



Greenwood Genetic Center

Where Compassion Inspires Progress





Our Mission

The Greenwood Genetic Center is a nonprofit institute organized to provide clinical genetic services, diagnostic laboratory testing, educational programs and materials and research in the field of medical genetics.

Our Vision

The Greenwood Genetic Center will be a Center of Excellence in Medical Genetics, serving as a resource for all persons who need genetic services or information and working to reduce the prevalence and impact of genetic disorders.



Steven A. Skinner, MD
Director
Greenwood Genetic Center

The Greenwood Genetic Center is a privileged organization.

To us

- ...are entrusted the evaluation and care of thousands of citizens who are touched by hereditary disorders;
- ...have come a talented and diversified faculty and staff;
- ...are given exciting and robust technologies for genetic testing;
- ...come gifted students and trainees who will become our future scientists, physicians and educators;
- ...is provided broad-based support from both the private and public sectors;
- ...is given an era in which much attention and expectation are focused on genetics.

Whether establishing model programs for birth defects prevention; developing therapies for metabolic disorders; providing new diagnostic tests; discovering genes that cause intellectual disability, autism or birth defects; organizing international scientific conferences; teaching a new generation of medical geneticists or writing books and scientific articles, faculty members of the Greenwood Genetic Center identify tasks that are important and work hard to see them accomplished. Through their efforts, the Center's vision is converted into reality, its compassion into services and its research into solutions.

"Where Compassion Inspires Progress.... It's not just a slogan. These words express the commitment to patient care that is evident across all divisions of the Greenwood Genetic Center. Through our mutual efforts we provide hope to our patients and their families - hope that we can change lives by maximizing the potential of each individual we touch; and hope that ultimately no genetic disorder is beyond treatment or cure. To achieve these goals requires a commitment to excellence, expertise and compassion throughout our entire organization."

Clinical Services



Neena L. Champaigne, MD
Co-Director, Clinical Services

"There's no greater reward as a clinician than to be able to tell your patient and their family that we can do something to prevent the once inevitable consequences of a genetic diagnosis. Many of our patients will live fuller, stronger and more hopeful lives thanks to the Greenwood Genetic Center's commitment to treatment – a commitment that encompasses not only providing the best treatments for our patients, but also actively engaging in the development of new therapies, preventions and cures."



Patient care is at the heart of all we do at the Greenwood Genetic Center. It is our desire to provide the highest-quality, state-of-the-art and most compassionate care to all who are in need of genetic services. Couples seek genetic counseling to assure that they give their children the best chance to be healthy. Parents bring their children with concerns about their physical and intellectual development. Individuals come with questions about a potentially heritable condition in their family. From preconception through adulthood, our clinicians strive to offer information, support and treatments with a primary focus on the well-being of the patient and their family.

Evaluations and Counseling

Medical geneticists, genetic counselors, nurses, psychologists and metabolic dietitians comprise GGC's team of clinicians who provide diagnostic evaluations, follow-up care, genetic counseling and treatment programs to over 5,000 patients annually. Each year, GGC sees patients from every county of South Carolina, as well as many who travel from other states or even other nations to benefit from the expertise of our faculty. Evaluations occur in our five clinical offices (Charleston, Columbia, Florence, Greenville and Greenwood) and in multiple specialty and outreach clinics across SC.



No disability should be beyond the reach of prevention or curative therapy.

Treatment-Centered Focus

With rapid advances in the treatment of genetic disorders, GGC strives to be at the forefront of these discoveries with an active focus on the treatment, prevention and cures of genetic disorders. The SC Center for the Treatment of Genetic Disorders opened on the Greenwood campus in 2009 to solidify the Center's commitment to improving the lives of those affected by genetic disorders.

Through the Metabolic Treatment Program, patients with metabolic disorders receive life-changing and often life-saving therapies designed to prevent physical and intellectual disabilities. Other patients are actively receiving enzyme replacement therapies, supplements to prevent birth defects and other effective, cutting-edge treatments. Through these varied treatment initiatives, over 1,000 individuals are benefitting from participation in prevention programs, therapeutic interventions and/or clinical research trials.

