Building on Momentum: 
*The Future of CCTS*

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*Holley Professor of Medicine*

Senior Associate Dean for Clinical and Translational Research
Associate Vice President for Medicine and Biomedical Research
THE APPLICATION

UL1

Center for Clinical and Translational Science

- Overall
- Administrative Core (Organization and Governance, Communications, Evaluation & Quality and Efficiency)
- Informatics
- Community and Collaboration (Engagement of Communities & Collaboration and Team Science)
- Translational Endeavors (Translational Workforce Development & Pilot Program)
- Research Methods (BERD & Regulatory Knowledge and Support)
- Hub Research Capacity (Integrating Special Populations & Participant and Clinical Interactions)
- Network Capacity
- Genomic Medicine Initiative
- Precision Therapeutics

KL2

Deep South Translational Research Mentored Career Development Program

TL1

Deep South Translational Thinker Training Program
THE APPLICATION

Biosketches = 484 individuals (97U + 103T + 284K) 2,137 pages (455U+1212K+470T)

Budgets & Justifications = 843 pages

Letters of Support = 113 Letters

Facilities & Resources = 98 pages

Research Strategies & Training Plans = 136 pages

NIH form pages
clinical research

CCTS

network

training

health

informatics

translation

translational science

discovery

community

communities

knowledge

underrepresented

obesity

partnerships

risk

health disparities
Growth in CCTS Consortium Proposals

- UM Oxford
- Southern Research
- UAB
- Auburn
- UA Tuscaloosa
- Tuskegee
- Univ. South Alabama
- Pennington Biomed Res. Ctr.
- Ochsner
- Xavier U.
- Tulane
- LSU HSC

<table>
<thead>
<tr>
<th>Year</th>
<th># Consortium Grants</th>
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<td>2013</td>
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<td>2017</td>
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CCTS Overview

Growth in CTSA Consortium Activities

CCTS Multi-Institutional Collaborative Projects

**Informatics**
- ACT – NCATS Accrual to Clinical Trials Network (B.)
- SE SHRINE Network – i2b2 / SHRINE network across Deep South (B.)
- PROMIS - Patient-Reported Outcomes Measurement Information System (B.)

**Genomics & Precision Medicine**
- AGHI – Alabama Genome Health Initiative (H1.)
- Southern All of Us – NIH All of Us Precision Medicine Initiative (H1.)
- CSER2 – Clinical Sequencing Across Communities in the Deep South (H1.)
- UDP – Undiagnosed Diseases Program (H.)

**Clinical & Translational Research**
- SHARE – Southeast Health Alliance for Research (G.)
- SRC – CTSA Scientific Review Committee Pilot (E.)
- STRIDE - Strengthening Translational Research in Diverse Enrollment (F.)
- CHAMP - Child Health Research Acceleration through Multisite Planning (C.)
- CEREC - CTSA External Reviewer Exchange Consortium (D.)
- COHA – CTSA One Health Alliance (H2.)
- NExTNet - National Exercise Clinical Trials Network (C.)
- NKC - Neonatal Kidney Collaborative (C.)
- NPRC - National Perinatal Research Consortium (C.)
- TIN – Trial Innovation Network (G.)

Training & Workforce Development

**Edge for Scholars** - Edge for Scholars is a space for candid discussions about life in academics (D.)
- I-Corps@NCATS – Program established by NCATS to bring I-Corps methodology to innovation and entrepreneurship in Translational Science (H2.)
- Innovation in Healthcare Lecture Series - Collaborative enrichment activity featuring the experiences of entrepreneurs in healthcare (H2.)
- R2T – Rigor, Reproducibility & Transparency Training (Kaizen) (E.)
- SEQUIN - mini-Sabbatical Evaluation and QUality ImprovemeNt (SEQUIN) (D.)
Translational Workforce Development
Integrated Approach
Enrollment for the January 2018 Clinical and Translational Science Training Program (CTS-TP) exceeded the course cap of 40 participants by 15%, with nearly 50% of enrollees coming from Partner sites.

