

# Basic/Translational Research on Health Disparities in HIV/AIDS and Cancer (Clinical Trial Optional)

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Their suggestions have been incorporated into the slides or will be verbally expressed during the oral presentation.

# RFA Purpose

Focus on the **biological interactions of cancer health disparities in marginalized populations with an underlying HIV/AIDS infection** through basic mechanistic or translational studies to investigate how HIV interacts with the disparities to promote both non-AIDS and AIDS-defining cancer initiation, progression, and the resulting pathogenic disease sequelae.

# Background

US HIV epidemic is marked by profound disparities between regions, by race and ethnicity, having a disproportionate impact on marginalized populations such as Black/African American and Latinx communities, women of color, people who inject drugs, men who have sex with men, and transgender persons.

- ❖ Persons with cancer and HIV are amplified in
  - ❖ Certain racial/ethnic populations
  - ❖ Low-socioeconomic groups
  - ❖ People living in geographically isolated areas
  - ❖ People with limited access to proven screening tests and higher rates of advanced cancer diagnoses
  - ❖ Partially are driven by
    - ❖ Health-care provider shortages
    - ❖ Low health literacy
    - ❖ Stigma
  - ❖ Most Prevalent Cancer types in the US among PLWH
    - ❖ NHL, Kaposi's Sarcoma, Anal, Lung
- ❖ **The idea for a RFA on health disparities, HIV, and cancer was endorsed by the HIV/AIDS Malignancy BSA Ad hoc Subcommittee.**

# Potential Biological Differences in Disease without an Underlying HIV Infection

- ❖ Examination of Gynecologic Cytology case files for African American & Caucasian Women between 2017-2019
  - ❖ Higher rates of high-grade lesions including carcinoma were found in African American Women when compared to Caucasian Women.
    - ❖ Miller, D., et al. Cancer Cytopathology 2020;128:860
- ❖ Immune Profiles of Europeans and Africans in response to bacterial & viral (influenza) infection
  - ❖ Strong differences found that predominantly affect anti-viral and inflammation-related genes that differ markedly in responsiveness between Africans and Europeans.
    - ❖ Quach, H. et al. Cell 2016:167 (3):643

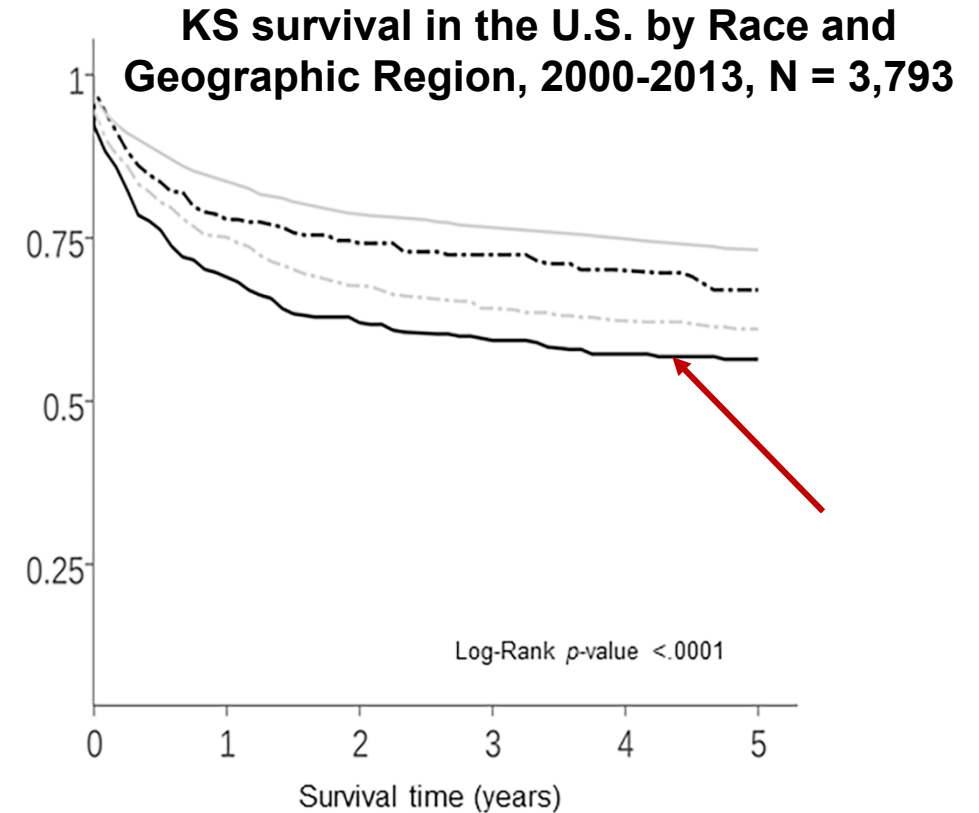
# US rates of Kaposi's Sarcoma Mortality by Race & Geographic Region

Crude and adjusted HR and 95% CI for all-cause KS-specific mortality (2000-2013; N = 3,749)

