SAPIENT

Discovery metabolomics and lipidomics at unmatched scale.

Sapient is a biomarker discovery organization providing **bespoke discovery metabolomics and lipidomics services to accelerate drug development programs.**

Leveraging high throughput mass spectrometry, biocomputational analysis, and large-scale human biology datasets, we **rapidly identify, validate, and translate dynamic small molecule biomarkers** of health, disease, and drug response, at an entirely new speed and scale compared to traditional approaches.

1 Human Biology Database
to validate and mine discoveries

Sapient has built an expansive proprietary data repository from analyses of hundreds of thousands of biosamples acquired from individuals across the globe. We use this data to amplify discovery potential, to confirm biomarker findings in independent human samples, and to validate preclinical and clinical discoveries.

Comprised of diverse disease-centric data including:

- Autoimmune
- Inflammation
- Cancer
- Cardiovascular
- Hematologic
- Infection
- Infectious
- Liver/GI
- Lung
- Metabolic
- Maternal-fetal
- Musculoskeletal
- Neurodegenerative
- Ophthalmologic
- Psychiatric
- Rare diseases
- Renal

Data, including in longitudinal datasets, from **100,000+ human biosamples**

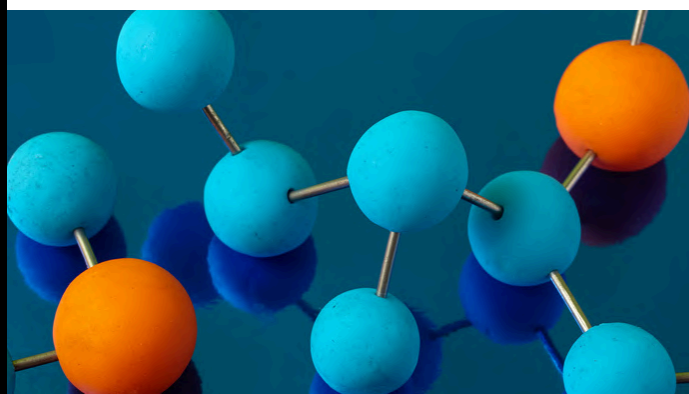**>10-30 years of follow-up** across individuals, with data on:
- Adjudicated clinical outcomes
- Demographic features
- Lifestyle factors
- Response to intervention
- Human genetics, microbiome, etc.

130M+ phenotypic data points linked to spectral data from biosamples

Rapidly growing database with data for 60+ diseases and disorders and new biosamples added every month

Why small molecules?

Circulating chemistry is key to understanding the non-genetic factors that influence disease. Dynamic organ physiology, inter-organ communication, host-disease interactions, and host-environment exposures are encoded in small molecule biomarkers.

Sapient focuses on small molecules because they have the potential to provide an unprecedented view into host and disease factors that modulate health status, disease pathobiology, and drug response across individuals.

2

High-Throughput Profiling
with next-gen analytical technologies

Sapient's proprietary rapid LC-MS (rLC-MS) systems allow us to take a biological sample like blood and, in that sample, capture and measure thousands of small molecules.

Why nontargeted?

Our nontargeted discovery screenings lead us to the most biologically relevant molecules – including those that may not be characterized. This amplifies your discovery potential to uncover novel biomarkers and pathways associated with disease mechanisms, disease progression, patient response, and more.

>15,000 small molecule biomarkers
assayed per biosample in nontargeted method

Profiles broad, complex chemistries
with molecular weight <2,000 daltons, including polar metabolites, polar lipids, nonpolar lipids, and bioactive lipids

>1,000 Tier 1 metabolite identifications
and >10,000 reference standards to elucidate putative structures of unknown molecules

Diverse sample types
including plasma / serum, tissue, CSF, urine, breast milk, dried blood spots, and many others (media, organoids, etc.)

