



Southern
Research

Moving Science

ANNUAL REPORT | 2022-2023



CEO Letter



In last year's annual report, we featured our new tagline of "moving science." Over the last year, we have begun implementing a "3-D strategy" to move science with an energized, talented, and dedicated team of scientists and professional staff.

Drug discovery and development. With 20 FDA-approved drugs, 150+ commercial clients and collaborators, and a constellation of well-known research and development capabilities, preclinical drug development is our hallmark. Our comprehensive strategy is designed to reinforce this historic strength. Our Scientific Platforms team has had a record year for revenue by capitalizing on deep expertise in chemistry, high-throughput screening, and oncology. Additionally, the team continues to develop new and exciting capabilities, especially in AI/ML-aided drug design. Our Research Services division has also grown revenue significantly (up 25% year-to-date) behind a strong year from the infectious disease team. At the same time, new talent in toxicology has enhanced possibilities to serve our clients.

Diagnostics and data. While Southern Research has historically focused on therapeutic research, we are excited to expand our R&D efforts to include diagnostics, an increasingly critical component of healthcare delivery. We have been working steadily toward a fall 2024 launch of Venn Labs, a genomics diagnostics lab that will be operated by SR and guided by the clinical oversight of UAB Medicine. In partnership with Venn Labs, we are launching Catalyst to broaden access to precision medicine and cutting-edge treatment for Alabamians. Funded by the State of Alabama with a \$20 million grant, Catalyst connects genomic data with clinical records and social determinants of health to empower patients and their families with

useful information about their health, assist providers in diagnosing and managing chronic disease, and connect patients to clinical trials for which they are eligible.

Drivers of commercialization. SR's mission is to translate basic science into commercially-viable products—positioning our organization at the intersection of industry and academia. Likewise, we have launched a new brand to implement critical commercialization activities: Station 41. In a nod to the year we were founded and to the industrial-themed innovation assets in Birmingham, we are launching Station 41 as an umbrella for a new incubator (set to open in January 2024), a therapeutics and diagnostics accelerator (with UAB), and a venture studio to help good ideas traverse the precarious "valley of death" between grant funding and venture capital. We designed these initiatives to spur Birmingham's burgeoning biotech ecosystem while generating new business with new small-to-mid-sized clients to work with our discovery and development experts.

Though it is not a strategic pillar, there is perhaps a fourth "D" that should not be overlooked: as we have *moved science* this year, we have also *moved dirt* by beginning \$108 million of construction on our campus. This campus master plan calls for renovating or developing an additional 250,000 square feet of wet lab and office space. A unique part of the SR mission is to generate economic impact for Birmingham, Alabama, and the Deep South. Our current annual economic impact is estimated at \$225 million, and we anticipate that campus plan construction will have an additional \$215 million impact on the local economy over the next two years.

As R&D continues to change through new modalities, non-animal testing, and AI-enabled discovery, SR will remain at the vanguard. We are fortunate to have an experienced and engaged board, a supportive state and local government, and an outstanding base of collaborators and clients.

I am deeply proud of our past, but I could not be more fired up about our future.

Sincerely,

A handwritten signature in black ink that reads "Joshua D. Carpenter". The signature is fluid and cursive, with a prominent "J" and "C".

Joshua D. Carpenter, PhD
President and CEO

We're Building a Team for the Future

Brantley Fry, JD

Vice President of People & Community

Southern Research can look back over the past year and recall so many proud moments. But what makes me smile the most is the fact that so many people are choosing to come to Southern Research, and so many are choosing to stay. Halfway through 2023, our turnover rate is less than 4%. That's down from rates exceeding 30% in both 2021 and 2022.

Some of the decrease reflects the end of the "Great Resignation"—when nearly 100 million individuals left their jobs in 2021 and 2022, but Southern Research has also reaped the benefits of hard work across all our departments to build an environment where our people feel valued, empowered, and engaged in the larger enterprise of Southern Research.

WE CONTINUE TO CREATE AND EXPAND INITIATIVES THAT SUPPORT OUR EMPLOYEES IN THEIR CURRENT JOBS, CREATE PATHWAYS FOR THEIR CAREER GROWTH, AND CELEBRATE THE IMPACT THEY MAKE IN OUR ORGANIZATION AND OUR COMMUNITY AT LARGE.

In listening sessions with our teams, we consistently heard how employees value training and welcome additional opportunities to develop their knowledge and skills. In response, we continue to increase those opportunities. We recently added a monthly learning series, SR Live, that offers employees extensive information about how various divisions in the organization function. We also created



IGNITE, a technical development program specifically designed for Southern Research scientists to enhance their leadership skills and promote career growth in the industry. Plus, our SOAR program continues to focus on developing emerging leaders and preparing them for future leadership roles.

