



# Moving TSC Research Forward in the Face of COVID-19

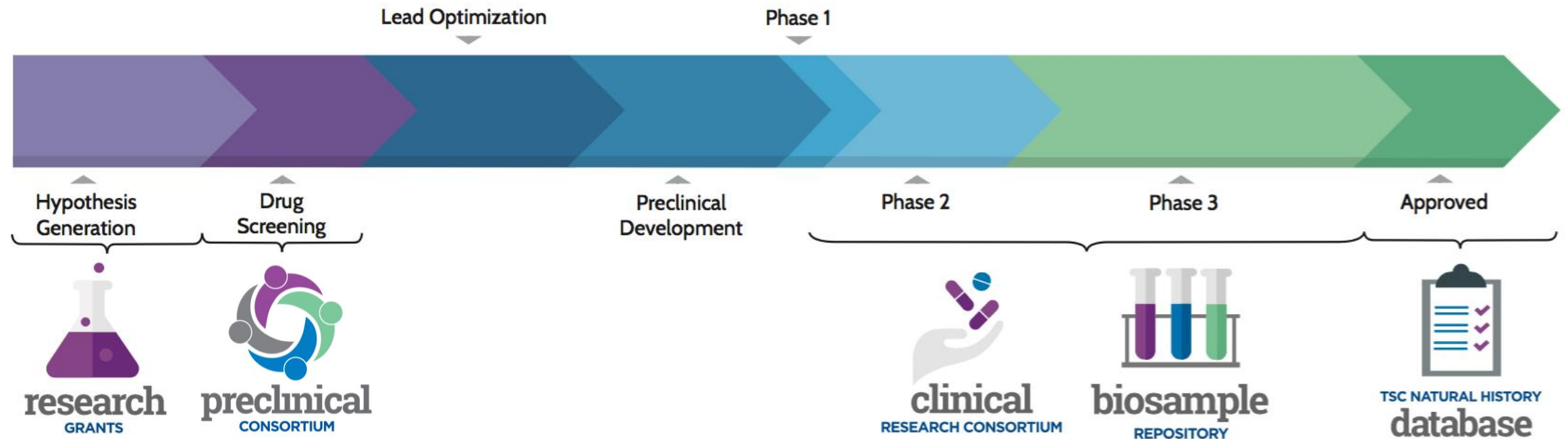
*April 6, 2020*

# The Tuberous Sclerosis Alliance's Mission

The TS Alliance is dedicated to finding a cure for tuberous sclerosis complex and improving the lives of those affected.

