Navigating a Successful Career in Research

Clayton Yates PhD

John R. Lewis Endowed Professor of Pathology

Director of Translational Health Disparities and Global Health Equity Research

Department of Pathology, Oncology, and Urology

Co-Leader Genomics and Epigenomics Core

JOHNS HOPKINS
MEDICINE

THE SIDNEY KIMMEL
COMPREHENSIVE CANCER CENTER

Background and Training

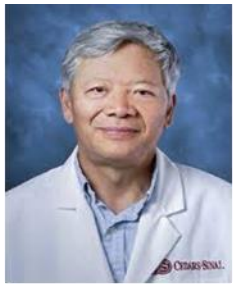
*Bachelor of Science B.S
*Master of Science M.S

Tim Turner PhD

Alan Wells MD PhD

University of Pittsburgh School of Medicine

*Doctor of Philosophy PhD
Molecular Pathology
*Certificate of Training
Regenerative Medicine
Tissue Engineering



Leland Chung PhD

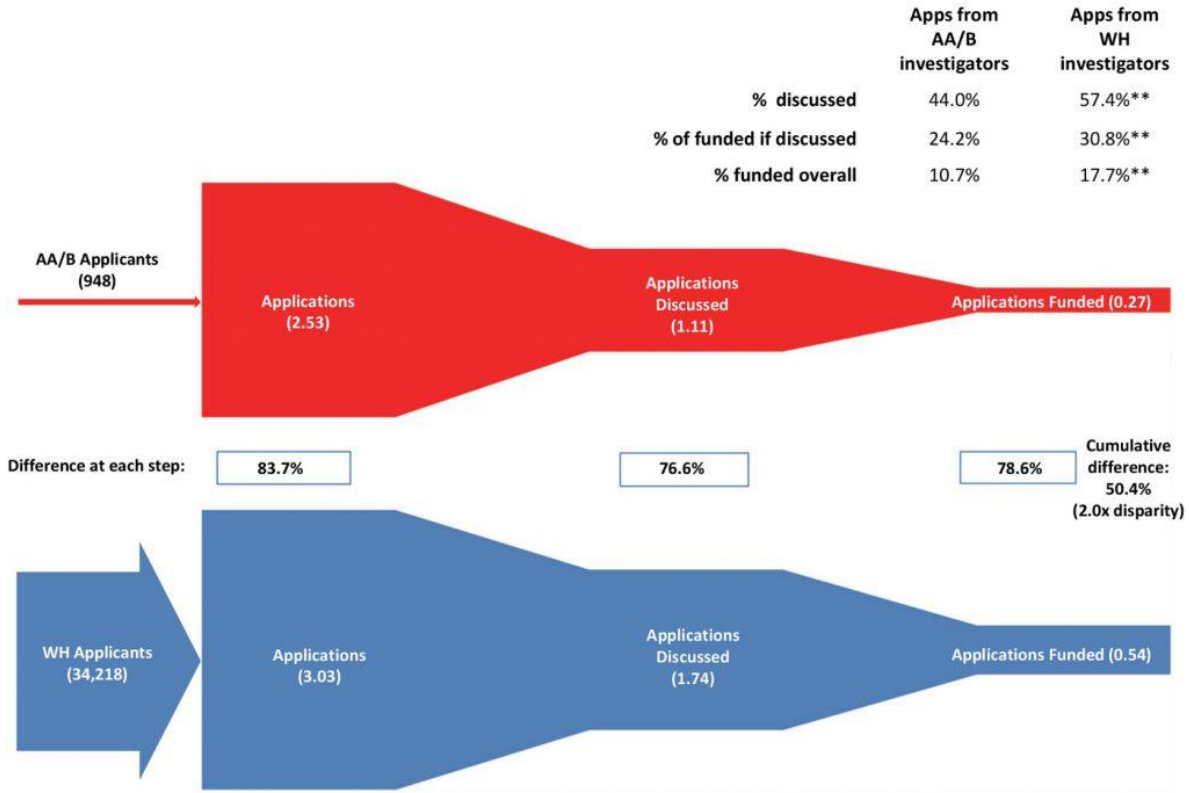
EMORY UNIVERSITY SCHOOL OF MEDICINE

**Post-Doctoral Training
Molecular Urology

TUSKEGEE UNIVERSITY

*Assistant Professor
To
*Full Professor
Director of Biomedical Research

Equity in Funding Rates for Minority Applicants



When applications from black researchers were discussed in study section, they received worse impact scores— 38.4 + 13.4 vs 35.2 + 12.6. Combining lower submission rates, lower discussion rates, and worse impact, black scientists receive R01 funding only half as often as their white peers (Figure 1).

*Travis A. Hoppe et al.. Sci. Adv.**5**,eaaw7238(2019).*

So-called “Stigmas”- Lack of Equity in Funding Rates for Minority Scientist 1 of 4

- **Minority Scientist Don’t Collaborate enough**
- **Choice of the topic of study contributes to differences in funding outcomes**
- **Applications from Minority scientists are less likely to be discussed and receive lower impact scores**
- **Minority investigators are not less likely to resubmit an unfunded application**

So-called “Stigmas”- Lack of Equity in Funding Rates for Minority Scientist, 2 of 4

- **Minority Scientist Don’t Collaborate enough**
  - **The network of peer investigators is smaller than a majority of scientists.**

Make the Mentee-Mentor Relationship Work for You!