The 2022 SOAR program culminated with an exciting group project—the creation of the Copilot program for new hires, which pairs a new hire with a veteran Southern Research colleague "copilot." These pairings intentionally include people from different departments and provide opportunities for consistent touchpoints between veterans and newcomers. Copilot is a piece of a larger push to create an exceptional onboarding experience at Southern Research.

With enormous investments being made into both our facilities and our people, it is a very exciting time to help advance the Southern Research mission and increase our impact as an organization. In fact, we frequently receive unsolicited resumes from people interested in being a part of the great work they see happening here.

The people across our organization are who drive positive change, and that's why we encourage employees to offer suggestions on how to continually improve. We never stop looking for ways to support the people who are already here as well as the new hires who join us. We want everyone to have the opportunity to grow, thrive, and succeed. We are most proud of our people and the workplace we are creating as a team. This is a world-class workplace worthy of the world-class science we do every day.

Business & Commercialization: What's Next

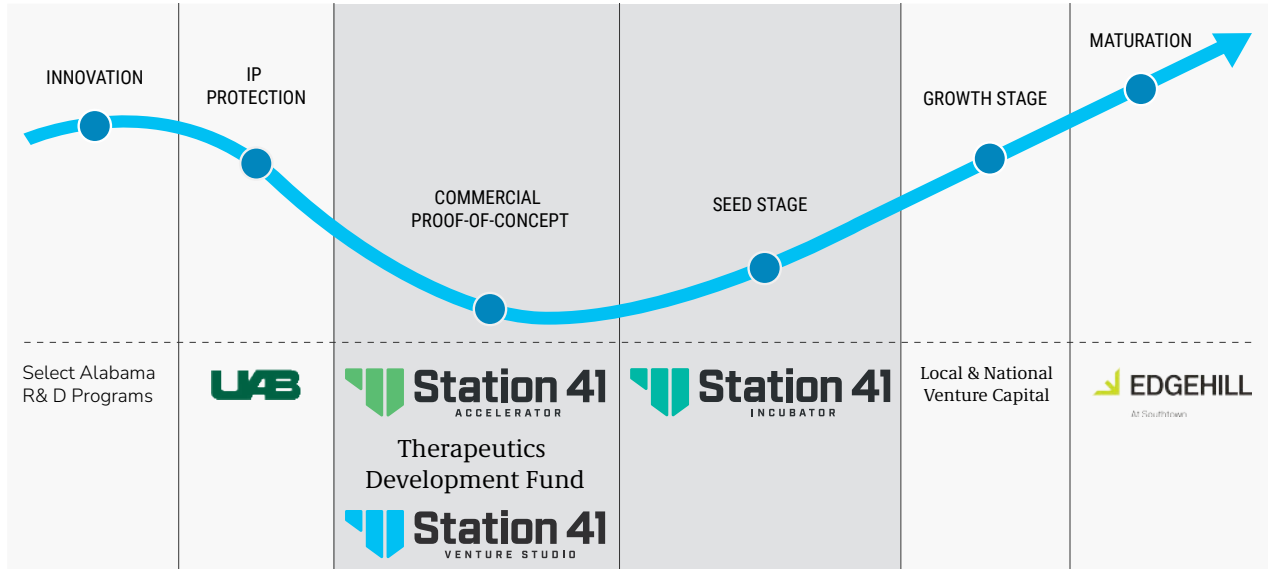
NEW BUSINESS LINES

Station 41

Station 41 is a newly developed biotechnology commercialization hub on our campus that will include an incubator, accelerator, therapeutics development fund, and venture studio to nurture and support startups from concept to market. It will fully launch in early 2024 and offer new biotech businesses a wide range of support:

- **Incubator:** 12 wet labs, 11 offices, shared lab equipment and services, advice and mentoring center, and Phase I campus renovations.
- **Accelerator:** Funding up to \$100,000 to advance new drug, biologic, or diagnostic products without impact on ownership.
- **Therapeutics Development Fund:** \$3M supported by Innovate Alabama to recruit and grow companies developing novel therapeutics.
- **Venture Studio:** Licensing and commercialization partners that offer non-dilutive and equity funding for biotech companies.

