

Knowledge Management from Systems Medicine to Personalized Healthcare



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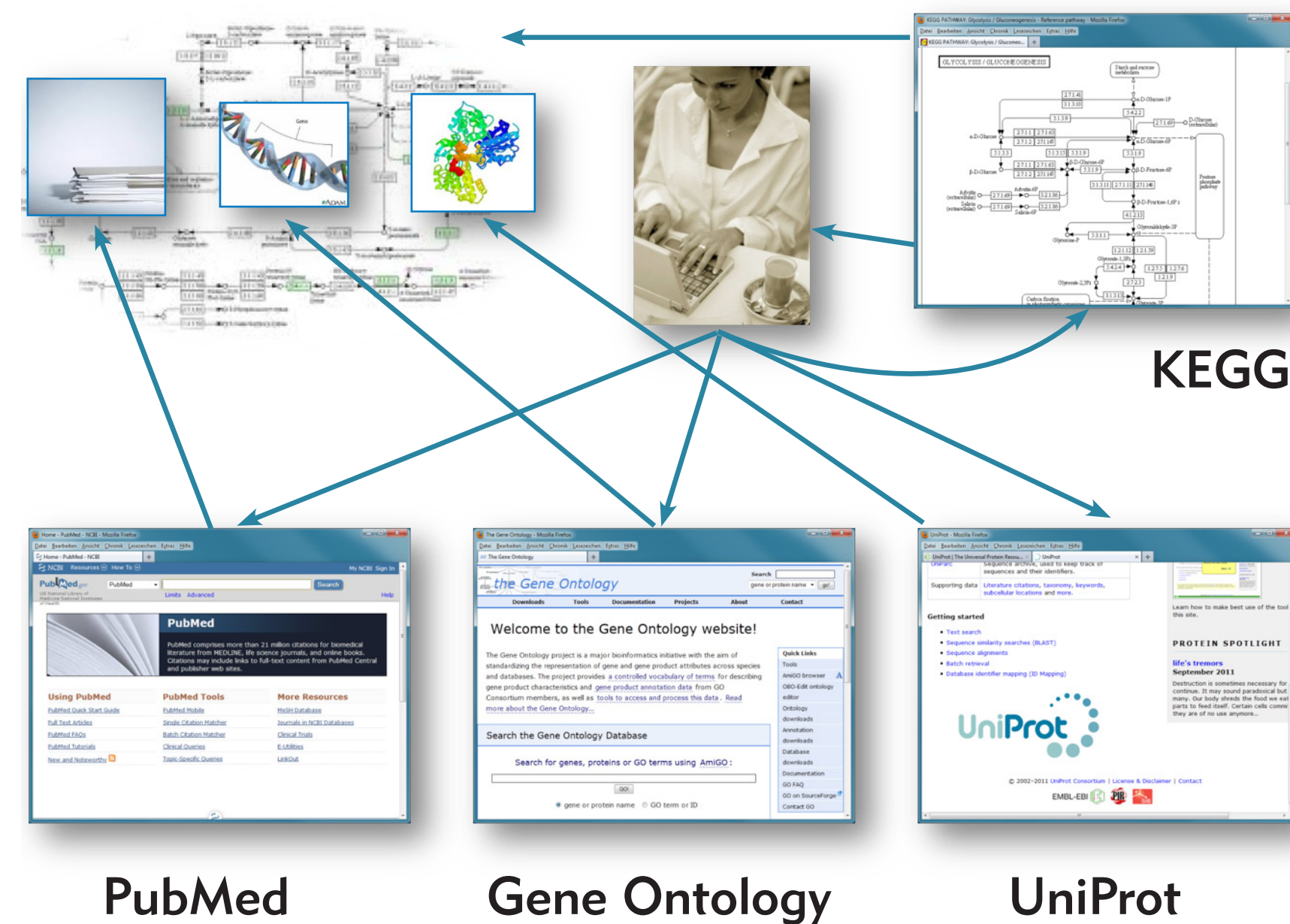
The BioXM™ Knowledge Management Platform

The BioXM™ platform is a semantic data integration tool that is built to integrate various knowledge sources. Despite the complex process of data integration, the BioXM platform provides easy access to the data and enables various analyses.

