



ASSOCIATION OF  
PUBLIC &  
LAND-GRANT  
UNIVERSITIES



OHIO  
UNIVERSITY



CECE

INNOVATION AND ECONOMIC PROSPERITY UNIVERSITIES  
AWARDS PROGRAM

CASE  
STUDY  
2021

IEP CATEGORY – CONNECTION

# Ohio State University: Stirling Ultracold Acquisition

## ABOUT STIRLING ULTRACOLD ACQUISITION

As an example of a promising and successful spinoff company based on university technology, OHIO celebrated the acquisition of Stirling Ultracold in 2021. OHIO-supported [Stirling Ultracold](#), a privately held developer and manufacturer of ultra-low temperature (ULT) freezers, signed a definitive merger agreement on Monday, March 22, to be acquired by publicly-traded BioLife Solutions.



*Students working on Stirling Ultracold demos*

The size of the acquisition makes it the largest venture-backed exit in southeast Ohio and one of the larger exits in the state, indicated Lynn Gellermann, executive director of TechGROWTH Ohio and Ohio University's Voinovich School of Leadership and Public Affairs' associate dean of innovation partnerships.

"This merger is a testament to the partnership between Ohio University and Ohio Third Frontier, along with the Ohio Development Services Agency, to form TechGROWTH Ohio, and the role that higher education and the state can play in building tech-based economic development in rural communities," he said.

## SPEARHEADING THE INITIAL INVESTMENTS

TechGROWTH Ohio, a program of Ohio University's Voinovich School of Leadership and Public Affairs, was the original lead investor in Stirling Ultracold at its inception in 2010 and provided multiple rounds of follow-on funding during the company's startup and growth stages. TechGROWTH will be able to sustain itself without state-backed grant funding as a result of this acquisition. The Ohio Innovation Fund, an early-stage venture fund founded by Ohio University, Ohio State University and Kent State University, also became another investor.

The Ohio University Innovation Center served as a beta-user for Stirling's products during development. The two entities have continued with a mutually beneficial relationship wherein Stirling donates freezers for use in the incubator's shared laboratories thereby benefitting regional startup companies.

"Ohio University is committed to taking a leading role in economic development for Appalachian Ohio," Ohio University President M. Duane Nellis said. "After nearly 12

years of sustained investment, services and talent from TechGROWTH Ohio and the Ohio Innovation Fund, Stirling Ultracold's success story is an outstanding example of how Ohio University and our regional partners are assisting local companies and expanding regional economic opportunity."

### **INNOVATION AMONG THE CRISIS**

An emerging, world-class manufacturer of ULT freezers based in Athens, Stirling Ultracold has helped to build the local economy of southeastern Ohio, employing more than 150 highly skilled employees located mostly in the region. Following the early second quarter 2021 close of the transaction, BioLife intends to keep the Stirling Ultracold brand and staff members intact.

In the last year, Stirling Ultracold has been at the forefront of COVID-19 vaccination efforts by providing the only line of ULT freezer systems capable of storing any mRNA vaccine requiring -20°C to -86°C thermal protection, earning national attention and escalating global sales.

"This pandemic has galvanized pharmaceutical research. With critical medicines and therapies coming to market faster than ever before, and new advances in science testing the limits of treatment, ultracold storage must be ready to support the breadth of needs in the biopharmaceutical, government and academic research, clinical trials, biobanking, and cell, regenerative and gene therapy markets," said Dusty Tenney, CEO of Stirling Ultracold, in a release.

The Stirling freezers' capabilities earned multitudes of recognition during the pandemic. The flexibility of the set temperatures enables distributors of vaccines to adjust temperatures to meet the requirements of the various vaccines. The company was featured by Business Wire, Columbus Business First, the Athens News, Health Europa, the Columbus Dispatch, PR Newswire, and many others during the past year.

#### *The "Garage Story" of Stirling Ultracold*

The distinctive cooling technology underlying Stirling Ultracold's product line has a unique "garage story" that traces its roots back to the invention of the Stirling engine in 1816. First conceived by a Scottish minister named Robert Stirling, the original reciprocating piston heat engine was designed to improve fuel efficiency over more common steam engines of the time. While the modern version of the Stirling engine uses advanced electronics, linear motion control and gas bearings that Robert Stirling

could never have dreamed of, his amazingly efficient design concept is at the core of today's Stirling Ultracold freezers.

