

Precision Medicine

PHEMI Central lets you aggregate and analyze genotype/phenotype information with performance, scale, and economics—share digital assets with researchers, physicians, and collaborators while enforcing consent, privacy, security, and governance policies.

Collect

Aggregate and analyze genotype and phenotype data

Organize

Convert unstructured and structured data into analytics-ready digital assets

Find

Look up data in a fraction of a second

Grow

Scale from terabytes to hundreds of petabytes

Share

Securely share data across researchers, physicians, geneticists, and collaborators

Protect

Automatically enforce consent, privacy, security, and governance rules

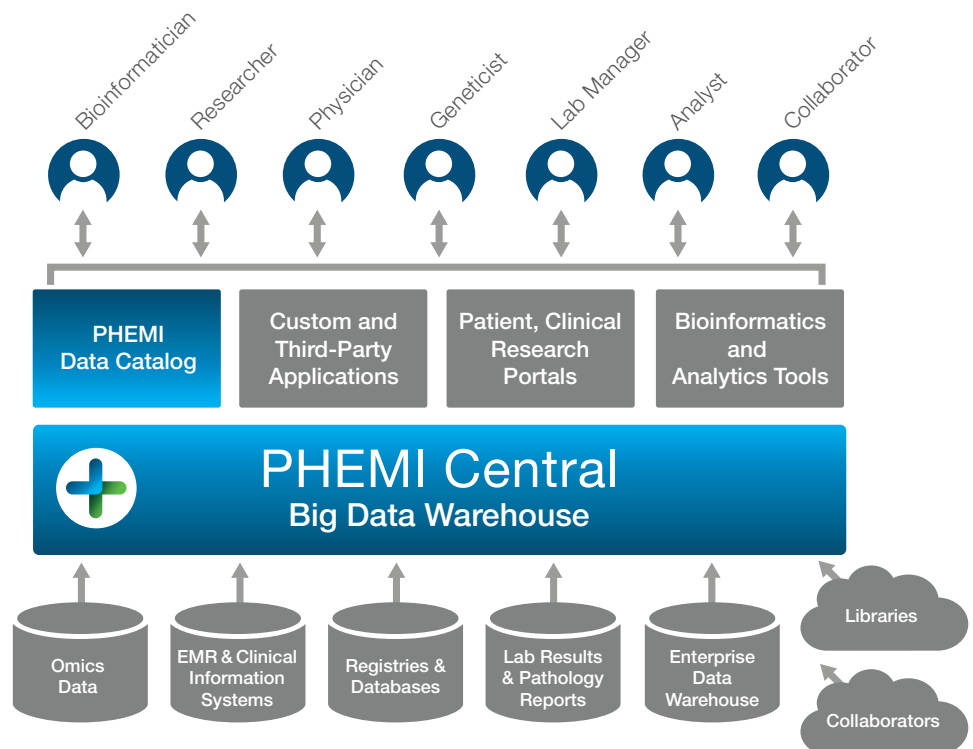
Consolidate Genotype and Phenotype Data

The PHEMI Central Big Data Warehouse helps you consolidate data that's spread throughout your organization, breaking down the information silos hampering your work. Integrate your diverse data types from genomic files, documents, images, spreadsheets, and databases. PHEMI Central then converts all data, including VCF, microbiome, metabolome, and clinical data into analytics-ready digital assets, so you can quickly investigate across data sources and types.

Get the Information You Need Quickly

PHEMI Central is built for performance. It indexes all data stored in the system so you get the information you need in a fraction of a second, across petabytes of data and dozens of different data types and sources. PHEMI Central supports keyword, graph, and geospatial indexes so you have the flexibility to catalog and find just the data you need—at speed.

Collaborate with confidence knowing that consent, privacy, security, and access rules are universally and consistently enforced for each user and data element, reducing the risk of data breach.



Simplify and Scale with Reliability and Economics

PHEMI Central helps you simplify your bioinformatics infrastructure, eliminating database proliferation, isolated omics and file server data sources, multiple bolt-on data management software packages, and specialized hardware. PHEMI Central gives you a simple point-and-click interface and self-serve capabilities with the PHEMI Data Catalog so your users can get to the data they need quickly, easily, and securely.

PHEMI Central is built on proven Hadoop big data technology so you can scale from terabytes to hundreds of petabytes using commodity servers and disk drives, lowering your overall cost of ownership by 60% compared to a traditional data warehouse approach. Moreover, built-in fault tolerance capabilities keep your system up and running when a hard drive or node fails.

Because PHEMI Central operates on a distributed big data system, you can efficiently compute large datasets in-situ, without transferring large amounts of data.

Enforce Consent, Privacy, Security, and Governance

PHEMI Central controls data management and enforces fine-grained privacy, security, and governance so that users can only see data they are entitled to see. The system controls rightful access to data and automatically enforces data sharing agreements. Consent directives can be explicitly linked to individual patient data and automatically enforced with fine-grained access control rules.

Depending on the user's attributes and data sensitivities, PHEMI Central automatically hides, de-identifies, masks, or shows each

data element, controlling what individuals can view and export. PHEMI Central aligns with appropriate privacy and security requirements, including Health Insurance Portability and Accountability Act (HIPAA) and Health Information Technology for Economic and Clinical Health (HITECH) Act as well as Canadian federal and provincial legislations.

Integrate and Collaborate

Whole-genome sequencing and other omic technologies generate massive amounts of data. Combine this with vast amounts of clinical information, and finding genetic and molecular variants related to a disease with an appropriate drug treatment plan is a complex and daunting task.

Pharmacogenomics: Integrate a rules base to help flag drug-gene interactions for drug safety, dose and efficacy in cancer and other diseases.

Precision medicine: Use whole genome or exome sequencing information to recommend a drug therapy for cancer, rare genetic diseases, and infectious diseases.

Biomarker discovery: Integrate and collaborate using de-identified genotype and phenotype information, including lab results and pathology reports, to find biomarkers pointing to novel clinically relevant disease subtypes with different prognoses and responses to therapy.

Detecting, classifying, and understanding microbes: Collect microbiome data and compare it against a library of known samples to study infectious diseases, methods of transmission, and drug resistance. High-throughput sequencing can help model the source of an outbreak, the strain involved, and the treatment plan.

Disease screening and diagnosis: Store and analyze diagnostic whole genome and exome sequencing data and lab information system logs for quality, research, and analytics purposes.

Unlock Your Digital Assets

PHEMI Central lets you unlock your digital assets, giving approved users and collaborators self-serve on-demand access to the PHEMI Data Catalog of datasets you've curated while remaining confident that consent, privacy, security, and governance policies are strictly enforced at all times.

Integrate with Your Infrastructure

PHEMI Central integrates with your existing bioinformatics and datacenter infrastructure. Standard interfaces allow you to quickly and easily work with your existing tools and remain confident that as new tools evolve, PHEMI Central will seamlessly adapt.

PHEMI Central works with your existing LDAP and data management systems. Data sources are easily integrated without complex and rigid schema mapping processes.

Choose Your Deployment Type

PHEMI Central is available as a managed cloud service or as an on-premise solution, depending on your IT preferences.

PHEMI Central makes it easy to adopt big data. The software is fully integrated and enterprise-ready, so you don't need to hire a team of Hadoop engineers and data scientists to build and maintain your system. And, you can start small, expanding incrementally. Contact PHEMI to see how you can move into big data in the next 30 days.

Contact us at info@phemi.com for a demo or to discuss our Precision Medicine solution.