Center for Translational Research

The Center for Translational Research (CTR) is led by Dr. Walter Kaufmann, Raveln Boykin Curry Chair in Genetic Therapeutics. The goals of the CTR are to work in collaboration with academia, industry and other partners to design and implement drug trials, conduct drug discovery studies and develop genetic-based therapies with a focus on neurodevelopmental disorders.



Statewide Clinical Faculty

Charleston Office

Sara S. Cathey, MD
Michael J. Lyons, MD
Richard J. Schroer, MD
Melinda Whetsell, MS, RD, LD

Columbia Office

Katie B. Clarkson, MD
EJ Prijoles, MD
Jon Bos, PsyD
Ken Corning, MS, CGC
Mitzi Grappone, MS, RD, LD
Angie Lichy, MS, CGC

Florence Office

Katy Drazba, MS

Greenville Office

David B. Everman, MD
R. Curtis Rogers, MD
Elliot Stolerman, MD
Allison Bellomo, MS, CGC
Elizabeth Francisco, MS, CGC
Brooke Smith, MS, CGC
Winn Surka, MS, CGC

Greenwood Office

Neena L. Champaigne, MD
Swetha Krishnamurthi, MD
Steven A. Skinner, MD
Roger E. Stevenson, MD
Fran Annese, LMSW
Lauren Baggett, MS, CGC
Kellie Mason, RN, BSN
Amie Thompson, RD, LD
Hannah Warren, MS, CGC

Center for Translational Research

Walter E. Kaufmann, MD
Carrie Buchanan, MD
Jennifer Lee Stallworth, MS, CGC

Diagnostic Laboratories

Diagnostic Laboratory Faculty

Director

Michael J. Friez, PhD

Biochemical Genetics Laboratory

Tim C. Wood, PhD

Laura Pollard, PhD

Taraka Donti, PhD

Cytogenetics Laboratory

Barbara DuPont, PhD

Alka Chaubey, PhD

Molecular Diagnostic Laboratory

Julie R. Jones, PhD

Jennifer A. Lee, PhD

Fatima Abidi, PhD

Laboratory Counselors

Robin Fletcher, MS, CGC

Kellie Walden, MS, CGC

Emeritus Laboratory Geneticist

Harold A. Taylor, PhD



The Harold A. Taylor Diagnostic Laboratories of the Greenwood Genetic Center offer the highest-quality services coupled with state-of-the-art technologies. Serving over 30,000 families each year, the Laboratories are certified by the College of American Pathologists.

The Laboratories have adopted the motto, *Giving Greater Care*, as a daily reminder that every sample entering into our facility carries with it the hopes and fears of a family who deserve the best we have to offer. Our dedicated faculty and staff strive to provide the latest advances in diagnostic testing to give each patient and each family the answers they seek. Using advanced gene sequencing, microarray platforms and other state-of-the-art technologies, we answer the call of our patients and their healthcare providers to bring clear, accurate and timely results that matter so much.



Biochemical Genetics Laboratory

The Biochemical Genetics Laboratory offers metabolic screening along with advanced enzyme analyses and tandem mass spectrometry technology to provide answers for patients with a suspected metabolic disorder. Through developing new assays using dried blood spots and working with industry to improve the diagnosis and monitoring for patients on various therapies, the laboratory remains at the forefront of biochemical genetic medicine.

The Biochemical Genetics Laboratory also supports the South Carolina Newborn Screening Program by providing diagnostic confirmation and follow-up monitoring, aiding in the on-going treatment for patients with metabolic diseases.



Giving Greater Care

Cytogenetics Laboratory

Chromosome analysis was the first routine type of genetic testing. The study of chromosomes remains a first line test as physicians seek answers for their patients. GGC's Cytogenetics Laboratory has remained on the cutting edge of chromosome analysis technology and employs the first FDA-cleared microarray which detects the smallest of chromosomal deletions and duplications for improved diagnostics. The laboratory offers prognostic and treatment-based analysis of certain cancers and also provides information and support for future parents through prenatal diagnosis and testing for the causes of pregnancy loss and infertility.