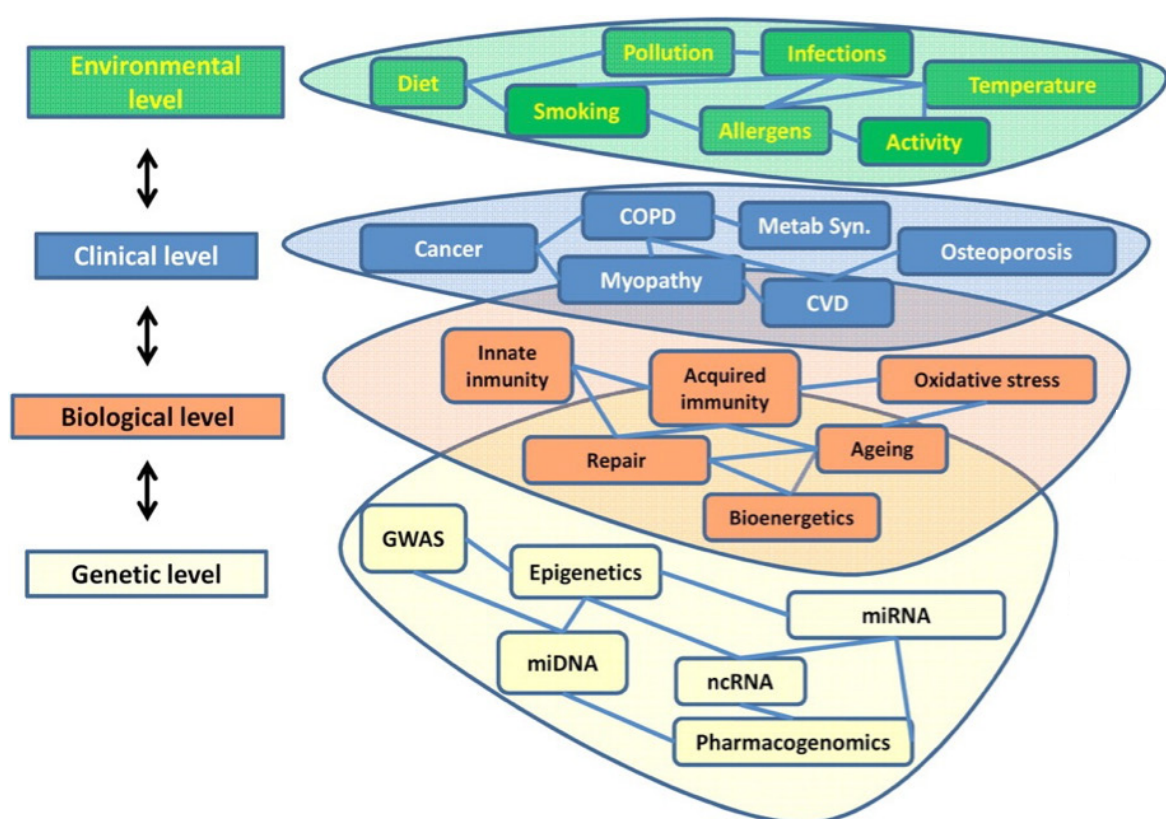
“Manual” collection of domain-specific knowledge from multiple data sources

Working with a lot of different data sources makes it difficult to gain an integrated view of a research topic.

The manual collection and integration of data for a specific research topic is tedious and time-consuming.



