

Open PHACTS: Solutions and the Foundation



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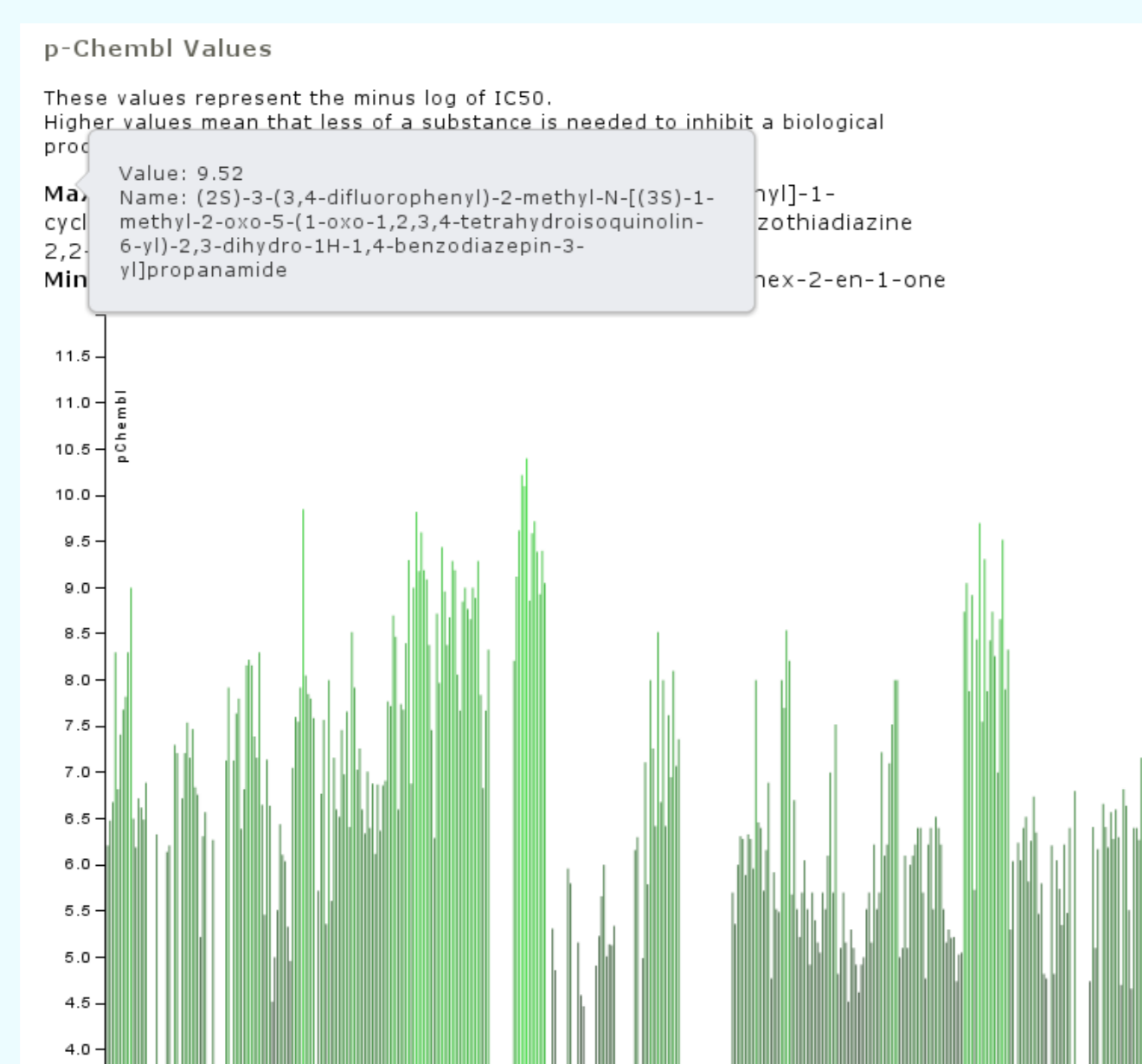
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Scientific Questions

Open PHACTS has set out the task to develop a platform that is able to answer questions relevant to the pharmaceutical industries. The technological solution is the scientifically sound tool to get to correct answers. Therefore, it develops solutions on top of the technologies, user oriented platforms to answer a number of research questions selected by the pharmaceutical industry.

Example questions include: "Give me all oxidoreductase inhibitors active <100 nm in human and mouse" and "Compounds that agonize targets in pathway X assayed in only functional assays with a potency <1 μm".



