

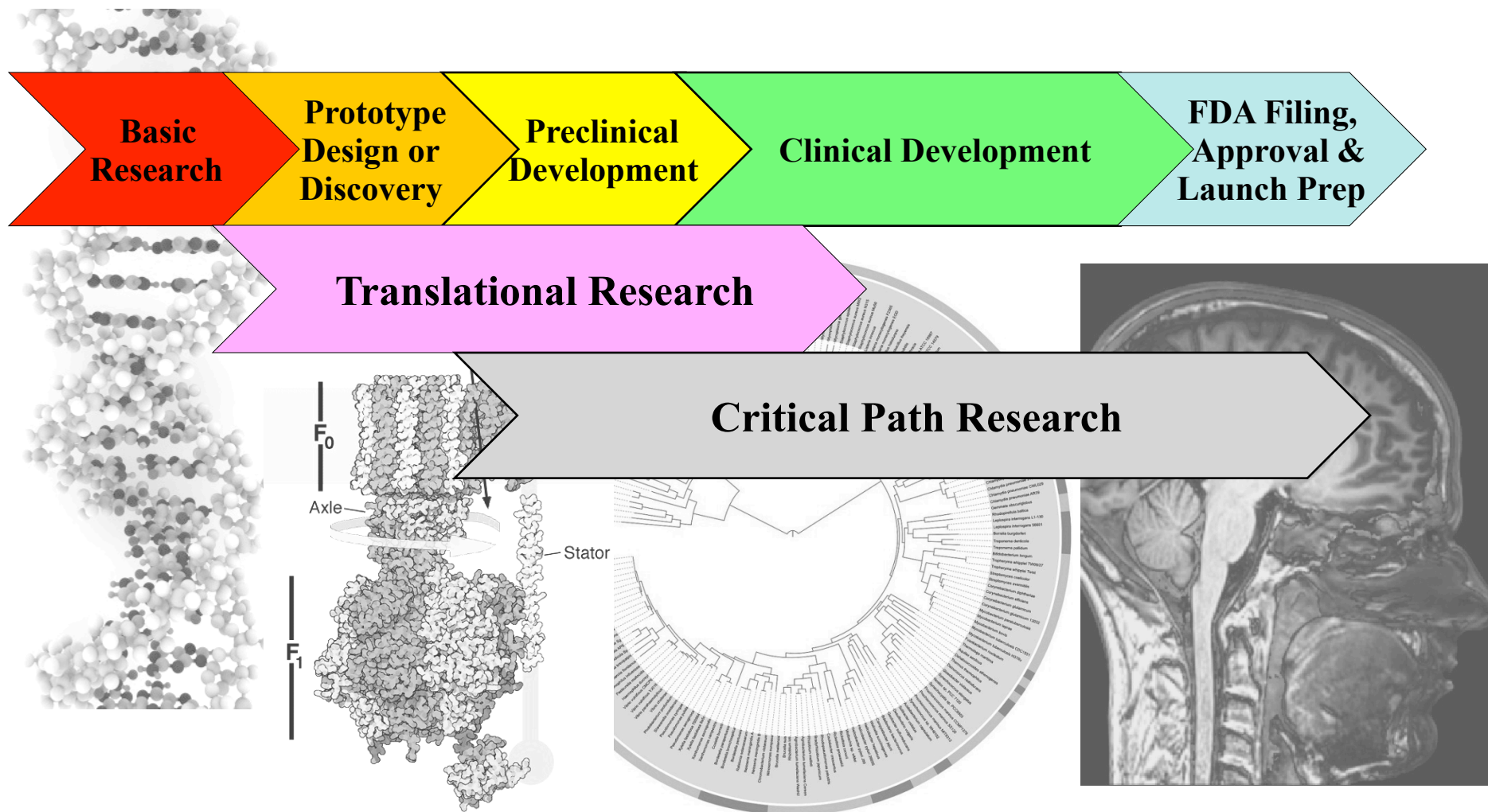
Exploration of a Data Landscape using a Collaborative Linked Data Framework

