Open PHACTS

Integrating pharmacological data

For scientists
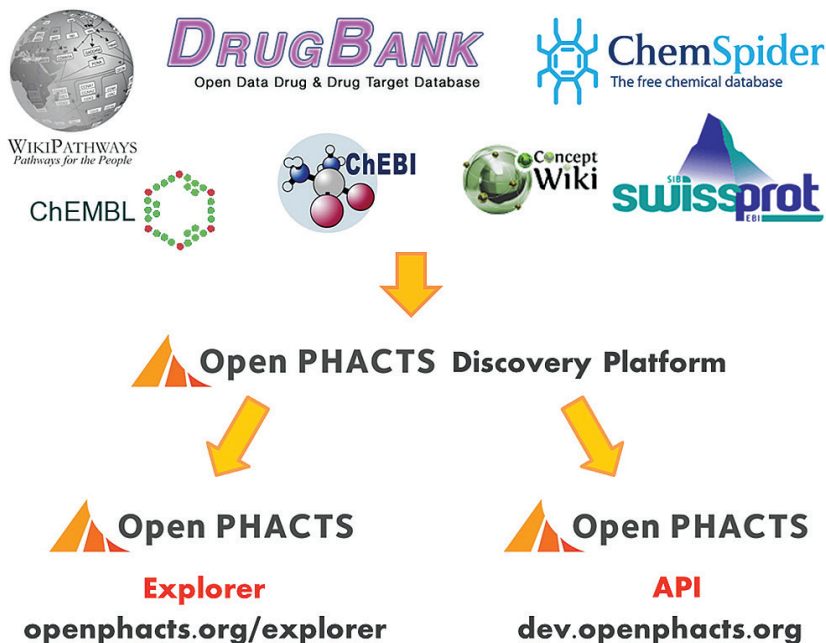
For software and application developers

A semantic data integration infrastructure

Open PHACTS is a 3-year project of the Innovative Medicines Initiative (IMI), aiming to reduce the barriers to drug discovery in industry, academia and for small businesses. The Open PHACTS consortium is building a freely available platform, integrating pharmacological data from a variety of information resources, and providing tools and services to question this integrated data to support pharmacological research.

The Open PHACTS Discovery Platform

To reduce the barriers to drug discovery in industry, academia and for small businesses, the Open PHACTS consortium has developed the Open PHACTS Discovery Platform - providing access to a collection of tools and services to question multiple integrated and publicly available data sources to support drug discovery.

For scientists
A platform of integrated data sources, accessible via an interface designed and tested by industry experts, and an API which easily plugs into workflow tools.

For software and application developers
A commercial-grade API for developers to build applications to query and analyse the integrated data. Visualisation, analytical and prediction tools can be built using the mapped data within the Open PHACTS Discovery Platform.

A semantic data integration infrastructure
Targeted on pharmacology, but a state-of-the-art semantic infrastructure to apply to other challenges. Flexible data integration using open standards and ontologies.

The Open PHACTS Explorer

For pharmaceutical scientists and those involved in drug discovery, the Open PHACTS Explorer provides an intuitive and robust interface designed and tested by industry experts. It allows the user to easily and intuitively query and download the data, with direct links through to the original data source to assess its provenance.

The Open PHACTS API

The Open PHACTS API allows third-party apps to query the data within the Open PHACTS Discovery Platform, combining it with other data and workflow tools. The possibility of externally-developed visualisation, analytical and prediction tools using the mapped data within the Open PHACTS infrastructure allows new applications to be built that address the evolving development of drug discovery.

> " *Open PHACTS provides the ability to look up answers to complex research questions over a wide range of data sources. Unlike other tools it is built on an open vendor-neutral framework and allows license-compliant mixing of public and proprietary data with retained provenance* "

To get your API key visit: **dev.openphacts.org**

Apps using the Open PHACTS API

To showcase the Open PHACTS API, various apps have been developed by Open PHACTS consortium members. Each novel app highlights the API's versatility and the possibilities that such a large-scale and integrated data platform present.

Advanced Analytics

ChemBioNavigator offers a quick and intuitive overview of a compound set's physicochemical properties.