Station 41 Addresses the “Valley of Death” in Alabama’s Commercialization Landscape



venn labs

Venn Labs is a joint venture between Southern Research and UAB. The new facility will incorporate current UAB clinical diagnostic labs and build new genetic testing capacity to improve the way our community diagnoses and treats diseases. Benefits include:

- Delivering test results more quickly.
- Supporting the development of new diagnostic tests and services.
- Developing new genomic data that will assist current patients and aid in the creation of future treatments.



Our Research Partnerships

INDUSTRY PARTNERSHIPS



OVER THE LAST 12 MONTHS:

50

OF COMMERCIAL PARTNERSHIPS

81

OF PROJECTS COMPLETED

At the heart of Southern Research's services are our contract research offerings. We recently had the opportunity to sit down with two scientists from a longstanding corporate partner, SIGA, to film a testimonial video and learn more about why they keep working with SR. In the words of Senior Director Doug Grosenbach, PhD, "The most significant advantage to working with Southern Research would be very personalized service. I feel like I'm working with another colleague as opposed to someone that I've contracted work to; it's collaborative—we have the same goals."

GOVERNMENT PARTNERSHIPS

Current and Recent Funding Agencies



EXPANDING OUR CAPABILITIES & PARTNERSHIPS



Opening in 2025, our new biotech center will feature 106,000 square feet of commercial wet labs, A/BSL-3 space, and data science facilities. The construction of this flagship building combined with the ongoing renovation of 65,000 square feet of current space will allow our organization to continue to expand its impact. The investment in our facilities is also a part of a larger collaborative vision involving UAB, the city of Birmingham, and other partners to establish an even more robust biotech corridor in the downtown area.

Investment in Artificial Intelligence Speeds Up Drug Discovery Process

Artificial intelligence (AI) is revolutionizing the drug discovery process, and Southern Research is on the cutting-edge of developing AI models to accelerate the search for new medical treatments and cures.

Southern Research has already used its AI models to help researchers zero in on potential new treatments for everything from Dengue fever to kidney cancer.

Compared to traditional methods, AI can far more quickly predict which potential new treatments are likely to be effective and safe. This reduces time and money spent pursuing less promising alternatives, and it significantly streamlines the process of getting new treatments to patients.

“Just to get a new drug to the point of clinical trials has typically taken an average of 10 years,” said Sixue Zhang, Head of Computer-Aided Drug Discovery at Southern Research. “With artificial intelligence, we may get to the same point in two to three years. It can save time at every stage of drug discovery.”

In one example, Southern Research used its High-Throughput Screening Center over the course of a year to look at 200,000 compounds and turned up two potential options for development as a possible treatment for Dengue fever. Using suggestions from AI, Southern Research screened 48 additional compounds over two weeks and turned up another initial candidate.

AI promises not only to reduce the time but also the cost of drug discovery. By helping researchers identify the best potential drug candidates, artificial intelligence can

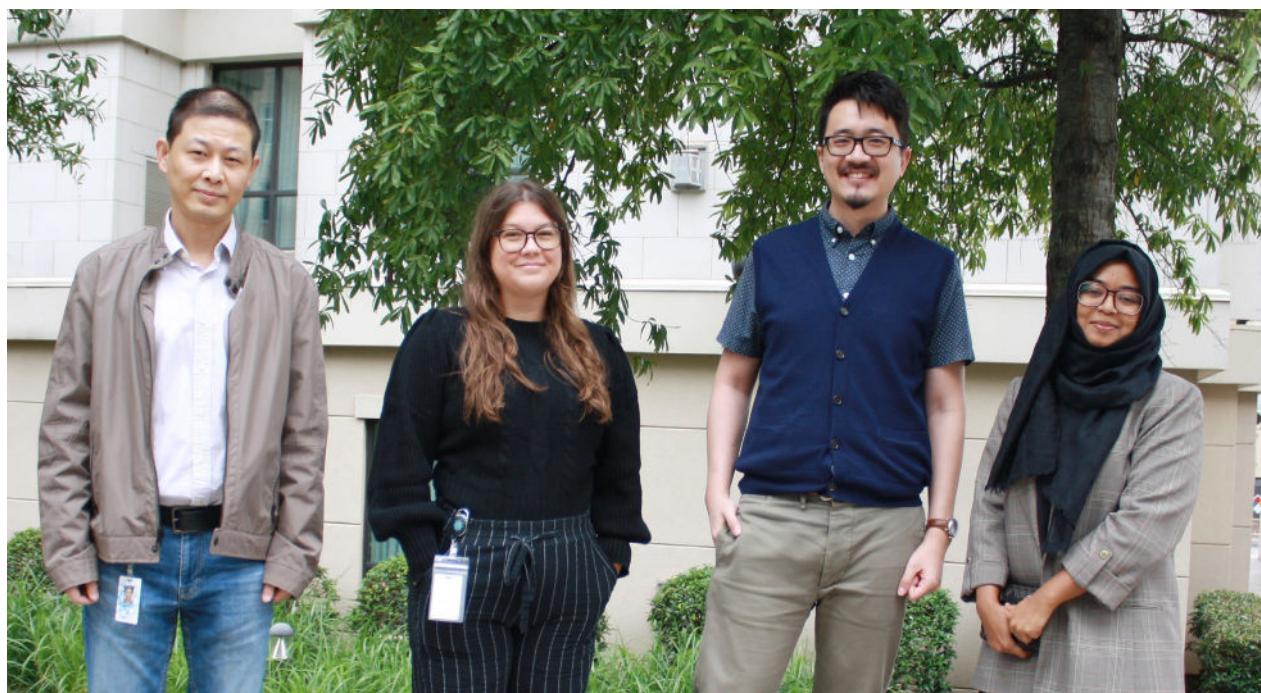
minimize costly research on treatments that ultimately do not work out. “It increases the odds that we succeed the first time,” said Zhang.