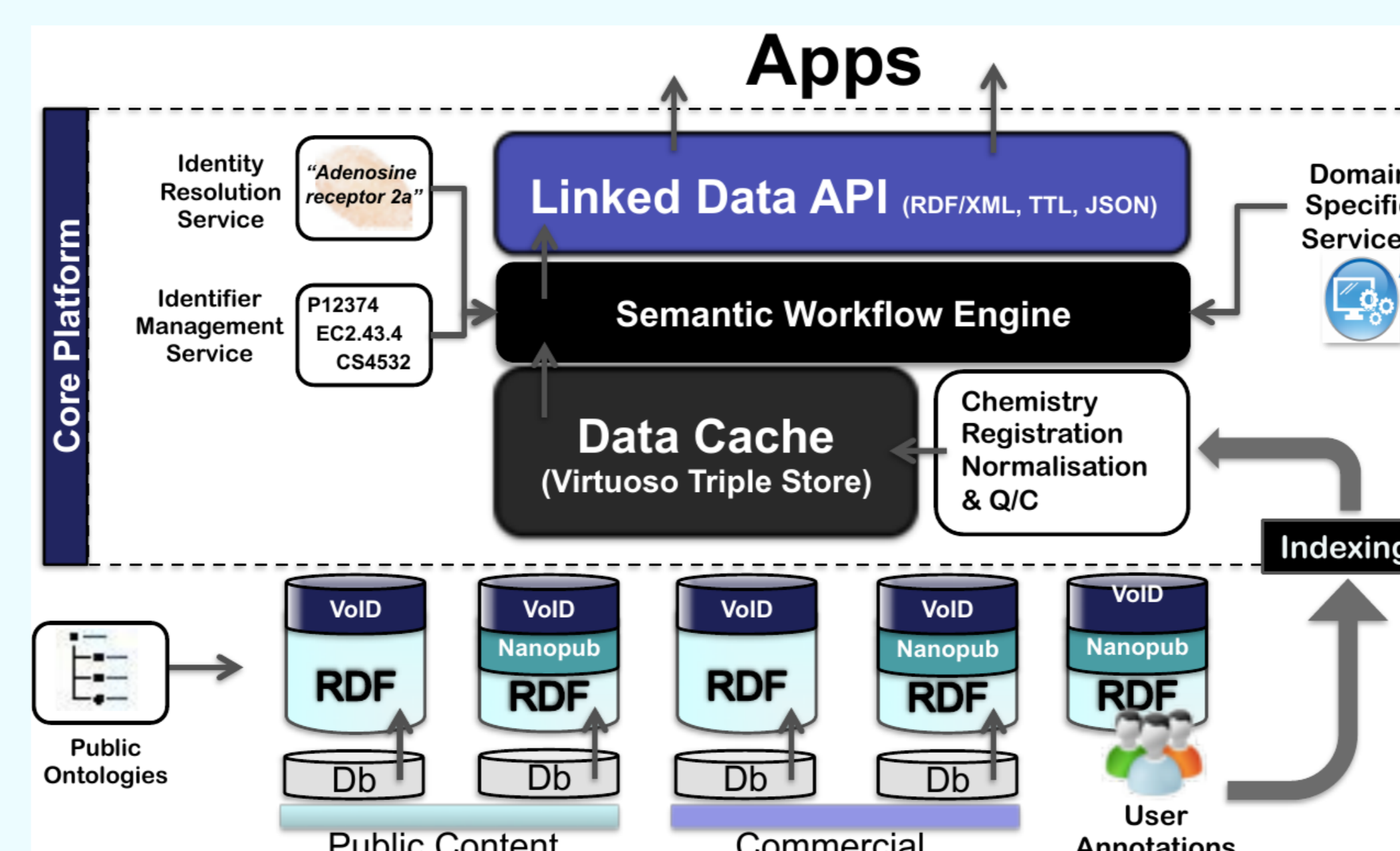
JavaScript-based web page summarizing IC₅₀ values of compounds against targets related to a disease query. The hover over popup shows the name of one compound in the bar plot.