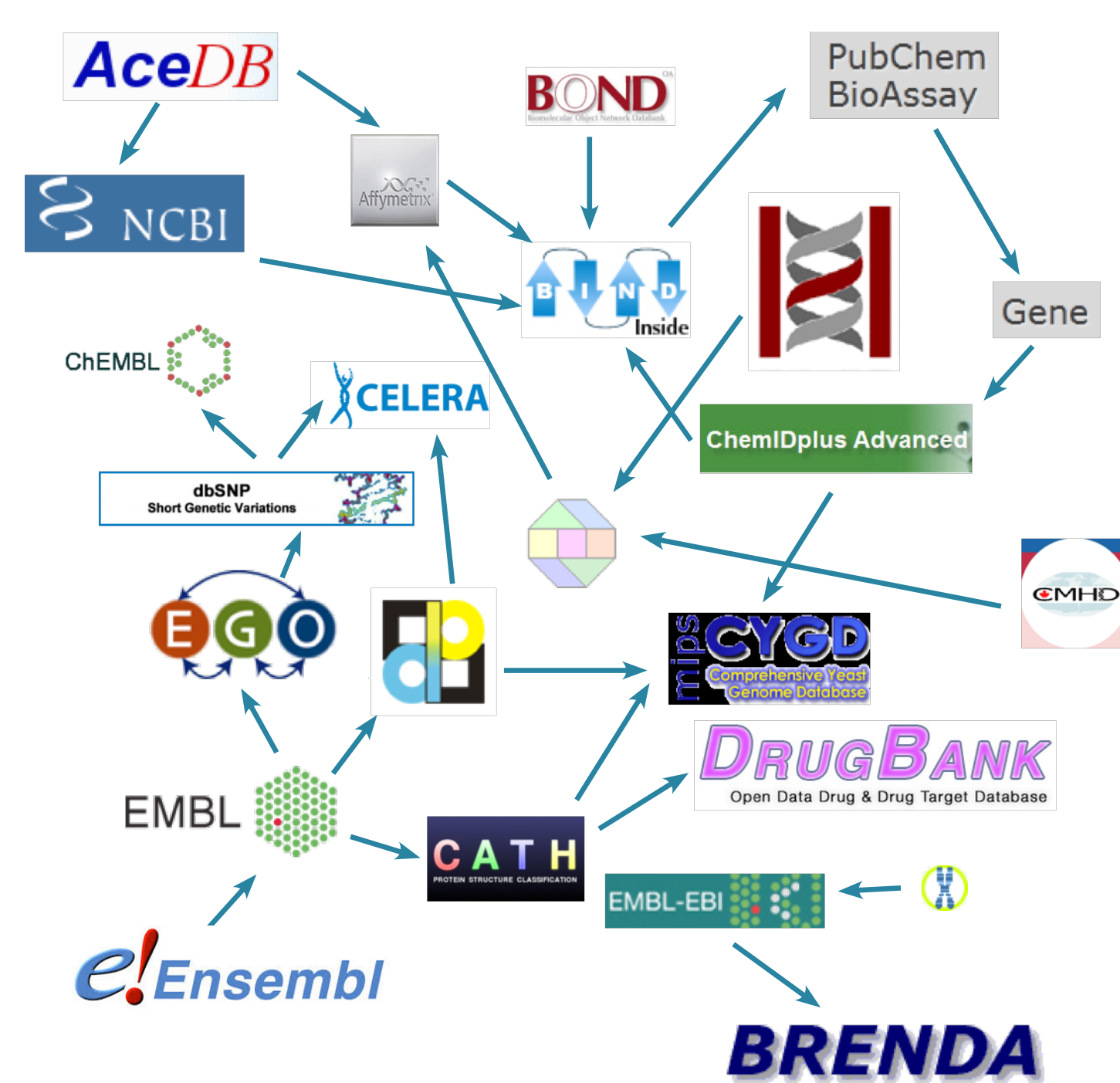
Semantic network-based knowledge representation concept