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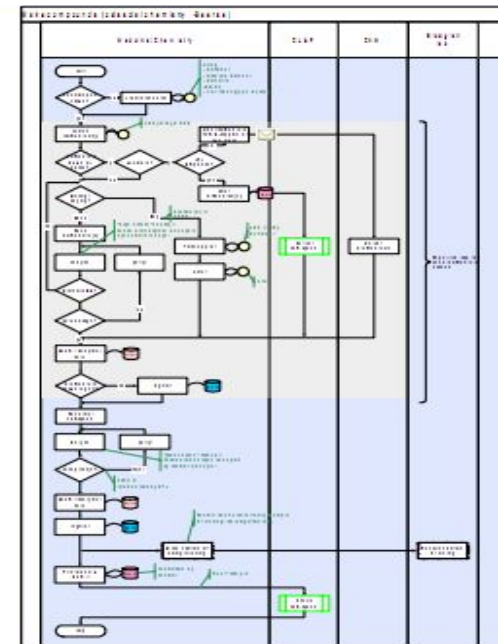
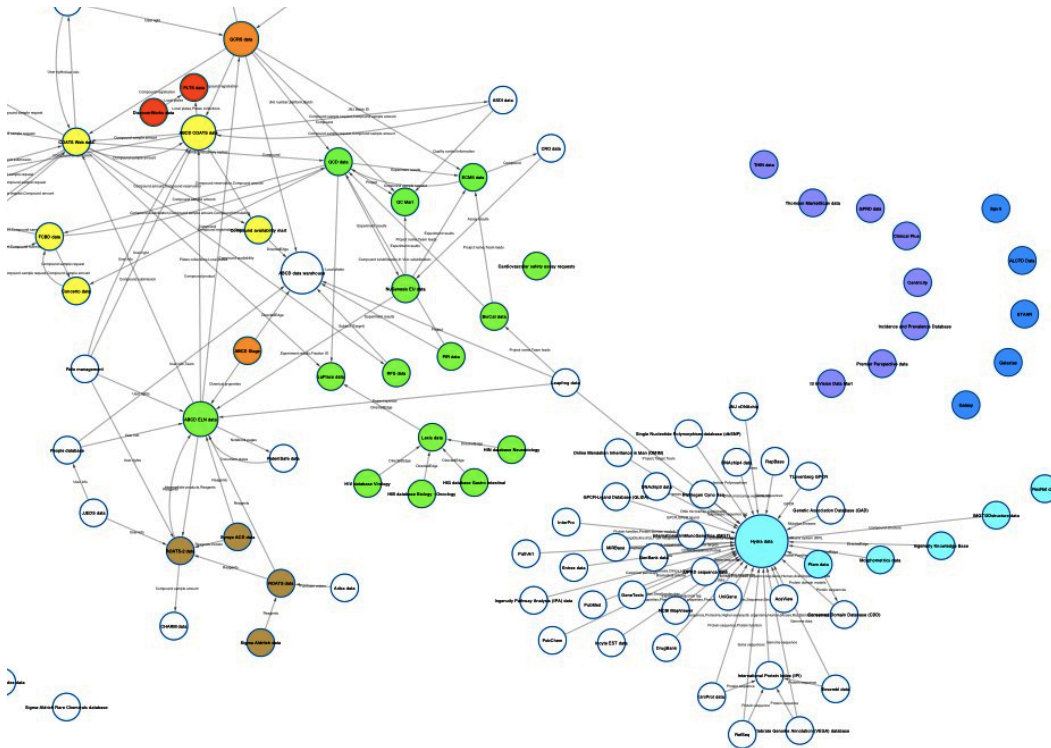
Scientists are looking for answers to translational questions



Instead they research how to find and access data.

Which data source should I choose ?
Which interfaces are available ?

Can I access it ?
Who should I talk to ?



Scientists want to do Science, not Data Management.



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knowIT helps scientists and IT manage what they know about Information Systems.

The screenshot shows the Johnson & Johnson knowIT website. At the top left is the Johnson & Johnson logo. The top right navigation bar includes links for 'Welcome Lalquier', 'My Site', 'My talk', 'My preferences', 'My watchlist', and 'My contributions'. The main header features the 'knowIT' logo with a magnifying glass icon over the 'o', and a search bar containing the text 'This site: knowIT'. Below the header is a navigation menu with links for 'Home', 'Browse content', 'Categories', 'Topics', 'A-Z index', and 'Glossary', along with a '+ Add a New Page' button. The main content area is divided into four columns: 'Search', 'Explore', 'Contribute', and 'Stay informed'. The 'Search' column contains a magnifying glass icon. The 'Explore' column has a paragraph describing knowIT as a collaborative knowledge base with 3484 pages, followed by instructions on how to search and a 'Getting started?' section with a 'Quick tour' link. The 'Stay informed' column features a 'Featured content' section with a list of links. At the bottom, there are two boxes for 'Recent changes' and 'Popular pages'. The footer contains the Johnson & Johnson logo and the text 'PHARMACEUTICAL RESEARCH & DEVELOPMENT, L.L.C.'.

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Welcome Lalquier | My Site | My talk | My preferences | My watchlist | My contributions


knowIT

This site: knowIT

Home | Browse content | Categories | Topics | A-Z index | Glossary

+ Add a New Page

Search




Explore

knowIT is a collaborative knowledge base with [3484](#) pages about Pharma R&D Informatics systems, relationships between their components and the Business context around them.