Molecular Diagnostic Laboratory

The Molecular Diagnostic Laboratory provides the highest level of DNA-based testing for patients around the globe. Through targeted mutation analysis and gene sequencing, the lab generates results to assist with diagnosis, management and carrier testing for a variety of genetic disorders with a focus on intellectual and developmental disabilities and birth defects. The lab's next-generation sequencing allows families to receive information on large panels of genes, or even all of the genes simultaneously, making the diagnosis faster and more informative.

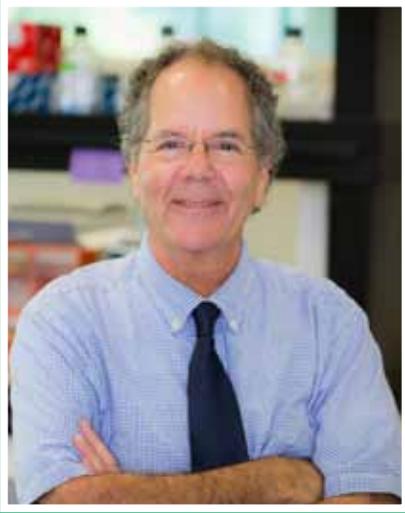


Michael J. Friez, PhD

Director

Diagnostic Laboratories

"Few places integrate clinical services and diagnostic testing to the degree that we do at the GGC. By combining the clinical team with those from the diagnostic and research laboratories we can direct our efforts toward providing the best medical care possible. The motto of the GGC Diagnostic Laboratories is *Giving Greater Care*. This mindset permeates our Center and speaks directly to the commitment that our entire team has when it comes to putting our patients and their families first."



Charles E. Schwartz, PhD
Director, JC Self Research Institute
of Human Genetics

"The Greenwood Genetic Center is one of the preeminent genetic institutions in the world because of the congenial and collaborative atmosphere which exists among clinicians, diagnosticians and researchers. Although each has their own interests, they have the same single-minded goal—to provide the best care for patients with disabilities and their families, whether they reside in South Carolina or beyond. This culture of compassion is why I joined the Genetic Center and have stayed for more than 30 years."



Research

Genetic knowledge is advancing at a rapid pace. The researchers of the Greenwood Genetic Center's JC Self Research Institute of Human Genetics are proud to be at the forefront of genetic discovery and breakthroughs. These talented scientists seek to develop and apply new knowledge concerning the causes, diagnosis, treatment and prevention of birth defects, autism and intellectual disabilities.

Our active research team engages clinicians and laboratory faculty from across our campus and forms collaborations with researchers around the world. These cooperative efforts increase the likelihood of transformative discoveries to benefit patients with heritable disorders.

Center for Molecular Studies

The Center for Molecular Studies at the JC Self Research Institute is focused on gaining a greater understanding of intellectual disabilities, birth defects, and autism spectrum disorders (ASD), discovering new mechanisms which contribute to disease, and developing new strategies for diagnosis, treatment and prevention.

GGC researchers are internationally known for their expertise on genes that cause X-linked intellectual disability, having been involved in the identification of nearly 1/3 of all known X-linked intellectual disability genes. Currently, several collaborative projects are underway to develop a blood test to diagnose ASD and to explore potential treatments based upon the biochemical profile of individuals with ASD.



Today's research... Tomorrow's solutions

Center for Anatomic Studies

The Center for Anatomic Studies provides an invaluable service to families who have experienced the loss of a pregnancy or newborn. The fetal pathology program aims to provide answers, a diagnosis and hope for the future to parents seeking information. The information gathered during such evaluations also serves to broaden our knowledge and understanding of the way genes impact developing babies.

