

# Ontology Integration for Discovering Bioresources Contributing to Medical Science Research

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## Abstract

We integrated the RIKEN bioresource RDF data with external public RDF data, such as OMA, and disease ontologies, such as DOID and MONDO. Thus, we can discover the resources relevant to diseases by performing a SPARQL query for the integrated RDF graph.

## Keywords

Bioresource, Data Integration, Knowledge Graph, SPARQL

## 1. Introduction

RIKEN BioResource Research Center is one of the largest comprehensive bioresource centers that provide various kinds of bioresources such as experimental animals (e.g., gene-modified mice), cell materials (e.g., iPS cells), and DNA materials (e.g., human cDNA clones). One of its missions is to contribute to developing human health and medical science research through the RIKEN bioresources. We unitarily manage information on the bioresources and provide it. In addition, we develop the bioresource RDF data to promote data sharing and improve interoperability.

## 2. External data and ontology integration and discovering bioresources relevant to diseases

We integrated the bioresource RDF data with OMA RDF data [1], DisGeNET RDF data, and disease ontologies, such as DOID, and MONDO (Figure 1), to be able to simultaneously discover mouse resources, cell materials, and DNA materials relevant to diseases by performing a

SPARQL query for the knowledge graph (<https://knowledge.brc.riken.jp/sparql>).

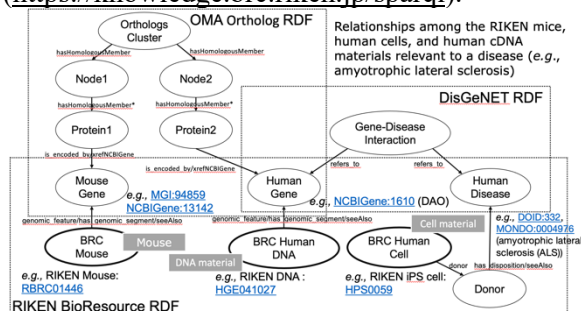


Figure 1: The bioresource RDF Graph integrated with external RDF data and ontologies

## 3. Reference

- [1] Altenhoff AM, Train CM, Gilbert KJ, et al. OMA orthology in 2021: website overhaul, conserved isoforms, ancestral gene order and more. *Nucleic Acids Res.* 2021;49(D1):D373-D379. doi:10.1093/nar/gkaa1007

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