

Ontological Model and Approaches in the Integrated Biomedical Database Project (IBMD)



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Tokyo Medical and Dental University

What is
the Integrated Biomedical DB
project?

Integrated Biomedical DB Projects

- Government-commissioned project
 - Started at 2007 in **Tokyo Medical & Dental Univ.**
- by **MEXT** (Ministry of Education, Culture, Sports, Science and Technology)
- A subproject of the **National Projects for DBs integration in Life science fields**
- Main goal of this project is
integration of disease databases in Japan

Biomedical Ontology Projects in Japan

- Two government-commissioned medical ontology projects in Japan
- Ours: Scientific DB integration by MEXT
- Clinical Information System by MHLW
(Ministry of Health, Labour and Welfare)
“Japan Medical Ontology Development Project
for Advanced Clinical Information System”
– Dr. Imai’s talk
- Good collaboration between both projects

National Project for DB integration in Life Science Field (MEXT)

- Integrated DB Project in Life Science
 - **Started from 2006**

Background

- DBs in LS in Japan were scattered in various institutes
 - **DNA sequence (DDBJ) in NIG in Mishima**
 - **Protein DB (PDBJ) in Osaka University**
 - **Pathway DB (KEGG) in Kyoto University**
 - **Unlike NCBI in US and EBI in Europe**

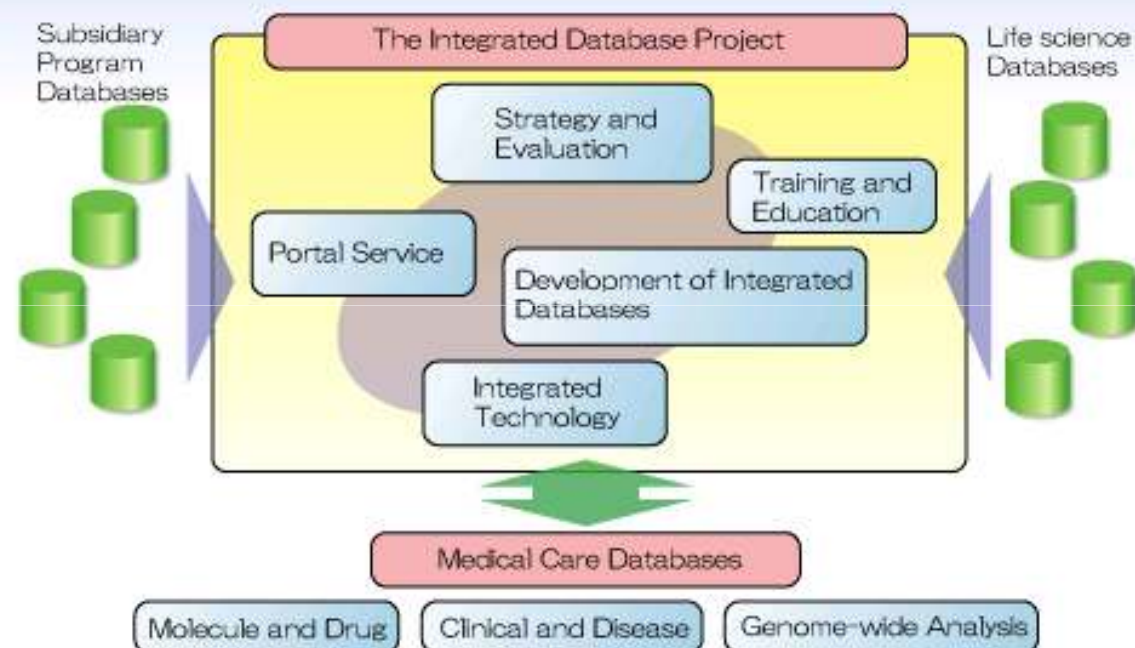
Goal

- Establish National Center for DB integration in LS (DBCLS)
 - **develop integrated DB service**
 - **common portals for DBs in LS**

Ministry of Education,
Culture, Sports, Science, and Technology (MEXT)
Integrated Database Project

[Site map](#) [Japanese](#)

Project Overview



[detail](#)

Latest News

[RSS](#)

2009.3.31

The portal site for the ["Integrated Database Project"](#) is now available in English.

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[Organization](#)

[Achievements](#)

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Links for research organizations

- [Central Organization](#)
 - > [Research Organization of Information and Systems \(ROIS\) Database Center for Life Science](#) (Japanese version only)
- [Allocation organizations](#)
 - > [Kyoto University](#)
 - > [Tokyo Medical and Dental University](#) (Japanese version only)

Integrated Database Project Portals



Guest Account | Account | Login | Japanese

Home Database About us


Search Cross Search Go

This site is...

Welcome to the LSDB Home Page!

This is a portal site for the "Integrated Database Project" funded by the Ministry of Education, Culture, Sports, Science and Technology of Japan. This site is managed by DBCLS (Database Center for Life Science). Please contact us for more information: [Contact us](#)


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Tools & Resources
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Documentation
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International Cooperation
[BioHackathon 2009](#)
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Databases
[DB Development for Medical Application from Disease Analysis](#) (Group lead by The University of Tokyo)
[tRNADB-CE: tRNA gene database curated manually by experts](#) (Nagahama Institute of Bio-Science and Technology)

Information

[2009.04.20] [The MetaData Element Repository in life sciences \(MDeR\)](#) is now available from the portal site for the "Integrated Database Project".

[2009.03.31] The portal site for the "Integrated Database Project" is now available in English.

[2009.03.06] An international symposium ([BioHackathon 2009 symposium](#)) that presents efforts to integrate web services in and out of Japan and workflows that are useful for biologists will be held at [Takeda hall \(Univ. Tokyo\)](#) on Mar 16, 2009. The symposium is free of charge and no prior registration is required.

[2009.02.23] "OReFiL" will be temporarily unavailable (17:00-19:00[JST], Mar 5) due to maintenance. We apologize for the inconvenience.

[2009.02.16] The services linked from the LSDB Home Page as well as the website itself will be temporarily unavailable (8:00-20:00[JST], Feb 22) due to maintenance. We apologize for the inconvenience.

[2009.02.09] The [3D human model data of BodyParts3D](#) have been updated and are also available for download.

LSDB Database & Tools

Anatomography
BodyParts3D
Anatomography BodyParts3D

OReFiL

Genome, post genome projects in Japan

Project Name	Implementing Ministry/Agency	Start Year	End Year	Classification of Database Public Release Status	Public Database	Data Download Site
Standard SNPs Analysis Project	Ministry of Education, Culture, Sports, Science and Technology (MEXT)	1999	2001	Shared	JSNP: http://lifesciencedb.jp/?pg=1&tp_dbsid=285	SNP frequency data, etc. (ftp://ftp.hgc.jp/pub/hgc/db/snp/) XML (mapping data, etc.) (http://snp.ims.u-tokyo.ac.jp/XML.html) Search tool (http://snp.ims.u-tokyo.ac.jp/map/Dump/)
Genome Diversity Project	Ministry of Economy, Trade and Industry (METI)	2000	2005	Shared	-	- GDBS (http://jbirc.jbic.or.jp/gdbs/database/viewer/download/) - The Integrated Cancer Genome Database. (http://genomecenter.jfcr.or.jp/genomedb/)
Standardization Survey of Data Description Format for Genotype-Phenotype Database	Ministry of Economy, Trade and Industry (METI)	2006	2008	-	-	-
Integrated Database Project	Ministry of Economy, Trade and Industry (METI)	2000	2004	Shared	H-InvDB: http://lifesciencedb.jp/?pg=1&tp_dbsid=491	http://hinldb.ddbj.nig.ac.jp/ahg-db/download.jsp
Genome	Ministry of					

Allocation Organization for Integrated DB Projects

- Tokyo Medical and Dental University (TMDU) , Information Center for Medical Science
 - commissioned by MEXT
 - to integrate scattered databases on various disease in Japan
 - to be a National Center for Disease Database Integration
 - from 2007, Integrated Biomedical (clinical) DB
- Kyoto University Bioinformatics Center
 - Integration of Drug Information
- Tokyo University Dept. Human Genetics
 - Integration of Genetic Polymorphism

Challenges for Integrated Biomedical DB projects

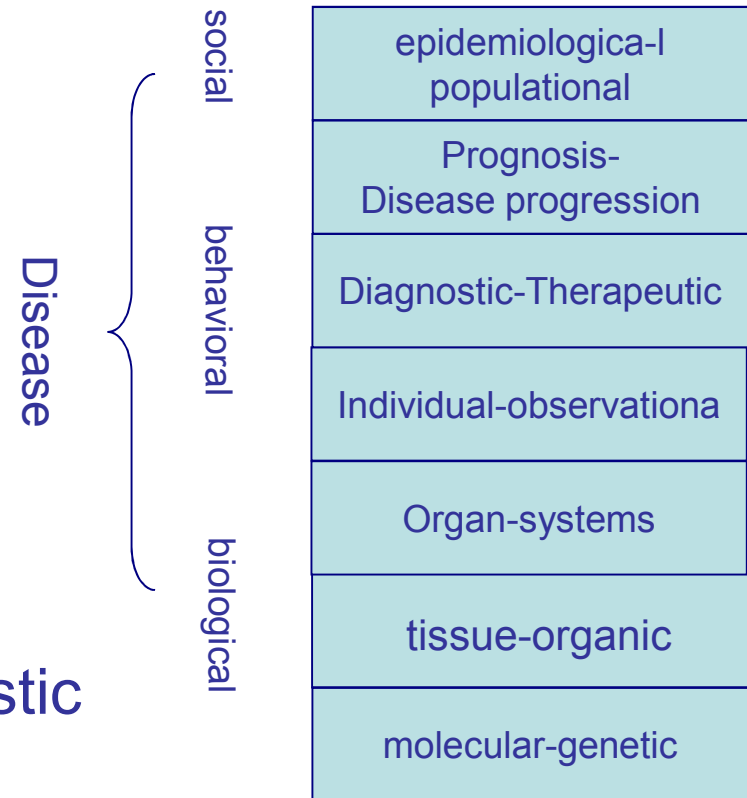
- Development of **Ontology-based Integrative Interface** for Disease DB search
- **Integration of the Core Clinical DBs in Japan**
 - Parkinson Disease DB in Osaka Univ.
 - GEMDBJ in National Cancer Center
 - So on
- **Establish Ethical Code for Publicizing Clinical Case DB**

Then, how can we describe
Disease?

Is it physical entity, or
just conceptual ?

Disease Modeling in Database

- What is the ontological characteristics of disease?
- Complexity of “Disease”
- Disease is a multifaceted, multilayered entity
 - molecular-genetic
 - tissue-organic
 - individual
 - diagnostic-therapeutic-prognostic
 - behavioral (medical practice)
 - populational-epidemiological

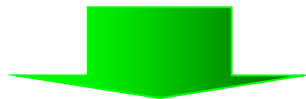


Disease Modeling in Database

- Complexity of the “Disease”
 - Multi-faceted, multi-layered entity
 - Incompleteness of disease knowledge
 - Multiplicity of related sciences
 - biological, psychological, behavioral, conceptual, social science
- Main opposite standpoints
 - Physical vs Conceptual
 - Causative vs Observational

How do we describe disease

- Formal Description of Disease
- Disease View are now changing since Revolution of Molecular medicine
- Conventional View
 - Multilayered Phenotypical Description
 - Essentially Observational
 - (Place, Organ) X (Pathomorphology)
 - myocardial (place) infarction (pathology)



Recent Changes of Disease View

- Advances in Molecular Medicine

- disease genetics

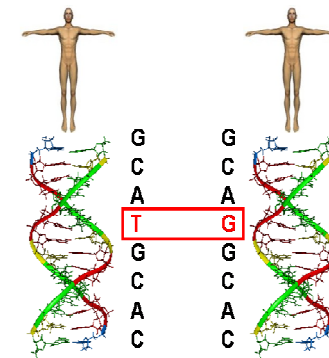
- disease causative (related) gene
- genetic polymorphism (SNP, ms)

- disease omics

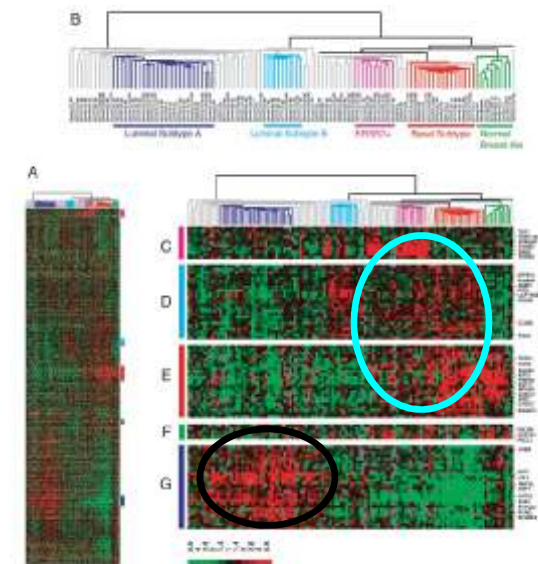
- genetic expression profile
- proteome, metabolome