	All-cause mortality		KS specific mortality	
	Adjusted HR <sup>a</sup> (95% CI)	P	Adjusted HR <sup>a</sup> (95% CI)	P
Race				
White	1		1	
African American	1.52 (1.34–1.72)	<0.0001	1.49 (1.30–1.72)	<0.0001
Other	0.98 (0.72–1.34)	0.9181	1.05 (0.75–1.46)	0.818
Geographic region				
West	1		1	
South	1.21 (1.04–1.40)	0.0136	1.26 (1.07–1.48)	0.0051
Northeast	1.11 (0.92–1.33)	0.2878	1.10 (0.89–1.35)	0.3662
Midwest	1.20 (0.62–2.24)	0.5689	0.75 (0.31–1.81)	0.5249

<sup>a</sup>All variables adjusted for age of diagnosis (continuous), year of diagnosis (categorical), median family income (continuous), marital status (single; married or domestic partner; divorced, widowed, or separated); only geographic region, race, and are shown.

<https://doi.org/10.1371/journal.pone.0182750.t002>



# Portfolio Analysis

- ❖ Free text portfolio search of FY 2018/2022 for health disparities, HIV/AIDS and cancer found a total of **6 grants; 3 R01s and 3 U54s**
  - ❖ **3 R01 grants**
    - ❖ 1 R01 in response to the Provocative Questions in AIDS and Cancer, [RFA-CA-19-032](#)
    - ❖ 1 R01 in response to the Improving Smoking Cessation Interventions among People Living with HIV, [RFA-CA18-027](#)
    - ❖ 1 R01 in response to the Health Disparities, [PAR-21-332](#) that may include HIV positive women in its IARC-based study of South African Women and Outcomes in Breast Cancer.
  - ❖ **3 U54s grants** in response to:
    - ❖ [RFA-CA-20-001](#) (US & LMIC HIV-Associated Malignancy Research Centers)
    - ❖ [RFA-CA-16-018](#) (Collaborative Consortia for the Study of HIV-Associated Cancers: U.S. and Low-and Middle-Income Country Partnerships)
    - ❖ [PAR-21-035](#) (Cancer Prevention and Control Clinical Trials)
- ❖ Other ICs
  - ❖ Projects currently funded by NIAID, NIMH, and NIDA (related to [Ending the HIV Epidemic](#)) address some aspects of health disparities and HIV research, but **not cancer**.

# Suggestions of Research Topic Areas\*

- ❖ Studies of how health disparities interact with HIV to cause cancer through investigations of:
  - ❖ Causal drivers of accelerated onset of cancer;
  - ❖ Genetic/epigenetic cancer susceptibility differences;
  - ❖ Host responses to cancer, and its effects on the immune microenvironment or tumor niche;
  - ❖ Microbiome analysis; and
- ❖ Studies that investigate the role of oncogenic viral co-infections [i.e., Kaposi's sarcoma-associated herpes virus (KSHV); Epstein Barr virus (EBV); human papilloma virus (HPV); hepatitis B virus (HBV); hepatitis C virus (HCV)] on cancer development, treatment, and outcomes in marginalized populations that have health disparities and are severely and disproportionately affected by HIV.

\*Note: Social Determinates of Health are out of scope and will be covered in a new concept being developed by CRCHD and OHAM.



# Justification for Use of an RFA

- ❖ A necessary mechanism to incentivize investigators to propose high risk projects to address Health Disparities and Cancer with an HIV infection
- ❖ Endorsed by the BSA *Ad hoc* Subcommittee on HIV and AIDS Malignancy
- ❖ Submitted as an idea to Office of AIDS Research (OAR) for FY23
  - ❖ Approved March 24, 2022
- ❖ Applications will be reviewed by a panel of area experts convened by NCI  
DEA
- ❖ Expertise in a variety of disciplines is required to review the entire group of applications received in a single review meeting
- ❖ Added Benefit: bring Cancer research to ongoing NIH supported research areas
  - ❖ Ending the Epidemic (EHE) and Community Engagement Activities

# Health Disparities, Cancer, and HIV/AIDS RFA Evaluation

Scientific staff from DCB, CRCHD, and OHAM will track all applications from receipt, funding plan approval, and closeout by...

- ❖ Describing progress/accomplishments, tracking the number and impact factors of publications, the subsequent new awards, and the impact on cancer health disparities;
- ❖ Following the Progress of new Tool development (i.e., Mabs, organoids, molecular constructs, biomarkers, sequence data, models) or Methods, that will be available to the research community. for future of studies of Health Disparities, Cancer, and HIV/AIDS, and Promoting these Advances; and
- ❖ Soliciting oversight from the research community to serve as additional judges.

# Administrative

- ❖ R01 (5 yrs.)/ R21 (2 yrs.)
- ❖ Anticipated/Receipt Date
  - ❖ December 2022/December 2023
- ❖ Anticipate Funding
  - ❖ 7-8 R01 and 5-6 R21 applications/year for 5 or 2 years
  - ❖ Fund by July 2023/July 2024

# Budget

- ❖ Source of Funds
  - ❖ Set Aside (AIDS \$ for applications that meet the OAR Priority Guidelines)
- ❖ First Year Budget Total
  - ❖ \$ 5 M per year
- ❖ Total Budget for Project Period ~\$ 50 M total costs



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