The Howard University Cancer Center (HUCC)-Sidney Kimmel Comprehensive Cancer Center (SKCCC) Partnership

“The Howard-Hopkins Partnership is dedicated to eliminating cancer health disparities via focus on etiology, molecular biology, and genetics of cancer in African-Americans with the ultimate goal of delivering solutions to the underserved populations in the Baltimore/Washington area.”

*Supported by an NCI Comprehensive Minority Institution/Cancer Center Partnership Grant (U54 CA91049) from 2001-2011.
SKCCC as a Research-Intensive Cancer Center Partner for a Minority-Serving Cancer Center like HUCC

SKCCC Mission:

“To accelerate the transformation of cancer care by promoting the discovery of knowledge leading to the prevention and cure of human cancers”
SKCCC Facilities

Current Space: 621,160 ft\(^2\)
- Clinical: 323,300 ft\(^2\)
- Research: 222,000 ft\(^2\)
- Other: 75,860 ft\(^2\)

Research Program members are co-located to maximize collaboration interactions.
Cancer Funding at SKCCC

- $179.4M in cancer grants
- $85.7M in NCI grants
- $54.4M in other NIH grants

*3rd highest in NCI funding (behind the MD Anderson Cancer Center and the Fred Hutchinson Cancer Research Center)
SKCCC Clinical Research Accrual Interventional Studies

578 (40%) of 1,457 active clinical trials at Johns Hopkins are SKCCC trials

~60% of new medical oncology patients at SKCCC are accrued to clinical trials
SKCCC Shared Resources

• 23 Shared Resources

• State-of-the-Art or Better Technology
  
  *eg. NextGen Sequencing Core aligned with CAP-CLIA Sequencing Center
  
  Good Manufacturing Process (GMP) Core

• Shared Resources have a direct cost operating budget of $16 million
  
  19% from Cancer Center Support Grant
  
  71% of usage was by members with peer-reviewed funding
Training at SKCCC: A Pipeline of Talent

Yearly Census of Trainees

<table>
<thead>
<tr>
<th>Trainees</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-doctoral</td>
<td>122</td>
</tr>
<tr>
<td>Post-doctoral</td>
<td>183</td>
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</tbody>
</table>

Career Choices of Hem/Onc Fellows

<table>
<thead>
<tr>
<th>Career Path</th>
<th>Since 1973 # (%)</th>
<th>Last 20 Yrs # (%)</th>
<th>Last 10 Yrs # (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academia</td>
<td>156 (64%)</td>
<td>105 (76%)</td>
<td>50 (81%)</td>
</tr>
<tr>
<td>Private Practice</td>
<td>67 (28%)</td>
<td>26 (19%)</td>
<td>9 (15%)</td>
</tr>
<tr>
<td>Industry</td>
<td>14 (6%)</td>
<td>5 (4%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Other</td>
<td>6 (3%)</td>
<td>3 (2%)</td>
<td>3 (5%)</td>
</tr>
<tr>
<td>Total</td>
<td>243 (100%)</td>
<td>139 (100%)</td>
<td>62 (100%)</td>
</tr>
</tbody>
</table>
Program Interactions Promote Team Science

Hematological Malignancies

Cancer Immunology
Viral Oncology
Cancer Prevention and Control
Chemical Therapeutics
Non-Programmatically Aligned
Cancer Molecular and Functional Imaging
Brain Cancer
Upper Aerodigestive Cancer
Breast Cancer
GI Cancer
Prostate Cancer

2006-2011
263 researchers
2032 collaborations
643 intra-Programmatic
1389 inter-Programmatic
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Hematological Malignancies

- Cancer Immunology
- Viral Oncology
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- Cancer Biology
- Non-Programmatically Aligned
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Strategic Aims of the HUCC-SKCCC Partnership

- To build and enhance basic, clinical, and population cancer research programs at HUCC
- To build cancer health disparities research at SKCCC
- To conduct translational research on the etiology, molecular biology, and genetics of cancer in African-Americans
- To conduct cancer prevention research aimed at development of novel therapeutics to improve cancer outcomes for African-Americans and other underserved minorities
- To provide research training opportunities at SKCCC for Howard students, residents and fellows, and to jointly deliver graduate-level courses in cancer at the HUCC
Differences and Disparities in Cancer Incidence and Mortality Associated with Race and Ethnicity

- **Genetics**
- **Environment**
  - Exposures
  - Culture/heritage
  - Lifestyle/habits
  - Place of residence
  - Occupation
  - Many others
- **Epigenetics**
  - Comorbidities
  - Health practices
  - Socioeconomic status
- **Access to Healthcare**
  - Insurance
  - Proximity
  - Convenience
- **Utilization of Care**
  - Health literacy
  - Level of trust
  - Provider bias
  - Discrimination
- **Quality of Care**
Accomplishments of the HUCC-SKCCC Partnership