- disease molecular pathway

- distorted signal pathway or regulatory network

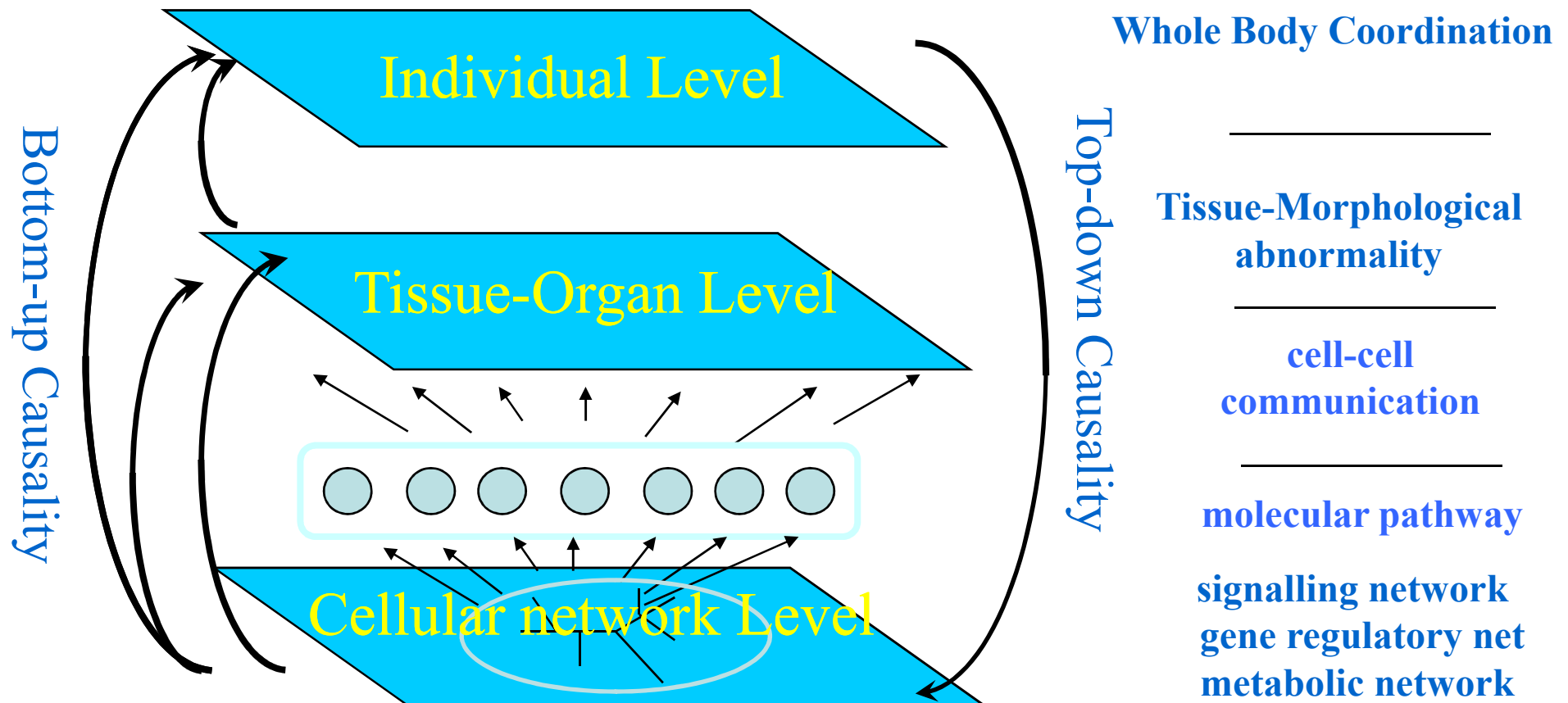


SNPs



DNA microarray

Disease is hierarchically organized “distorted molecular network”



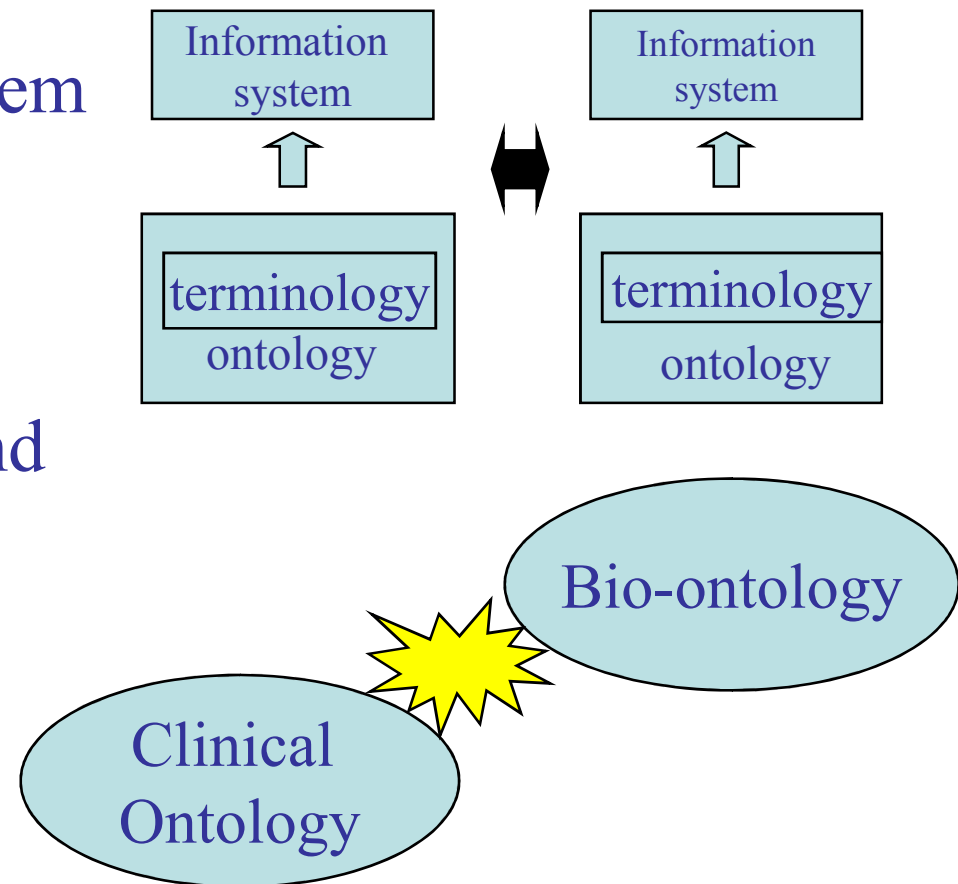
Ontology

- Formal representation of a set of concepts within a domain and the relationships between those concepts
 - used to reason about the properties of that domain, and to define the domain
 - “Formal, explicit specification of a shared conceptualisation” (Gruber, kls stanford)
- Controlled (Formal) Vocabulary
 - used to model a domain for knowledge sharing and reuse
 - the type of objects /concepts that exist, and their properties and relations

Challenges in Biomedical Ontology

Ontology mismatch between clinical thinking and Omics medicine

- Each information system has its ontology as a basis
- Mismatch between Clinical ontology and Bio-ontology

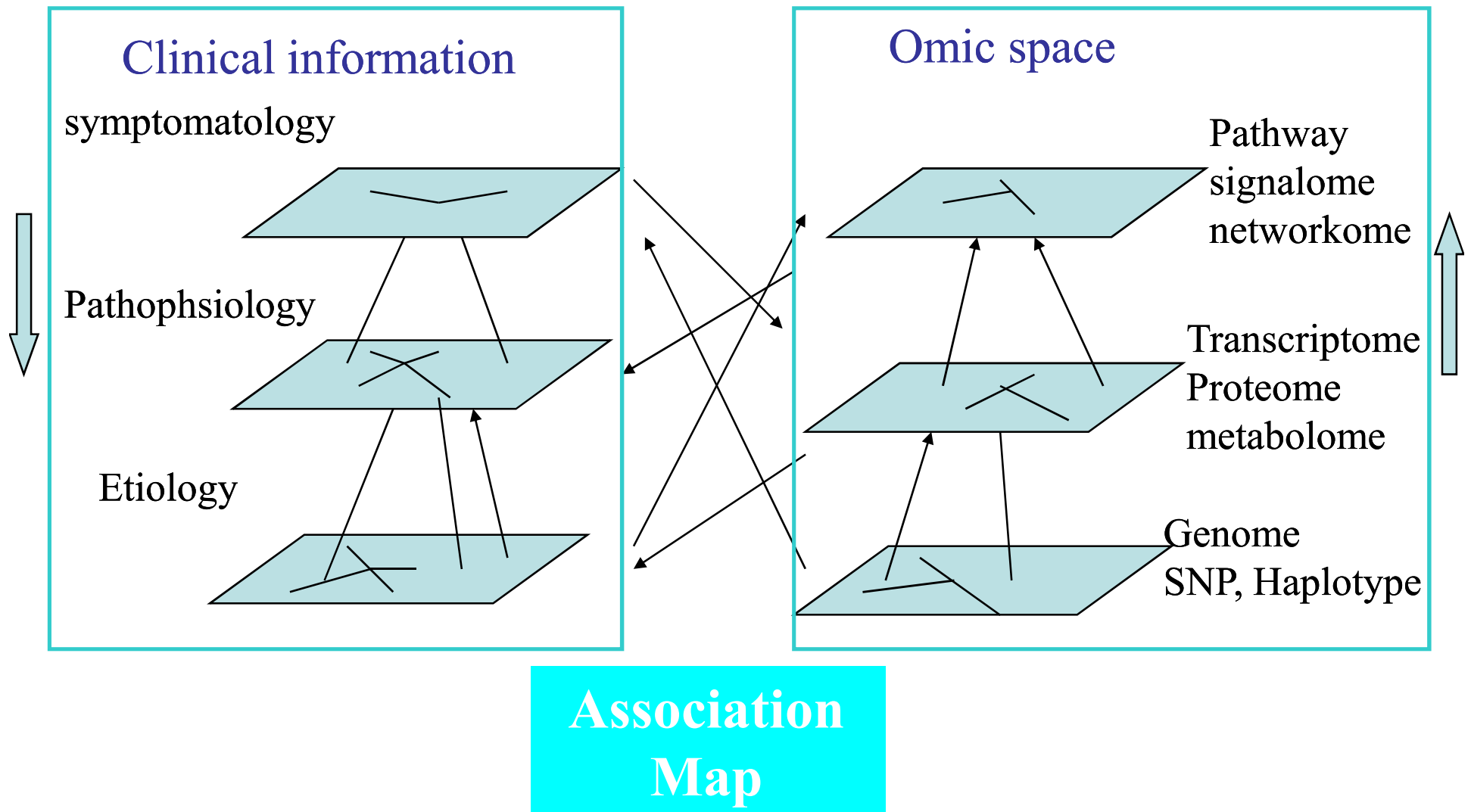


Mismatch of Thinking

- Clinical thinking
 - Organs and diseases are units of concepts
 - Clinical phenotypical; disease is defined on pathological, morphological (changes) base
 - Essentially goal-oriented: disease care directed
 - Top down
- Molecular (Omics) medicine thinking
 - Molecular function and their functional relation to other molecules
 - Products of gene expression are units of concepts
 - Bottom up

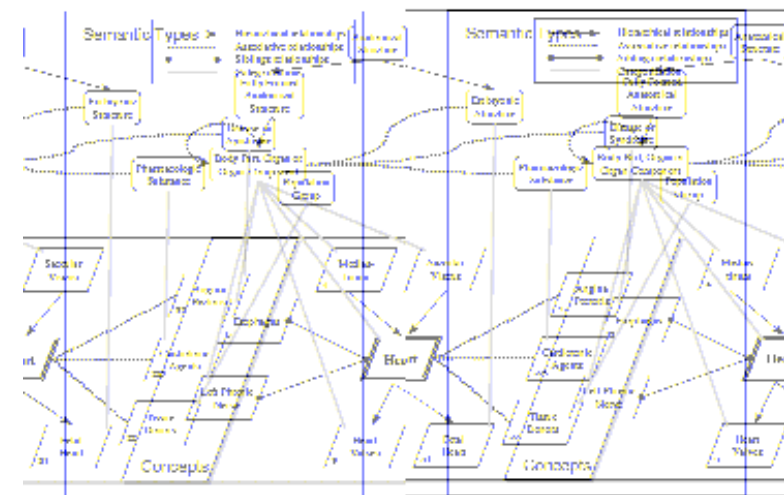
Two Worlds

Clinical thinking and “Omic space”