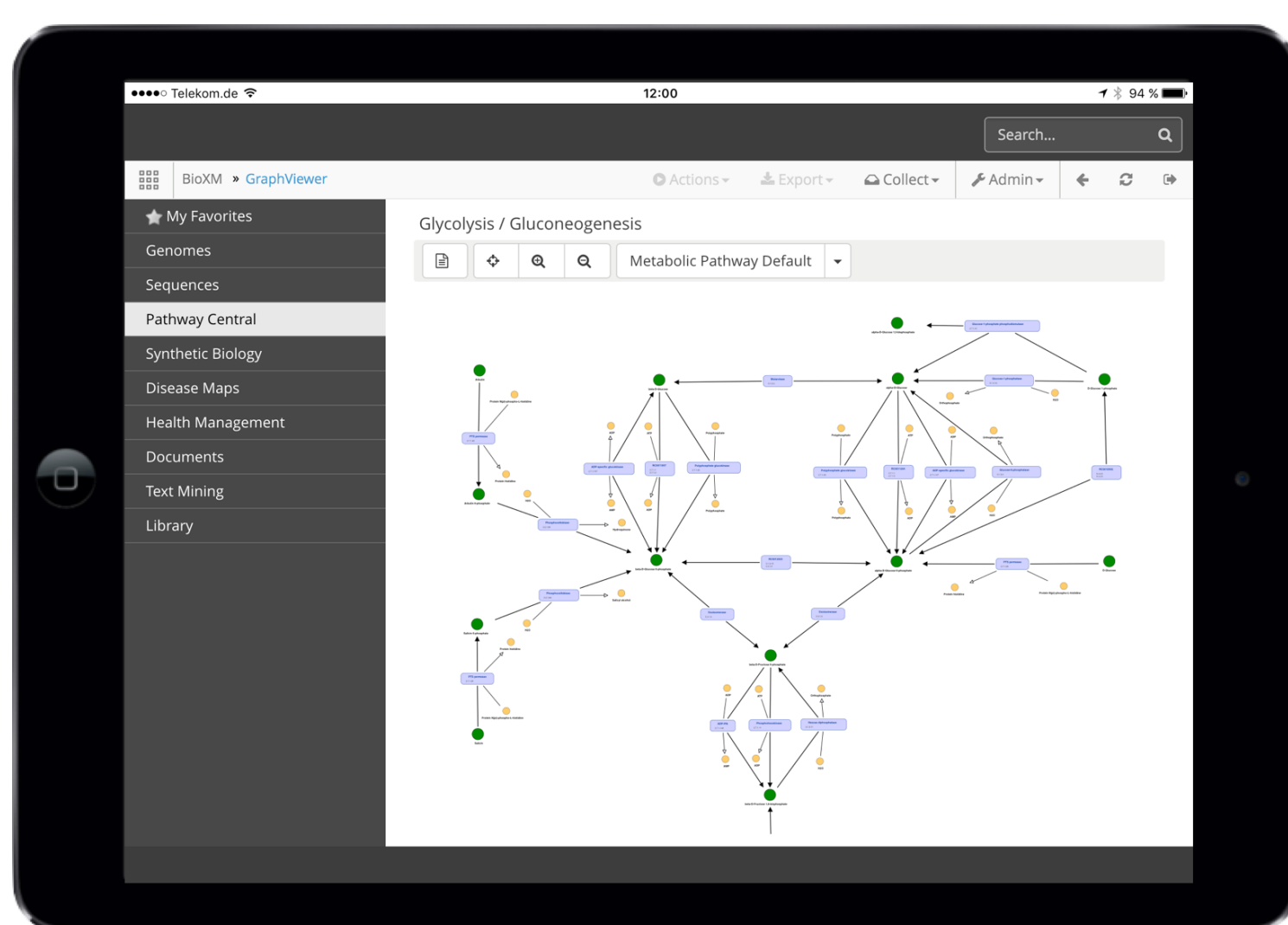
Within the BioXM platform, scientists can model the data of their research topics by building a flexible and semantically rich network of biomedical knowledge which is open to accommodate any type of entities and metadata.

Data integration

The result is semantic integration of the most important databases and data sources available in the research field and the ability to extend public knowledge by researcher-specific domain knowledge.