**ESSENTIAL BUSINESS**

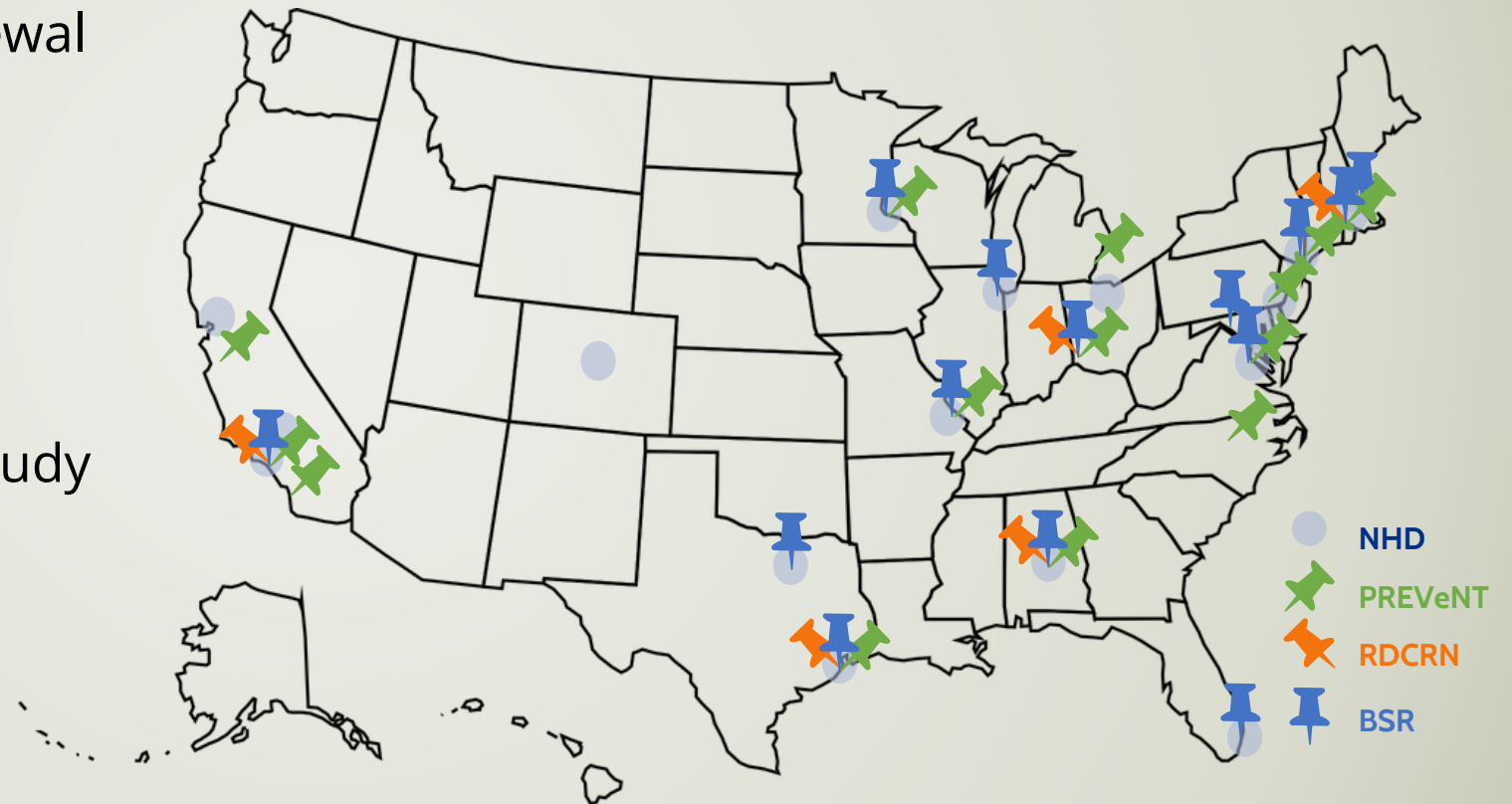
# Accelerating research and drug development through collaborative projects



# Ongoing work to impact clinical care



- ▶ PREVeNT nearly fully enrolled
- ▶ RDCRN: received 5-year renewal by NIH with TS Alliance co-funding
  - ▶ Research Coordinators
  - ▶ Clinical Fellowship
- ▶ STOP-2 beginning early 2020
- ▶ TACERN autism biomarker study readout expected in 2020
- ▶ Working group updating TSC Clinic standards



## Clinical impact by industry partners

- ▶ Supplemental New Drug Application under consideration by FDA for Epidiolex® (cannabidiol) to treat seizures associated with TSC
- ▶ Two companies planning clinical studies in TSC based upon:
  - Studies with TSC human biosamples
  - Preclinical Consortium partnership



# Preclinical Consortium seeks to stimulate more clinical trials



## What is the Preclinical Consortium?



- ▶ Public-Private partnership among industry, academia, and TS Alliance designed to stimulate innovation and new therapies for TSC

## What we do?



- ▶ Evaluate (screen) compounds in established cell or animal models for stopping or reversing TSC manifestations, including tumors and epilepsy

# Continue to engage consortium members!



## **Preclinical Consortium Members Meeting April 22-23**

Discuss TSC research strategy, evaluate research models and data

## **Expanding Industry Membership**

- ▶ New member joined today!
- ▶ In discussions with another two companies
- ▶ Reaching out to new companies to stimulate interest



Bringing proprietary drugs and clinical development expertise!

**Currently have 6 industry Preclinical Consortium Members – all with a focus to improve the lives of those affected by TSC**


## Research continues...



### **Some research has been slowed due to COVID-19**

- ▶ One study for a company partner delayed due to availability of research materials
-  ▶ TAND model development delayed at **PsychoGenics** – but still developing plans and protocols with PsychoGenics and Consortium members
-  ▶ LAM model development delayed at **Porsolt** – protocol is complete

### **Some compound testing is moving forward**

-  ▶ Finishing a study at the **Van Andel Institute** to evaluate the effectiveness of 2 compounds for inhibiting tumor growth
- ▶ 5 compounds being tested for company partner in epilepsy at PsychoGenics
- ▶ Study plans being discussed for as many as 27 experiments testing compounds