In partnership with the Hub’s Department of Medicine, the CCTS has tripled the number of individual K-awards (from 10 in 2016 to 31 in 2017).
Translational Workforce Development
Integrated Approach
Jayme Locke, MD, MPH, Associate Professor of Surgery

Identification of Optimal Donor-Recipient Combinations among Human Immunodeficiency Virus (HIV)-Positive Kidney Transplant Recipients. To identify factors that predict a higher risk of graft loss among HIV-positive KT recipients, Dr. Locke studied graft loss and patient death reported to the Scientific Registry of Transplant Recipients (SRTR) (2001-2013). Compared to HIV-negative recipients, the hepatitis C virus (HCV) amplified risk 2.72-fold and >3 HLA mismatches amplified risk 1.8 fold among HIV-positive KT recipients. These data have revised UNOS guidelines, and for this high impact work, Dr. Locke received the 2018 ACTS Distinguished Investigator Award: Translation into Public Benefit and Policy.
Translational Workforce Development

Regulatory Knowledge

**INITIAL TRAINING**
Within 2 weeks of employment

**GENERAL OVERVIEW**
Within 2 months of employment

**DEEPER UNDERSTANDING**
Within 6 months of employment

**CONTINUING EDUCATION**
Ongoing

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**Faculty**
- Miami CITI GCP and HSP Courses
  - All
- Research Orientation

**Staff**
- Clinical Investigators Training Program
- Research Training Program
  - All

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**Research Special Topics** (Bi-weekly)
- OnCore Training (Initial & Updates)
  - Subject Mgmt, Protocol, Calendar, Finance and Reporting Tracks

**Kaizen GCP** (Periodic)
- Lunch & Learn: All
- Lunch & Learn: Peds (Quarterly)
Informatics

CCTS Informatics. Coming from the NIH Clinical Center, Dr. James Cimino joined the CCTS in 2015 to advance informatics solutions to accelerate translational research across the translational spectrum. Joined by Dr. Chindo Hicks, CCTS Informatics-LSU, the Southeast Informatics Consortium has brought informaticians across the Partner Network together. The Southeast SHRINE consortium, hosted at the Hub and bringing together Emory, MUSC, Arkansas and Kentucky, has been developed.

James J. Cimino, MD
CCTS Director for Informatics

Chindo Hicks, PhD,
CCTS Informatics Co-Lead
Informatics

Growth in CCTS Informatics

- Pubs by CCTS Informatics
- Pubs facilitated by CCTS Informatics
- Cumulative Citations
Community and Collaboration
Engagement of Communities

CCTS
One Great Community (OGC)
JCCPB (county)
Community Health Needs Assessment
Birmingham City Council
MHRC CFAR

CCTS Partners
Community Engagement Institute (CEI)

OGC 1.0
Institutional Coalition

OGC 2.0
Metropolitan Coalition

OGC 3.0
Regional Coalition

Regional Assets (Aim 3)
Best Practices (Aim 2, 3)
Community Team Training
CHIA (Aim 3)
CBPR (Aim 3)
Project Support (CHEER, AGHI)
Successful projects in community health initiatives have further leveraged their awards to secure more than $6.5 million in additional in-kind and financial support and have reached more than 300,000 people.
Community and Collaboration

Engagement of Communities

One Great Community (OGC). OGC is the signature community engagement initiative of the CCTS, building on a neighborhood-university collaboration championing community health priorities defined by a community health needs assessment. Building on OGC’s local success, the CCTS has undertaken the development of an inventory of programs across our region in order to reach neighborhood, voluntary health-oriented and civic communities across our Partner Network to share strategies and best practices to address local issues in the context of regional challenges. This initiative is embodied in the Community Engagement Institute (CEI).

Max Michael, III, MD, Professor of Public Health
Shauntice Allen, PhD, Asst. Professor Public Health
Community and Collaboration
Growth in Peer Engagement
Research Methods

Growth in CCTS BERD

The CCTS Partner Network’s BERD has collaborated with over 800 investigators, from fellows to established faculty, on 1047 unique projects.
Hub Research Capacity
Integrating Special Populations

The monthly CCTS Forum event (September, 2017) explored challenges in recruiting underrepresented minorities to clinical trials, with an engaging discussion of retention and compliance barriers that need to be overcome. This event highlighted the robust recruitment and retention resources supported by the CCTS and described the innovative strategies created by the Center to improve racial and ethnic minority recruitment in clinical trials through the use of culturally relevant tools, expertise and interventions, including community health advisors, lay navigators, electronic consent and storytelling. Initially streamed to the Partner Network and CTSA Consortium, this training event is an archived training resource on the CCTS YouTube channel.

