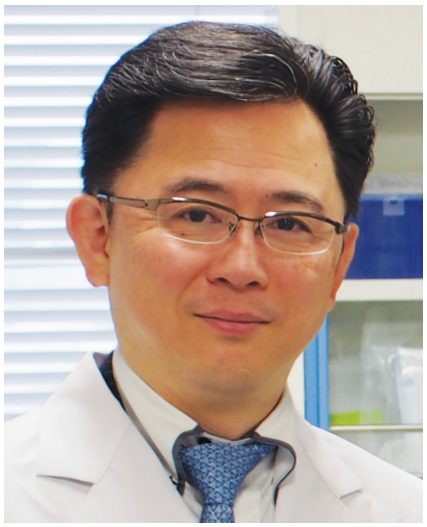
AGILENT BRAVO SUCCESS STORY

THE KEYS TO AGING AND CANCER
AGILENT BRAVO PLATFORM SPEEDS RESEARCH INTO TELOMERES AND MICRORNA



Hidetoshi Tahara, Ph.D
Professor of Cellular and Molecular Biology
Hiroshima University, Hiroshima, Japan

Dr. Hidetoshi Tahara is looking for the keys to aging and cancer.

That's why he (and other scientists) are studying telomeres—the caps on the ends of our chromosomes that keep our genetic data from unraveling.

Think of telomeres as the plastic tips on your shoelaces ... or as the fuse to a bomb.

Telomeres get shorter each time a cell divides. Too short, and the cell can no longer divide. It becomes inactive or dies.

Dr. Tahara's laboratory, founded 2006, is looking at how this shortening process relates to aging, cancer, and an elevated risk of dying.

Fundamental research

Tahara and his team at Hiroshima University are doing fundamental research—focusing primarily on telomeres and the therapeutic role of microRNA—in an effort to promote human health and longevity. (In fact, a private company named MiRTeL was founded in 2012 to transfer the results of this research to society.)

"In the aging society, we are concerned about the increasing number of the people who develop a disease, and we know the risk of developing an illness depends on the individual," Tahara says.

"Since it is still difficult to treat cancer—and the treatment must often be prolonged—it will be more important to reduce the risk of illness onset by personal self-administration based on early detection or an early risk diagnosis—before the disease has a chance to develop."

While that goal may still be a ways off, Tahara and team are making progress.

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"The Bravo platform allows us to control the speed of pipetting at every step so that we have no cell damage, which is a real comfort for us."

HIDETOSHI TAHARA

Key milestone

In a recent study, Tahara and his collaborators discovered that miR-22 regulates cellular senescence in humans and can act as a barrier to cancer progression.

"Induction of miR-22 into cancer cells inhibits cell proliferation," they report, "accompanied by senescence-like cell morphology and a decrease in cell motility and invasiveness."

More specifically, they found that "miR-22 inhibits the proliferation of human breast cancer metastasis cell lines (MDA-213MA) both in vitro and in vivo through induction of genetic reprogramming of the senescent pathway."

Automating the assays

Tahara's team had been performing thousands of cell-based assays by hand. "Though it was not an impossible number to process by hand, the cells had been damaged as time goes by," he says.

Enter Aglient's Bravo Automated Liquid Handling Platform.

Tahara describes the Bravo platform as compact, easy to use, and easy to keep clean. It also provides the precision needed to control the volume of microRNA being added to samples, down to 0.5 microliters.

The Bravo's biggest advantage? "Reproducibility and the reduction of damage to cells," he says. "The Bravo platform allows us to control the speed of pipetting at every step so that we have no cell damage, which is a real comfort for us."

"We will consider using this flexible instrument for compound management in the future."

To learn more about the Agilent Bravo Platform and how other researchers use it, visit **www.agilent.com/lifesciences/Bravo**

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