SC Birth Defects Prevention Program

Begun in 1992 as the Neural Tube Defects Prevention Program, the activities of the SC Birth Defects Prevention Program have led to a 60% decline in the incidence of neural tube defects within South Carolina. Neural tube defects (NTDs), which include spina bifida, anencephaly and encephalocele, are a group of devastating abnormalities of the brain and spine. These defects are largely preventable by the preconceptional and prenatal use of folic acid, a B vitamin.

The activities of this program include a public awareness campaign sharing the importance of folic acid supplementation with all women of childbearing age, presentations to community and school groups, education of health care providers and participation in bridal shows.

The program is a partnership between GGC and the SC Departments of Disabilities and Special Needs, Health and Environmental Control, and Health and Human Services.

Research Faculty

Director

Charles E. Schwartz, PhD

Associate Director, Center for Molecular Studies

Anand Srivastava, PhD

Research Scientists

Luigi Boccutto, MD, PhD

Chin-Fu Chen, PhD

LJ Wang, PhD (adjunct)

Research Sample Coordinator

Cindy Skinner, RN

SC Birth Defects Prevention Program Coordinator

Jane Dean, RN



Education

Medical Genetics Training Program

Residency Program Director
David B. Everman, MD

Laboratory Program Director
Laura Pollard, PhD

GGC offers three accredited training programs for the postdoctoral study of medical genetics. These programs prepare physicians and scientists to practice clinical genetics or run a diagnostic genetics laboratory. Upon successful completion of the residency or fellowship, graduates are eligible to become certified by the American Board of Medical Genetics.

- Clinical Genetics Residency (MD)
- Clinical Laboratory Genetics and Genomics (MD or PhD)
- Clinical Biochemical Genetics Fellowship (MD or PhD)



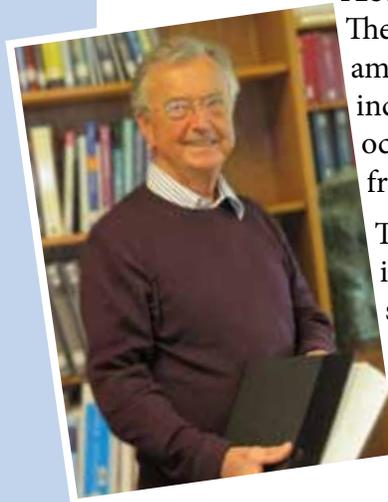
The vast breakthroughs in the field of genetic medicine have made genetics not only a scientific pursuit, but also a day-to-day issue facing families and patients, now more than ever. Additionally the media has brought the topics of genetics and biotechnology to the forefront of our everyday lives, creating the need for clarity and support. GGC's Division of Education provides such support - educating students, teachers, healthcare professionals, and the general public to deal with issues of ethics, technology and personal healthcare decisions in an informed way.

Academic Atmosphere

The Greenwood Genetic Center promotes academic pursuits and continuous education among its faculty and staff. The Greenwood campus houses a comprehensive genetics library including a vast historical collection. Additionally, formal courses, conferences and seminars occur on a regular basis for faculty to share their work with each other, as well as to learn from visiting experts and guest lecturers.

The Senior Genetics Scholar Program, which began in 1997, is an initiative through which internationally recognized scholars are in residence at GGC each year. These scholars supplement the expertise of our faculty, serve as mentors for our trainees, consult on patient evaluations and conduct research in their areas of expertise.

The addition of the Clemson Center for Human Genetics in Greenwood will expand the ability to serve graduate students with advanced research opportunities.





Promoting Genetic Literacy

Outreach Education

The Division offers many outreach programs to bring the field of genetics to life for students and teachers. The most visible, The Gene Machine Mobile Science Lab, was acquired in 2010 and travels the Palmetto State providing hands-on learning experiences at middle and high schools, career centers, science camps and other events. The Gene Machine offers fun, engaging activities designed to teach basic laboratory skills and genetics concepts, as well as to introduce students to career opportunities in this expanding field.

Community and school groups can visit the Center's Greenwood campus to tour the facility, learn more about GGC's programs and participate in lab activities in the Genetic Education Center. The Education Center is also home to the Annual Summer Teachers' Courses which, since 1994, have provided continuing education for teachers on genetics topics while sharing exciting ideas to take back to their classrooms.