To search knowIT, simply use the form at the top of the page.

Getting started ? Take this [Quick tour](#) to get a better idea of how knowIT can help.

 If you could not find the answer you were looking for, [Ask your question](#) and we will answer it.

Contribute


Stay informed

Featured content

- ▶ [1134 acronyms and definitions and counting...](#)
- ▶ [3DX Online Help](#)
- ▶ [What is ABCD ?](#)
- ▶ [What is Janssen Today ?](#)
- ▶ [What is the SDLC ?](#)
- ▶ [Map of J&J pharma data sources](#)

Recent changes

Popular pages

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Collaborative cataloging of data sources

Home Browse content Categories Topics A-Z index Glossary + Add a New Page

View All Site Content

News

- Announcements
- Recent changes

Search

- Search Help
- Syntax

Explore

- Articles
- Maps
- Queries and reports

Contribute

- New Page
- Getting started
- Markup Cheat Sheet
- Useful templates

Help

- Request help
- knowIT manual
- Contact us

Categories > Data source > Clinical data source

ADNI data

Summary **Origin** Content Access Clinical trial summary Demographics Clinical data Utilization data Biomarkers

Data origin	External
Data source location	Full copy in J&J
Data provider (vendor)	Alzheimer's Disease Neuroimaging Initiative (ADNI)
Agreement type	Subscription - Global
License URL	http://www.loni.ucla.edu/Common/TermsOfUse.pdf
Funding source	This project is funded for \$60 million, with \$40 million from the National Institute on Aging and National Institute of Bioimaging and Bioengineering, and \$20 million from the Pharmaceutical Industry and several foundations, donated to the Foundation for the NIH. More details available on the ADNI sponsors page and About ADNI funding .
Pubmed ID	<ul style="list-style-type: none"><i>R C Petersen, P S Aisen, L A Beckett, M C Donohue, A C Gamst, D J Harvey, C R Jack, W J Jagust, L M Shaw, A W Toga, J Q Trojanowski, M W Weiner, Alzheimer's Disease Neuroimaging Initiative (ADNI): clinical characterization.</i>, Neurology: 2010, 74(3);201-9, - PubMed:20042704 - RDF - ISSN-1526-632X - Publisher<i>Adam S Fleisher, Michael Donohue, Kewei Chen, James B Brewer, Paul S Aisen, , Applications of neuroimaging to disease-modification trials in Alzheimer's disease.</i>, Behav Neuro: 2009, 21(1);129-36, - PubMed:19847051 - RDF - ISSN-1875-8584 - Publisher

Note:



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Read the [License](#) page for more details

The Alzheimer's Disease Neuroimaging Initiative (ADNI) is a large five year (we began on Oct 1 2004) research project to study the rate of change of cognition, function, brain structure and function, and biomarkers in 200 elderly controls, 400 subjects with mild cognitive impairment, and 200 with Alzheimer's disease ^[1] ^[2].

Source

- <http://www.adni-info.org/Scientists/AboutADNI.aspx>
- <http://www.adcs.org/Studies/ImagineADNI.aspx>

Status: **active**.
April 24, 2010

Contributors: Laurent Alquier , Tim Schultz 


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Structured data inside wiki pages


User interfaces [edit]

A list of data sources and user interfaces to access them.

Usage:

- ▶ Select from the list to the right to filter the view
- ▶ Switch to Tile view for more details.
- ▶  Export Data feeds to CSV

TILES • TABLE

sorted by: ; then by... grouped as sorted 

1. **ADNI_data**

User interface	3DX_Drill_Down ADNI_Distributed_Data_Entry_System
Data classes	ADAS-Cognitive_Behavior Diagnosis_and_Symptoms_Checklist ApoE_Genotyping Baseline_Symptoms_Checklist Clinical_Dementia_Rating Exclusion_Criteria Functional_Assessment_Questionnaire Family_History_Questionnaire Geriatric_Depression_Scale Inclusion_Criteria Clinical_Laboratory_Test Medical_History Mini_Mental_State_Exam Modified_Hachinski Magnetic_Resonance_Imaging_(MRI) Positron_Emission_Tomography_(PET) Neuropsychological_Battery Physical_Exam Participant_Demographic_Information Adverse_Event Hospitalization Concurrent_Medication Biomarker_Sample Vital_Sign Central_Spinal_Fluid_(CSF) Hippocampal_Volume Tau Beta_Amyloid Alzheimer%27s_Disease

User interface

- 1 3DX_Drill_Down
- 1 ADNI_Distributed_Data_Entry_System

◀ ||| ▶

Data classes 1

- Academic_Organization
- 1 ADAS-Cognitive_Behavior
- 1 ADME_Finding
- 1 ADMET
- 3 Adverse_Event
- 1 Allele_Frequency
- 1 Alzheimer%27s_Disease

◀ ||| ▶



Advantages of Semantic MediaWiki (SMW)

Wiki pages are subjects for Semantic annotations

(triples : page – property – value)

MediaWiki knowledge management tools

Many ways to input and output content.