Develop a Team of 3-5 mentors

- Each Mentor should represent a different skill
- Maintain a relationship with each mentor
- Develop a Career Roadmap

LISTEN TO THEIR ADVICE

So-called “Stigmas”- Lack of Equity in Funding Rates for Minority Scientist, 3 of 4

- Minority Scientist Don’t Collaborate enough
  - The network of peer investigators is smaller than a majority of scientists.
- **Choice of the topic of study contributes to differences in funding outcomes**
  - **Rigor of Research Focus and Depth**

What makes you get up in the Morning!!

Develop a Research Niche

Shaniece Theodore PhD
Tuskegee Univ.

Jason White M.S
Tuskegee Univ.

Establishment and characterization of a pair of non-malignant and malignant tumor derived cell lines from an African American prostate cancer patient

SHANIECE THEODORE[1], STARLETTE SHARP[1], JIANJUN ZHOU[1], TIMOTHY TURNER[1], HONGZHEN LI[2], JUN MIKI[2], YOUNGMI JI[2], VYOMESH PATEL[3], CLAYTON YATES[1] and JOHNG S. RHIM[2]

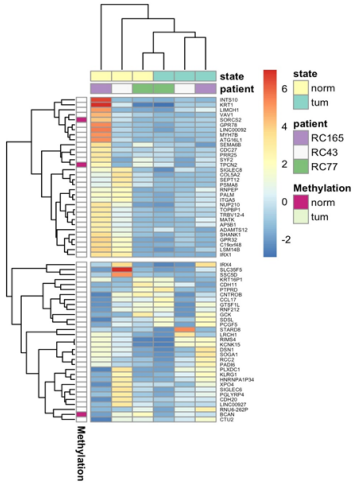
	Tissue Derivation	Androgen Sensitivity	Tumor Formation in SCID mice
RC-165N ** RC-165T**	Benign Tumor	Yes Yes	Yes
RC-77N/E** RC-77T/E **	Benign Tumor	Yes Yes	Yes
RC-43N/E ** RC-43T/E**	Benign Tumor	Yes Yes	No
**= African American prostate cancer patient.			

TABLE 3 Ancestry proportions in panel of prostate cancer cell lines

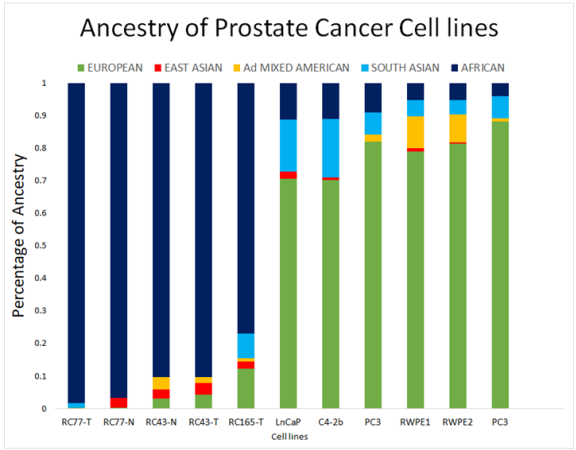
	Proportion of ancestry		
Cell line	AFR	AMI	EUR
PC3	0.19	0.08	0.73
DU145	0.28	0.09	0.63
MDA-PCa-2b	0.73	0.13	0.14
RC-77T/E	0.74	0.09	0.17
22Rv1	0.41	0.17	0.42

AFR, African ancestry; AMI, Ameri-Indian ancestry; EUR, European ancestry.

Woods-Burnham The Prostate. 2017;1–8.



ADMIXTURE
software tool



www.impactjournals.com/oncotarget/ Oncotarget, Vol. 5, No. 11

MicroRNA profiling of novel African American and Caucasian Prostate Cancer cell lines reveals a reciprocal regulatory relationship of *miR-152* and DNA methyltranferase 1

Shaniece C. Th
Johng Rhim[2],
[5], William Griz

Jennifer Myers PhD
Florida State Univ.

Research

Immunoseroproteomic Profiling in African American Men with Prostate Cancer: Evidence for an Autoantibody Response to Glycolysis and Plasminogen-Associated Proteins*

Tino W. Sanchez‡¶¶, Guangyu Zhang¶, Jitian Li§, Liping Dai§, Saied Mirshahidi‡‖, Nathan R. Wall‡, Clayton Yates‡‡, Colwick Wilson‡**, Susanne Montgomery‡**, Jian-Ying Zhang§, and Carlos A. Casiano‡§§

INFECTIOUS AGENTS AND CANCER

This article is part of the supplement: Proceedings of the First Biennial Conference on Science of Global Prostate Cancer Disparities in Black Men

Open access Proceedings

Detecting gene-gene interactions in prostate disease in African American men

Renee R Reams*, Krishna R Kalari, Honghe Wang, Folakemi T Odedina, Karam FA Soliman and Clayton Yates

Infectious Agents and Cancer 2011, **6**(Suppl 2):S1 doi:

Published: 23 September 2011

AACR American Association for Cancer Research

Cancer Epidemiology, Biomarkers & Prevention

Genetic ancestry analysis reveals misclassification of commonly used cancer cell lines

Stanley E Hooker, Leanne Woods-Burnham, Madhavi Bathina, et al.