Publications

The publication of scholarly works including professional books and scientific articles involves all faculty members. Additionally, the Center produces a manual of Growth References and a Counseling Aids book which are used by clinicians and genetic counselors worldwide to assist in their diagnostic, counseling and educational activities.



Leta M. Tribble, PhD

Director
Division of Education

"GGC has always placed a high priority on education and supports efforts to promote genetic literacy among students, teachers, healthcare providers and the general population. If people desire to make informed healthcare decisions, if doctors hope to cure and prevent disease, if families long to identify risks, if students plan to hold high-tech biomedical jobs and if teachers want to prepare their students for today's job market, then it is necessary to educate everyone about genetics."

A Broad Reach



Michael J. Lyons, MD
Charleston Office
Co-Director, Clinical Services

"I love the collaborative spirit at the Greenwood Genetic Center where all divisions work together to help find underlying causes and potential treatments for genetic disorders. With the support of the South Carolina Department of Disabilities and Special Needs, we are able to extend our reach across South Carolina to provide genetic services to all individuals and families in need. The collaboration both within GGC and with our partners across the state and beyond allows us to have an impact, not only on patients and families in South Carolina, but nationally and internationally as well."



The Greenwood Genetic Center's programs and services extend across South Carolina and beyond. Through our home campus in Greenwood, as well as four satellite offices in Charleston, Columbia, Florence and Greenville, families across our state have easier access to genetics services and experts.

Clinical Services

Clinical geneticists, genetic counselors, nurses, psychologists and dietitians work closely with families across South Carolina and from neighboring states. The metabolic treatment program provides services for those diagnosed through newborn screening. No matter where they live, a specialist is available to offer lifesaving treatments and support. GGC also provides prenatal genetic counseling services throughout the Upstate of SC.

Laboratories and Research

Through collaborations involving a wide array of academic and industry partners, research consortia, the Clemson University Center for Human Genetics on the Greenwood campus, and GGC's own Center for Translational Research, GGC is having a direct and global impact on the diagnosis and treatment of genetic disorders, autism and birth defects. Whether developing novel diagnostic tests, conducting natural history studies, or pursuing drug trials, the work being done at GGC impacts families across the globe.



Serving SC and Beyond

SC Department of Disabilities and Special Needs

The relationship between GGC and the SC Department of Disabilities and Special Needs (DDSN) dates back to the Center's founding in 1974 and has shaped the GGC's emphasis on intellectual disabilities and autism spectrum disorders. GGC's genetic service coordinators serve all counties in SC and keep in close contact with families, arranging genetic evaluations, diagnostic testing and follow-up services.

Teaching

GGC's statewide presence also provides opportunities to educate future scientists and clinicians. Faculty teach at Clemson University, the University of South Carolina, and the USC School of Medicine's Genetic Counseling Program. They also serve as guest lecturers at other area schools. High school students interested in genetics can job shadow, and college students can work side-by-side with technologists and researchers to pursue projects throughout the summer months. Residents and graduate students also have the opportunity to rotate through clinics to better understanding the complexities and rewards of clinical genetics medicine.

Race the Helix®

With gratitude for the compassionate care they receive from GGC, the Shenal family of Greenwood started 'Race the Helix', a 5K that increases awareness for those who are impacted by genetic disorders, and raises funds for the GGC Foundation. Supported by the GGC Foundation, the race has expanded across the state and has brought along national and international corporate and community support for GGC's mission.



DDSN Genetic Service Coordinators

Medical Director
Michael J. Lyons, MD

Charleston Office
Debbie Bealer, RN

Columbia Office
Amy Dobson, MS, CGC

Florence Office
Shannon Mackey Bell
Jennifer Lynch, MPA

Greenville Office
Jessica Worthington

Greenwood Office
Hannah Warren, MS, CGC



The GGC Story



Roger E. Stevenson, MD
Harold A. Taylor, PhD
Co-founders of the Greenwood
Genetic Center

“Medical genetics comprises a diverse community of physicians, scientists, counselors and technologists working in a worldwide network to understand genetic disorders and to provide diagnostic, preventive and treatment services. For decades, the faculty, administration and staff of the Greenwood Genetic Center have made significant contributions to these efforts. The most rewarding era lies immediately ahead as we focus on bringing curative therapies to patients in South Carolina and beyond.”