The whole world of domain knowledge at your finger tips

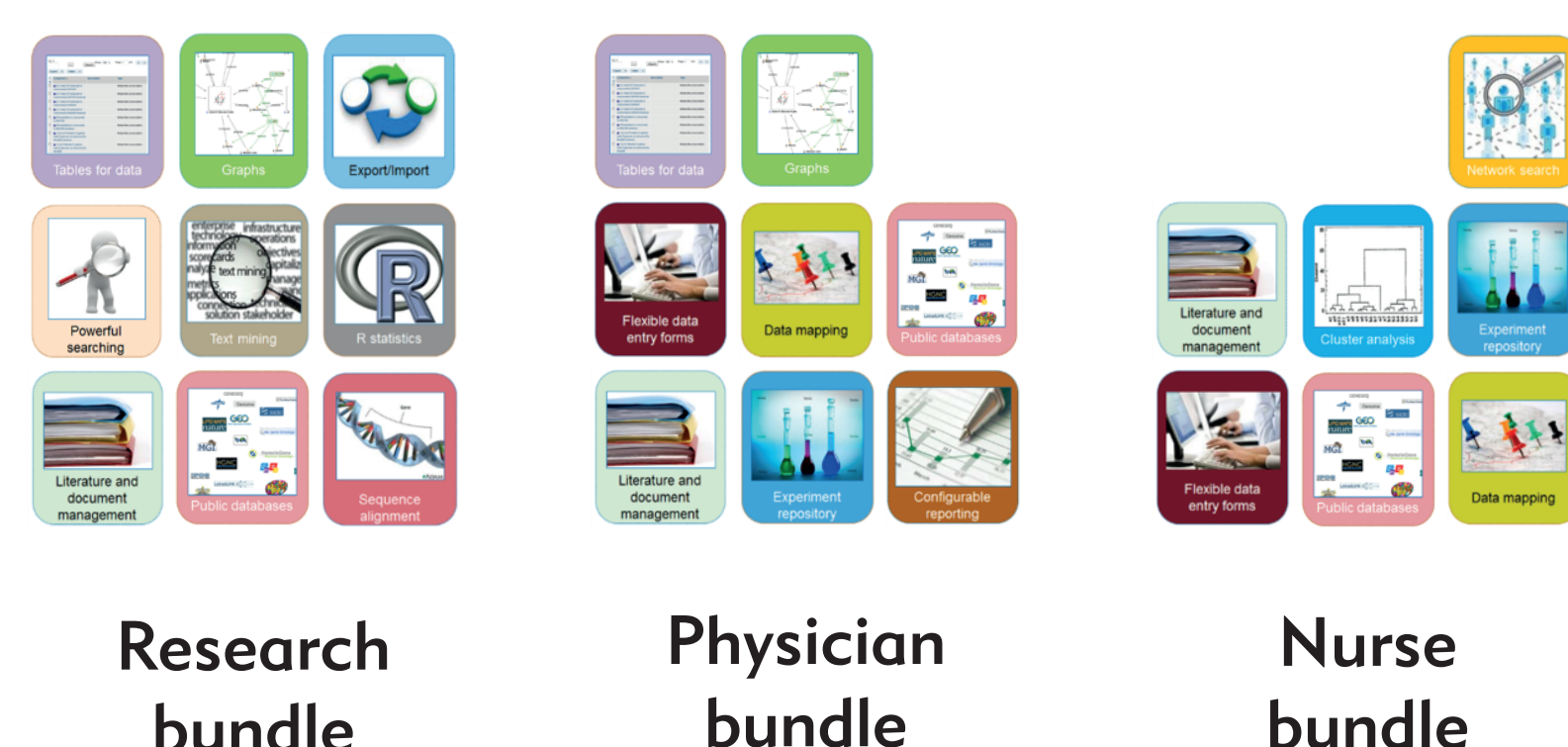


The platform's web portal is a single access point providing easy navigation with multifunctional and flexible data presentation. Full access to the user's own results and the whole semantically integrated world of domain knowledge are possible.