Cancer Epidemiol Biomarkers Prev Published OnlineFirst February 20, 2019.

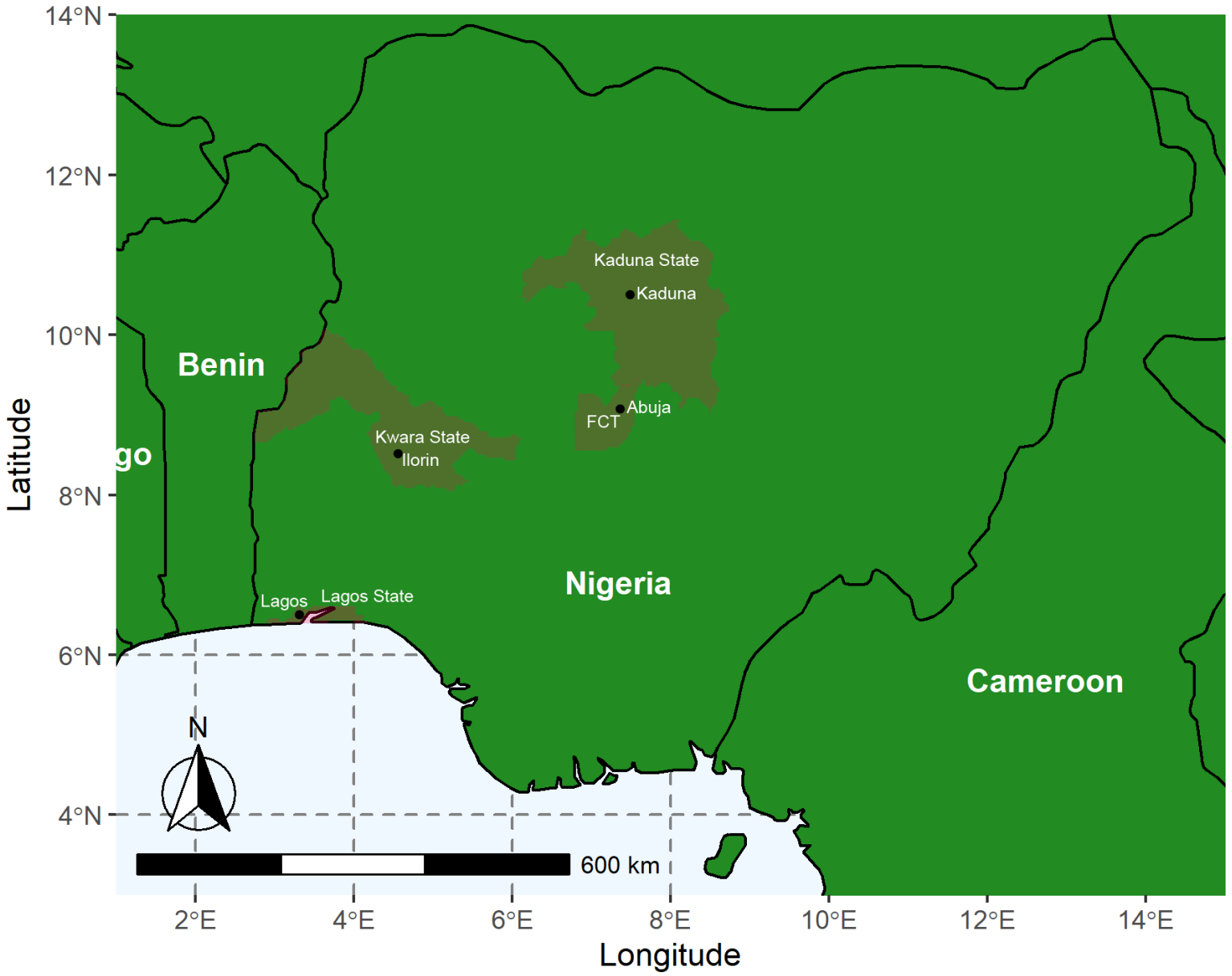
Prostate Cancer Transatlantic Consortium Program

Folakemi Odedina, PhD
Consortium PI & Director

Clayton Yates, PhD
Consortium co- PI & Director

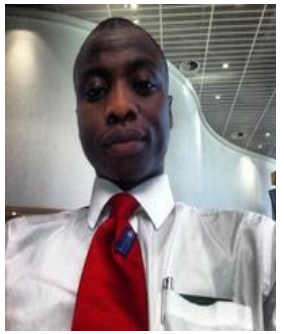
CaPTC || https://epi.grants.cancer.gov/captc/ || captc@cop.ufl.edu

Investigators in West Africa



Fulbright Scholars

Solomon Rotimi PhD
Covenant Univ.



Faruk Mohammed PhD
ABU- Zaria, Nigeria

Adelani Isaacson PhD
Covenant Univ.