Contemporary in Technology...

A Rich History

The idea that would develop into the Greenwood Genetic Center evolved in the discussions of Roger Stevenson and Hal Taylor, two students of human genetics at Johns Hopkins Hospital in 1971. They dreamed of establishing a center which would put into practical utilization the technology and principles of human heredity – a center that would be accessible to families needing genetic services, contemporary in its technology, and compassionate in its philosophy.

The Center’s home was determined through the efforts of Stevenson’s friend and Greenwood orthopedic surgeon, Fred Williams, who along with local businessman R. Boykin Curry, Jr., radiologist Bill Klauber, and attorney Bob Erwin, secured support for the project. A major grant from Mr. Jim Self along with state support from the SC Dept. of Mental Retardation (now DDSN) breathed life into the Center in 1974. This unique support structure of private and public resources continues to the present.

The development of GGC has progressed steadily through four decades to incorporate dramatic advances in laboratory technologies and the treatment of genetic disorders. With the opening of the JC Self Research Institute of Human Genetics in 1996, the Center solidified its reputation as an international resource. As the focus expanded into the area of treatment, the vision for the South Carolina Center for the Treatment of Genetic Disorders came to life.

This 30,000 square foot state-of-the-art facility opened in 2009 and houses GGC’s Clinical and Diagnostic Laboratory Divisions. It serves as home for the treatment initiatives and supports the Center’s active involvement in clinical natural history studies and treatment trials.

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Compassionate in Philosophy

A Promising Future

With a focus on human intellectual disabilities, birth defects and autism spectrum disorders, GGC operates at the forefront of genetic medicine. Further, with a commitment to advancing the treatment, prevention and cure of genetic disorders, the Center has taken a bold and deliberate step into the expanding field of genomics. With an understanding that while some disorders have a single gene basis, more common disorders involve a much deeper understanding of not only the functions of single genes, but also in the interactions between genes, the interplay between genes and environment, and the role of the entire genome in human health and development. These exciting discoveries place GGC on the cusp of a promising era of treatment through precision medicine where genetics and genomics will impact every family and lead us toward the future of health and wellness that we have envisioned.

Greenwood Genetic Center Foundation

As the outreach arm of the Center, all funds raised by the Greenwood Genetic Center Foundation go toward advancing the work of the Center by supporting families in their quest for answers and treatments.

Gifts provide clinical and diagnostic services for families who don't have the means to pay, acquisition of state-of-the-art laboratory equipment, funding of research breakthroughs, and education of the next generation of scientists and clinicians. Donors and volunteers become partners in the search for cures. The Foundation reaches out to the communities served by the Center with Race the Helix® 5K events across the state and Jammin' for Genes, a barbeque and music festival, held annually on the Greenwood campus.

A complete account of the History of the GGC can be found at www.GGC.org/About





106 Gregor Mendel Circle
Greenwood, South Carolina 29646

www.GGC.org



For More Information

Office of the Director

1-888-442-4363
864-941-8100

Clinical Services

Greenwood Office
1-888-442-4363
864-941-8100

Charleston Office
1-866-588-4363
843-746-1001

Columbia Office
1-800-679-5390
803-799-5390

Florence Office
843-664-2983

Greenville Office
1-866-478-4363
864-250-7944

Diagnostic Laboratories

1-800-473-9411
864-941-8110

Research

1-800-939-1920
864-388-1800

Education

1-888-442-4363
864-943-4170

Administration

1-888-442-4363
864-941-8163

Communications

1-888-442-4363
864-388-1061

SC Birth Defects Prevention Program

1-800-676-6332

GGC Foundation

1-888-442-4363
864-388-1813