Reagan Durant, MD, MPH
Associate Professor of Medicine, UAB

Patient Navigation to Reduce Readmissions among Black Men with Heart Failure [NAVI-HF] – Heart failure patients account for more than 1 million hospital discharges annually. African American men with heart failure have higher hospital readmission rates and are more likely to have treatment-seeking delays with the onset of symptoms. Dr. Durant, former CCTS Pilot Awardee and HDRTP graduate (4-2..., below), is testing whether well trained lay navigators could help patients recently hospitalized for heart failure avoid future readmissions (U54MD008620).
Hub Research Capacity

Growth in Clinical Research Support
Genomic Medicine Initiative
Undiagnosed Diseases Program

350 Referrals
141 Evaluated
85 Completed
49 Diagnosed

UAB/CCTS Partners → Clinical Evaluation → WGS HudsonAlpha
Precision Therapeutics

- Undiagnosed Diseases Program
- Alabama Genome Health Initiative
- Rare Disease

Variant ID

Target Validation
- Predictive Informatics
- Functional Assay

Molecular Targets

H2. Precision Therapeutics
<table>
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<th>Diseases/Phenotypes</th>
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<tbody>
<tr>
<td>Glutaminyl-tRNA synthetase</td>
<td>(Huntington's Disease)</td>
</tr>
<tr>
<td>Tau-Rho</td>
<td>(Alzheimer's Disease)</td>
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<tr>
<td>14-3-3 theta</td>
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<tr>
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<td>PTBP1</td>
<td>(Glioma)</td>
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<tr>
<td>ATM-NBS1</td>
<td>(Radiation Treatment)</td>
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<tr>
<td>SUMO</td>
<td>(Breast and other cancers)</td>
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<tr>
<td>DPY30</td>
<td>(Neural cancers)</td>
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<tr>
<td>NHE (N-myristoyltransferase)</td>
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<tr>
<td>RNA polymerase I</td>
<td>(Various Cancers)</td>
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<tr>
<td>USP4</td>
<td>(Multiple Myeloma &amp; CLL)</td>
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<tr>
<td>TSP1/TGF beta</td>
<td>(Multiple Myelomas)</td>
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<tr>
<td>DNA Methyl Transferase</td>
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<td>Oxylipins</td>
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**Precision Therapeutics: AD4**

**Advances in Drug Discovery Pipeline**

**Chart**

- ASSAY DEVELOPMENT
- ASSAY VALIDATION
- HTS
- HIT VALIDATION
- LEAD IDENTIFICATION
- LEAD DEVELOPMENT
- PRECLINICAL
- PHASE
Drs. Leavesley and Rich combined complementary research strengths in engineering and cell biology to develop novel imaging and detection methods. This pilot project refined the use of hyperspectral imaging and analysis methods to differentiate cancerous and noncancerous tissue with high sensitivity and specificity and led to a new startup, SpectraCyte, to provide a next-generation gastrointestinal endoscope that enables improved early detection of colorectal cancers.\textsuperscript{11, 12}
Allan David and his team participated in the I-Corps™ regional program with an innovation in superparamagnetic iron-oxide nanoparticles (SPIONs). With coaching from the CCTS I-Corps™ team and with end-user feedback, the investigators discovered the key concern was not particle size or image quality but rather the safety of contrast agents. Based on these insights, the nascent company pivoted in the development of their technology to focus on safer MRI contrast agents. Dr. David’s team has gone on to participate in an NSF National I-Corps™ program, receiving $50,000 in funding to advance their work. By getting out into the real-world and talking to the people their science would serve, they learned that they were solving a problem that was not a major concern. This team has gone on to earn a $56,000 investment from Auburn University’s 2018 LAUNCH program.
Questions & Discussion
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