Existing Clinical and Bio-Ontology

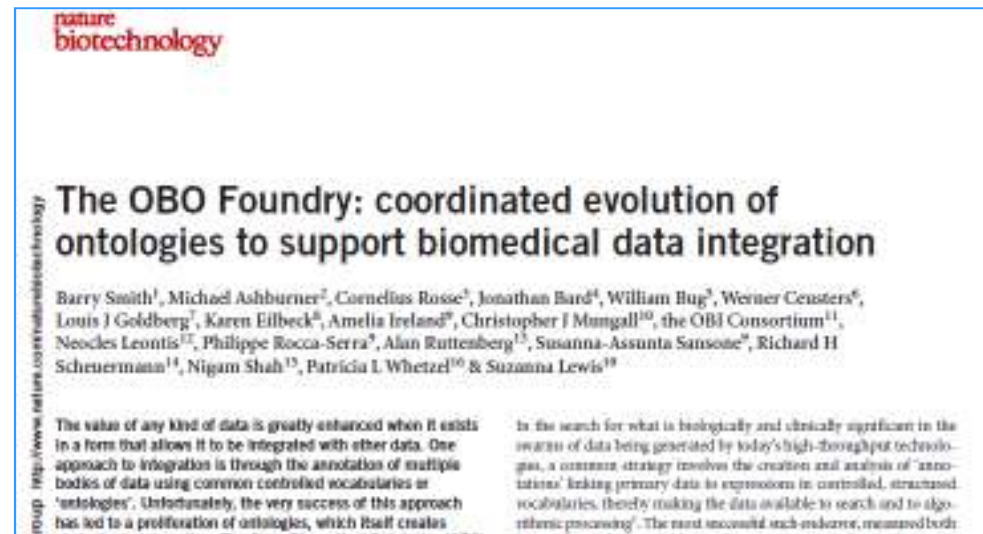
- Clinical ontology
 - Semantic network, UMLS, Galen (SNOMED)
- Gene Ontology
 - Molecular function, process, cellular location of gene products
 - Now only, Eukaryotes



at <http://www.nlm.nih.gov/umls/> for the full list of concepts and relationships. The diagram illustrates the complex semantic network of the Unified Medical Language System (UMLS), showing how various concepts are related through different types of semantic relationships.

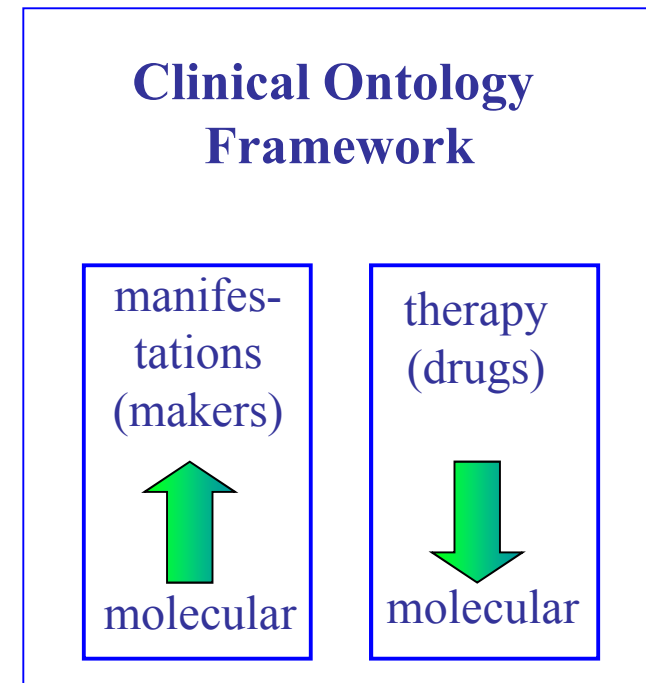
Several projects for Integration of Bio/Clinical Ontology

- Open Biomedical Ontologies (OBO)
 - National Center for Biomedical Ontology (Mussen)
 - OBO Foundry (Smith)
- Other Projects
 - Ontology for Biomedical Investigations
 - ULMS plans to involve Gene Ontology
 - Disease Ontology
 - So on



Integrative Clinico-Omic Ontology (possible transit form)

- Global structure follows the framework of clinical ontology
- Within the framework bio-ontology is employed to provide bottom-up relation of the meaning of phenotypical entities



Practical Solution

- Clinical Nosological Ontology
 - Coventional Textbook knowledge Ontology with patient medical information ontology
 - used for Ontology for Disease DBs integration
- Multilayered Clinical Omics Ontology
 - Still under development
 - But with linked multilayered data schema
 - integrated Clinical Omics Database (iCOD)

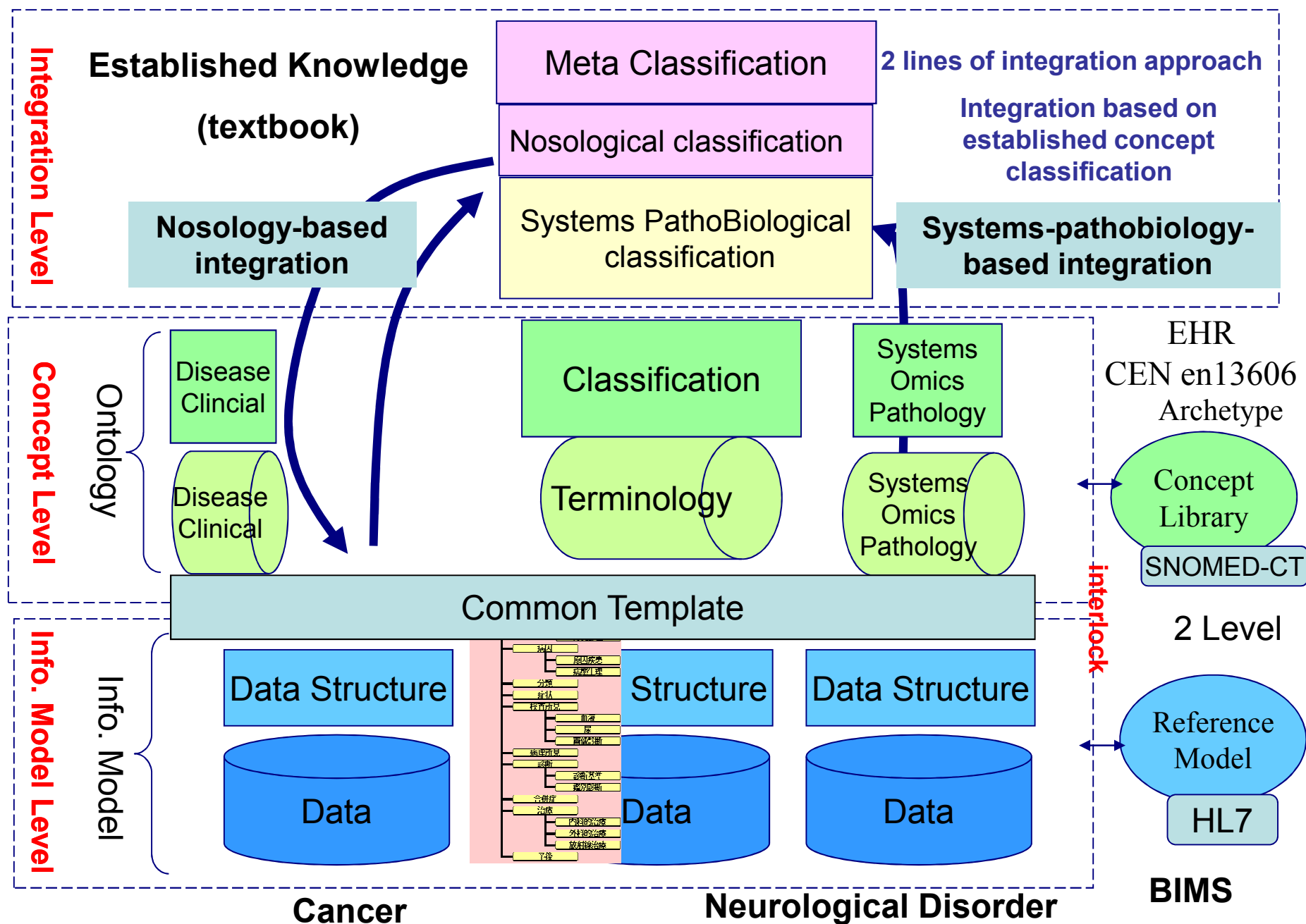
Several Results of IBMDB project

Results for Ongiong IBMDB project

- Developed the first version of Nosological IBMBD Ontology
- Mutlilayered Integrative Clinical Omics DB
- Developed Ontology-based InterDB Search System
- Trial system for integrative DB search between Parkinson Disease DB and iCOD

IBMDB Ontology

3 Level Method: 3 Level model for database integration



Disease Terminology and Classification

Nakaya, J., Sasaki, K., and Tanaka, H. (2006) Condensed Cross Clinical Knowledge, Computer Science, IJCSNS. 6 (7A). 6-11.



Condensed Cross
Clinical Ontology

Disease Terminology

This is the disease terminology and classification.
Diseases are classified with combined anatomical hierarchy and etiological hierarchy.
A conceptual unit of a Disease is described with the 3rd normalized skeleton template which can be called as a content model.

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Anatomical Hierarchy

+

Etiological Hierarchy

Anatomical Hierarchy

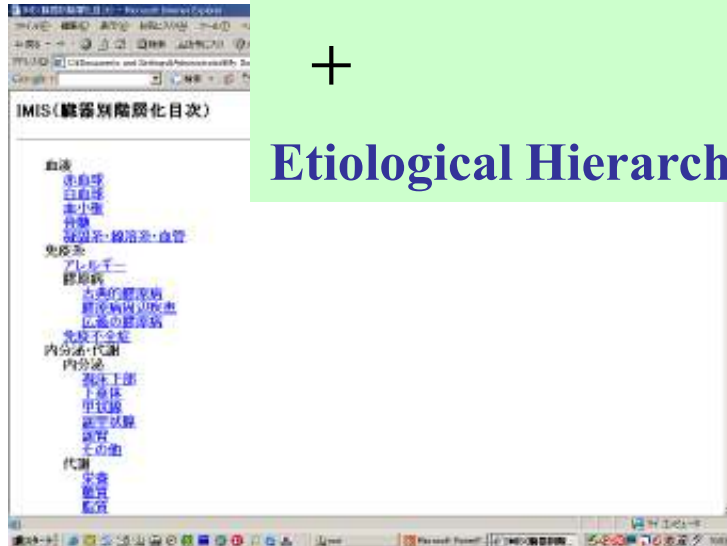
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Etiological Hierarchy