XML

OpenLayers



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Linked Data Pilot for Neuroscience

Provide a flexible integrative data layer

- Linked Data concepts can be used for flexible data integration of internal and external sources of disparate data

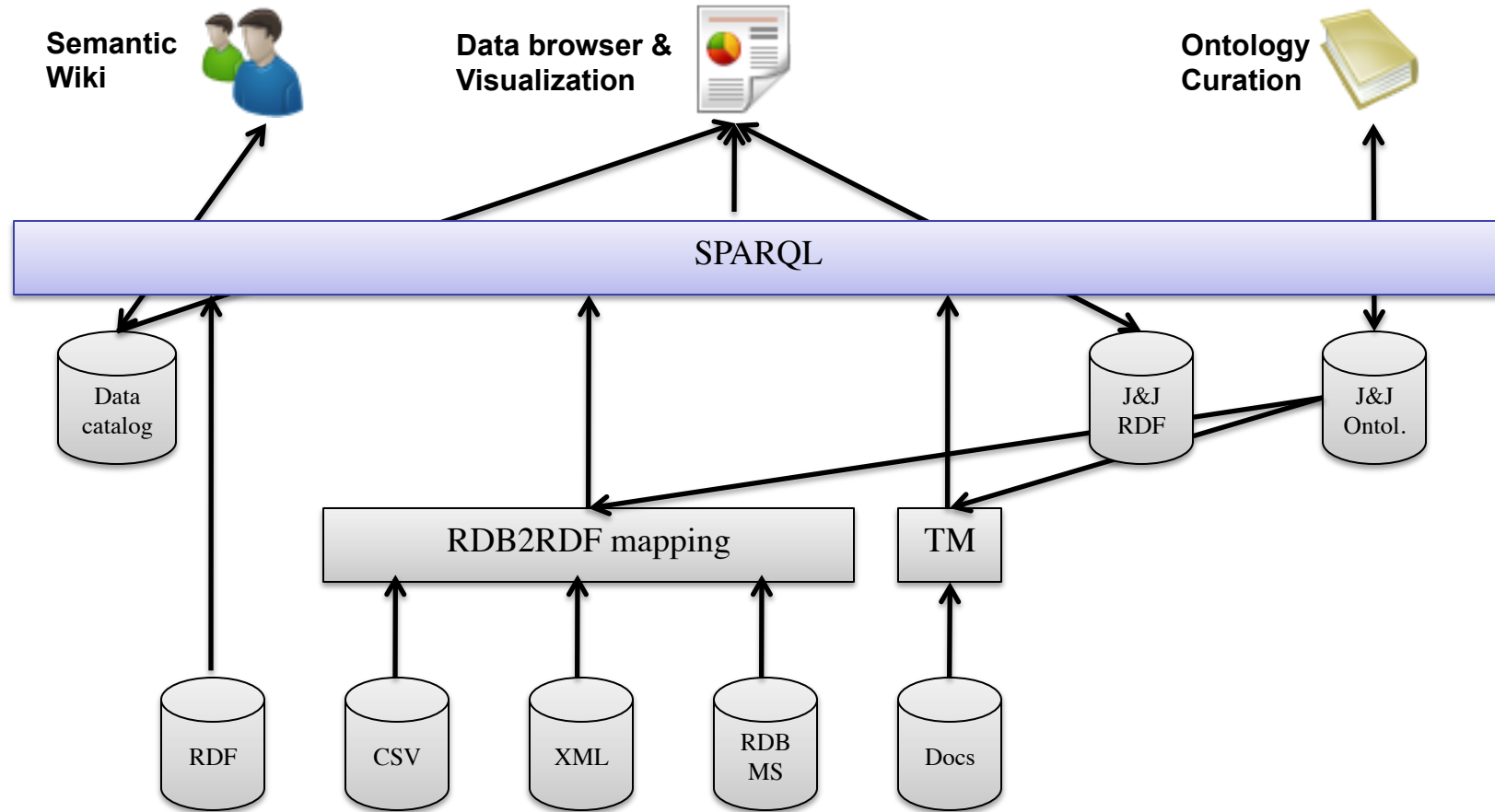
Enable scientists to answer novel translational questions