Aliyu Muhammed PhD
ABU-Zaria Nigeria

Omolola Elizabeth PhD
Covenant Univ

Collaborations Are Essential Career Longevity

CANCER RESEARCH COMMUNICATIONS

RESEARCH ARTICLE OPEN ACCESS

Whole-exome Sequencing of Nigerian Prostate Tumors from the Prostate Cancer Transatlantic Consortium (CaPTC) Reveals DNA Repair Genes Associated with African Ancestry

Jason A. White, Ernest T. Kaninjing, Kayode A. Adeniji, Paul Jibrin, John O. Obafunwa, Chidiebere N. Ogo, Faruk Mohammed, Ademola Popoola, Omolara A. Fatiregun, Olabode P. Oluwole, Balasubramanyam Karanam, Isra Elhussin, Stefan Ambs, Wei Tang, Melissa Davis, Paz Polak, Moray J. Campbell, Kathryn R. Brignole, Solomon O. Rotimi, Windy Dean-Colomb, Folake T. Odedina, Damali N. Martin, ar Clayton Yates

Cancer Cell

Article

Anti-PD-1/L1 lead-in before MAPK inhibitor combination maximizes antitumor immunity and efficacy

Yujue Wang, Sixue Liu, Zhentao Yang, Alain P. Algazi, Shirley H. Lomeli, Yan Wang, Megan Othus, Aayoung Hong, Xiaoyan Wang, Chris E. Randolph, Alexis M. Jones, Marcus W. Bosenberg, Stephanie D. Byrum, Alan J. Tackett, Henry Lopez, Clayton Yates, David B. Solit, Antoni Ribas, Marco Piva, Gatien Moriceau, and Roger S. Lo

nature COMMUNICATIONS

ARTICLE OPEN

Serum proteomics links suppression of tumor immunity to ancestry and lethal prostate cancer

Tsion Zewdu Minas, Julián Candia, Tiffany H. Dorsey, Francine Baker, Wei Tang, Maeve Kiely, Cheryl J. Smith, Amy L. Zhang, Symone V. Jordan, Yao Tettey, Richard B. Biritwum, Andrew A. Adjei, James E. Mensah, Rick Kittles, Ann W. Hsing, Xin W. Wang, Christopher A. Loffr Michael B. Cook & Stefan Ambs

nature communications

Article

Circulating trans fatty acids are associated with prostate cancer in Ghanaian and American men

SCIENCE TRANSLATIONAL MEDICINE | RESEARCH ARTICLE

CANCER

Mannose receptor (CD206) activation in tumor-associated macrophages enhances adaptive and innate antitumor immune responses

Jaynes et al., Sci. Transl. Med. 12, eaax6337 (2020) 12 February 2020

Tsion Zewdu Minas, Brittany D. Lord, Amy L. Zhang, Julián Candia, Tiffany H. Dorsey, Francine S. Baker, Wei Tang, Maeve Bailey-Whyte, Cheryl J. Smith, Obadi M. Obadi, Anuoluwapo Ajao, Symone V. Jordan, Yao Tettey, Richard B. Biritwum, Andrew A. Adjei, James E. Mensah, Robert N. Hoover, Ann W. Hsing, Jia Liu, Christopher A. Loffredo, Clayton Yates, Michael B. Cook & Stefan Ambs

CANCER RESEARCH COMMUNICATIONS

RESEARCH ARTICLE OPEN ACCESS

African American Prostate Cancer Displays Quantitatively Distinct Vitamin D Receptor Cistrome-transcriptome Relationships Regulated by BAZ1A

Manjunath Siddappa, Shahid Hussain, Sajad A. Wani, Jason White, Hancong Tang, Jaimie S. Gray, Hedieh Jafari, Hsu-Chang Wu, Mark D. Long, Isra Elhussin, Balasubramanyam Karanam, Honghe Wang, Rebecca Morgan, Gary Hardiman, Isaacson B. Adelani, Solomon O. Rotimi, Adam R. Murphy, Larisa Nonn, Melissa B. Davis, Rick A. Kittles, Chanita Hughes Halbert, Lara E. Sucheston-Campbell, Clayton Yates, and Moray J. Campbell

PLOS ONE

RESEARCH ARTICLE

AR negative triple negative or "quadruple negative" breast cancers in African American women have an enriched basal and immune signature

Melissa Davis, Shweta Tripathi, Raymond Hughley, Qinghua He, Sejong Bae, Balasubramanyam Karanam, Rachel Martini, Lisa Newman, Windy Colomb, William Grizzle, Clayton Yates

Translational Oncology

www.transonc.com

Volume 12 Number 3 March 2019 pp. 493–501 493

Quadruple Negative Breast Cancers (QNBC) Demonstrate Subtype Consistency among Primary and Recurrent or Metastatic Breast Cancer

Anusha Angajala, Essynce Mothershed, Melissa B. Davis, Shweta Tripathi, Qinghua He, Deepa Bedi, Windy Dean-Colomb and Clayton Yates

scientific reports

OPEN

MicroRNAs within the Basal-like signature of Quadruple Negative Breast Cancer impact overall survival in African Ameri