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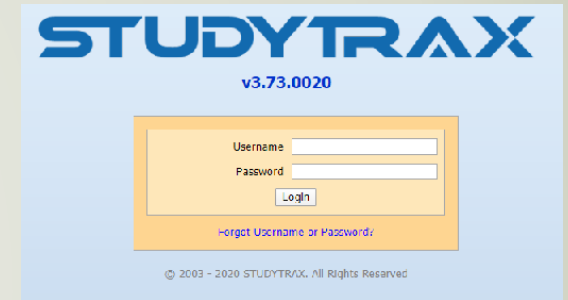
# TSC Natural History Database (NHD)

## What is it?

- The TSC Natural History Database (NHD) launched in 2006 to collect clinical information about children and adults with TSC over their lifetime to better understand the disease.
- We use a web-based platform called StudyTRAX to enter information about different conditions affecting people with TSC such as:
  - Epilepsy and infantile spasms
  - Angiofibroma
  - Renal angiomyolipoma
  - Subependymal giant cell astrocytoma (SEGA)
  - Rare conditions such as pancreatic neuroendocrine tumor



TSC NATURAL HISTORY  
database



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# TSC Natural History Database (NHD)

## Highlights



- 18 TSC Clinics and TS Alliance
- Clinical information collected on more than 2,200 individuals with TSC.
- More than 70 requests for data since 2009 with 10 peer-reviewed publications.
- The TS Alliance cheek swab collection at the 2018 World TSC Conference.



TSC NATURAL HISTORY  
database

Multicenter Study > Epilepsia, 57 (9), 1443-9 Sep 2016

### Systemic Disease Manifestations Associated With Epilepsy in Tuberous Sclerosis Complex

Anna Jeong<sup>1</sup>, Michael Wong<sup>1, 2</sup>

> Urology, 104, 110-114 Jun 2017

### Patterns of Disease Monitoring and Treatment Among Patients With Tuberous Sclerosis Complex-related Angiomyolipomas

Elyse Swallow<sup>1</sup>, Sarah King<sup>2</sup>, Jinlin Song<sup>2</sup>, Miranda Peeples<sup>2</sup>, James E Signorovitch<sup>2</sup>, Zhimei Liu<sup>3</sup>, Judith Prestifilippo<sup>3</sup>, Michael Frost<sup>4</sup>, Michael Kohrman<sup>5</sup>, Bruce Korf<sup>6</sup>, Darcy Krueger<sup>7</sup>, Steven Sparagana<sup>8</sup>

> Ophthalmology, 119 (9), 1917-23 Sep 2012

### Tuberous Sclerosis Complex: Genotype/Phenotype Correlation of Retinal Findings

Mary E Aronow<sup>1</sup>, Jo Anne Nakagawa, Ajay Gupta, Elias I Traboulsi, Arun D Singh



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# TSC Natural History Database (NHD)