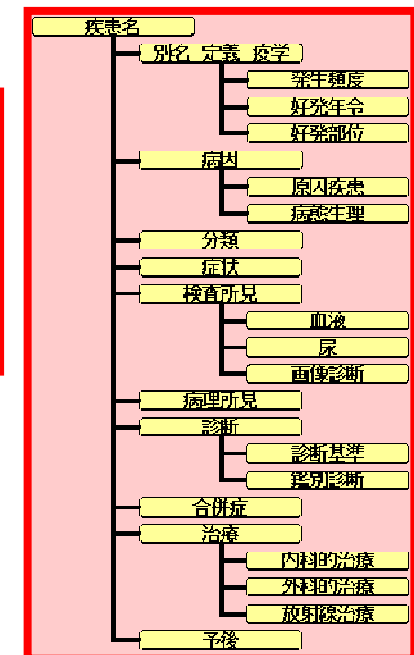
Anatomical Hierarchy

+

Etiological Hierarchy



Patient Information : Normalized Skeleton Template for Disease A Content Model



Disease Ontology

Patient Information Template

Disease Classification Hierarchy

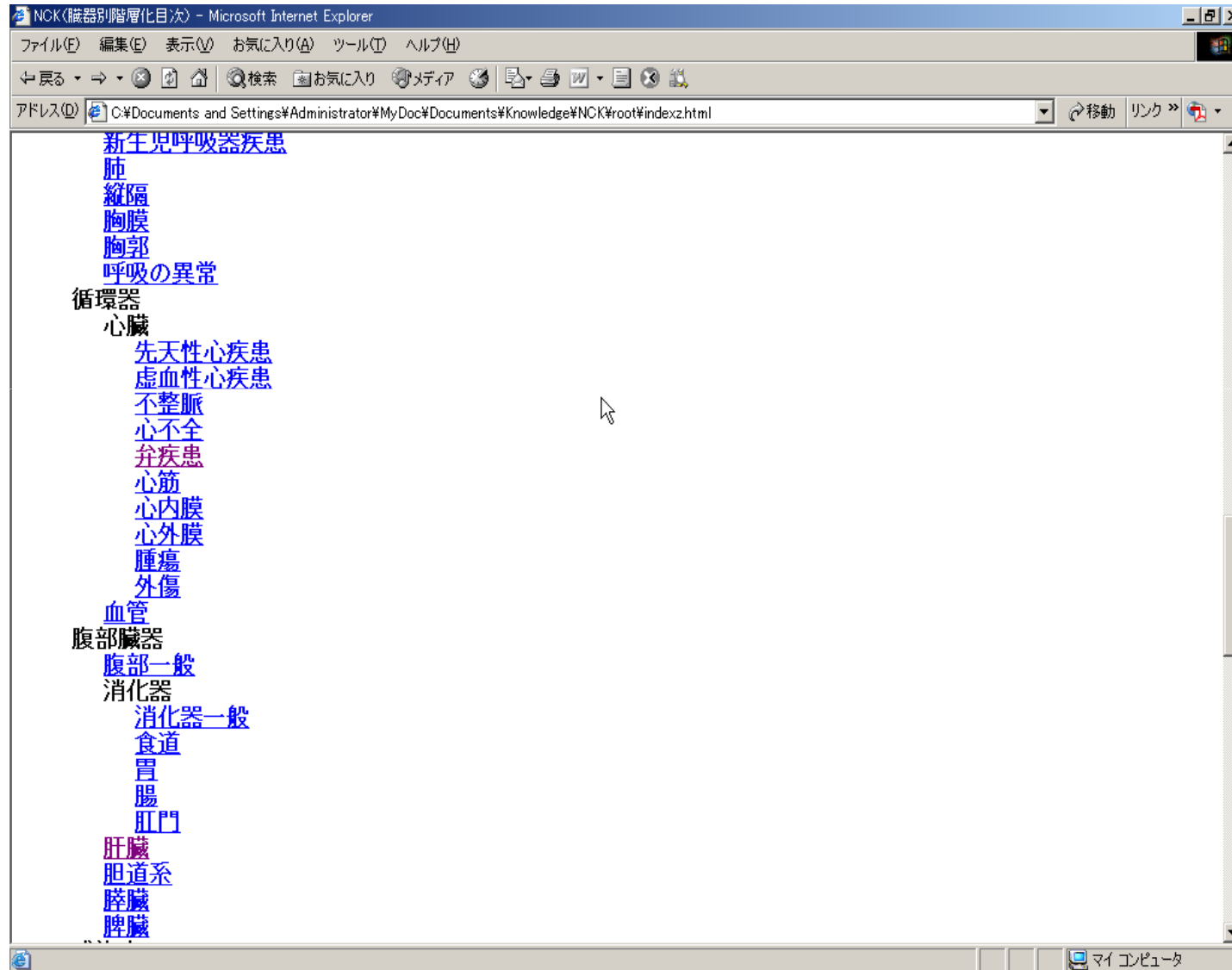
Code
Code System
Disease Name
 Alias name
 Textual Definition
 Concept
 Outline
 Epidemiology
 Etiology
 Cause
 Sideration Mechanism
 Pathophysiology
 Classification
 Gross
 Microscopic
 Symptom
 Time classified
 Severity classified
 Organ classified
 Mode on set
 Related Diseases
 Upper level Disease
 Lower level Disease

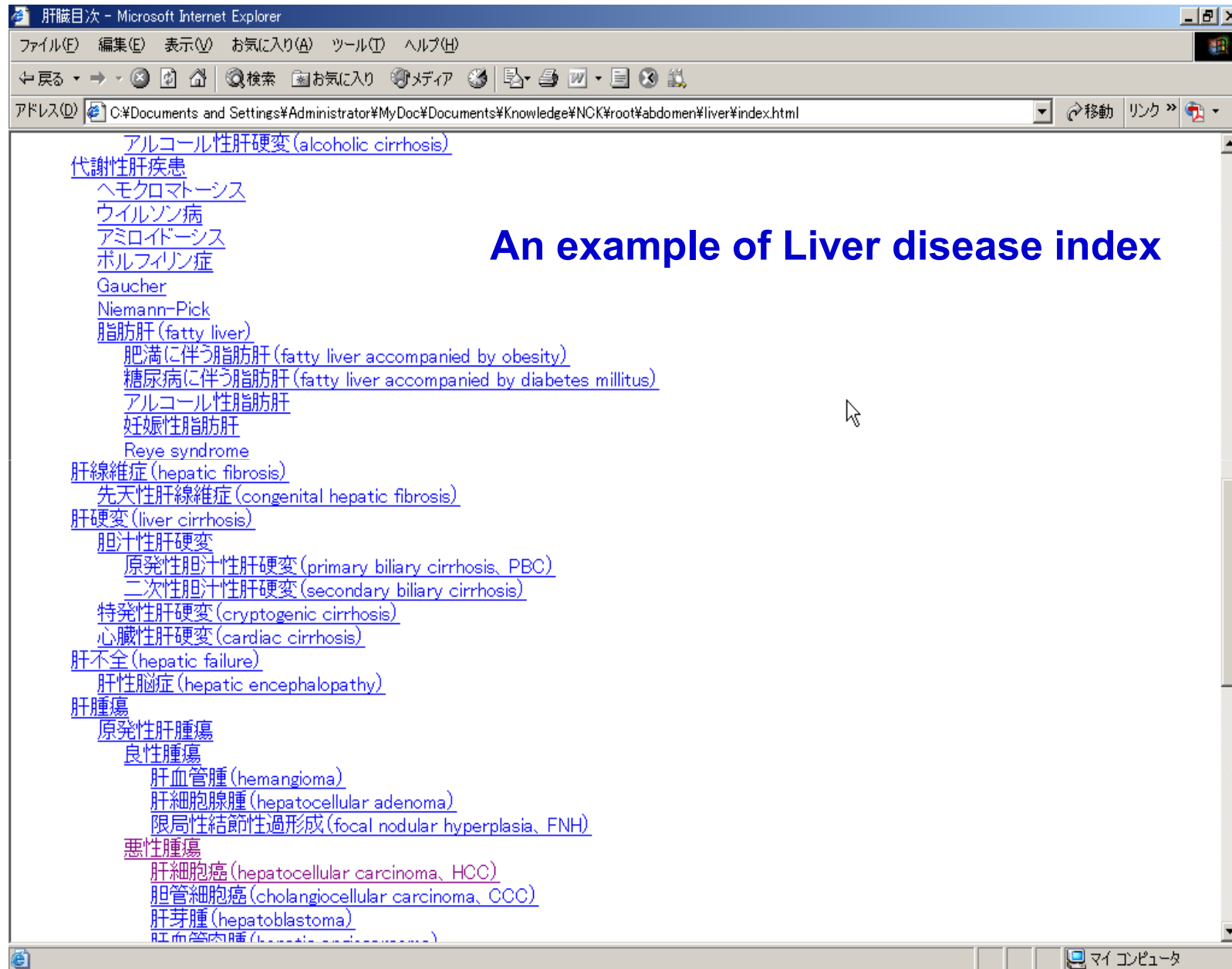
Patient Case Database

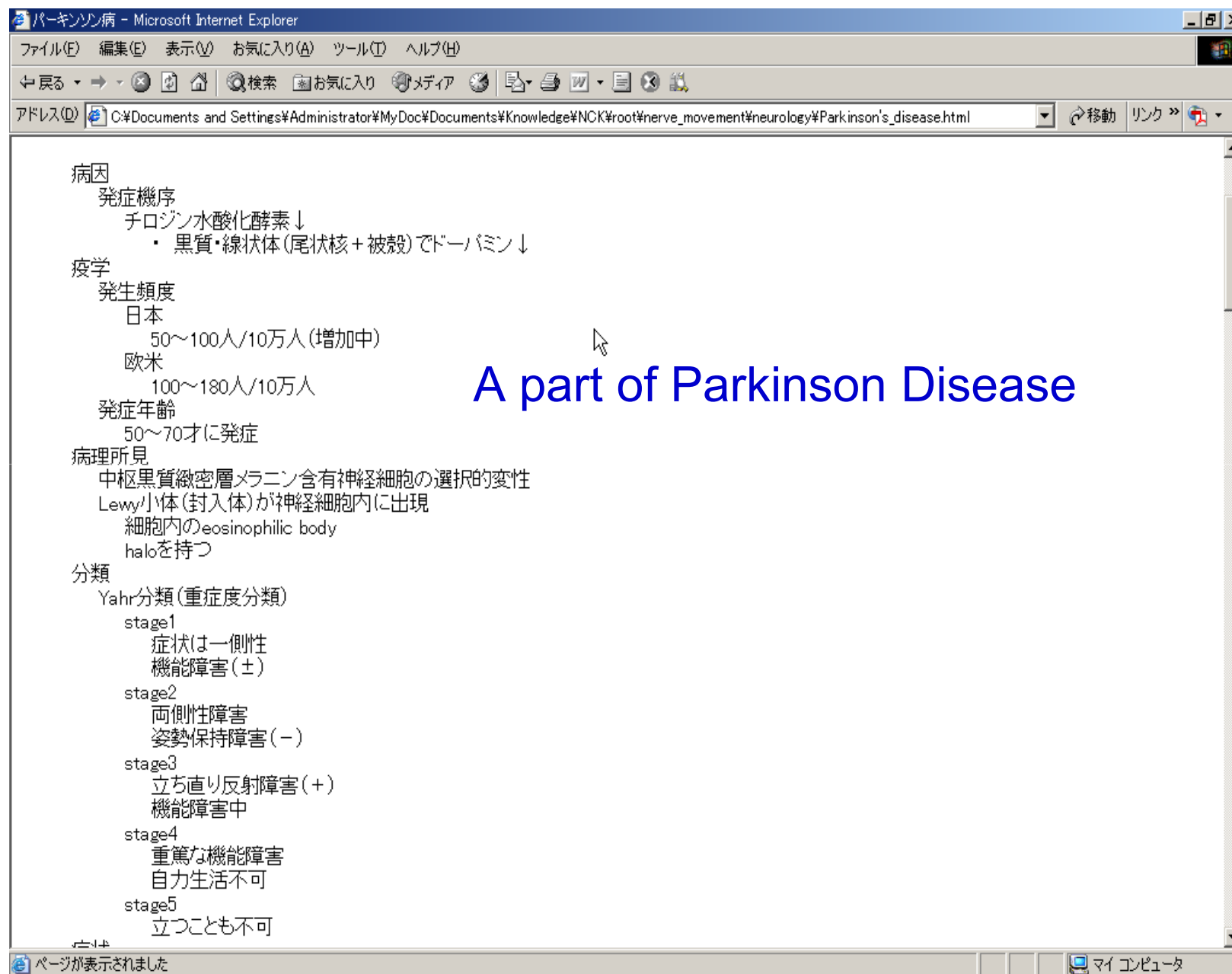
Basic Information
Back Ground
 Patient History
 Life History
 Family History
Examination Findings
 Blood
 Urine
 Imaging
 Xp, Angiography
 US, CT, MRI
 Others
 Spirogram,GF, CF
Pathological Findings
 Gross
 Tissue (Microscopic)
Diagnostic Criteria
 Differential Diagnosis
 Points of Diagnosis
 Diagnosis by exclusion
 :

Nosological Ontology

(an example of Composite index of anatomy and etiology)