- Single access point to:
- > View data
 - > Perform analyses
 - > Export and import data

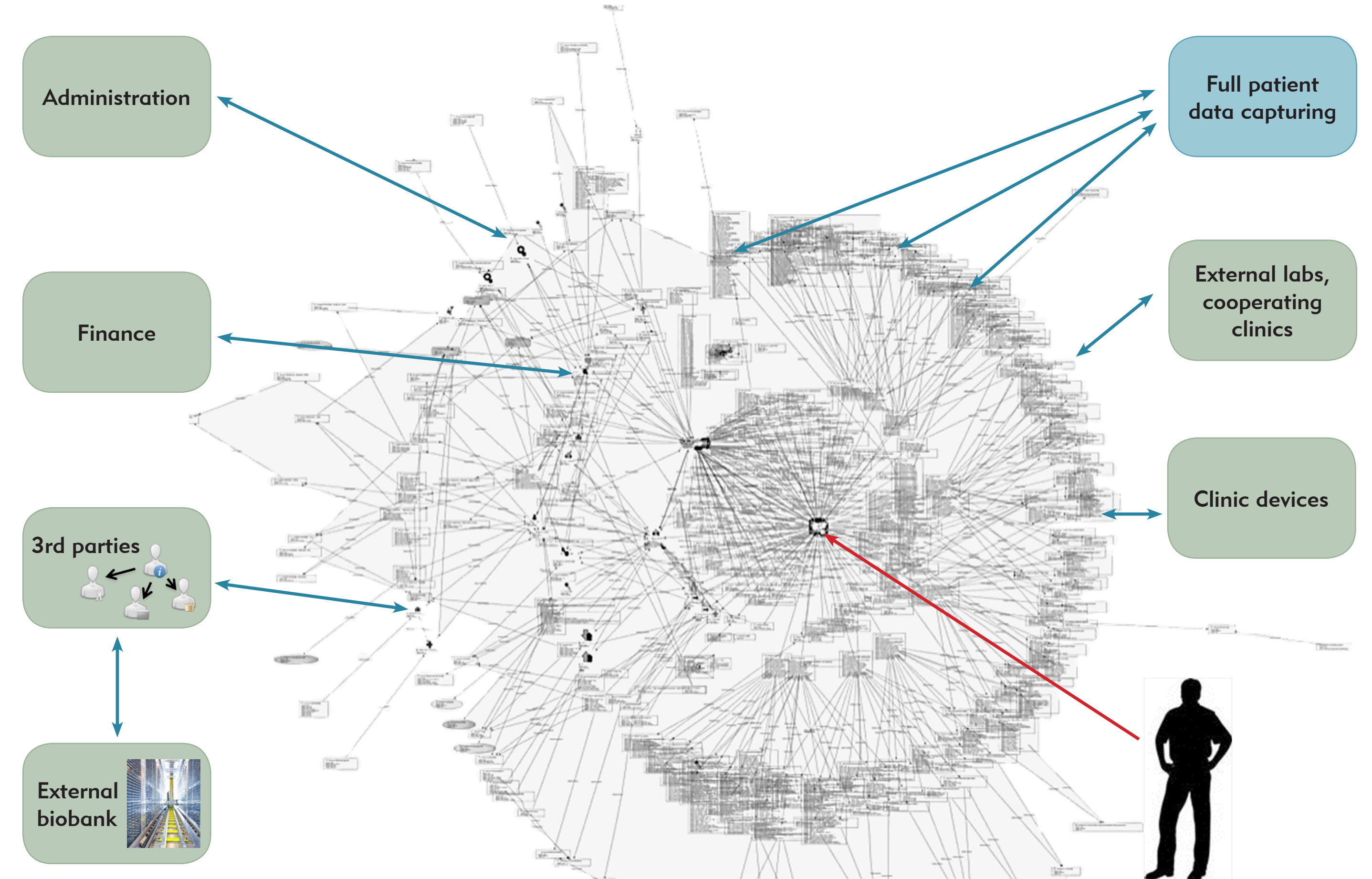
Feature bundles

The BioXM suite is like a collection of building bricks. Every feature represents a brick that can be combined with other features into a feature bundle. This feature bundle is specifically created to the customer's needs and built into a BioXM instance.