- Linked Data queries support diverse translational scientific questions

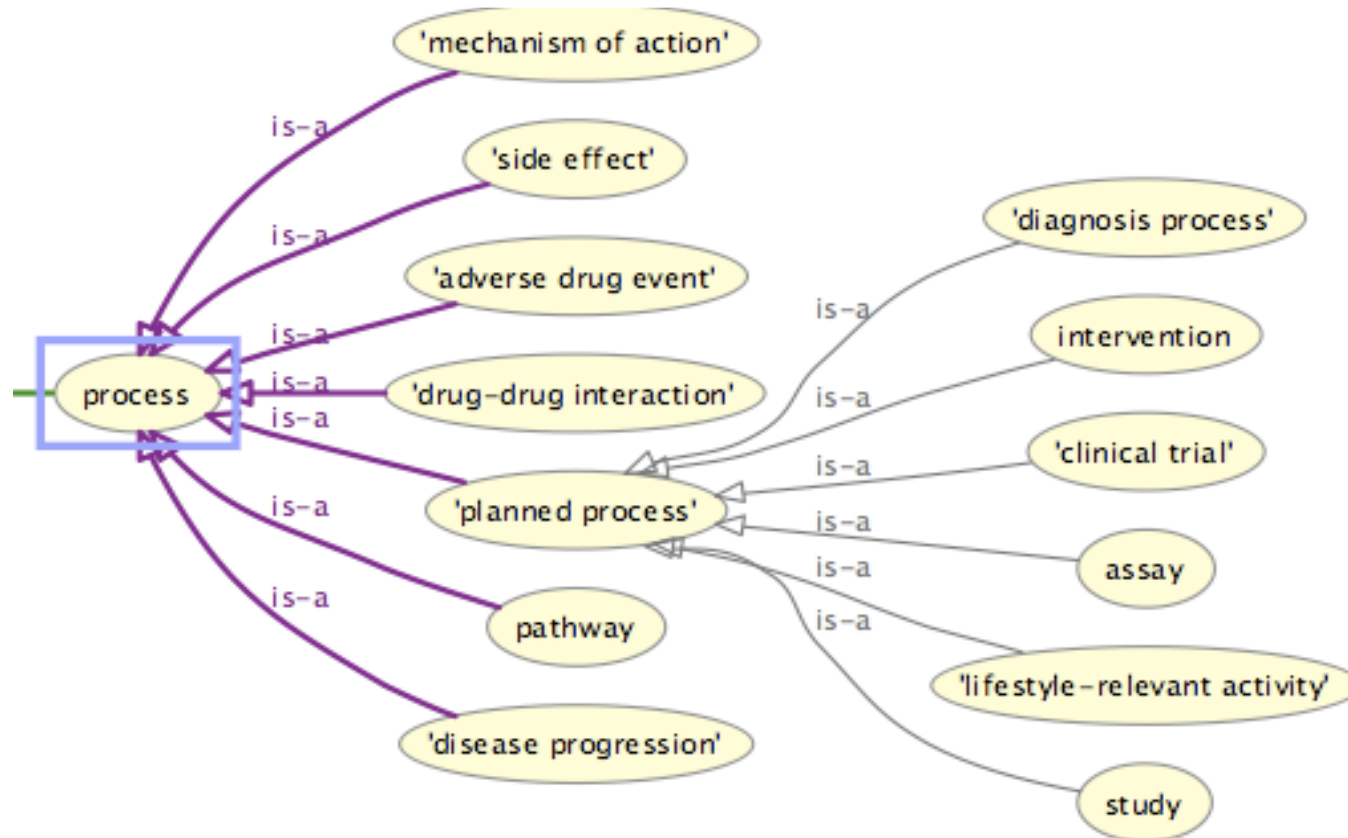


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Overview of the Linked Data Framework



Reviewing W3C's Translational Medicine Ontology (TMO) as a base for J&J Ontology



C# API allows programmatic abstraction of....