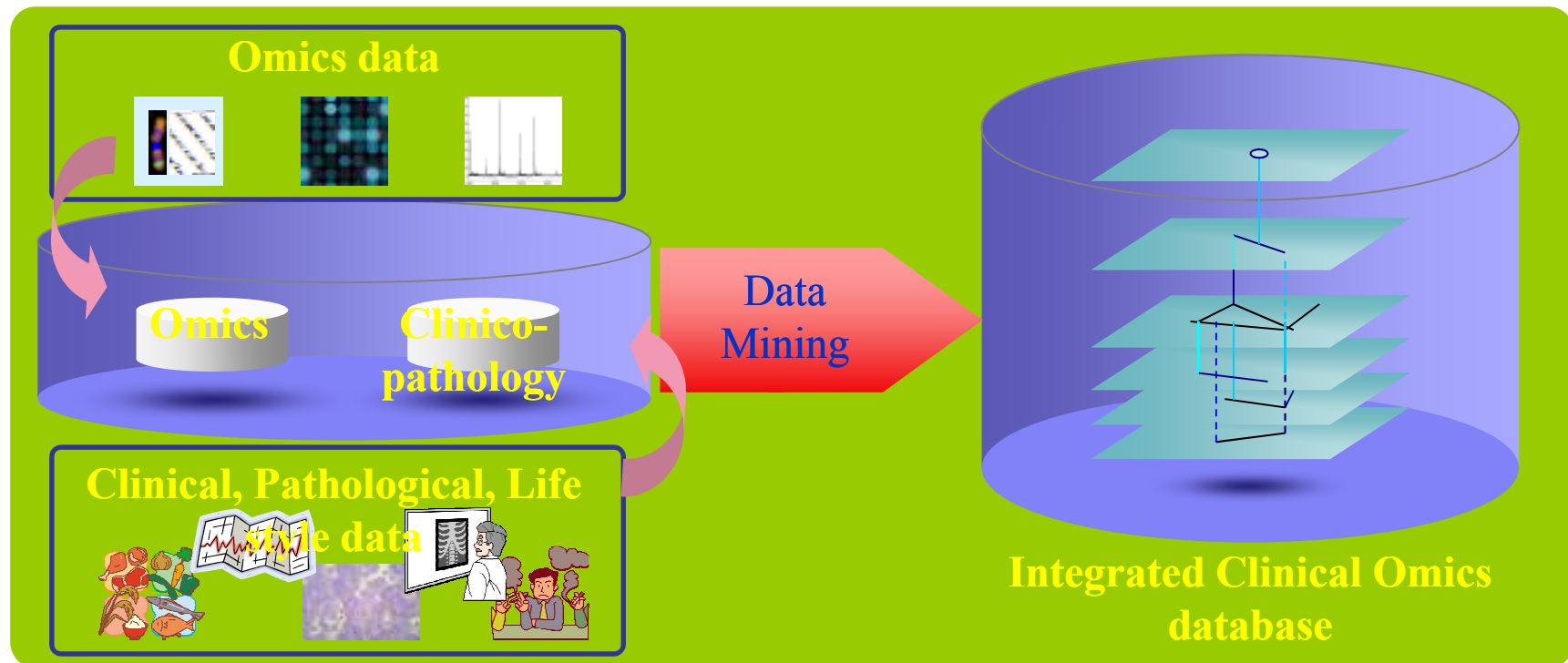




integrated Clinical Omics DB (iCOD)

Purpose

- Integrate the molecular omics information and clinical and pathological, life style information
- Comprehensive database based on the concept of “omics-based systems medicine”



Cases

		cases	omics information			
			transcriptome		CNV	
			specimen	normal	specimen	ormal
Hepatocellular carcinome		193	152	96	102	35
	stored	41	29	0	34	0
	fresh	134	105	81	66	35
	metastasis	18	18	15	0	0
colon cancer		184	131	28	39	40
	colon	128	102	28	36	36
	rect	37	29	0	3	4
oral tumor		148	20	0	64	2
	stored	64	0	0	64	2
	fresh	84	20	0	0	0
total		525	303	124	205	77

iCOD: integrated Clinical Omics Database

Top page

Case Archive

Case List



Simple Search

Case Details

Case Details

Timeline view

Pathological data

Imaging data

Molecular Data

Macroscopic findings

Number	Findings
1.0	Number of tumors
1.1	Maximum radius of tumor
1.2	Degree of hepatic damage
1.3	Developmental pattern
1.4	Capsule formation
1.5	Capsule infiltration

Diagnosis

Diagnosis	Hepatocellular carcinoma
Differentiation	poor
Grade	compact
Developmental pattern	eg
Capsule formation	+
Capsule infiltration	+
Portal invasion	0
Hepatic vein invasion	3
Portal vein/hepatic vein invasion	+
Hepatic artery invasion	0
Lymphatic invasion	0
Metastasis	+
Metastasis site	lung
Metastasis size	1.5
Metastasis number	1
Metastasis location	right lung
Metastasis type	solid
Metastasis color	black
Metastasis shape	irregular
Metastasis margin	irregular
Metastasis size (mm)	1.5
Metastasis number	1
Metastasis location	right lung
Metastasis type	solid
Metastasis color	black
Metastasis shape	irregular
Metastasis margin	irregular
Metastasis size (mm)	1.5

Molecular Information

Sampling	surgical
Sampling Location <td>cancerous region</td>	cancerous region
Storage at Time of Temperature <td>0-01</td>	0-01
Cooling Time <td>0-29</td>	0-29
Methods <td>DNA microarray</td>	DNA microarray
Kinds of Chips Used <td>GeneChip/UL33plus</td>	GeneChip/UL33plus
Analysis Data <td>100</td>	100
Algorithms <td>RMA</td>	RMA
Statistical Methods <td>portal infiltration or</td>	portal infiltration or
Genetic Selection <td>100 probe sets acco</td>	100 probe sets acco
Clustering <td>After the Z converts</td>	After the Z converts

Top page

Integrated Clinical Omics Database - Windows Internet Explorer

https://omics.tmd.ac.jp/icod_en/portal/top.do

Yahoo!検索

Integrated Clinical Omics Database

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iCOD Integrated Clinical Omics Database

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Clinical Omics Data Analysis **Case Archive** **Microarray Analysis Workflow**

Databases for Translational Research

Center for Information Medicine, Tokyo Medical and Dental University has developed "Integrated Clinical Omics Database (iCOD)" aiming to establish the basis of Omics-based Medicine and Systems Pathobiology.

We have launched this project since 2005 with the support of Japan Science and Technology Agency and Ministry of Education, Culture, Sports, Science and Technology.

We have collected more than 500 cases of hepatic, colon, and oral cancer with 300 RNA expression analyses and 200 DNA copy number analysis with clinical information.

We opened Japanese version in July 2008 and English version will be available in April 2009.

News

2009/3/23 English site will be available in April 2009

[About Project](#)
[Organization](#)
[Microarray Analysis Workflow](#)

Privacy Policy Center for Information Medicine JBIRC HitachiSoft Life Science
Terms of Use RIKEN GeMDBJ
Contact us OmicSpace.RIKEN.jp Hitachi GP

National University Corporation
Tokyo Medical and Dental University

https://omics.tmd.ac.jp/icod_en/map/top.do

ローカルイントラネット | 保護モード: 有効

100%

Case List

Case Archive - Windows Internet Explorer

https://omics.tmd.ac.jp/icod_en/casedata/reset.do?type=1&search=false

Contribute 編集 ブログに送信

Case Archive

変換 選択

ページ(P) ツール(Q)

iCOD Integrated Clinical Omics Database

HOME Clinical Omics Data Analysis **Case Archive** Microarray Analysis Workflow

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<<prev Results 1 - 25 of 140 next>> 25

1: [01001092](#) **Hepatocellular carcinoma**

Treatment hepatic S5 subsegmental resection + S6 partial resection

Pathological Information T=T1,N=N0,M=M0

2: [01010162](#) **Hepatocellular carcinoma**

Treatment hepatic S8 subsegmental resection

Pathological Information T=T3,N=N0,M=M0

3: [01017648](#) **Hepatocellular carcinoma**

Treatment hepatic right lobe resection

Pathological Information

4: [01018257](#) **Hepatocellular carcinoma**

Treatment hepatic S5+ 8 resection (right portal vein embolization)

Pathological Information T=T3,N=N0,M=M0

5: [01036382](#) **Hepatocellular carcinoma**

Disease

[All](#)

[Hepatocellular carcinoma](#)

Colorectal cancer

Head and Neck Cancer

Esophageal cancer

Search:

Keyword:

Disease:

Category:

Item:

Value:

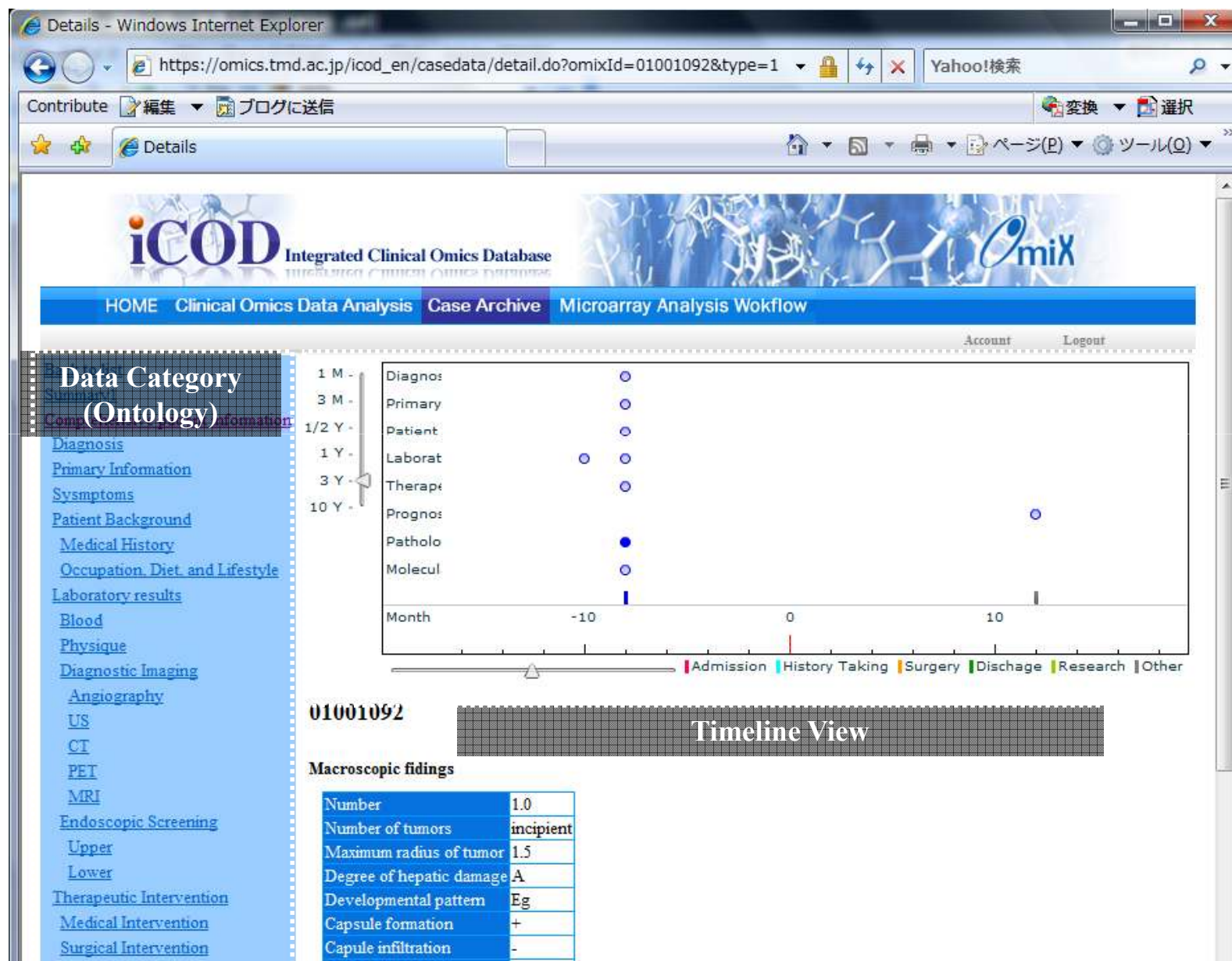
Condition:

Time:

☒ NEW ☐ AND

Simple Search

Case Details (1)



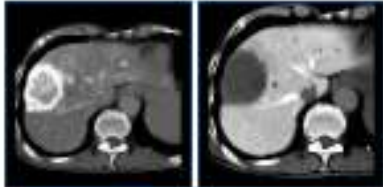
Case Details (2)

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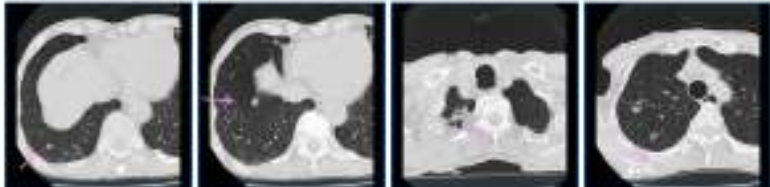
[BEI](#)
[MRI](#)
[Endoscopic Screening](#)
[Upper](#)
[Lower](#)
[Therapeutic Intervention](#)
[Medical Intervention](#)
[Surgical Intervention](#)
[Radiographic Intervention](#)
[Prognosis](#)
[Pathology](#)
[Microscopic Findings](#)
[Immunohistochemistry](#)
[Molecular Information](#)

Angiography



Site of Examination	abdominal angiography
Findings	Right femoral artery puncture, introducing 4F sheath. 4mm mass observed in right anterior lobe, perfusion deficiency at the mass and its terminal region detected with CTAP. Image enhanced at early stage of CTA. Intrahepatic image was enhanced earlier as compared to normal region, and concentration decreased at later stage. Tumor exceeds the capsulated, prolonged region and reaches the surface of liver. Early dense stain observed in upper S2 and S6 bottom-gallbladder marginal region. Image may be presenting blood flow abnormalities such as AP shunt. No rotation of hepatic artery branches. Blood tracts are mainly located in the right anterior segment, but are also present in A7. Main portal branches are patent.
Comments	HCCs in the hepatic right lobe segment. One is evident.