JCI insight

RESEARCH ARTICLE

African Ancestry–Associated Gene Expression Profiles in Triple-Negative Breast Cancer Underlie Altered Tumor Biology and Clinical Outcome in Women of African Descent

cancers

Article

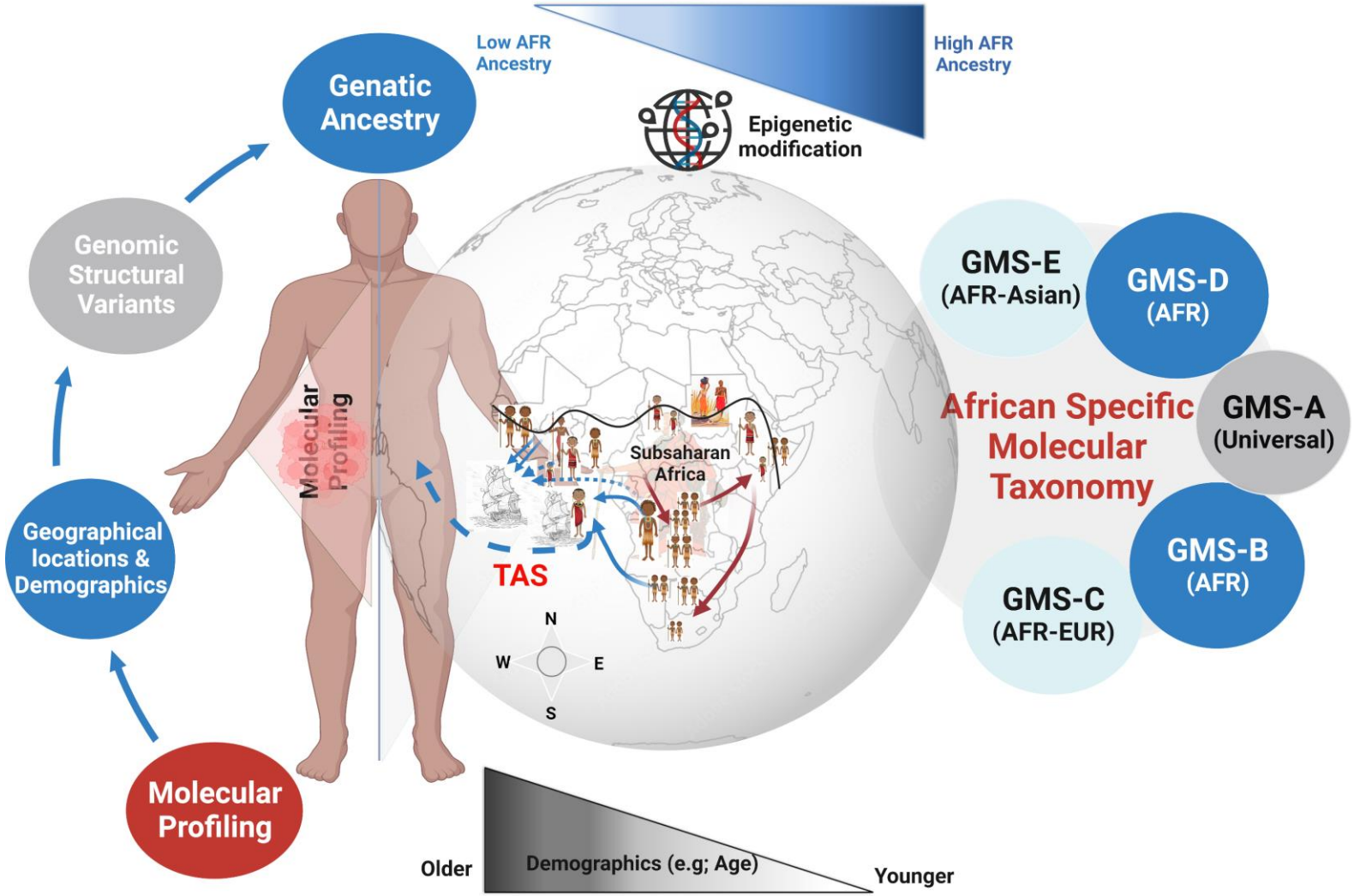
Identification of Distinct Hetero Molecular Signatures Associated Ancestry in Triple Negative Brea Quantified Genetic Ancestry Mo Race Populations

Melissa Davis, Rachel Martini, Lisa Newman, Olivier Elemento, Jason White, Akanksha Verma, Indrani Datta, Indra Adrianto, Yalei Chen, Kevin Gardner, Hyung-Gyoon Kim, Windy D. Colomb, Isam-Eldin Eltoum, Andra R. Frost, William E. Grizzle, Andrea Sboner, Upender Manne and Clayton Yates

Protein expression of the gp78 E3 ligase predicts poor breast cancer outcome based on race

Sandeep K. Singhal, Jung S. Byun, Tingfen Yan, Ryan Yancey, Ambar Caban, Sara Gil Hernandez, Sediqua Bufford, Stephen M. Hewitt, Joy Winfield, Jaya Pradhan, Vesco Mustkov, Jasmine A. McDonald, Eliseo J. Pérez-Stable, Anna Maria Näpoles, Nasreen Vohra, Adriana De Siervi, Clayton Yates, Melissa B. Davis, Mei Yang, Yien Che Tsai, Allan M. Weissman, and Kevin Gardner

African specific Molecular Taxonomy



Elhussin and Yates Trends in Cancer 2022

Networking is Critical to Research Success

- **NCI Center to Reduce Cancer Health Disparities Professional Development Workshop**
  - **Understand how NIH and the grant review process work!**