Small sample volume requirements
as low as 150 µL liquid / 100 mg tissue

<1 minute
analytical cycle time

Capacity to analyze
>5,000 biosamples per day

Real-time QC
to mitigate matrix effects

3

Biocomputational Prioritization
to rapidly derive actionable insights

Our expert data science team applies statistical and machine learning approaches to analyze and integrate rLC-MS data with other large-scale datasets to identify key biomarkers of interest.
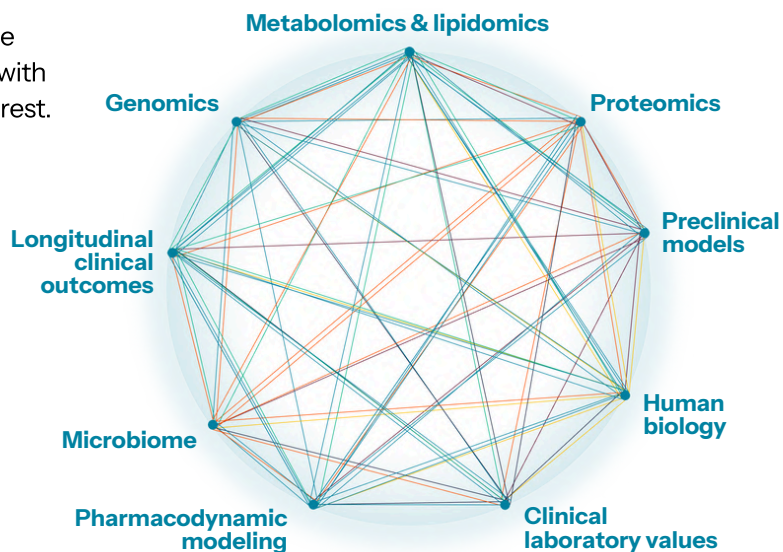
Proprietary peak extraction pipeline

- Scalable computing clusters
- Machine learning to remove up to 90% of false peaks without reducing true signals

Compound identification

- Tier 1 identification of >1,000 metabolites and lipids using three orthogonal chemical parameters
- Comprehensive library of >10,000 reference standards and database of 6 million MS2 spectra to elucidate putative structures for unknown molecules

INTEGRATIVE ANALYSIS OF:

- Metabolomics & lipidomics
- Genomics
- Proteomics
- Longitudinal clinical outcomes
- Preclinical models
- Microbiome
- Human biology
- Pharmacodynamic modeling
- Clinical laboratory values

Rapid translation from discovery to clinical impact.

Sapient delivers discoveries to answer key drug development questions critical to success, through rapid identification and validation of markers of the:

Right Disease

- Target ID and validation
- Disease mechanisms
- Early disease detection
- Disease progression

Right Patient

- Patient stratification
- Safety profiling
- Companion diagnostics
- Clinical trial enrichment

Right Therapy

- Dosing strategies
- Timing of treatments
- Target engagement
- Toxicology

The output of our analysis includes a formal presentation which interprets the data in the context of the biological question being asked, providing integrative analysis to reveal specific, actionable findings.

We can also leverage our CAP / CLIA clinical lab to translate key biomarkers into assays for clinical applications.

Data transparency

We believe it essential that you have full access to and ownership of your data and findings.

In addition to processed and computational datasets, Sapient provides all raw data and m/z files to sponsors for full transparency.

Your partner to **discover more and develop faster.**

We are here to help accelerate and optimize your drug pipelines to maximize probability of approvals, **elucidating the pathways** involved in disease, drug delivery, and the specific individuals that will respond to a particular intervention.

Team has **11+ years of experience** in advanced discovery

Headquartered in **San Diego, CA**

Interdisciplinary team of expert chemists, data scientists, engineers, and clinicians

CLIA-certified, CAP-accredited clinical lab

SAPIENT

Ready to discover more?

Schedule a time to discuss your programs with our scientists.

Visit: sapient.bio | **Email:** discover@sapient.bio | **Call:** 858.290.7010