Southern Research launched its first AI model in early 2020, in the early days of the COVID-19 pandemic. Because of its long history of work involving SARS, Southern Research already had large volumes of coronavirus data that could be used as the basis for a good AI model for the new COVID-19 virus.

“This was about the time that the AI model was really becoming more practical for drug discovery research,” Zhang said. “We realized we happened to have a lot of coronavirus data. This could be time to kick this off.”



Sixue Zhang, PhD
Head of Computer-Aided Drug Discovery



CADD team pictured from left to right: Zhengang Chai; Amanda Sharp, PhD; Sixue Zhang, PhD; Nusrat Jahan, PhD

Since then, Southern Research has developed more than 50 other AI models to predict potential treatments for other illnesses, such as cancer, cystic fibrosis, neurological disorders, and more; to predict the toxicity of potential treatments; and to generate new compounds that could have therapeutic benefits.

Incorporating additional in-house data improved the performance of the AI models built solely using data from literature and public databases. That's because Southern Research models have the advantage of high-quality data that have been developed over decades of research on its Birmingham campus.

“CAPITALIZING ON OUR OWN EXPERIMENTAL DATA, WE HAVE TRAINED BEST-IN-CLASS MODELS ON A WIDE RANGE OF TARGETS.”

Still, Zhang's team continues to work with researchers on improvements that will make the AI models even more effective and helpful in discovering new treatments. “It's not 100%,” he said. “We're always working to optimize it to make it more accurate.”

One thing AI does not do, he said, is reduce the need for researchers. It just allows scientists to focus their efforts on the best possible new treatments.

“AI can do some tasks we're not able to do because of the complexity of the data,” Zhang said. “AI allows us to incorporate approaches to solve previously unsolvable problems. It saves time and money, and it reduces patients' wait for effective and safe new treatments. The past year has been a fruitful one for AI and computer-aided drug discovery at Southern Research. Two AI-discovered antiviral candidates are under further development, and we have recently been awarded research grants focused on AI drug discovery.”



Catalyst: Pioneering Personalized Medicine at Southern Research



Khalilah Brown, MD
Vice President Patient Advocacy & Medical Affairs

Southern Research's drug discovery and drug development legacy serves as the foundation for Catalyst—an ambitious new platform that will accelerate the development of individualized treatments for deadly and debilitating diseases. Catalyst, which is projected to launch in mid-2024, was made possible by a generous \$20M grant from the State of Alabama. State leaders were excited by the platform's potential to improve treatments for rare and not-so-rare diseases, expand access to clinical trials, and advance personalized and preventive medicine.



Oliver Hampton, PhD
Chief Data Officer

The field of drug discovery is undergoing a paradigm shift, with genomics emerging as a powerful platform. Precision medicine harnesses genetic information unique to individuals and allows for highly personalized treatments. Catalyst will aim to sequence the genomes of 50,000 Alabamians from across the state.

By tailoring medical treatment to the genetic, molecular, and clinical characteristics of an individual, healthcare providers can offer the most effective treatment for each patient. This approach recognizes that no two patients are alike, and their responses to treatments can vary significantly.

We will focus on three pillars:

1. Patient/Provider-Centered Care:

Catalyst will combine genomic sequencing with electronic health record data and screening related to social determinants of health, which will provide patients and providers with actionable insights to inform their healthcare decisions. Among other things, the platform includes linking patients and providers to options for clinical trial participation.