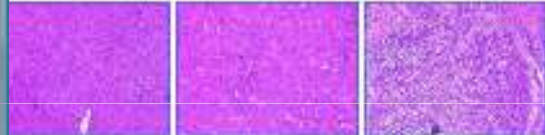
CT



Site of Examination	lung
Findings	Furicular shadow or soft tissue image with indication of bronchiectasis observed in the right pulmonary apex. Two cavities of nodular shadows with bronchiectasis, the size of which are both less than 1mm present in the right S1. 2 nodular shadows the size less than 7mm observed in the base segment of the right lung. Furicular shadows observed in the right S2, S6, and the base segment of the left lung. Bronchiectasis also present in S6, possibly cured inflammation. No pleural effusion, pleural thickening and calcification observed in the left lung, possibly cured inflammation. Lymphadenopathy of the mediastinal hilus uncertain. No adrenal gland mass. Diagnosis: HCC. 1. Two nodules in the base segment of the right lung → Metastasis cannot be denied. 2. Two cavities or nodules with bronchiectasis in the right S1 → findings also indicate LK. 3.

[do?omixId=012963385](#)
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Hepatocellular carcinoma	
poor	
compact	
et	
+	
+	
0	
3	
on	
+	
0	
0	
-	
DNA	
region CH	

surgical	
cancerous region	
extended right lobe resection, multiple nodular tumor the size of 14.8*9.8, no remarkable	

Storage at Nod at Temperature	0.64
Cooking Time	0.28
Methods	DNA microarray
Kind of Chips Used	GeneChip(G133plus2.0)
Analyse Data	100
Algorithms	RMSEA
Statistical Methods	portal infiltration or hepatic vein invasion, Wilcoxon's rank sum test

Clinical Omics Analysis

Clinical Omics Data Analysis - Top - Windows Internet Explorer

https://omics.tmd.ac.jp/icod_en/map/top.do

Yahoo!検索

Clinical Omics Data Analysis - Top

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Clinical Omics Data Analysis

- Integrated Clinical Omics Database -



About Clinical Omics Data Analysis

Clinical omics data analysis is a method of observing the correlation between pathology and genes using cross-sectional, statistical analysis of clinical, pathological, and molecular information. Types and equations of clinical, pathological, and molecular information layers are each determined and placed on our 2-dimensional-3-layered (2D-3L) map. By choosing one layer at a specific point, information of other layers at the specified point will be displayed, thus enabling you to visualize the correlation among the layers.

In addition, integrated display of all the data by using the regular canonical correlation analysis enables you to perceive the clinical and pathological information and their correlation to gene expression data at a glance.

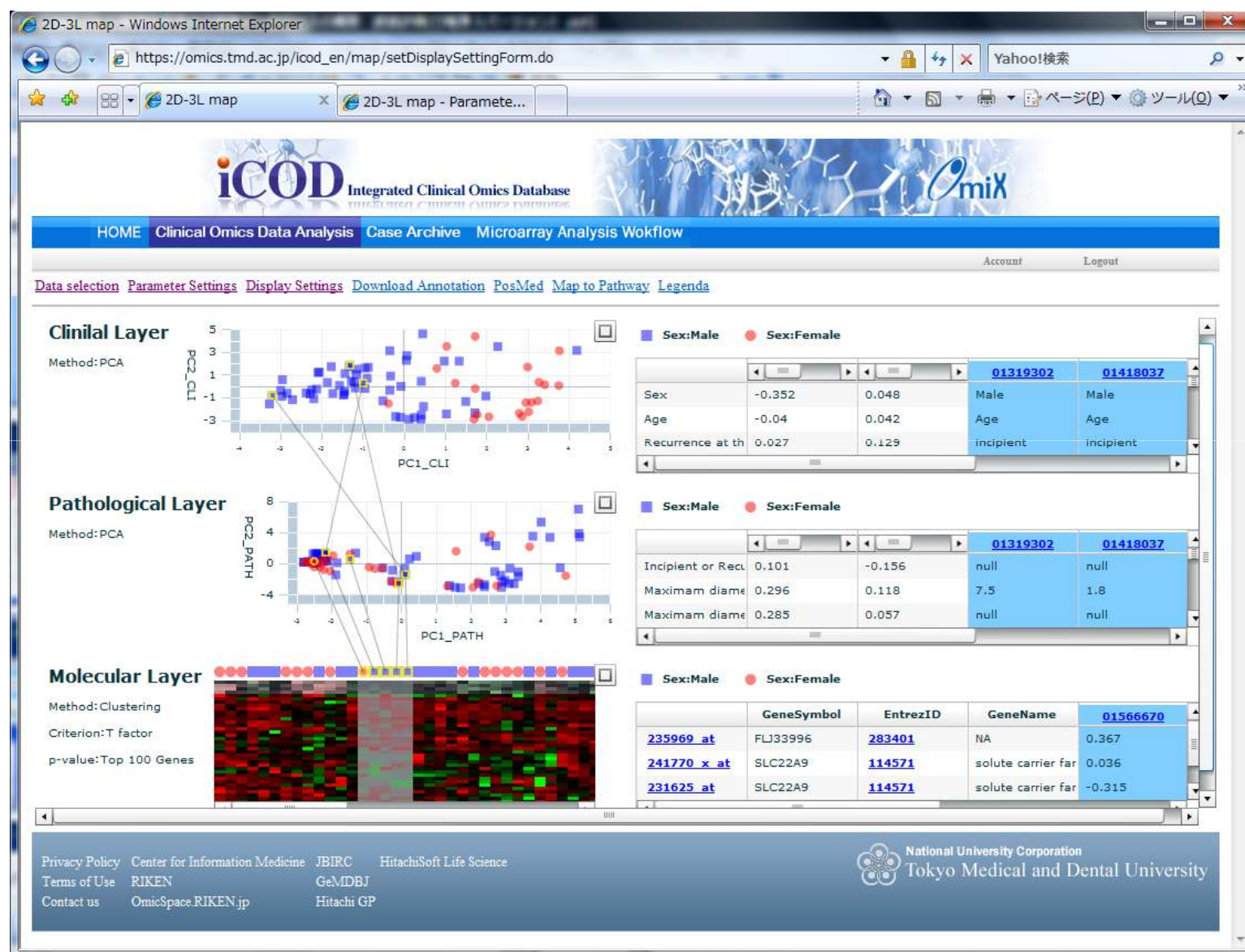
How to Use the Database

Click on the "2D-3L map" in the menu-bar. You will be able to execute both principal component analysis and cluster analysis. First select the type of cancer you wish to analyze. Then specify the clinical/pathological items for statistical analysis. You may simply display the distributions of the clinical/pathological items you selected without the purpose of statistical analysis.

Clinical Omics Data Analysis

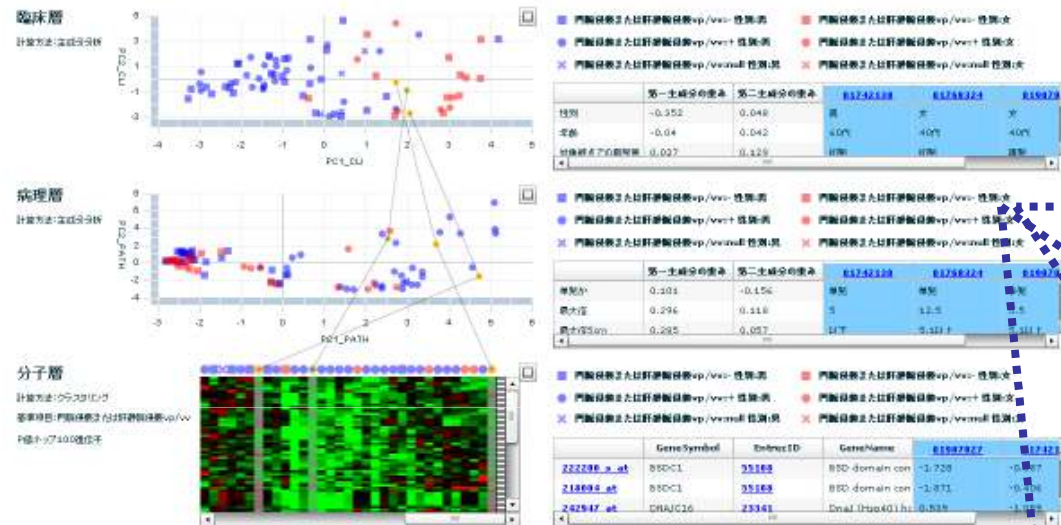
- [2D-3L map](#)
- [Regular CCA](#)

Clinical 3-layered Omics Map



Omics data analysis

Three Layered Map

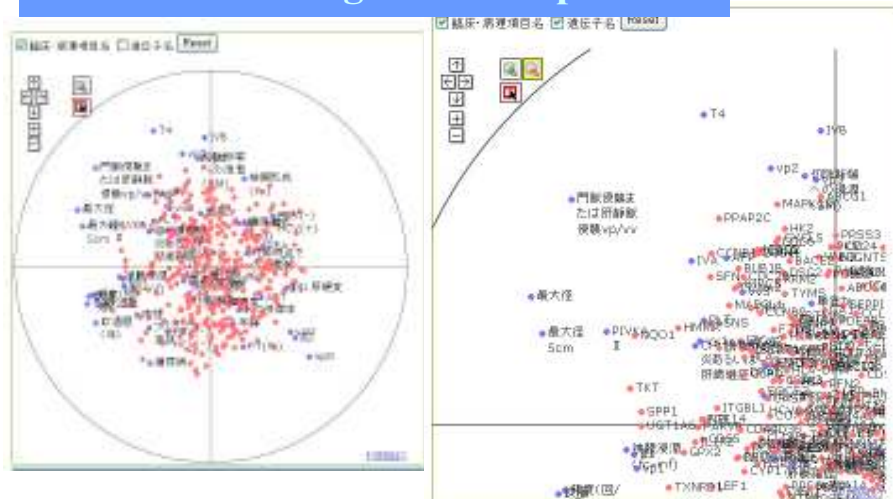


Pathway map



Transcriptome mapped on KEGG

Pathome-genome Map



Legenda

PosMed

OmicDownload



Semantic Navigation System

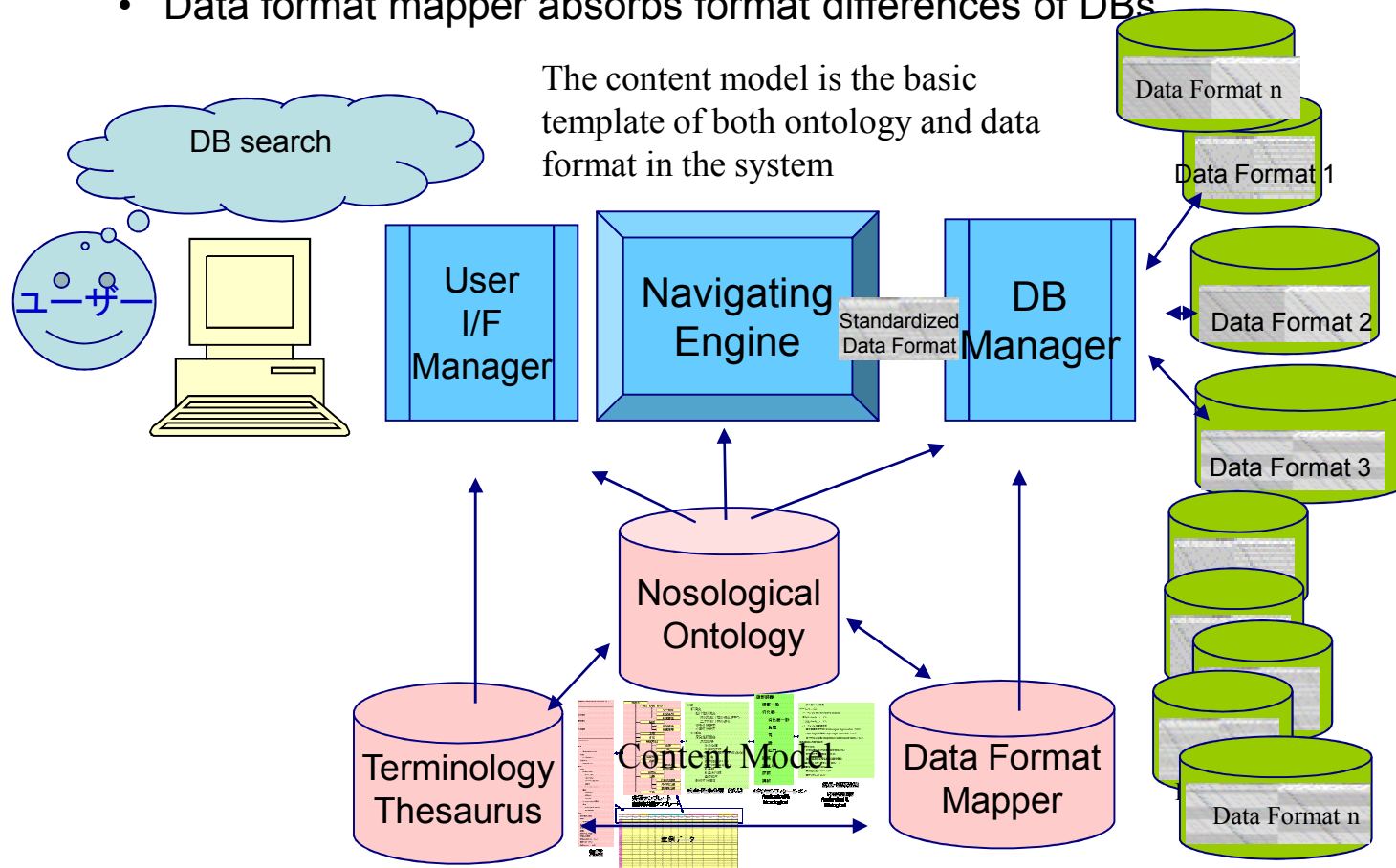
We show the semantic navigation system
which we can say as a content interface based on the content model.