PharmaTrek provides visual tools to define custom questions, displaying the activity relationship between drugs and targets.
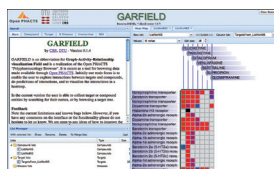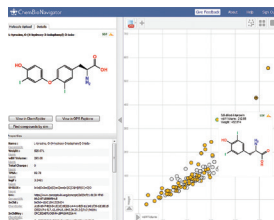
The Target Dossier answers questions around druggability and tissue expression profiles.

Utopia Documents allows the user to interact with the scientific literature, linking mentioned compounds and targets with the Open PHACTS Discovery Platform.

Predictive Tools

The polypharmacology browser GARField explores the pharmacological space of small molecules, via an intuitive interface.

The eTOX Collector permits the automatic extraction of pharmacological data to build toxicology models in the IMI-funded eTOX Project.
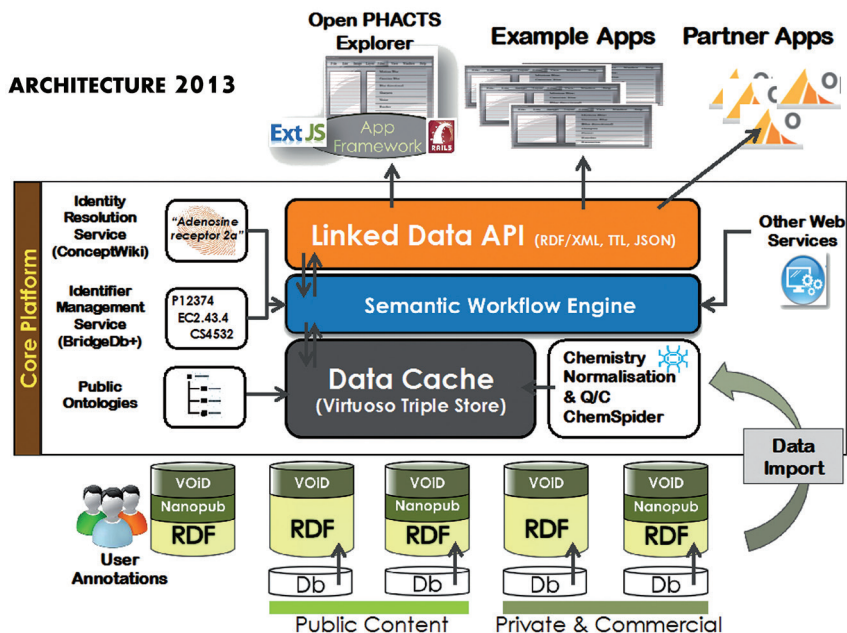
"The Open PHACTS application programming interface (API) provides a development platform for a responsive portfolio of bespoke analytical, visualisation and predictive tools"

The Open PHACTS Discovery Platform

The Open PHACTS Discovery Platform uses semantic technologies to provide a robust, adaptable framework for integration of multiple data sources into one coherent API. While the project has a pharmacological focus, it uses a set of modular, reusable software components that can be used to address other scientific challenges. We promote and augment existing open standards and ontologies, and demonstrate their use in a large scale, real world application – the Open PHACTS Discovery Platform.

"The Open PHACTS Discovery Platform uses production software: our data sources are maintained and regularly updated, and the system is hosted by a professional semantic data company"

ARCHITECTURE 2013

The Open PHACTS Foundation

Open PHACTS is a 3-year project of the Innovative Medicines Initiative (IMI) finishing in March 2014. It involves 28 consortium members made up of European Federation of Pharmaceutical Industries and Associations (EFPIA) partners and those from academia and smaller companies.

A not-for-profit successor organisation, the Open PHACTS Foundation, will continue developing and supporting the infrastructure. The Open PHACTS Foundation will safeguard the platform's longevity, by engaging the community and membership body and acting as a hub of relevant academic research.

"The Open PHACTS Foundation will provide the stable infrastructure and developmental capacity that the Open PHACTS Discovery Platform needs to be sustainable"

The Open PHACTS Ecosystem

Aside from the consortium members, the Open PHACTS project benefits from a larger community of Associated Partners who receive early access to new releases and updates.

Interested in getting involved as an Associated Partner?

Please contact us: pmu@openphacts.org

Useful resources

Get involved! Visit our website: **www.openphacts.org**
Follow our Twitter account: **@Open_PHACTS**

Open PHACTS Explorer **openphacts.org/explorer**
Open PHACTS API **dev.openphacts.org**
Open PHACTS Repository **github.com/openphacts**

Consortium Members