

# Sample Quality Control at Okadai Biobank, Okayama, Japan

## Biobank Sample Management

Due to advancements in pharmaceutical and medical research, biobanks and biorepositories have been established around the world to store and distribute various samples and accompanying information. Sample quality control (QC) is of utmost importance in the process of storing and maintaining biospecimens, as well as for the purpose of efficient analysis using those samples and to determine the validity of results.

One such biorepository is Okadai Biobank in Okayama, Japan. Founded to promote the health of patients and the general public, Okadai Biobank was established within Okayama University Hospital in April 2015. The Okadai Biobank is part of the infrastructure designed to support medical research and new drug development.

## About Okadai Biobank

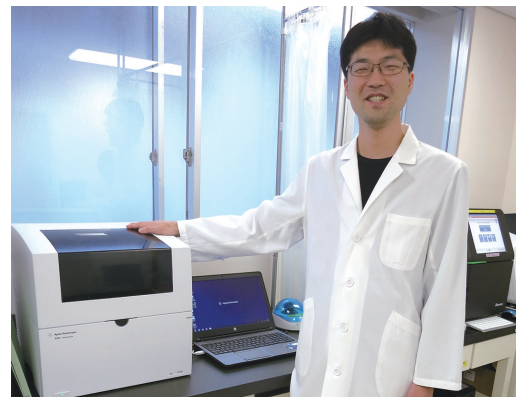
Okadai Biobank aims to be an accessible resource for basic and clinical research by universities and public research institutions as well as research and development by private companies. These goals are intended to contribute to concrete product development including pharmaceuticals.

The biobank consists of a warehouse for storing biological samples (e.g. tissue, blood, urine) and a database for storing clinical information relating to the samples (e.g. records of treatments and tests). The biological samples and clinical information are provided by patients of Okayama University Hospital who have consented to participating in the biobank project.



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In this issue, we interviewed Drs. Shuta Tomida and Takehiro Matsubara (pictured above) of Okayama University Hospital Biobank ("Okadai Biobank") to learn about Okadai Biobank and to hear how the 4200 TapeStation system is being used there.

Shuta Tomida, Ph.D., and Takehiro Matsubara, Ph.D., manage the Okadai Biobank and instituted the biobank's sample quality assessment methods. As part of the sample QC workflow, these researchers are using the Agilent 4200 TapeStation system: a fully automated high-throughput electrophoresis instrument that can be used in a wide range of research areas for the QC of DNA and RNA.

## How the Biobank Uses the 4200 TapeStation System

Drs. Tomida and Matsubara discussed the functionality of biobank sample QC. "At Okadai Biobank, we use the 4200 TapeStation system for two main purposes. One is for the quality control of the biological samples, which we collect, store, and provide at the Biobank's Biospecimen Storage Division. The other is in sample preparation for genome sequencing by next generation sequencing (NGS), at the Biobank's Biomarker Analysis Division. The use of the 4200 TapeStation system enables easy measurement of the RNA quality indicator, RNA integrity number (RIN<sup>®</sup>) and DNA integrity number (DIN) values together with sampling time and sample processing technique are conducted for quality measurement of biological samples and optimization of the overall banking process."

## Addressing Many Sample Types

When asked about the kinds of samples the Okadai Biobank assesses, Drs. Tomida and Matsubara highlighted both DNA and RNA applications. "Genomics DNA, RNA, D1000 and High Sensitivity D1000 ScreenTape kits are mainly used for quality control of library and starting samples that are used for NGS analyses such as cancer targeted sequencing, RNA-Seq, and 16S rRNA metagenome. Genomics DNA and RNA derived from FFPE samples is usually highly degraded. Methods for FFPE sample fixation differ depending on laboratories and specimens, and are difficult to standardize, which means the degradation differs according to the sample. This means that checking all of the samples is required, so we use the 4200 TapeStation system, which allows for easy viewing of the results."

## Advantages of Biobank Sample QC

Dr. Tomida and Dr. Matsubara emphasized the benefits of performing sample quality control on biobank samples using the 4200 TapeStation system. "The biggest advantage is that it's simple to operate. It is also an advantage that gel images and values are shown after electrophoresis is completed when we want to know the analysis results immediately, and that quality can be assessed objectively through scores of DIN or RIN<sup>®</sup>. The 4200 TapeStation system is capable of fully automated analysis of 96 samples. This is convenient with higher numbers of samples."

[www.agilent.com/genomics/biobank-sample-qc](http://www.agilent.com/genomics/biobank-sample-qc)

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