Discovery of unique mutational signature in occupational cholangiocarcinoma in printing workers

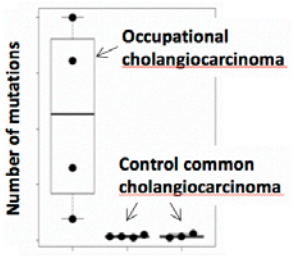
- Integration of environmental carcinogenesis and cancer genomics -

An outbreak of cholangiocarcinoma in printing workers

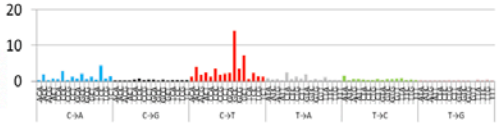
Epidemiological background

High exposure to chemical compounds

Whole-exome analysis



High mutation burden



Unique mutational signature

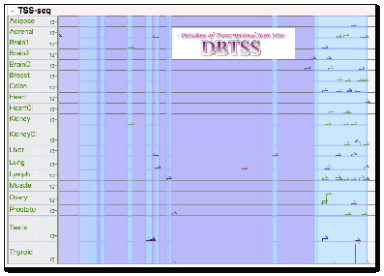
Genomic evidence of exposure to one or several common strong mutagens

These conditions might increase the chance for mutations in cholangiocarcinoma driver genes.

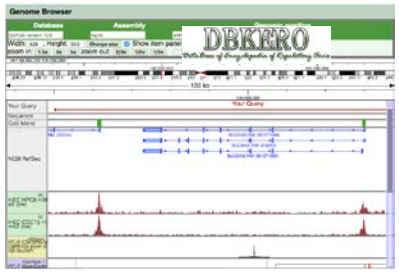
(Mimaki, S., *et al.* Carcinogenesis 2016.)

Data cleaning and Database construction for multi-omics data

NGS data



Database of transcriptional start sites: DBTSS



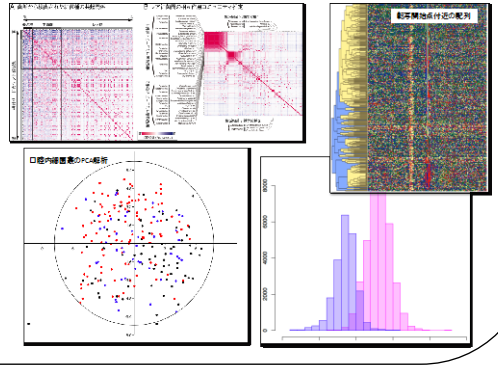
Integrated omics database: DBKERO

Integration and analysis of multi-layer data for translational informatics

massive data in a supercomputer

Effective algorithms
Deep learning techniques

ii) Elucidation of biomedical knowledges



Elucidation of biomedical knowledges to understand carcinogenesis