References

A.J. Williams, et al. Open PHACTS: Semantic interoperability for drug discovery. Drug Discovery Today, Volume 17, Issues 21-22, November 2012, pages 1188-1198

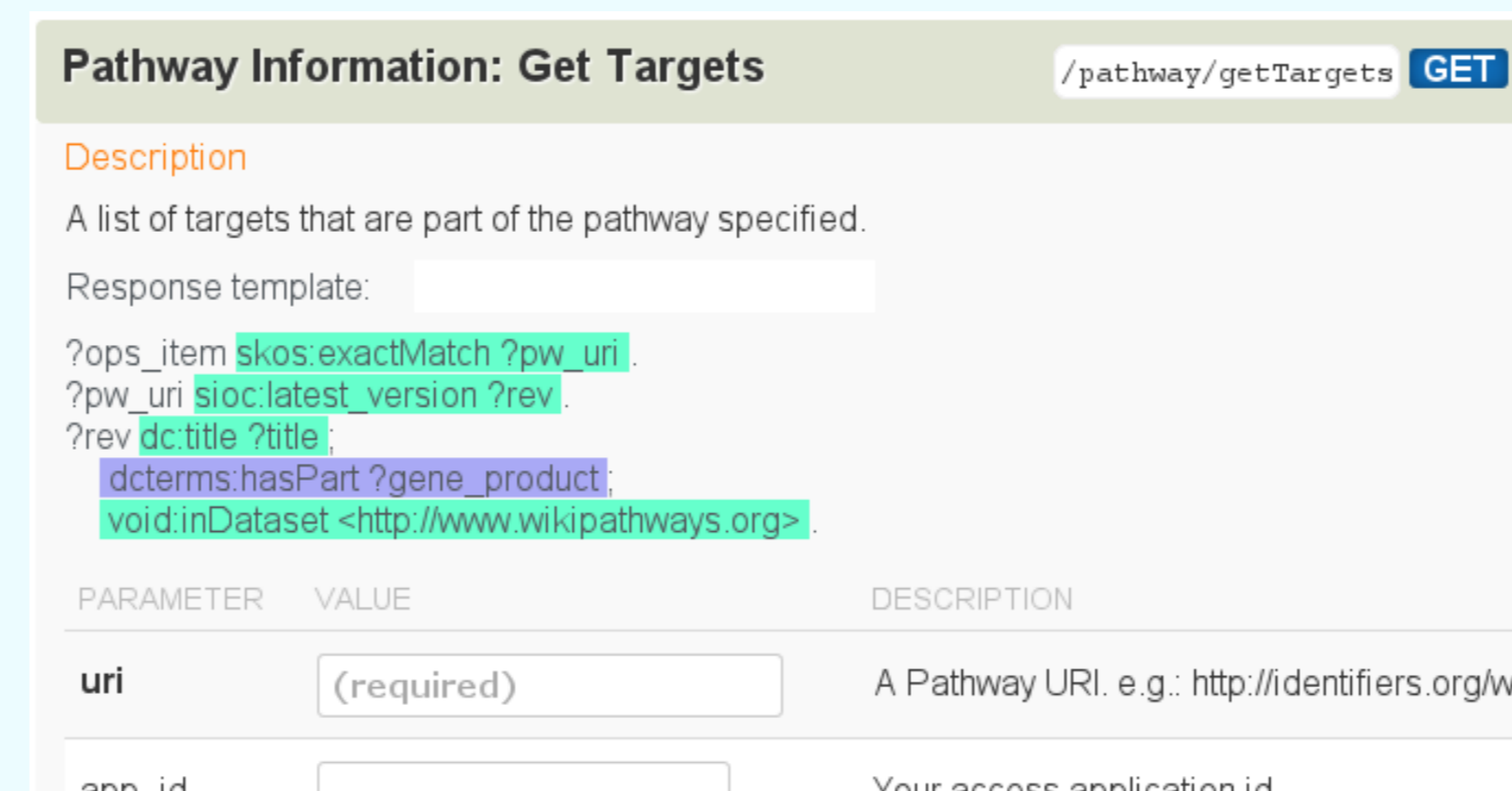
Semantic Web Technologies

- Resource Description Formats (Turtle, RDF/XML)
- Scientific Lenses (concept equivalences; see presentation)
- Name and Identifier Mappings (Concept Wiki, BridgeDb)



REST-full Application Programming Interface

Client libraries are available for JavaScript (see left column), Scala, Java, Pipeline Pilot, KNIME, R, and Bioclipse.



Data sources

Open PHACTS is a data integration project, and relies on data providers, though it helps in exposing data using semantic web technologies. The current public platform uses the below data sources.



The Consortium includes the Foundation



Conclusion

Open PHACTS has created a semantic web-based data integration platform, where a public REST-full application programming interface provides a semantically-enriched, but developer-friendly portal. This resulted in a successful ecosystem of user-targeted solutions.