and HIV Prevention for South African Couples

Weiss
(R01) Implementing Comprehensive PMTCT and HIV Prevention for South African Couples
Miami CFAR: what lies ahead

- Renewal application has to be submitted June 2016 for 2017 award date
- FRB report to be included is for FY15: -i.e. October 2014-September 2015
- All departments, centers, programs can play a vital role in facilitating success of the CFAR, and also derive benefit
- Key review points:

**Impact**
- Institutional commitment, (eg faculty recruitment)
- Productivity (outcomes-trajectories)
- Leverage (economy of scale)
- Value added *
- Synergy

**Significance**

**Investigators**
- Value added *

**Innovation**
- Core utilization

**Approach**
- Community involvement

**Environment**
- Continued need for a CFAR

*CFARs are expected to provide added value to their institution's HIV/AIDS research efforts through support of activities that cannot easily be provided through standard research grant awards.*
## CFAR Productivity

### YEAR 1 (2012-13)
- Publications: **114**
- FRB FY12: **18M**
- Admin Supp funds: **250k**
- CFAR Users (excluding seminar attendees): **57**
- CFAR Users/NIH AIDS PIs: **41**
- Total Projects: **87**
- Members: **161**

### YEAR 2 (2013-14)
- Publications: **110**
- FRB FY13: **21M**
- Admin Suppl funds: **668k**
- CFAR Users (excluding seminar attendees): **66**
- CFAR Users/NIH AIDS PIs: **36**
- Total Projects: **96**
- Members: **211**
CFAR is the research arm of the AIDS Institute
Thank you

Acknowledgements to:
Melanie Weiss
Quita Nimrod
CFAR faculty
Miami CFAR: what lies ahead

- Renewal application has to be submitted June 2016 for 2017 award date
- FRB report to be included is for FY15: October 2014-September 2015
- All departments, centers, programs can play a vital role in ensuring the continued success of the CFAR
- Key review points:
  - Impact
  - Significance
  - Investigators
  - Innovation
  - Approach
  - Environment

  ✓ Institutional commitment, (eg faculty recruitment)
  ✓ Productivity (outcomes- trajectories)
  ✓ Leverage (economy of scale)
  ✓ Value added*
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