- **Become involved in Professional Scientific Organizations-**
  - **Endocrine Society, Society for Investigative Pathologists (ASIP), and AACR**
  - **AACR-MICR Chair 2022-2023**

- **Ask to be set on a Scientific Review Study Session.**
  - **The more grants you read, the better your grant application becomes!!**
  - **Charted Member of NCI Advancing Therapeutics (ATA) Study Session**

DIVERSITY RESEARCH NETWORK

NRMN
National Research Mentoring Network

AACR American Association for Cancer Research
FINDING CURES TOGETHER

NIH NATIONAL CANCER INSTITUTE
CENTER TO REDUCE CANCER HEALTH DISPARITIES

So-called “Stigmas”- Lack of Equity in Funding Rates for Minority Scientist, 4 of 4

- Minority Scientist Don’t Collaborate enough.
  - The network of peer investigators is smaller than a majority of scientists.
- Choice of the topic of study contributes to differences in funding outcomes
- **Applications from Minority scientists are less likely to be discussed and receive lower impact scores**
- **Minority investigators are not less likely to resubmit an unfunded application**

Funding for your Research Ideas

Statistical Measure	2020	2021
Total Competing Application Requests	9,538	9,601
Funding Success Rate	13%	14%
Percentile Funding for R01 Grants	10th & 15th	11th & 16th

FY 2021 figures include FY 2021 Cancer Moonshot funds.

Key Strategies to Secure Funding

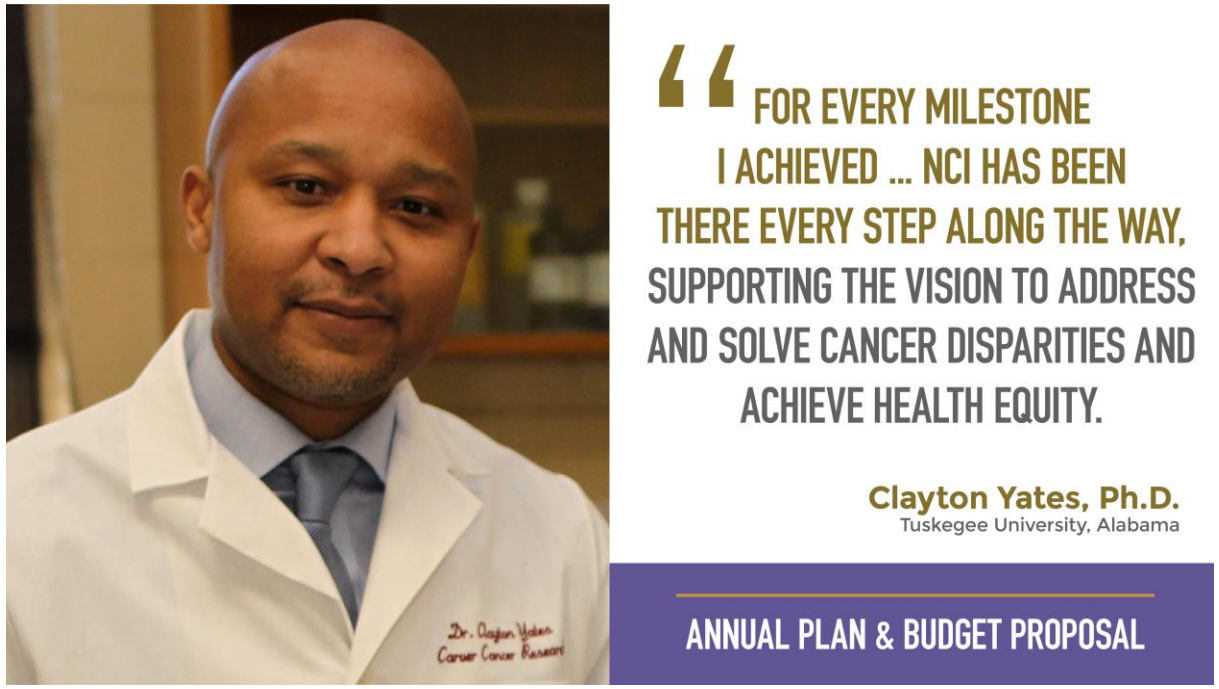
- Five to Eight grant submissions per year
- Diversify your funding strategy
  - Government, Foundations, Industry
- Server on 2-3 Review Study Sections
- Dedicated Writing Time every week
- Establish strong collaborators that can grow with you!
- Publish, Publish, Publish!