Since its creation, the Stirling engine design has seen a number of advancements, including an early application of on the Space Shuttle and the RHESSI satellite, where the engine has been cooling instruments for over 14 years in a geocentric orbit. In 2009, founder David Berchowitz led an effort to harness the significant cooling performance and energy advantages of the free-piston Stirling technology for ultra-low temperature storage applications. Stirling Ultracold revolutionized the ULT freezer market in 2010 by developing and releasing the first Energy Star™ certified ULT freezer in the world. The company possesses over 80 patents on various applications of the Stirling technology. Initially, the portable Shuttle ULT was introduced, followed by the undercounter SU105U and the SU780U upright ULT freezer in 2013.

Further illustrating the support that the company has received, Stirling operates in the Bill Theisen Industrial Park owned by the Athens County Port Authority. As a young fledgling company, Stirling benefitted from greatly reduced lease rates enabling its launch and growth. Currently, the Port Authority is working with Stirling Ultracold leadership on the design and build-out of a new manufacturing facility that will also be located at the industrial park. This will allow Stirling the space it needs to continue to expand production and its workforce.

Additionally, regional partners such as the Athens County Economic Development Council, the Area 14 Workforce Development Board, OhioSE, and JobsOhio have all assisted Stirling with tax incentives, working capital acquisition, grants, loans, and talent acquisition assistance.

## LINKS TO FURTHER INFORMATION

### Articles:

- [TechGROWTH Ohio portfolio company Stirling Ultracold acquired by BioLife Solutions](#)
- [Athens County-based Stirling Ultracold attracts national attention for boosting global distribution of potential COVID-19 vaccines](#)
- [Global Ultra-low Temperature Freezers Market Report 2021 Reaturing Arctiko, Eppendorf, Esco Micro, Haier, Helmer Scientific, Bionics Scientific, PHC, Labcold, Remi, and Stirling Ultracold](#)
- [Opinion: Trolley Barn Complex, Athens company show why tax credit program works and should be made permanent](#)
- [Ultracold storage to accelerate medical innovation](#)
- [Stirling Ultracold acquired by BioLife Solutions](#)
- [‘We survived’ – Stirling Ultracold acquisition comes one year after pandemic low point](#)
- [Stirling Ultracold ULT Freezers Remain Critical in COVID-19 Vaccine Distribution, Storage and Administration Strategies](#)

### Assisting Organizations

- [TechGrowth Ohio](#)
- [Ohio University’s Voinovich School of Leadership and Public Service](#)
- [Ohio Innovation Fund](#)
- [Ohio University Innovation Center](#)
- [Athens County Economic Development Council](#)
- [Area 14 Workforce Development Board](#)
- [OhioSE](#)
- [JobsOhio](#)
- [Athens County Port Authority](#)

## ABOUT APLU

The Association of Public and Land-grant Universities (APLU) is North America's oldest higher education association. APLU is a research, policy, and advocacy organization dedicated to strengthening and advancing the work of public universities in the U.S., Canada, and Mexico. The association's membership consists of public research universities, land-grant institutions, state university systems, and affiliated organizations.

APLU's mission is to: expand access and improve student success to deliver the innovative workforce of tomorrow; advance and promote research and discovery to improve society, foster economic growth, and address global challenges; and build healthy, prosperous, equitable, and vibrant communities locally and globally.

Based in Washington, DC, the association's work is furthered by an active and effective advocacy arm that works with Congress and the administration as well as the media to advance federal policies that strengthen public universities and benefit the students they serve.

## ABOUT THE IEP UNIVERSITIES PROGRAM

APLU and its **Commission on Economic and Community Engagement (CECE)** established the Innovation and Economic Prosperity (IEP) Universities Program to help higher education institutions codify, elevate, and advance their campus enterprise supporting economic and community development.

The **IEP designation program** recognizes institutions that have demonstrated a meaningful, ongoing and substantial commitment to economic and community development, growth, and economic opportunity.

The **IEP awards program** recognize exemplary and innovative projects in university-based economic and community engagement:

- **Talent** and workforce development
- **Innovation**, entrepreneurship, and tech-based economic development
- **Place** development through public service, outreach, and community engagement

Learn more at: [www.APLU.org/IEP](http://www.APLU.org/IEP)