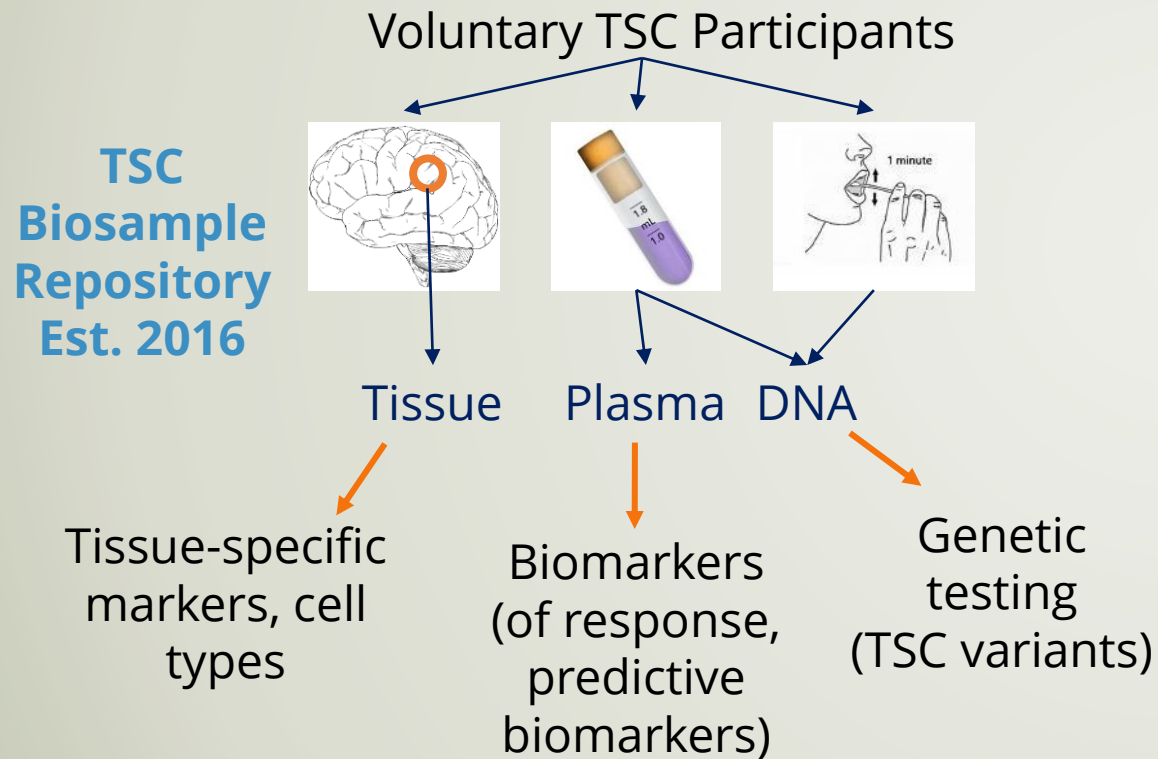
## Moving research forward

- Research staff continue to update NHD records while adhering to “Stay at Home” order.
- TS Alliance sent reminders to WC participants for medical records.
- Follow up to March 20, 2020 COVID-19 Town Hall: Collect clinical data to help determine whether use of mTOR inhibitors in TSC is a risk factor for developing COVID-19.
- Share clinical data associated with DNA and other biosamples for TSC researchers to better characterize the disease.



# What is a biosample?

A sample of biological material such as blood or a piece of tissue taken during a surgery or a biopsy.



