



One-hundred-and-one-year-old resident [Nicolina](#) (center) of Cilento, Italy with CIAO study researchers. Credit: Sanford Burnham Prebys

### **CIAO Study: A long and ongoing look at the secrets of human longevity and healthy aging**

It's notable when a scientific study reaches the decade mark, but when the topic is the healthy aging of people who have lived 10 times as long, it just means there's still a lot more to learn.

This month, researchers participating in the Cilento Initiative on Aging Outcomes or CIAO study will gather in Acciaroli (Pollica-Cilento) Salerno, Italy to review a decade of work and plan their next steps. [Launched in 2016](#), the CIAO study seeks to identify key factors (biological, psychological and social) that promote healthy aging and extreme longevity.

The Natural Park of Cilento region in southern Italy is home to roughly 300 residents who are more than 100 years old and in robust health. The broader region is notable for the long lives of its residents. It was the original source of research for [Ancel Keys](#), the American physiologist who studied the influence of diet on health and first promoted the benefits of the Mediterranean diet.

Scientists hope to reveal the longevity secrets of the Cilento region using an array of tools to measure metabolomics, biomes, cognitive dysfunction and protein biomarkers for risk of heart disease, Alzheimer's, kidney disease and cancer, along with psychological, social and lifestyle surveys.

"There is no single secret to living a long, healthy life," said [Salvatore Di Somma, MD](#), the study's lead Italian investigator, founder of Great Health Science and symposium co-chair. "It is many secrets, most of which we are only beginning to understand and more importantly, learn how they might be applied to the well-being of everybody. The remarkable centenarians in our study are leading the way."



The CIAO study is a multi-institution collaboration that includes [Sanford Burnham Prebys](#), an independent, nonprofit biomedical research institute in San Diego, the [Sanford Stem Cell Institute](#) at University of California San Diego, [University La Sapienza](#) in Rome and [Great Health Science](#), a network of public and private research organizations based in Rome, Italy.

The May 22-23 symposium, officially called the "CIAO Study: A decade of science on healthy aging, stem cells and the revealed secrets of longevity," will feature a series of scientists and physicians describing their work and findings, from general demographic and epidemiological aspects to deeper dives into brain cell aging, the regenerative powers of stem cells and RNA biology.

"Understanding how we age and how we might age better is a timeless pursuit," said [David Brenner, MD](#), president and CEO of Sanford Burnham Prebys and co-chair of the symposium. "Ten years in, with the benefit of new and emerging technologies and global collaborations, we've come a long way. It's important to look at where we are now and what our key questions and steps will be in the next 10 years."

One current CIAO project leverages genetic, epigenetic, transcriptomic, metabolic, proteomic and environmental analyses to identify key contributors to extreme longevity. Supported by the Sanford Stem Cell Institute at UC San Diego, researchers are using induced pluripotent stem cell (iPSC) derived from the centenarians to model age-related and metabolic stresses in human 3D organoids.

"This study will provide new insights into the development of regenerative medicine strategies for promoting healthy aging and treating age-related conditions," said [Tatiana Kisseleva, MD, PhD](#), professor of surgery at UC San Diego School of Medicine and director of the Sanford Stem Cell Fitness and Space Medicine Center. Preliminary findings are expected to be presented at the symposium.

The CIAO study has already generated multiple published papers and intriguing findings. Among them:

- In a [2016 presentation](#), researchers reported that the oldest residents participating in the CIAO study exhibited robust microcirculation of blood comparable in efficiency to people 30 years younger. They also noted that low blood levels of the peptide hormone adrenomedullin were an indicator for good microcirculation.
- In [2018](#), using a mix of scales to measure mental and physical well-being, resilience, optimism, anxiety, depression and perceived stress, researchers assessed 29 nonagenarians and 51 family members between the ages of 51 and 75.  
They found the study participants aged 90 and older had worse physical health but better mental well-being than their younger counterparts. Exceptional longevity was characterized by a balance between acceptance of and grit to overcome adversities, along with a positive attitude and close ties to family, religion and the land, providing purpose in life.
- In 2020, a [cross-sectional sampling](#) of nonagenarians and centenarians, along with younger co-inhabitants from Cilento, evaluated key lifestyle, medical, echocardiographic and electrocardiographic features to identify the cardiovascular profile and lifestyle factors associated with longevity.  
In contrast to their younger co-inhabitants, the older group did not smoke, had lower fasting glucose levels and lower LDL cholesterol despite being half as likely to be taking statins. They were physically active and enjoyed comparatively low levels of cardiovascular disease — even persons with structural heart abnormalities experienced fewer symptoms.
- Also in 2020, researchers sought to define the [neurocognitive profiles](#) of 29 residents of the Cilento region at least 90 years old and 49 younger residents ages 50 to 75 years. They found that the older cohort appeared to enjoy cognitive status comparable to their younger cohabitants without significant differences in oxidative stress markers or the APOE genotype — a genetic variation that determines a person’s risk for developing certain diseases, particularly Alzheimer’s. The authors concluded that the results might be related to the older group’s optimal adherence to the Mediterranean diet, though other lifestyle factors and positive personality traits might be contributing to their healthy aging.
- Researchers investigating the relationship between [loneliness and wisdom](#) compared different age cohorts in San Diego and Cilento, using two validated loneliness scales. They found no significant differences in levels of loneliness among the groups, but a strong inverse correlation between loneliness and wisdom in all groups. Loneliness worsened general health, sleep quality and feelings of happiness, while wisdom improved these measures.

**Media:**

For more information, see the [symposium program](#) or contacts below.

For credentialed journalists seeking to attend the symposium, please contact Valeria Albini at Great Health Science with name, news organization and contact information. Space is limited and pre-registration required.

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