Data Source discovery

- Provides framework with provenance information

Resource discovery

- Extracts relationships between concepts across data sources

SPARQL Querying

- Constructs and captures queries, parses results

Inferencing

- Pulls pre-constructed rule sets hosted in server directory



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Ask questions using federated queries

The screenshot displays the 'Linked Data Visualizer' application. The main workspace contains several data sources represented by icons: ADNI data, DailyMed, KnowIT data, DrugBank, LinkedLifeData, Homolo, RDF-TCM, and ClinicalTrials.gov. A context menu is open over the 'Homolo' source, showing options like 'Details', 'View in KnowIT', and 'Add to List'. A 'Targets' panel on the right lists 'ADNI data' and 'Galantamine data'. Below it, a 'Source Treemap' shows a hierarchical structure of data sources. A 'Query Builder' dialog is open, showing a dropdown menu with 'Patient' selected and a list of properties including 'has result type description', 'has result type report form', 'has result type unit', 'has SNP', 'has top allele', 'has visit code', and 'has visit description'. At the bottom, a query editor contains the following SPARQL query:

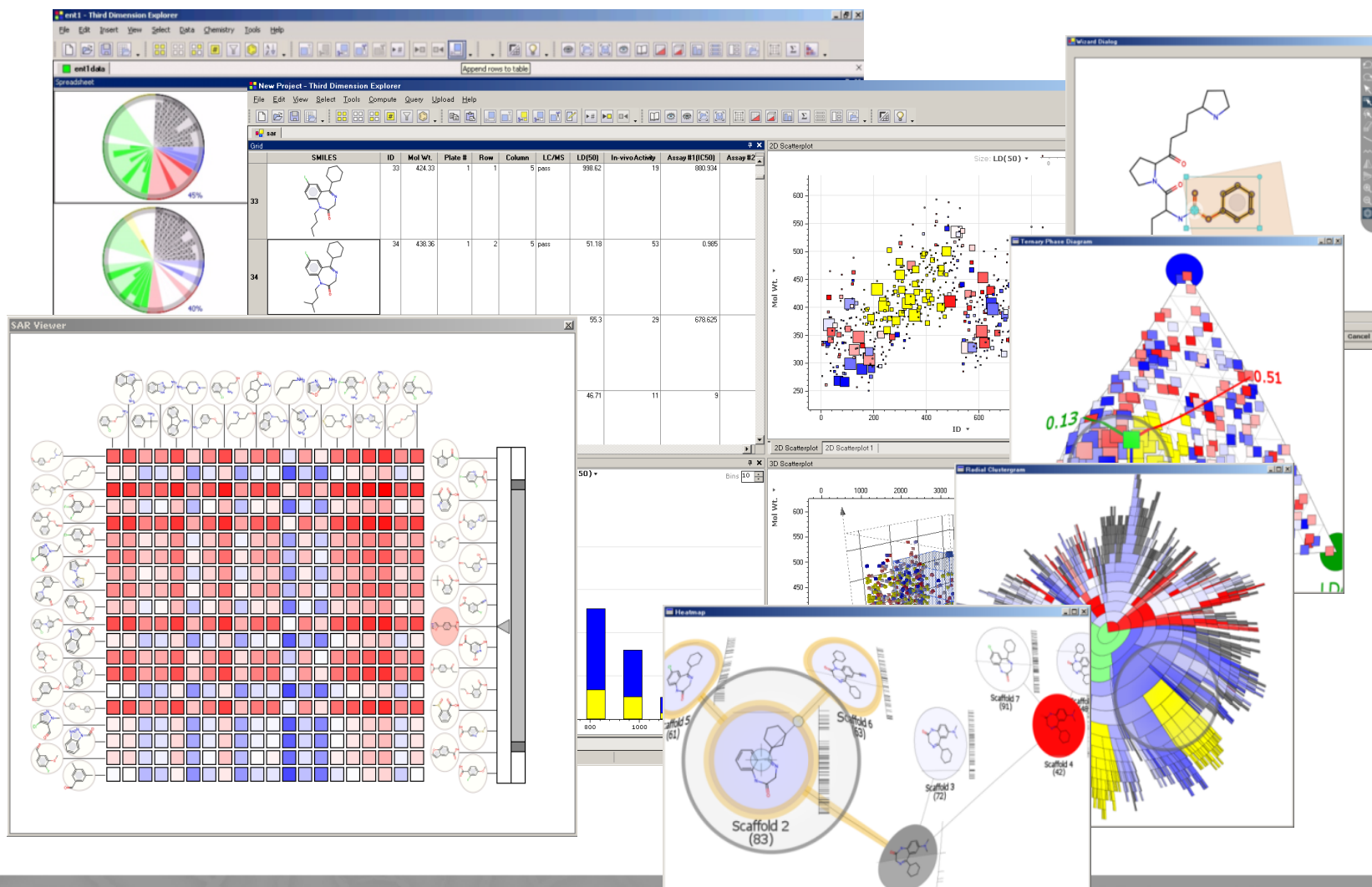
```
?patient rdfs:label ?PatientLabel .  
?ImageFloatDataPoint JJOR-TL:DataPointVisit ?Visit .  
?Visit rdfs:label ?VisitDescription .  
?ImageFloatDataPoint JJOR-TL:DataPointValue ?HippocampalVolume .  
}  
ORDER BY ?PatientLabel ?Date
```

Below the query editor, there are controls for '3DX Sheet' (checked), 'Clear Sheet' (unchecked), and an 'Execute Query' button. At the bottom left, there is a 'Building Data Cloud' input field.