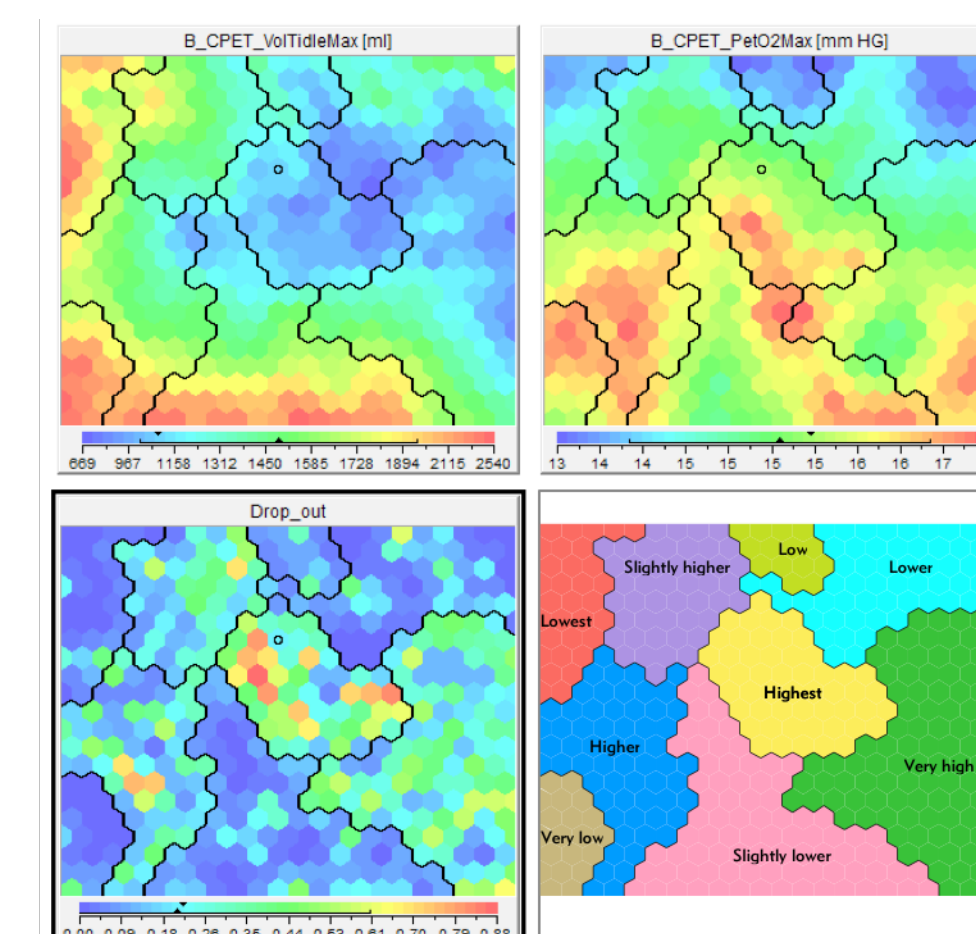


CIRO analytical data center

CIRO+ and Biomax implemented a clinical data center to generate analytical models for personalized COPD treatment. Based on configuration of the BioXM platform technology the data center interfaces internal and external systems of the CIRO clinic.



CIRO data analysis — patient stratification



The self-organizing-map-based Viscovery® data mining suite is applied to explore the data center and generate predictive models. Here patients who are more likely to drop out are identified using begin assessment data.