Integrated DB Guiding System

- for Core DB (2 DBs + α (10 DBs) : Now in investigation)

We are developing **Searching System based on the ontology**

- User I/F Manager convert user input to standardized word with terminology and thesaurus.
- Navigating engine navigates users to targeted databases semantically.
- Data format mapper absorbs format differences of DBs



Prototype Demo

PPT version

IBMD Top Page

<http://ibmd.tmd.ac.jp>

The screenshot shows a Windows Internet Explorer browser window displaying the IBMD (Integrated Biomedical Database) homepage. The browser's address bar shows the URL <http://www.axiohelix.net:8080/SemanticWeb/>. The page features the IBMD logo on the left and the title "統合医科学データベース" (Integrated Biomedical Database) in the center. Below the title, there is a navigation menu on the left with links to "概要(トップページ)", "ミッションステートメント", "倫理規定", "組織体制", and "お問い合わせ". The main content area on the right is titled "文部科学省ライフサイエンス分野の統合データベース整備事業" (Ministry of Education, Culture, Sports, Science and Technology Life Science Field Integrated Database Construction Project) and "「統合医科学データベース構築方式の開発」" (Development of Integrated Biomedical Database Construction Method). The text describes the project's goals and progress, mentioning the 2003 Human Genome Project and the current state of biomedical data integration. The page is displayed at 100% zoom, and the status bar at the bottom indicates "ページが表示されました" (Page displayed).

統合医科学データベース - Windows Internet Explorer

<http://www.axiohelix.net:8080/SemanticWeb/>

統合医科学データベース

IBMD
Integrated Biomedical Database

統合医科学データベース

統合データベース検索

メニュー

- 概要(トップページ)
- ミッションステートメント
- 倫理規定
- 組織体制
- お問い合わせ

関連リンク

- ライフサイエンス統合データベースセンター(中核機関)
- ライフサイエンス分野の統合データベース整備事業

文部科学省ライフサイエンス分野の統合データベース整備事業

「統合医科学データベース構築方式の開発」

2003年のヒトゲノム解読計画以降、ポストゲノム研究がすすみ国際的にオミックスデータが大量に蓄積される中、その医学への高度利用の出発点となる社会情報基盤としての医科学データベースの重要性が叫ばれていますが、現状の医科学データベースは、それぞれの領域での目的達成のために作成したものであり、領域や階層が異なるデータベースの統合性や利用者(産業界など)については十分考慮されていないという現状があります。

東京医科歯科大学では、情報システム機構を中心として、東京大学、京都大学、大阪大学と共同し、「統合医科学データベース」拠点として、世界最高水準の統合医科学データベースの構築を目指すプロジェクトを文部科学省から委託され平成19年度より4年間に亘って始めております。このプロジェクトでは、ヒトを対象としたがん、神経疾患を中心とする医科学分野において、データ

ページが表示されました

インターネット 100%

Search Window

統合医科学データベース - Windows Internet Explorer

http://www.axiohelix.net:8080/SemanticWeb/index.jsp

統合医科学データベース

ヘルプ ログアウト

DB Map of IBMD on Disease Classification

検索項目 検索語句

全て 追加

検索条件リスト

検索

データベース一覧 概要

履歴

表示オプション

Results of Searching

ページが表示されました

Example

– Inquiry “**Symptom: Depressive state**”

- Cancer DB in TMD
 - $\langle D \rangle$ 0 cases
 - $\langle S \rangle$ by Thesaurus, semantic transform
 - “**Depressive state** → **Anorexia**” \Rightarrow 2 cases
 - $\langle S \rangle$ “**Depressive state** → **Lassitude**” \Rightarrow 4 Cases
 - » one case is doubled 5 cases
- Parkinson Disease DB in Osaka Univ.
 - $\langle D \rangle$ 0 cases
 - $\langle S \rangle$ Ontology, “**Depressive state** → **slow movement**”
 - \Rightarrow 6 cases

Input

1. Category: "**Symtoms**"、Search Input Word: "**Depressive state**"

検索項目 検索語句 追加 検索

症状 うつ状態

検索条件リスト

2. Push
Search Button

Results

データベース一覧

概要

1 - 11/11 First Last

データベース名	病名	症状	S/D	翻訳	症例詳細
パーキンソン病DB	パーキンソン病	動作緩慢	S	うつ状態 -> 動作緩慢	
パーキンソン病DB	パーキンソン病	動作緩慢	S	うつ状態 -> 動作緩慢	
パーキンソン病DB	パーキンソン病	動作緩慢	S	うつ状態 -> 動作緩慢	
パーキンソン病DB	パーキンソン病	動作緩慢	S	うつ状態 -> 動作緩慢	
パーキンソン病DB	パーキンソン病	動作緩慢	S	うつ状態 -> 動作緩慢	
パーキンソン病DB	パーキンソン病	動作緩慢	S	うつ状態 -> 動作緩慢	
網羅的疾患分子病態DB	肝細胞癌	食欲不振	S	うつ状態 -> 食欲不振	
網羅的疾患分子病態DB	肝細胞癌	食欲不振、からだのだるさ	S	うつ状態 -> 食欲不振	
網羅的疾患分子病態DB	肝細胞癌	からだのだるさ	S	うつ状態 -> からだのだるさ	
網羅的疾患分子病態DB	肝細胞癌	からだのだるさ	S	うつ状態 -> からだのだるさ	
網羅的疾患分子病態DB	肝細胞癌	からだのだるさ	S	うつ状態 -> からだのだるさ	

1. From **TMD DB**

<Direct> 0 cases

<Semantic> 「Symptom: Depressive state → **Anorexia**」 2cases

<Semantic> 「Symptom: Depressive state → **Lassitude**」 4cases

Duplicate case 1 case → (**Total 5 cases**)

2. From **Osaka Univ. DB**

<Direct> 0 cases

<Semantic> **Symptom: Depressive** → **Slow Movement** 6 cases

Detailed Data

Click here for detailed data

データベース一覧

概要

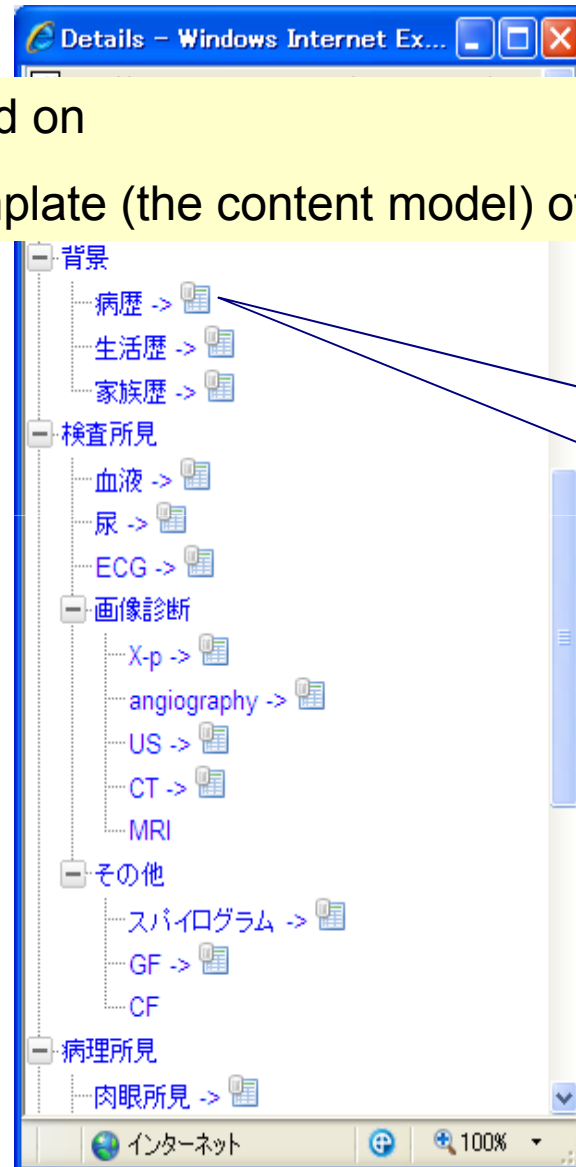
1 - 11/11

First Last

データベース名	病名	症状	S/D	翻訳	症例詳細
パーキンソン病DB	パーキンソン病	動作緩慢	S	うつ状態 -> 動作緩慢	
パーキンソン病DB	パーキンソン病	動作緩慢	S	うつ状態 -> 動作緩慢	
パーキンソン病DB	パーキンソン病	動作緩慢	S	うつ状態 -> 動作緩慢	
パーキンソン病DB	パーキンソン病	動作緩慢	S	うつ状態 -> 動作緩慢	
パーキンソン病DB	パーキンソン病	動作緩慢	S	うつ状態 -> 動作緩慢	
パーキンソン病DB	パーキンソン病	動作緩慢	S	うつ状態 -> 動作緩慢	
網羅的疾患分子病態DB	肝細胞癌	食欲不振	S	うつ状態 -> 食欲不振	
網羅的疾患分子病態DB	肝細胞癌	食欲不振、からだのだるさ	S	うつ状態 -> 食欲不振	
網羅的疾患分子病態DB	肝細胞癌	からだのだるさ	S	うつ状態 -> からだのだるさ	
網羅的疾患分子病態DB	肝細胞癌	からだのだるさ	S	うつ状態 -> からだのだるさ	
網羅的疾患分子病態DB	肝細胞癌	からだのだるさ	S	うつ状態 -> からだのだるさ	