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Integration with analytical tools



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Improved enterprise search

Search results for "ADNI data"

A page using your search term already exists : [ADNI data](#)

Keywords for [ADNI data](#) : [Alzheimer](#)

Category: [Clinical_data_source](#)

1. [ADNI data](#)

ADNI uses MRI and PET imaging, as well as laboratory and cognitive testing of 821 normal, mildly cognitively impaired and Alzheimer's disease patients. Among the goals of the study is to provide better tools for carrying out effective clinical trials and identifying biomarkers that can predict clinical outcome.

2. [LONI Image Data Archive \(IDA\)](#)

The LONI Image Data Archive (IDA) is a user-friendly web site for disseminating neuroimaging and related clinical data.



Displaying 1-12 of 12 matches for query ADNI data.

Results are grouped by Category. Select a Category below to filter your results.

[+] Show all results

- Acronym (2)
- **Clinical data source (2)**
- Project (1)
- Web application (1)
- Web server (1)
- Plugin (1)
- Link (1)
- Data feed (1)
- Academic organization (1)

Universal Search [SciTech Directory](#) [LINK](#) C O S A T

  [Help](#)

Answer not found? [Ask J&J experts using LINK!](#)

Searched for: Alzheimer SNP Results 1 - 4 of 4 found [Sort by relevance](#) [Sort by date](#)

Sources	ADNI data
All (4)	...Data provider (vendor) Alzheimer's Disease Neuroimaging Initiative...Volume Tau Beta Amyloid
knowIT (2)	Alzheimer's Disease Mild Cognitive...Single Nucleotide Polymorphism (SNP) Human readable Data...20042704, 19847051 The Alzheimer's Disease Neuroimaging Initiative...
J&J Patents (2)	March 8, 2010 - knowIT



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Analysis of data sources content

Find Relations

between examples

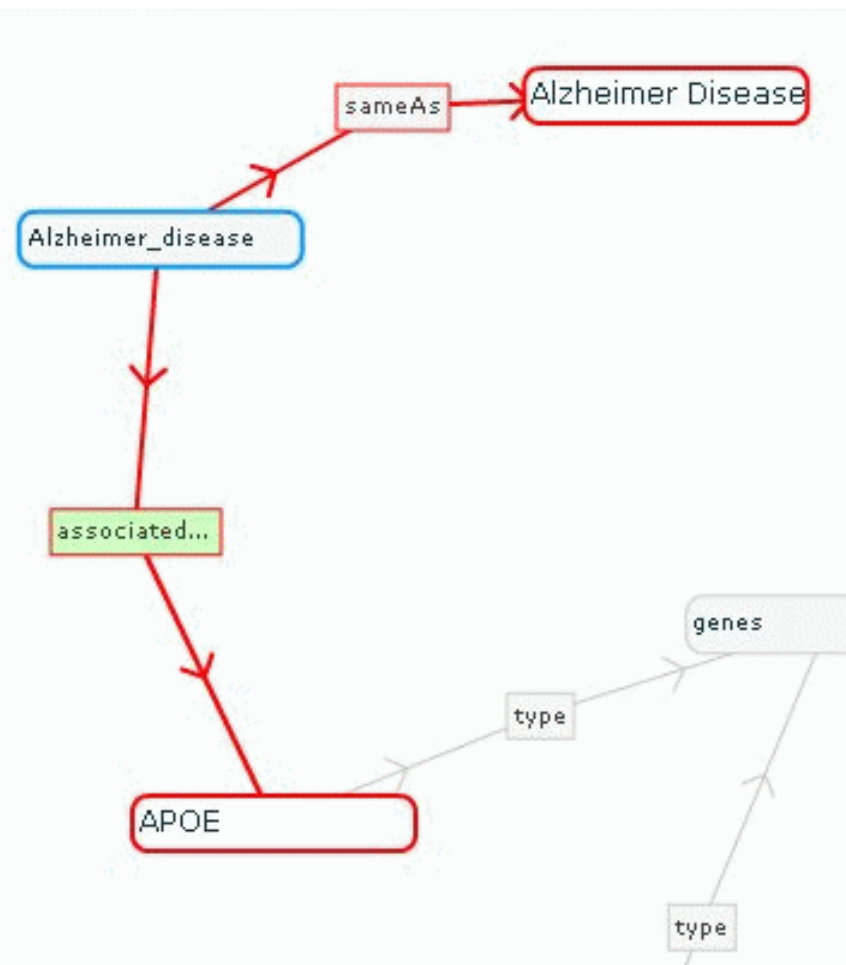
(1) APOE ×
(2) Alzheimer Disease ×
(3) APOA2 ×
(4) APOA1 ×
(5) APOA5 ×