2. Data Security and Anonymization:

Catalyst ensures that patient data is rigorously secured and anonymized, protecting patient data and guaranteeing patient privacy and confidentiality.

3. Health Equity:

The platform organizes patient data to facilitate access to new treatments, improving the quality of care in locations and communities that have traditionally not benefited from cutting-edge medicine. This approach enables access to the best drugs on the market tailored to each individual patient's needs.

Clinical trials already generate \$50 billion of spending annually, but growth is expected to reach \$80 billion by 2030. Catalyst positions Alabama to secure investments in this rapidly growing sector, potentially adding 1,600 new jobs and contributing \$145 million in annual economic impact.

BY BROADENING ACCESS TO PRECISION MEDICINE AND MORE EQUITY IN CLINICAL TRIALS, CATALYST ALSO PROMISES MUCH-NEEDED SUPPORT FOR RURAL HEALTHCARE PROVIDERS, OFFERING NEW SOURCES OF REVENUE AND A CHANCE TO IMPROVE OUTCOMES FOR MANY ALABAMIANS IN NEED.

In the era of precision medicine, Catalyst is set to “catalyze” a healthcare revolution, ensuring that cutting-edge medical care is accessible to all.



Celebrating Employee Service Milestones



35 Years

STEVE GALLAGHER

Manager, Desktop Support

“Over the years at Southern Research, I’ve learned that every challenge, every project, and every interaction is an opportunity for growth. The most satisfying and rewarding feelings are the ones that evolve from the most challenging tasks. What’s most exciting to me about the future of SR is our commitment to the community—to provide economic growth and jobs opportunities that bring top-notch talent to our area.”



30 Years

MONÍCA MASON

Interim Vice President of CRO Services

“I am extremely proud of the scientific and engineering accomplishments that were born at Southern Research. The Contract Research Organization Services division has a rich history in pre-clinical research, and I am grateful for being a part of the contributions made to mankind through our safety and efficacy testing programs throughout the years. SR has provided me with a career path driven by purpose. In addition to achieving 30 years of service, another major career milestone this year was my promotion to the Interim Vice President of CRO Services role. I feel fortunate to work for an organization and leaders who support and value its employees.”



20 Years

ROBERT BYRD

Accounting Supervisor

“My career at Southern Research has been marked by excitement, challenge, and growth. I have formed and cultivated many new friendships and working relationships, which have helped me develop both personally and professionally. Over the past 20 years, I have seen the company develop into a dynamic organization apt to embrace change and innovation. I am excited to see what the next chapter will be for SR as we stand on the shoulders of giants who have already laid down an impenetrable foundation for quality research and development—knowing there is still much work to be done.”



20 Years

JILL F. MANN, D.V.M., DACVP

Associate Director of Pathology

“Over the past 20 years at Southern Research, I have been able to take part in many different types of research, including toxicology, cancer research, neurovirulence, reproductive studies, vaccine efficacy, and infectious disease. No two days are exactly alike, and every day brings something new and interesting. My colleagues at SR are hard working and dedicated to the animals we work with as well as to the future human patients who will someday benefit from our work. I am especially glad to be here to see SR expanding its capabilities and adding new facilities, and I look forward to many more exciting days in the future.”



20 Years

OMAR MOUKHA-CHAFIQ, PHD

Director of Chemistry

“I joined Southern Research as a Postdoctoral Fellow under the mentorship of Dr. J. A. Secrist III to pursue my passion for nucleoside chemistry—an incredible opportunity for young nucleoside chemists striving to sharpen their professional skills and knowledge under the guidance of SR experts. My contributions have advanced several projects from hit-to-lead optimization to *in vivo* proof-of-concept studies, as well as preclinical and clinical trials. I’m very excited to witness SR growth and success through execution of our organizational objectives with regard to new strategic investments and the expansion of our capabilities, which will feed into the market need.”

EXECUTIVE LEADERSHIP TEAM

Joshua D. Carpenter, PhD
President & CEO

Abi Kulshreshtha, PhD
Chief Business Officer

Oliver Hampton, PhD
Chief Data Officer

Lester D. Smith, Jr.
Chief Financial Officer

Corinne Augelli-Szafran, PhD
Vice President of Scientific Platforms

Khalilah Brown, MD
Vice President of Medical Affairs

Kevin Burton, PhD
Vice President of CMC &
Pharmaceutical Consulting

Brantley Fry, JD
Vice President of People &
Community

Monica Mason
Interim Vice President of
Research Services

Ricardo "Ricky" Brito, JD
Chief of Staff

Helena Christine, JD
UA System Counsel

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