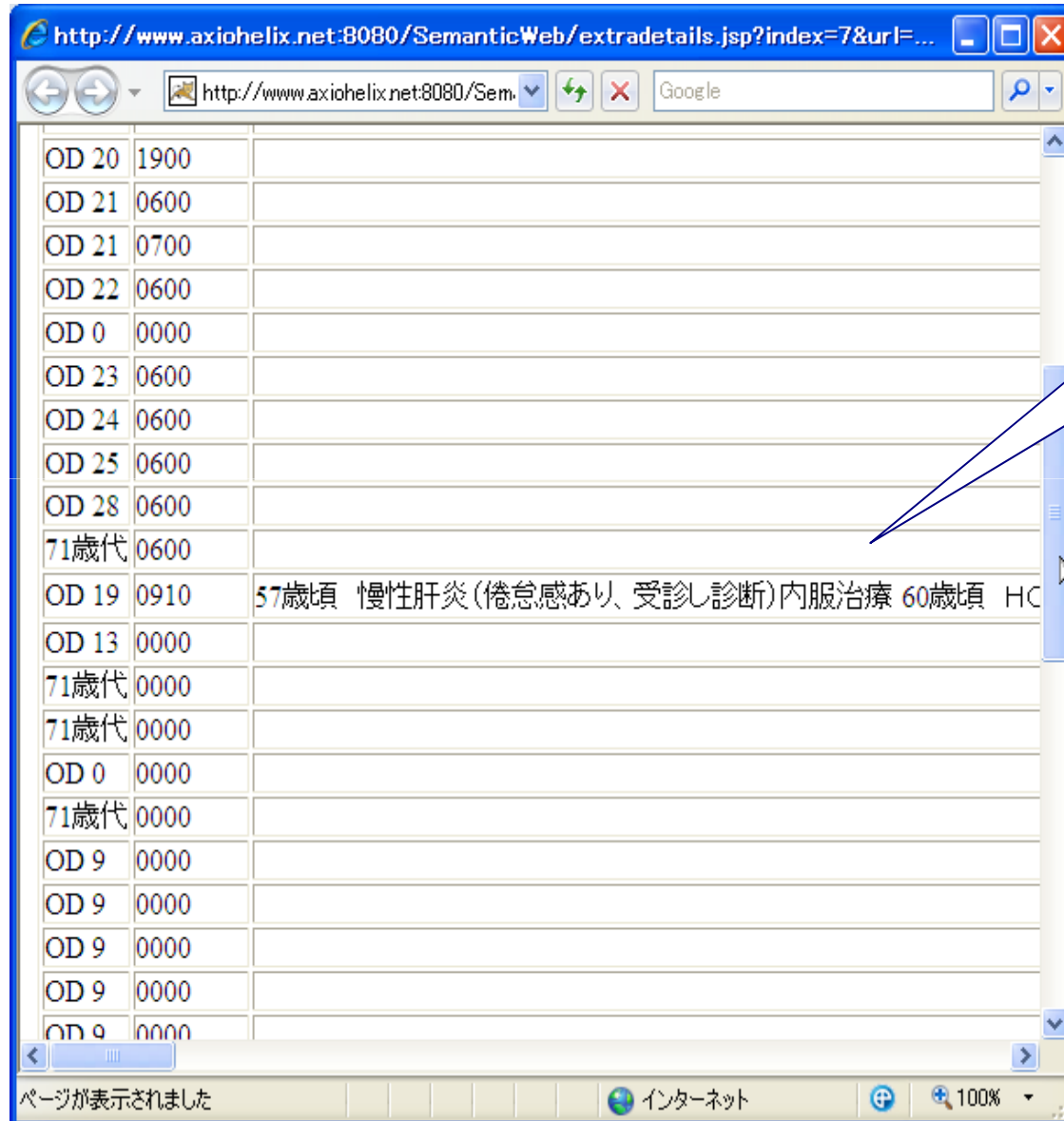
Detailed Data sub Window

This panel is based on
the archetype template (the content model) of disease



Hitted Patient Information
is displayed
according patient content
model (template)

Patient Content



http://www.axiohelix.net:8080/SemanticWeb/extradetails.jsp?index=7&url=...

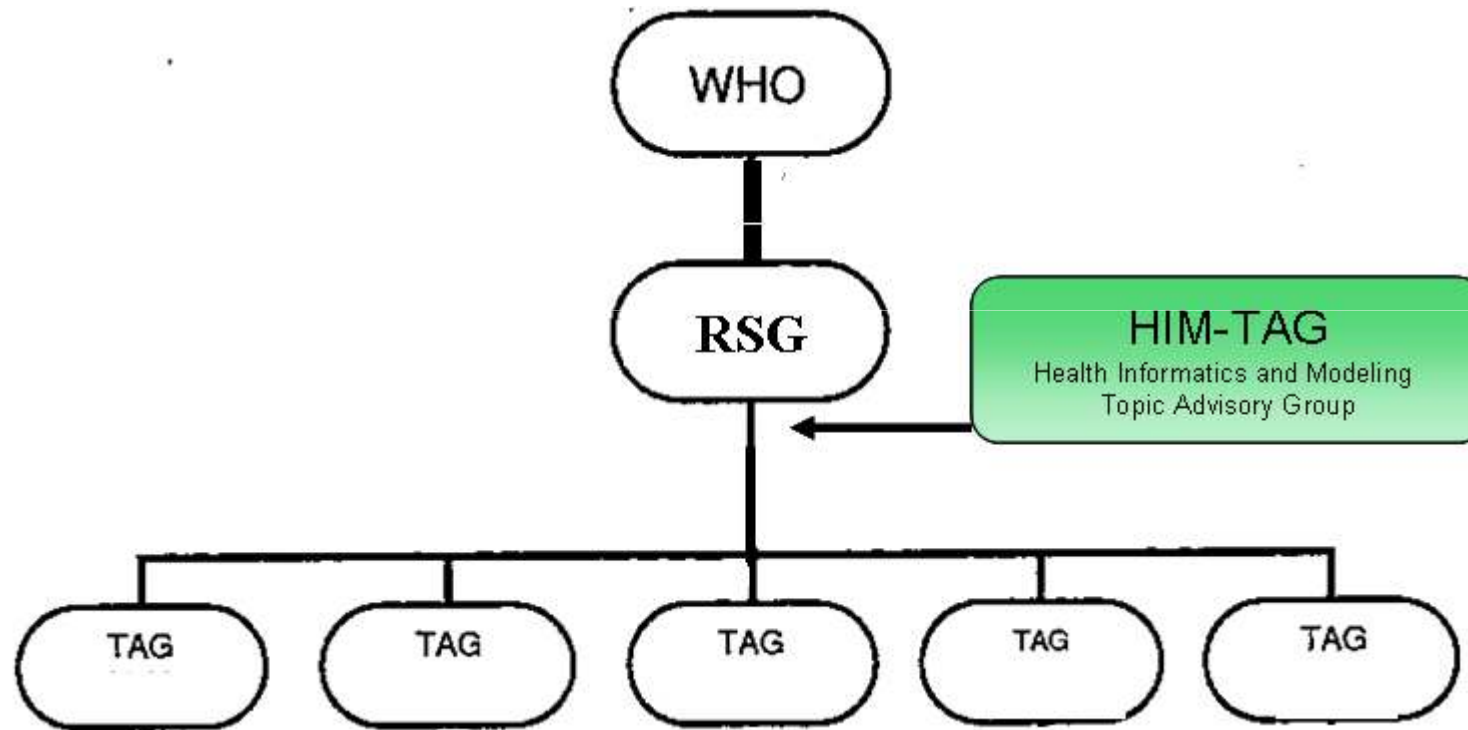
http://www.axiohelix.net:8080/Sem. Google

OD 20	1900	
OD 21	0600	
OD 21	0700	
OD 22	0600	
OD 0	0000	
OD 23	0600	
OD 24	0600	
OD 25	0600	
OD 28	0600	
71歳代	0600	
OD 19	0910	57歳頃 慢性肝炎(倦怠感あり、受診し診断)内服治療 60歳頃 HC
OD 13	0000	
71歳代	0000	
71歳代	0000	
OD 0	0000	
71歳代	0000	
OD 9	0000	
OD 9	0000	
OD 9	0000	
OD 9	0000	
OD 9	0000	

ページが表示されました インターネット 100%

Ex: Patient History
sub window

ICD11 and HIM-TAG



TAG-HIM present status

- 1. Content Model Group
 - Treat the original use case of ICD11 (Stefany)
- 2. Information group
 - Alan Rector (Univ. of Manchester, UK), John, Chris, SCT
- 3. Content Model front end for each TAG,
 - Categorical Structure for Rare disease
 - Jean Marie with Rare Disease TAG
 - **IBMDB model is modified for internal medicine**
 - **Jun Nakaya and Hiroshi Tanaka with Internal Medicine TAG**
 - Robert will take care of these things
- 4. SCT(SNOMED) Coordination
 - IHTSDO harmonization panel will take this issue.
 - (Kent, Alan Rector (Univ. of Manchester, UK), Chris, Olivier)
 - GO and other ontologies will cover the remained area.

Data Exchange Format (as an Info. Model)

Genomic Sequence Variation Markup Language (GSVML)

ISO/#25720 Passed IS ballot

US, UK, Canada, Korea, Italy, Israel, Australia, Japan

Led by Jun Nakaya

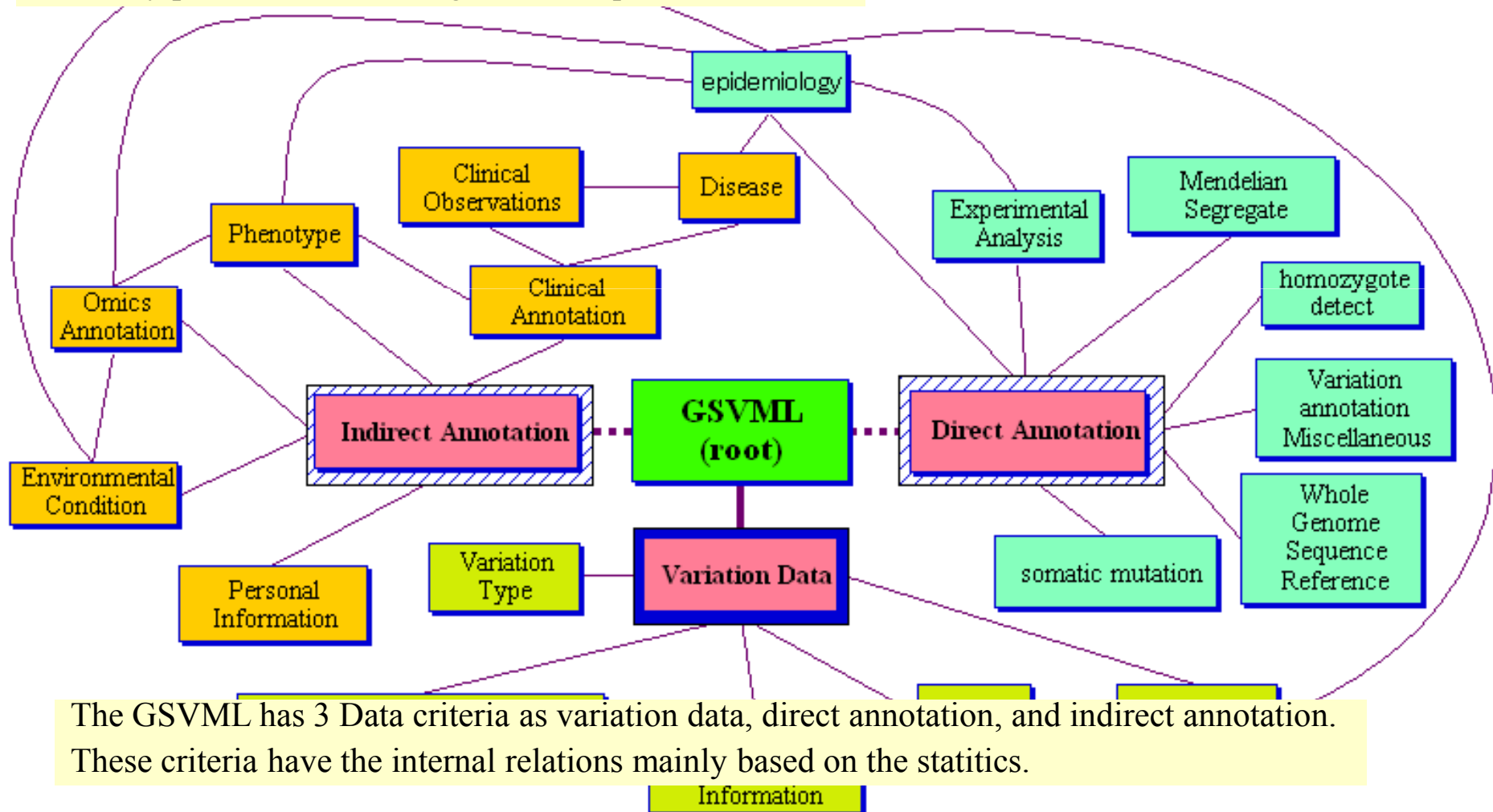
5th IBIC symposium Jun Nakaya, Michio Kimura, Hiroshi Tanaka

Nakaya, J., Hiroi, K., Yang, W., Ido, K., Kimura, M. (2006) "Genomic Sequence Variation Markup Language (GSVML) for Global Interoperability of Clinical Genomics Data(**Best Paper Award**)". Asia Pacific Association for Medical Informatics 2006 Proceedings. A01. 1-8.

Outlined Structure of GSVML

Nakaya, J., Hiroi, K., Yang, W., Ido, K., Kimura, M. (2006) (Best Paper Award) APAMI2006 A01: 1-8.

The GSVML has hierarchical structure.
The entry point of GSVML is genomic sequence variation.



The GSVML has 3 Data criteria as variation data, direct annotation, and indirect annotation.
These criteria have the internal relations mainly based on the statistics.

Thank you for your attention

Hiroshi Tanaka
(Director)

TMDU Biomedical Ontology Group

Jun Nakaya (Leader)

Keisuke Ido

Kaei Hiroi