add clear Find Relations

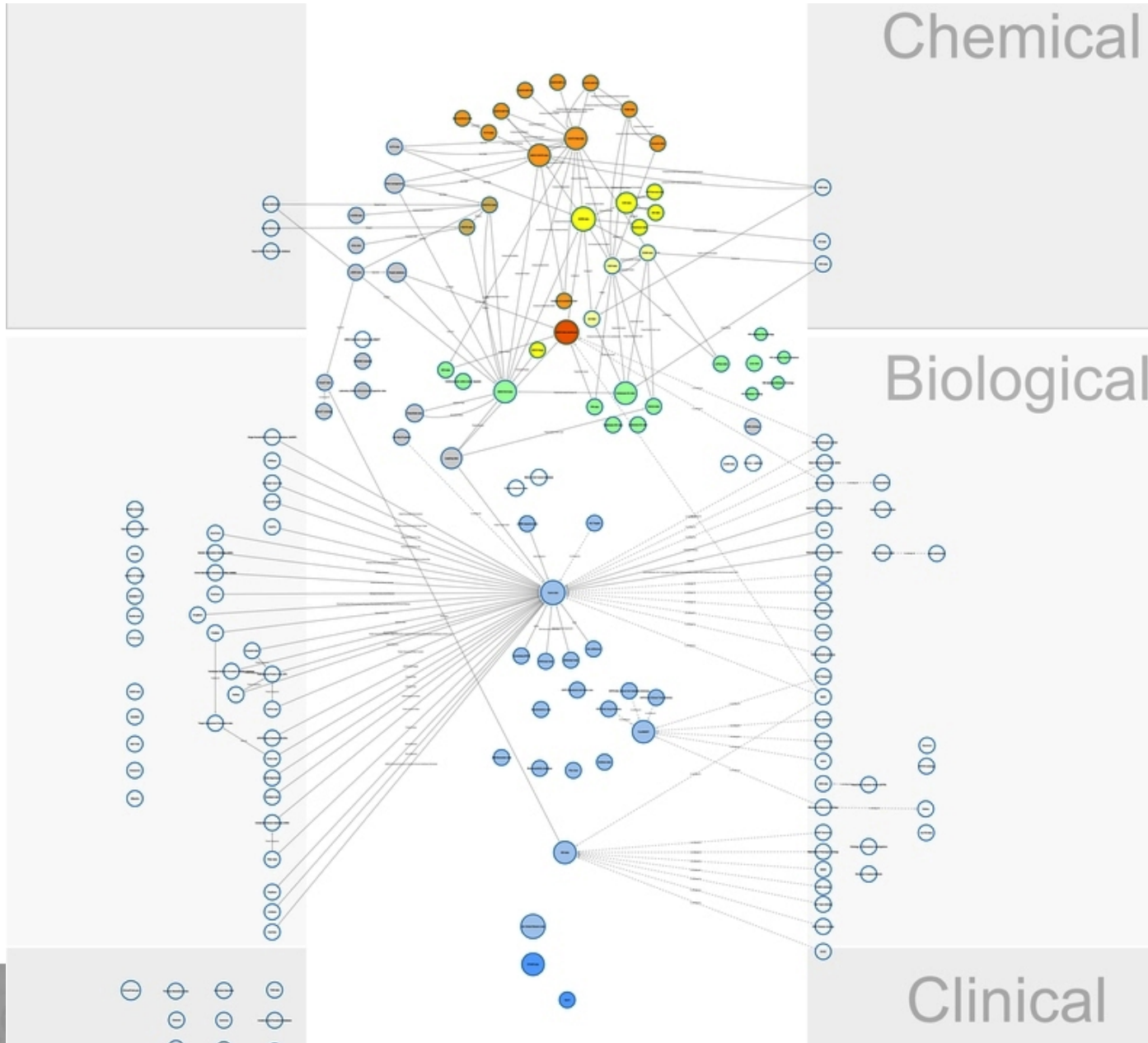
Filter by:

length class relation conn...

relation type	num	vi
associatedGene	5/10	👁
sameAs	1/1	👁
diseaseSubtypeOf	0/5	👁
tune	4/4	👁



Visualization of relationships between data sources



Clinical

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Next steps

Automation and integration with existing ontologies

Enable self-describing data sources

Dynamic, layered map of data landscape

Incorporate additional data sources

Drive broader awareness and adoption of the tool



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