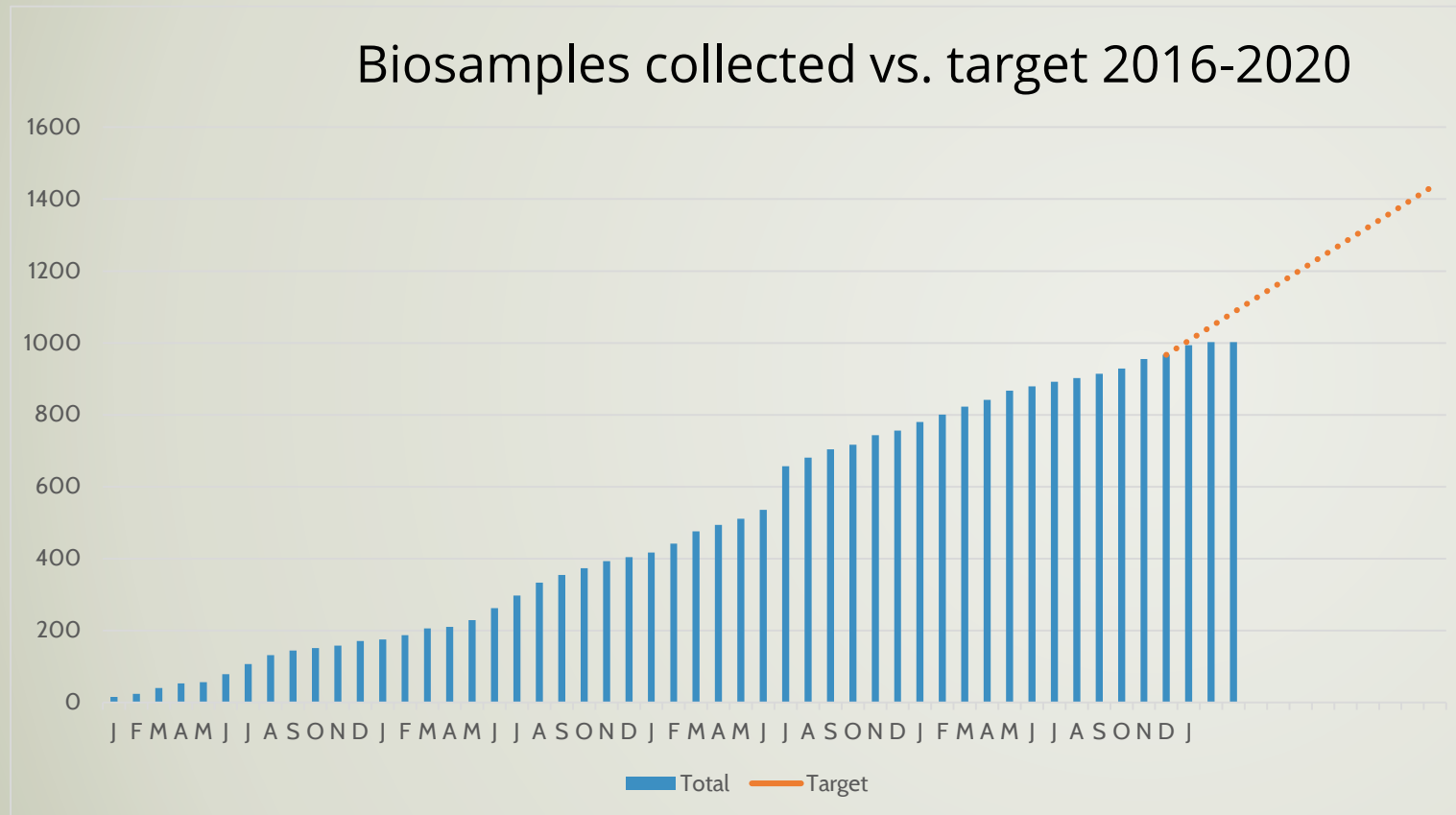
## *Why does this matter?*

Research with biosamples and clinical data could:

- Lead to biomarkers that enable preventative interventions
- Identify additional targets for drug development
- Enable the prediction of an individual's risk for developing a specific TSC manifestation
- Help answer why some cell types develop into tumors while other cells do not
- Predict an individual's likelihood of responding to a specific drug



# The TS Alliance aims to collect 437 additional samples by the end of 2020



Current: 1002  
2020 End Goal: 1439

- The TS Alliance has partnered with Phlebotek, a mobile phlebotomy service, to permit blood collections at participants' homes
- The TS Alliance can accept other samples, such as tissues collected during surgeries
- The TS Alliance aims to collect medical records from participants to connect their sample in the Natural History Database



# How can you help?

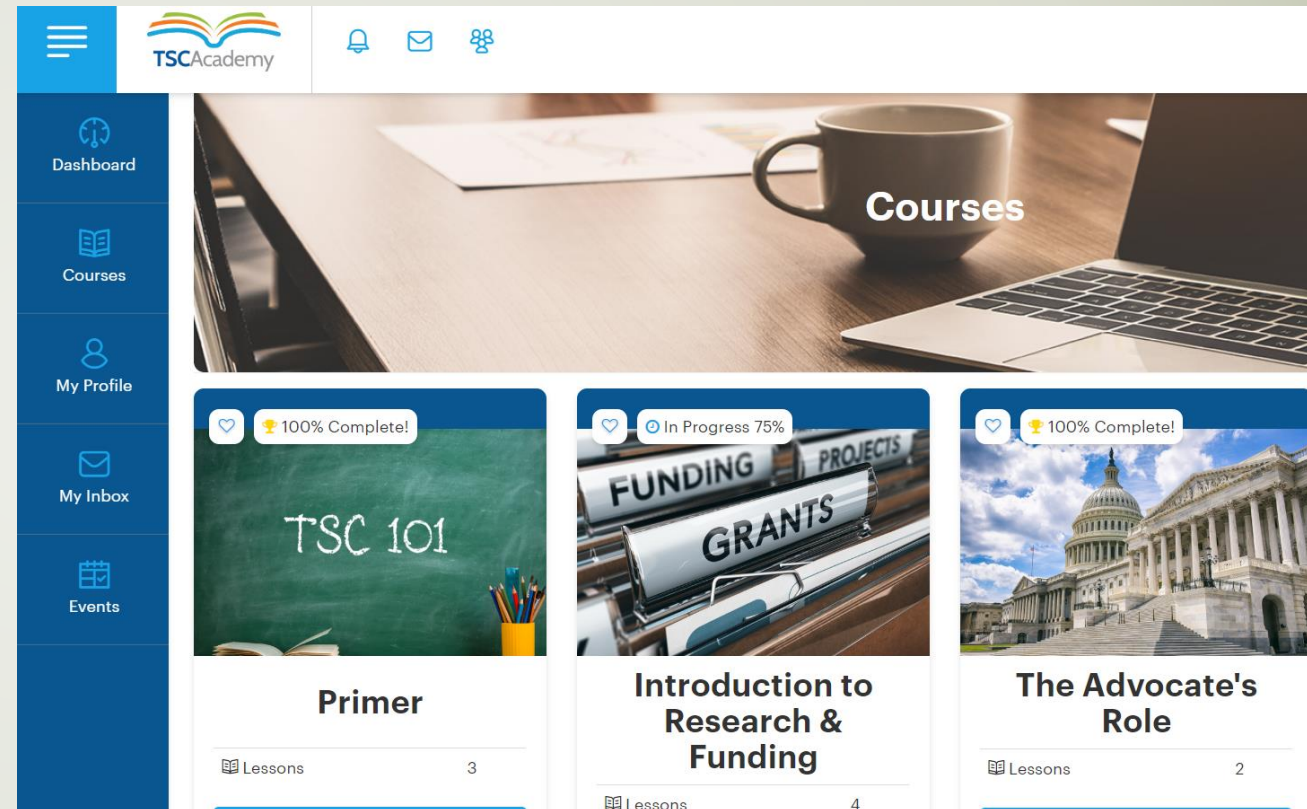
- Complete the consent process over the phone with Gabrielle or Jo Anne to submit a biosample later this year
- Send medical records to the TS Alliance so we can connect information to the Natural History Database
- Spread the word with our flyer
- Consider donating remnant tissue from a biopsy/surgery