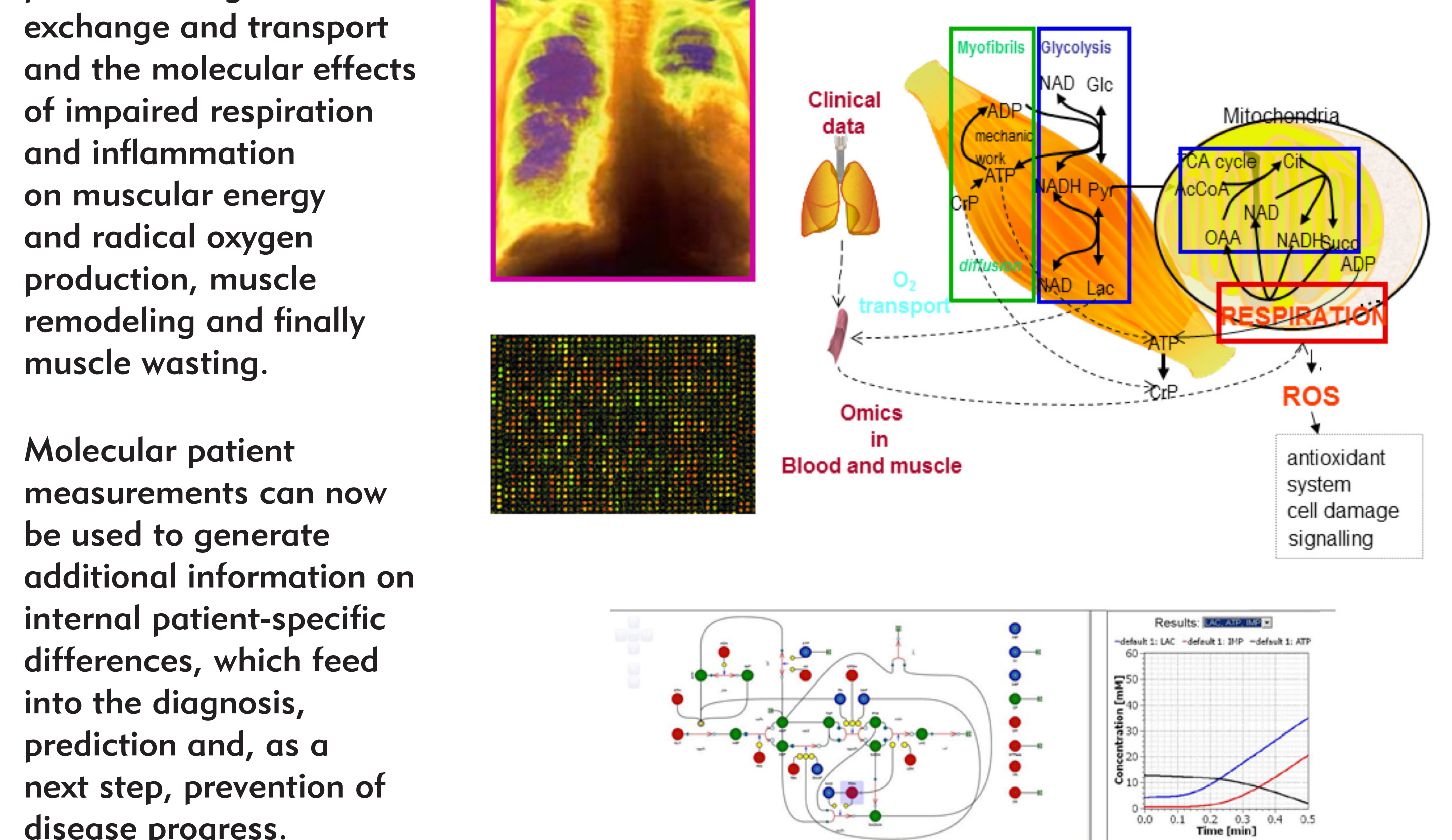
2500+ patient records
2000+ attributes

➔ 1 integrated care system
100+ reports for payers

➔ Better diagnosis
Better treatment specificity
Improved efficacy and efficiency

Synergy-COPD — translating systems medicine into integrated clinical care

The Synergy-COPD project extends such statistical classifications with mode-of-action based insights. Synergy-COPD develops a multi-scale integrated computational model, combining imaging-based simulation of lung ventilation and perfusion with physiological processes of gas exchange and transport and the molecular effects of impaired respiration and inflammation on muscular energy and radical oxygen production, muscle remodeling and finally muscle wasting.



Acknowledgements



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The Synergy-COPD project is supported by the European Commission and is part of the Seventh Framework Programme.
www.synergy-copd.eu