https://www.cancer.gov/about-nci/budget/fact-book/extramural-programs/rpg

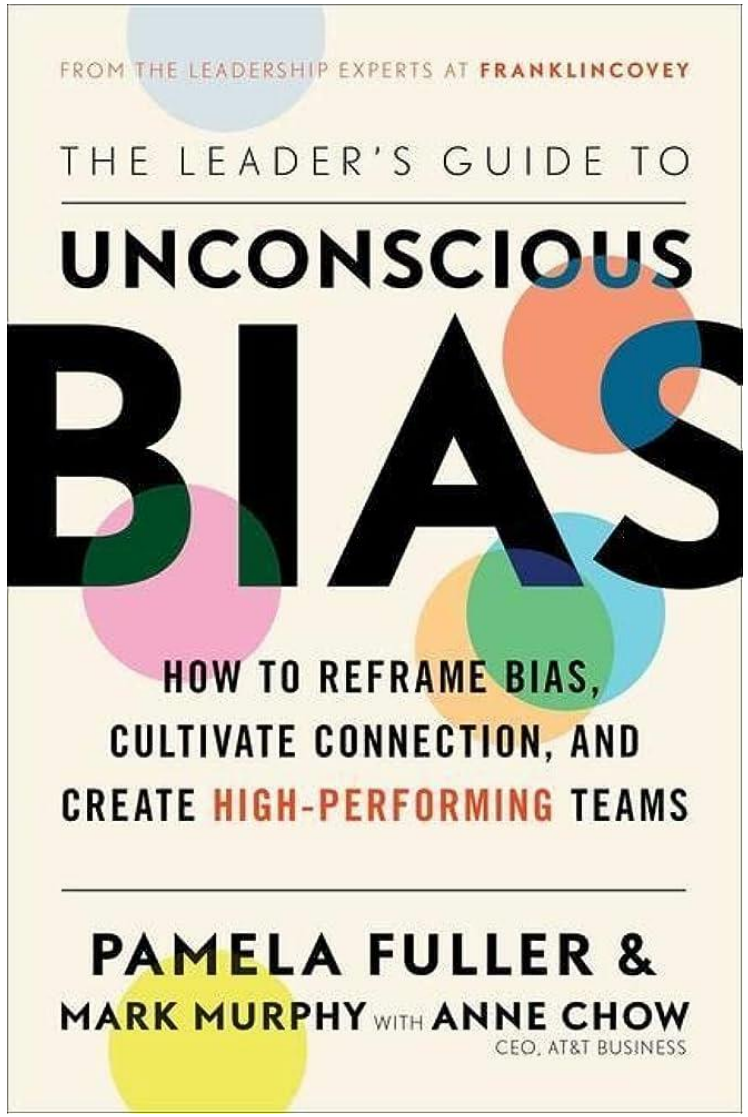
Success in Securing Extramural Fundings

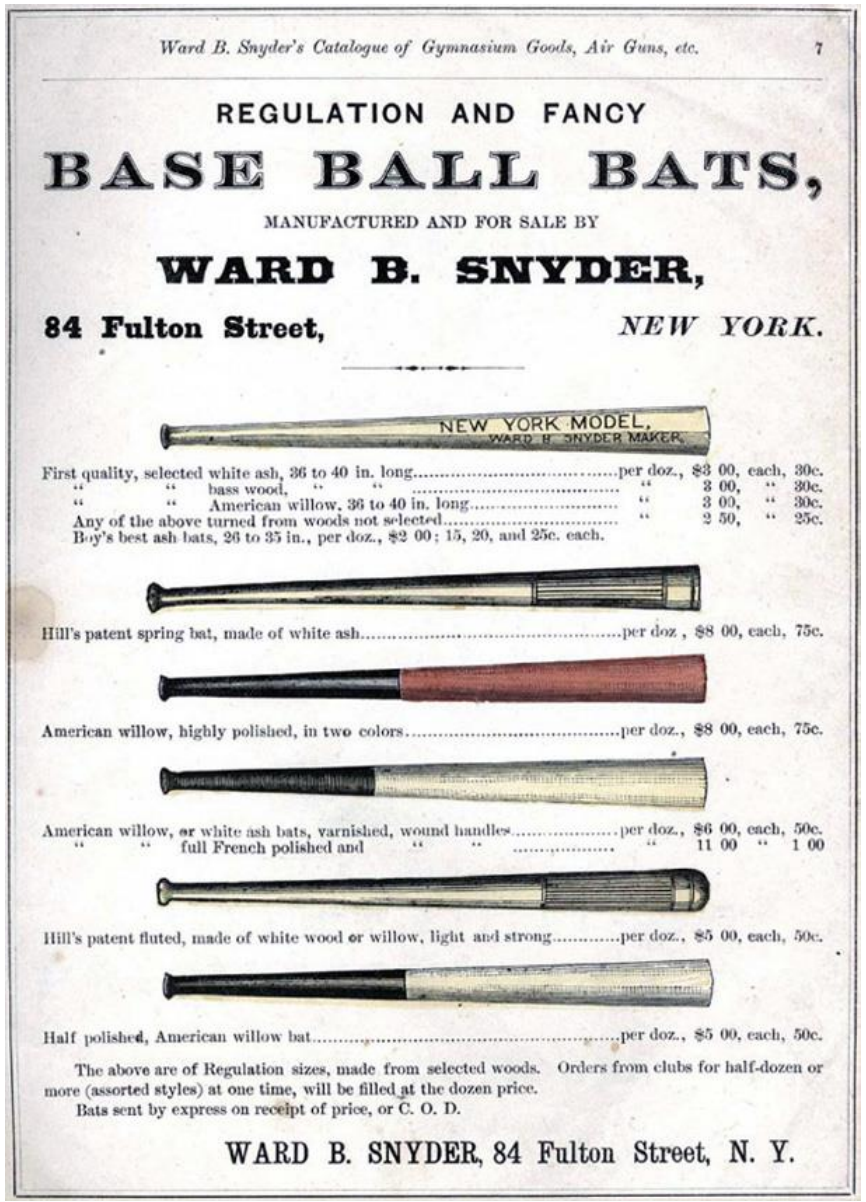
- Average 1 grant awarded per year.
- **Totaling over 35 million**
  - **NIH, DoD, ACS, Industry**
- Promotion from Assistant to Full Professor in 7 Years.
- Leadership positions in my academic institution and National organizations
- Received Endowed Professorship in 2022 at Johns Hopkins

