

Approved by the  
Organization for Research Initiatives  
Executive Director on March/23/2015

### Guidelines for Research Data Preservation

( 1 ) For research activities involving experiments and observations, it is strongly recommended to keep a record of the process in the form of an experiment laboratory notebook. A log of the procedures of the experiments and the data acquisition conditions, among other data, shall be recorded in the laboratory notebooks. This information shall be available for perusal and verification at a later date, and this shall be secured in a way that does not allow subsequent modifications. The laboratory notebooks shall be stored as a primary information source record of the research activity.

( 2 ) Research materials (documents, numerical data, images, etc.) that form the grounds of published research discovery, including research papers and reports, shall be stored appropriately so that it may be used and verified at a later date.

The maintenance of meta-data as well as the guaranteeing of traceability and search ability to allow for referencing at a later date shall be taken into account with respect to preservation.

( 3 ) As a rule, the retention period of materials (documents, numerical data, images, etc.) shall be ten years after the publication of the said research papers, etc.. Electronic data shall be preserved in a form that allows it to be reused, through meta-data reduction and management, and by preparing appropriate back-ups.

A storage period of at least ten years is also advisable for materials in print form. However, in case of any unavoidable circumstance giving rise to shortage of storage space, the print form data may be disposed of within reasonable limits.

( 4 ) Objects such as samples (test samples, specimens) and equipment shall be preserved for five years after the publication of the said research papers, etc.. However, this shall not apply to objects that can be easily reused, objects that are difficult to store or keep(e.g., unstable substances, samples that are consumed in the experiment itself), or objects for which storage would incur a significant cost(e.g., biological samples)..

( 5 ) When a researcher in his or her group moves out or retires, the head of the laboratory shall take measures to backup and store the data, or to determine its location to ensure its traceability. When the head of the laboratory moves out or moves, the Vice President for Academic Research will take appropriate measures. In order to facilitate these measures regarding the preservation of research materials, a memorandum of understanding will be exchanged at the time of hiring the researcher.

( 6 ) Personal information, matters concerning the handling of such information that is subject to legal regulations, and matters that require ethical considerations, shall be subject to those regulations and guidelines. In addition, in the event of an arrangement with a funding agency regarding the handling of results/products in relation to specific research projects, we will comply with them.

Table 1. Types of research-related materials, specimens, etc., and methods for their storage and preservation

	Type of data, etc.	Form or format	Method for storing and preserving	Convenience of searching and using	Space needed for storage and preservation	Cost of storage and preservation
Information, data, documents & other such materials	Digital data	Electronic data	Recording media, including hard disks, etc.	Very easy, if complete meta-data are provided	Little	Low
	Analog documents	Paper-based materials, etc.	Filing, etc.	Depends on the method of organization and management	Depends on the amount	Relatively low
Samples, specimens, equipment, devices, etc.	Non-degradable (non-perishable) objects	Stable substances and samples, etc.	Simple storage (no special measures)	Depends on the method of organization and management	Depends on the amount	Relatively low
	Degradable (perishable) objects, items requiring special devices for storage	Unstable substances, reactive substances, biological specimens, valuable samples, etc.	Storage in a special environment	Depends on the storage method	Depends on the special equipment, etc. used	High

Source: The Science Council of Japan's document on improving the integrity of scientific research (April 6, 2015);

<<http://www.scj.go.jp/ja/info/kohyo/pdf/kohyo-23-k150306.pdf>> (in Japanese); accessed on July 27, 2015.

Table 2. Responsibilities of each person in laboratory management

	Research ethics Compliance with the Code of Conduct	Storage of materials, etc.	Preservation of samples, etc.
Individual researcher	practice	Organize and store research records and metadata in a searchable and extractable form Proper backup	Record and organize metadata on preserved samples as much as possible
Principal Investigator	Education/Guidance	Education/Guidance *Metadata management Creating a unified format for laboratories, etc.	Education/Guidance Storage method, securing of storage place
Head of research institution	Creating an environment Education and training programs	Provision of servers for data backup, etc. infrastructure development	Development of infrastructure for storing specimens that require special conditions for preservation

\*Metadata is not the data itself, but the information related to the data, such as data creation date, creator, data format, title, annotations, etc., and the important information for efficient management and retrieval of data.