Contact us at [biosample@tsalliance.org](mailto:biosample@tsalliance.org) for more information.

## What is TSC Academy?

- ▶ An interactive **online educational platform** to support our community and advocates understanding of TSC
- ▶ Can complete on desktop or smartphone/tablet
- ▶ Currently, **three courses** are available:
  1. Primer – TSC 101
  2. Introduction to Research and Funding
  3. The Advocate's Role



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## Government advocacy

### Tuberous Sclerosis Complex Research Program (TSCRCP)

- \$89 million in cumulative funding since 2002, \$6 million in FY 2020
- \$8 million appropriations request for FY 2021
- Bipartisan Dear Colleague Letter
  - House – Sponsored by Representatives Loeb sack (D-IA) and Mullin (R-OK)
  - Senate – Sponsored by Senators Cramer (R-ND) and Tester (D-MT)
  - 216 House signers and 35 Senate signers



## How can you help?



Call and write your representatives



Hold a virtual meeting with your elected officials



Connect with your local Community Alliance



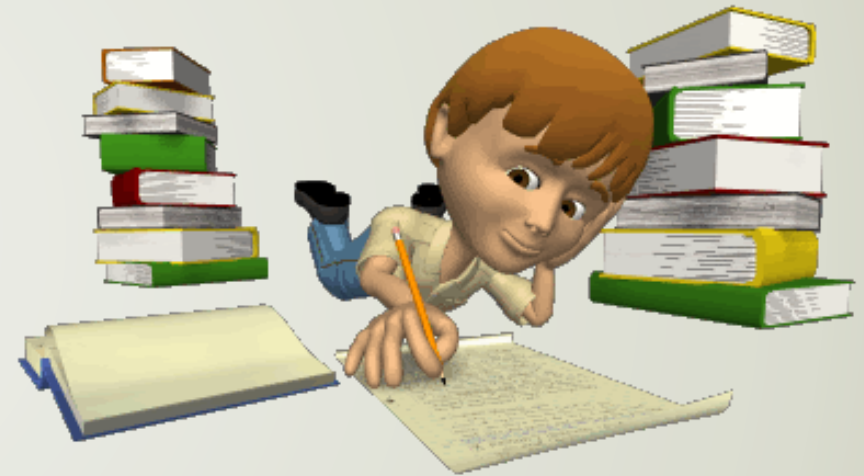
Engage with your offices around virtual events like  
TSC Global Awareness Day on **May 15**



## Researchers continue working hard



- ▶ Grants are like small businesses, dependent on productivity and revenue
- ▶ Dean and Zoë have talked with our grant recipients
- ▶ Labs remain open with restricted access and physical distancing
- ▶ Many critical research activities can be done outside the lab: analyzing data, writing, planning, etc.





## Questions?

- ▶ Steve Roberds, PhD, Chief Scientific Officer [sroberds@tsalliance.org](mailto:sroberds@tsalliance.org)
- ▶ Dean Aguiar, PhD, Director, Preclinical Research [daguiar@tsalliance.org](mailto:daguiar@tsalliance.org)
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