intellegens

Applied machine learning

Machine learning for life sciences

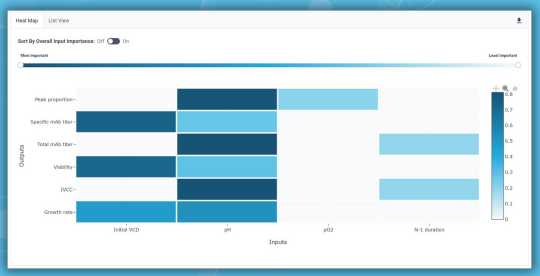
Maximise value from your data to accelerate life science R&D

Gain deep insights into chemical and biological systems

Make experiments and studies 50-80% more efficient

Guide decision-making, from discovery to manufacturing

Works even for sparse, noisy, research and process data



Example analytic - understanding which system parameters most strongly impact key target properties

Life science researchers face an exponential expansion in data volumes, while wrestling with objectives including: minimising time-to-market, maximising efficacy at the same time as ensuring safety, and creating better targeted therapies. **Machine learning (ML) can turn this data from a time-sink into a resource that accelerates innovation**. It can generate new ideas and provide insights that focus experimental programs and improve processes.

But the adoption of ML can be constrained by its usability, and by the need to handle difficult datasets, both large and small, that can often be sparse and noisy. Many ML methods cannot be trained using such data, or are cumbersome to set up and slow to run when analysing real pharmaceutical data.

Alchemite™ is advanced machine learning software that can build models from real-world, sparse, noisy experimental and process data, where other machine learning methods fail. Gap-fill and identify vital relationships in your data. Understand and design key aspects of chemical, biological, and materials systems. Propose optimal process parameters. And guide planning of experimental projects or clinical studies to dramatically reduce cost and time.

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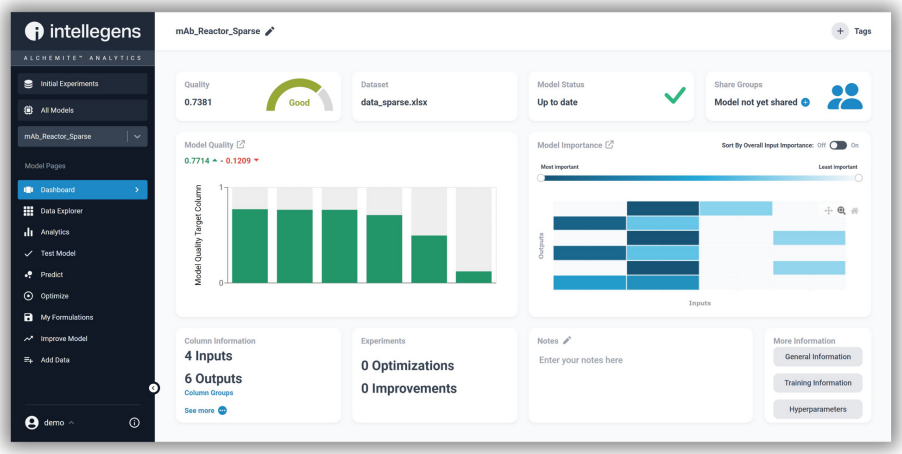

The Alchemite™ Analytics platform provides scientists with quick, easy access to advanced machine learning and powerful graphical analytics via a web browser user interface. Here, the dashboard provides an overview of a study of biopharmaceutical manufacturing.

Example applications

Drug discovery: focus experimental programs and provide insights into key relationships that drive activity. Takeda analysed a large pharma dataset, predicting complex biological properties. Genentech optimised kinase profiling programmes. Alchemite™ also proposed a new candidate in an anti-malaria project.

Translational medicine: predict efficacy and toxicity, identify biomarkers, reduce experimentation. AstraZeneca predicted PK parameters. A*STAR Institute identified the dosage for a stem cell therapy.

Formulation and manufacturing: design formulations for drug delivery and optimise manufacturing processes, improving efficiency and yields. Intellegens and CPI are engaged in a major project on oligonucleotide manufacturing and Alchemite™ has been widely-applied in formulation development.

Clinical studies and patient data: extract more value from study data and target studies more effectively, with time and cost savings. Projects have included optimising studies on pharmacokinetic response.

Alchemite™ for life sciences - unique features

- Works out-of-the-box on sparse, noisy data (unlike most ML methods): get started, fast, and impute data to fill gaps in your datasets and knowledge
- Delivers accurate estimates of uncertainty in its predictions (supporting robust decision-making)
- Provides guidance on next steps in a study or experiment (using Bayesian optimisation), enabling you to achieve project goals with fewer tests
- No-code operation via a user interface optimised for tasks such as design of experiments (for example, supporting specification of complex constraints)
- Computationally efficient - works fast on large datasets.

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