- **Manuscripts:**
  - 241 publications (63 papers jointly authored by investigators at HUCC and SKCCC)
  - 171 publications by newly recruited faculty
  - 4 publications by jointly mentored postdoctoral (clinical and non-clinical) fellows and
  - >3,000 citations stemming from the work

- **Grants:**
  - 67 new funded sponsored projects awarded to Partnership investigators (National Cancer Institute, Department of Defense, others)

- **Growth in health disparities research at SKCCC:**
  - Center for Medicare/Medicaid Services (CMS) award entitled “Cancer Prevention and Treatment among African-American Older Adults”
  - National Cancer Institute (NCI) U54 Community Networks Program award entitled “Community Networks Program: The Johns Hopkins Center to Reduce Cancer Disparities”
Prevalence of Prostate Cancer at Autopsy*

Difference in prostate cancer mortality rates (age adjusted): 
229/100,000 for African-Americans versus 140/100,000 Caucasians
1.63-fold higher for African-American men

Change in **Serum Testosterone** with Age
(n = 1,575 men in NHANES III)*

- Testosterone/Dihydrotestosterone: *similar in African-American versus Caucasian men*

- Estradiol: *Higher in African-American versus Caucasian men*

Accomplishments of the HUCC-SKCCC Partnership

- Minority accrual to clinical trials:
  Minority Outreach and Recruitment (MOR) Core at SKCCC permitted leveraging of funds from the State of Maryland.
  For 2000, 10.9% of accruals to therapeutic trials at SKCCC were African-Americans as compared to 17.4% of catchment area patients.
  By 2011, 19.3% of accruals to therapeutic trials at SKCCC were African-Americans as compared to 19.3% of Maryland patients.

- Training:
  87 pre- and post-doctoral students in Partnership summer graduate/medical student programs.
  For the 36 who have completed degrees, 12 hold university faculty positions, 13 are in clinical practice, and 11 are government/foundation scientists.

- Impact on health disparities:
  From 2000 to 2008 the overall cancer mortality disparity for African-Americans compared to Caucasians in Maryland has been reduced by 14.9%.
  Mortality declines for African-Americans (-2.4%/year, 2005-09) were greater than for Caucasians (-1.4%/year, 2005-09).

  *Maryland Comprehensive Cancer Control Plan 2011
Durable Benefits of the HUCC-SKCCC Partnership: Minority Accrual to Clinical Trials at SKCCC

• Publications:

• Participation in national efforts:
  EMPACT: Enhancing Minority Participation in Clinical Trials (U24 MD006970)

• Implementation of clinical trials enrollment improvements
Durable Benefits of the HUCC-SKCCC Partnership: Cancer in the Under-Privileged, Indigent, or Disadvantaged (CUPID) Summer Training Program for Medical Students

"I left this program with a better understanding of Oncology in general as well as the unique needs of under privileged, indigent, and disadvantaged populations."

"Undoubtedly, the experiences and research with which I partook in the CUPID Program further bolstered and ingrained my desires to pursue a medical career in which I am able to impact and improve the oncological care of the under-privileged, indigent, and disadvantaged."

“The lecturers who presented were very passionate about their research, so it was hard not to be excited with them. They wanted to educate us, but also inspire us to continue looking for solutions and providing care to people who have often been forgotten."

“The learning environment at Johns Hopkins was unmatchable in its breadth including continual involvement in an individual research project, daily lectures from esteemed Hopkins clinicians and researchers, clinical shadowing in various oncology related specialties, and trips to various locations.”
**Unexpected Benefits** of the HUCC-SKCCC Partnership:

New Nonmyeloablative Bone Marrow Transplantation (NMBT) Strategy has Nearly Eliminated Graft-Versus-Host Disease (GVHD) from Allogeneic Bone Marrow Transplantation (alloBMT) *

- NMBT using haploidentical donors now treatment of choice for many leukemias and lymphomas despite race/ethnicity or age
- Post-transplantation lymphoproliferative disorder (PTLD) eliminated by NMBT
- Improved outcome for poor-risk (FLT3-ITD mutation) acute myeloid leukemia with NMBT
- NMBT mechanism appears to involve sparing of “regulatory T-cells”
- 8 of 17 subjects with sickle cell disorder and frequent and severe pain crises have been cured of disease by NMBT
- NMBT Appears to improve outcomes of other major organ transplants

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