PRESS RELEASE

ALCHEMITE™ FOR OLIGONUCLEOTIDE MANUFACTURING HARNESSES AI TO SPEED PROCESS DEVELOPMENT FOR NEW THERAPEUTICS

Software results from two-year collaboration between CPI, Intellegens, and industry partners

Cambridge, UK – 2 September, 2025 – Intellegens today announced the availability of a new software solution designed to accelerate and streamline process development for oligonucleotide therapies through advanced data 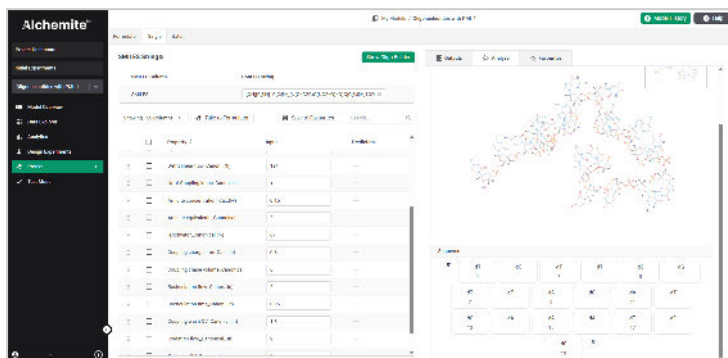integration and machine learning. Alchemite™ for Oligonucleotide Manufacturing is the outcome of a two-year collaborative project led by Intellegens and CPI to develop and validate digital tools that apply machine learning (ML) to oligonucleotide manufacturing. As previously announced, the project was supported by the Innovate UK 'Transforming Medicine Manufacturing' programme and had direct input from six leading research partners, including top ten pharma companies such as Novartis and specialist biotech companies such as Silence Therapeutics.

Oligonucleotide therapeutics are poised to make a significant impact owing to their high specificity and ability to treat a broad range of diseases. However, oligonucleotides are large, complex molecules with challenging synthesis, purification, and analytical requirements. There are currently few products on the market and manufacturing knowledge and experience is limited outside a small number of specialist companies.

Alchemite™ for Oligonucleotide Manufacturing leverages the proven capabilities of the Alchemite™ machine learning method to train models that uncover complex relationships linking production processes and product quality. These models enable accurate performance prediction and development of optimized quality control strategies. By interpreting both structural information of oligonucleotides and key processing parameters, Alchemite™ delivers a comprehensive, system-level view enabling efficient and informed process development.

Key features include a sequence-specific optimization solution for Solid Phase Oligonucleotide Synthesis (SPOS) that automates the preprocessing of raw synthesis logs, deconvoluted mass spectrometry data, and reagent metadata. Alchemite™ extracts valuable

insights, identifies likely impurities in newly designed oligonucleotide sequences, and suggests process optimizations to mitigate those impurities. Addressing these critical bottlenecks in the oligonucleotide development process delivers higher product yields, improved productivity, and reduced time and cost, with fewer experiments required for process development.

<< Alchemite™ for Oligonucleotide Manufacturing software. More images can be downloaded at intellegens.com/oligos/.

Ben Pellegrini, CEO, Intellegens, said: "The project has leveraged Alchemite™ machine learning with the domain knowledge of CPI and the project partners to create new tools and user interface enhancements that make a tailored solution for oligonucleotide applications. This reduces reliance on senior experts for more routine process optimization tasks and helps all oligonucleotide researchers to gain new insights and focus their efforts."

Barrie Cassey, Technology Lead at CPI, said: "We've shown through this project how combining AI with process expertise can help exploit the potential of oligonucleotide therapeutics. Bringing oligonucleotides to market is costly, meaning very few companies are able to deliver the full potential of this life-saving and life-changing technology. The work we've done in developing and validating the Alchemite™ tools will reduce development times and improve manufacturability of oligonucleotide therapeutics."

Alchemite™ for Oligonucleotide Manufacturing can be licensed from Intellegens, providing an integrated package that provides research team members with web browser-based access to oligonucleotide productivity tools backed up by cloud-based access to the Alchemite™ computational engine, configuration services for specific data and analytical techniques, and ongoing partnership support from the Intellegens Science Team.

Further information

More information, including **images** and details of a **webinar on 23rd September** at which the solution will be demonstrated, can be found at intellegens.com/oligos/.

About Intellegens

Intellegens enables R&D organizations in chemicals, materials, and life science to accelerate innovation through the application of advanced machine learning. Customers find new product and process solutions, get to market faster, and break through research bottlenecks. The Alchemite™ software, based on a machine learning method originally developed at the University of Cambridge, offers easy-to-use apps focused on key challenges for chemists, biologists, formulators, materials researchers, data scientists, or their managers. Unlock insights hidden in data. Guide decision-making. Reduce experimental workloads by 50-80%. Share results and collaborate across R&D teams.

www.intellegens.com

About CPI

CPI catalyses the adoption of advanced technologies and manufacturing solutions to benefit people, places, and our planet.

We're a pioneering social enterprise that accelerates the development, scale-up and commercialisation of smart AgriFoodTech, energy storage, HealthTech, materials, and pharma innovations. Through our incredible innovation experts and infrastructure, we look beyond the obvious to transform healthcare and drive towards a sustainable future.

As a trusted partner of industry, academia, government, entrepreneurs and the investment community, we connect the dots within the innovation ecosystem to make great ideas and inventions a reality. We believe by working together we can build a better collective future, and as part of the High Value Manufacturing Catapult, we facilitate access to world-class organisations to deliver transformation across industries and landscapes.

Creating lasting global impact from the North of England and Scotland, we invest in people and disruptive technologies to invigorate economies, create circular supply chains and make our world a better place.

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