



BIG News

A newsletter for participants in Le Bonheur's Biorepository and Integrative Genomics Initiative

Thank you again for participating in the BIG Initiative!

As you know, the BIG Initiative is a collaboration between Le Bonheur Children's Hospital, the Children's Foundation Research Institute and the University of Tennessee Health Science Center (UTHSC) to help doctors and scientists study the influence of genes, or the genetic blueprints in each of the body's cells, on what diseases we get, how well we respond to treatment and to also help develop new treatments and better tests for what ails us.

When you enrolled in this project, you shared your email address with us, and we promised to keep you informed of our progress. We are excited to share this update with you about the initiative.



Current Enrollment

Since our start in November 2015, more than 20,000 participants have joined the BIG Initiative, and BIG has collected DNA from more than 10,000 participants. Both of these numbers are huge milestones, and we want to thank each and every one of you for such an outstanding level of participation and support. We now begin to have a resource that truly reflects the breadth and diversity of kids in our community.

Some have asked why we haven't collected DNA from every participant. You may remember that BIG never asks for extra blood samples from participants and instead uses whatever blood is leftover in blood draws taken for clinical tests ordered by your doctor. Not everyone has a suitable blood draw for collecting DNA when they enroll in BIG and sometimes not enough blood remains even when they do. So, this means that BIG doesn't always get a sample from every participant when they enroll. Nevertheless, we prefer doing it this way so that our participants and their families are not subjected to any additional stress or discomfort.

In our previous newsletter, we described how BIG had expanded enrollment areas around Le Bonheur beyond inpatient hospital floors adding the Neonatal Intensive Care Unit, the Emergency Room and various locations in the Outpatient Center. But with the current restrictions at Le Bonheur due to the COVID-19 crisis, we have suspended all face-to-face enrollment activities to

in the inpatient rooms, as well as the patient's and/or parent's mobile devices (smart phones, tablets, laptops), to remotely contact and securely obtain consent from new participants only on the hospital inpatient floors. We believe this new approach keeps intrusions to a minimum and maximizes safety for all. As the COVID-19 situation changes for the better, BIG will consider appropriate changes to how we enroll participants with advice from Le Bonheur and UTHSC officials.



Current Studies Partnering with BIG

The primary goal of the BIG Initiative is to provide a resource for doctors and researchers who want to examine how genetics affect pediatric health and disease in Memphis and the Mid-South. The first big step in doing so is to collect DNA from a large group of patients at Le Bonheur who are representative of the local pediatric population. We believe our latest enrollment numbers show that BIG is making great strides in this regard.

The second big step will be to analyze those DNA samples in such ways so that as much data as possible can be generated on all of the genes we have. This large-scale genetic information is called “genomic data” and is what many doctors and scientists would find most useful in their research studies. Toward that end, we are very pleased to announce a major collaborative project that will generate several forms of genomic data from all BIG samples.

The project is called: “Genome-phenome-wide studies in a diverse population:

- Executive Dean of the UTHSC College of Medicine Scott Strome, MD
- Le Bonheur Pediatrician-in-Chief and UTHSC Chair of Pediatrics Jon McCullers, MD
- Le Bonheur Chief of Genetics Chester Brown, MD, PhD
- UTHSC Chair of Genetics, Genomics and Informatics, Robert Williams, PhD
- Director of the UTHSC Center for Biomedical Informatics Robert Davis, MD, MPH
- Director of the Integrative Genomics Biorepository Robert Rooney, PhD

This project is a collaborative partnership between the University of Tennessee Health Science Center and the [Regeneron® Genetics Center LLC](#), a subsidiary of Regeneron® Pharmaceuticals, Inc. (Tarrytown, N.Y.) that uses genetic data and genomic analysis methods to speed drug discovery and development for critical unmet health problems.

The Regeneron Genetics Center will perform “whole exome sequencing” and “genomewide SNP genotyping” eventually on more than 20,000 BIG samples. Whole exome sequencing is a method that reads all of the DNA in the parts of genes that encode proteins, which are the building blocks of cells. Genomewide SNP genotyping is a method that identifies small genetic changes at up to 1 million locations that are spread across all of the DNA in our cells, and each of these changes can be used as a marker for nearby genetic alterations that influence health, cause disease and affect childhood development.

Regeneron will cover the cost of these expensive analyses, which would otherwise cost UTHSC and Le Bonheur up to \$20 million. The agreement between UTHSC and Regeneron does not allow the sale of your DNA sample or data to any third party. All partners in this collaborative agreement, UTHSC, Le Bonheur, Regeneron and its affiliates, will share the de-identified genetic data and the clinical information associated with all of the BIG samples for their own independent research.

The genomic data generated by this collaboration will help investigators at Le Bonheur and UTHSC identify genetic and environmental factors that influence diseases and health-related problems that are prevalent in Memphis communities but have not been well-researched before. Going forward, all of this data will be available to any researcher at Le Bonheur and UTHSC for use

As the pace of our progress advances, we appreciate your continued involvement in the BIG Initiative. As always, if you have questions about the information in this newsletter or any other aspect of BIG, or if you change your mind about participating and want to opt-out, please email us at BIG-LBCH@uthsc.edu or call us at 901-287-6473.

We will wait until Dec. 11, 2020, before sending any DNA samples to the Regeneron Genetics Center, in order to give current BIG participants a chance to review this new development and their continued participation in BIG. Please bear in mind that after samples or information have been distributed for analysis, they cannot be retrieved and research using them may continue indefinitely. If you have any questions about the project or want to opt-out, you can email or call us right now. Send or leave a message and we will get back to you as soon as possible.

We are excited about this new project and believe it is a BIG win for pediatric medical research in Memphis! Thank you for your help!

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