NCI Annual Plan & Budget Proposal For FY 2023



https://www.cancer.gov/research/annual-plan





Ward B. Snyder's Catalogue of Gymnasium Goods, Air Guns, etc. 7

REGULATION AND FANCY

BASE BALL BATS,

MANUFACTURED AND FOR SALE BY

WARD B. SNYDER,

84 Fulton Street, *NEW YORK.*

First quality, selected white ash, 36 to 40 in. long.....per doz., $3 00, each, 30c.
" " bass wood, " " ..... " 3 00, " 30c.
" " American willow, 36 to 40 in. long..... " 3 00, " 30c.
Any of the above turned from woods not selected..... " 2 50, " 25c.
Boy's best ash bats, 26 to 35 in., per doz., $2 00; 15, 20, and 25c. each.

Hill's patent spring bat, made of white ash.....per doz , $8 00, each, 75c.

American willow, highly polished, in two colors.....per doz., $8 00, each, 75c.

American willow, or white ash bats, varnished, wound handles.....per doz., $6 00, each, 50c.
" " full French polished and " " ..... " 11 00 " 1 00

Hill's patent fluted, made of white wood or willow, light and strong.....per doz., $5 00, each, 50c.

Half polished, American willow bat.....per doz., $5 00, each, 50c.

The above are of Regulation sizes, made from selected woods. Orders from clubs for half-dozen or more (assorted styles) at one time, will be filled at the dozen price.

Bats sent by express on receipt of price, or C. O. D.

WARD B. SNYDER, 84 Fulton Street, N. Y.

Past-Trainees from the Yates-Lab

Graduate Trainees

Physician-Scientist

Post-Doc/Junior Faculty


Essence Mothershed
South Alabama Univ.


Jennifer Myers PhD
Florida State Univ.


Jacqueline Jones PhD
Ass Prof. Troy Univ.


Shana Hardy
Kite Therapeutics


Jason White
Tuskegee Univ.


Ruskana Amin MD


Andrea Gillis
MD UAB


Shweta Tripathi
Alabama State

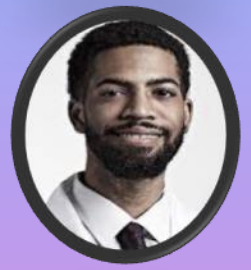

Stephanie Pulliam PhD.
J&J

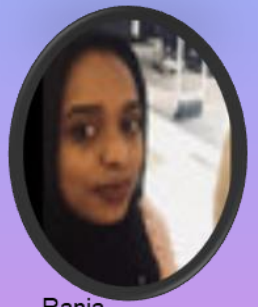

Anusha Angajala PhD
South Alabama Univ.


Abisola Ogunniyan PhD
Post. Doc USCF


Anghesom Ghebremedin
Tuskegee Univ.


Shakir MD Ahmed
NCI


Raymond Hughley
USC


.Rania
Mohamedelhassan MD
Auburn Univ


Isra Elhussin MD, PhD
Tuskegee Univ.


Huixian Lin PhD
Tuskegee Univ.


Jianjun Zhou PhD
Biotech China


Shaniece Theodore PhD
Tuskegee Univ.


Mohamed Abdaall PhD
Tuskegee Univ.


Starlette Sharp PhD
NAS


Dominic Gales PhD
Terrumo Therapeutics


David Austin PhD
Teknova Therapeutics


Ahmad Salam MD, PhD
Thermofisher


Bala Karanam PhD
Tuskegee Univ.


Honghe Wang PhD
Tuskegee Univ.

Major Collaborators

National Cancer Institute

Stefan Ambs PhD
Wei Tan, PhD

Columbia University

Kevin Gardner MD PhD

Weill Cornell Medical College

Melissa Davis PhD
Lisa Newman MD

Health Sciences Center

Windy Dean-Colomb MD, PhD

CaPTC- Transatlantic Prostate Consortium

Folake Odedina PhD - University of Florida
Faruk Mohammed PhD Ahmadu Bello University Nigeria
Rotimi Solomon PhD - Covenant University, Nigeria

Windy Dean-Colomb MD
Tuskegee/Piedmont Health Care

Lisa Newman, MD
Weill Cornell Medical College
Department of Surgery

John Carpten, PhD
City of Hope

Melissa Davis, PhD
Weill Cornell Medical College
Department of Surgery

Chanita Hughes-Halbert PhD
USC

Rick Kittles, PhD
Morehouse School of Medicine

Folake Odedina, PhD
Mayo Clinic FL

Stefan Ambs PhD
NCI

Kevin Gardner MD PhD
Columbia University

Grant Support: NIH/NCI U54CA118623-01; DoDPC073977; DoD PC120913; NIH/NIMHDU54-MD007585-26; NIH/NCI 1R21CA188799-01