Press Release

First results confirm drug discovery potential of the European Lead Factory

Early confirmation of the drug-discovery potential of the European Lead Factory has emerged with delivery of the first two Qualified Hit Lists (QHLs).

Launched in January 2013, the Innovative Medicines Initiative (IMI)-funded project gives the entire European research community access to a unique, high quality and extensive lead-like compound library, the Joint European Compound Library (JECL). The European Lead Factory also offers the cutting-edge infrastructure and expertise needed to screen against novel biological targets. This creates an outstanding opportunity to discover novel compounds, summarized in a so-called Qualified Hit List (QHL), for use either as pharmacological tools or as the starting points for drug discovery projects.

Progress has been rapid: in addition to programmes taking place within participating EFPIA members, the European Lead Factory has already accepted 26 biology target programmes from universities and small and medium-sized enterprises (SMEs) across Europe, culminating in the current delivery of the first two QHLs. The public-private nature of the initiative is illustrated by the fact that these hit lists go to the Netherlands Cancer Institute (NKI) and to a corporate partner in the project (UCB).

Huib Ovaa, professor and group leader in chemical biology at NKI said that industry-standard facilities are now available for the best ideas: “Access to the European Lead Factory has fast-forwarded our drug discovery programme in the field of oncology by several years. The lead-like nature of JECL compounds and the expertise and facilities provided by the European Lead Factory mean that our results are of very high quality. This QHL goes far beyond a simple list of primary hits and I’m looking forward to further exploring the outcomes of this programme.”

Stan van Boeckel, Chief Scientific Officer of the Pivot Park Screening Centre in Oss, the Netherlands, emphasised the benefits of collaboration: “It’s very exciting to work together with researchers from all over Europe to translate their innovative targets and ideas to our ultra-high throughput screening (uHTS) facilities, and to provide them with quality hits for a flying start in drug discovery.”

Alongside the public target programme, industrial partners are also screening their own targets against the JECL. Jeremy Davis, Director of Medicinal Chemistry at UCB, said that this early hit list shows how important the European Lead Factory will be over the next few years: “For a highly challenging target we had taken the hits generated in-house as far as they could go. Access to the JECL has provided us with a list of highly interesting hit compounds and a second chance to develop lead molecules.”
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Targets submitted to and accepted by the European Lead Factory are screened against the JECL, which contains over 300,000 compounds from the previously inaccessible proprietary collections of seven major pharmaceutical companies. As part of the project, the JECL will be expanded until it contains up to 500,000 compounds, via crowdsourcing of chemical library ideas. From January 2014, a web portal has enabled the submission of both biology targets and external compound library proposals to the European Lead Factory. Chemical library proposals benefit from fixed monetary rewards if they lead to the addition of more than 50 compounds to the JECL. At the time of writing, 214 chemistry proposals have been submitted by public chemistry partners, and 52 libraries have been successfully validated, resulting in more than 12,000 compounds synthesized and ready for screening.

Biological target programme owners receive QHLs of up to 50 compounds that show activity against their target and also fulfil additional (de)selection criteria as set out collaboratively in the screening programme.

The UCB and NKI programmes will now progress to follow-up work, designed ultimately to generate drug candidates. UCB will conduct research in-house, while NKI will be using the facilities provided by the European Lead Factory that are able to deliver an Improved Hit List (IHL). Phil Jones, Director of the European Screening Centre, Newhouse, said that these facilities, together with the opportunity to collaborate on developing an IHL, are very valuable to public target contributors: "Working closely with the programme owners, we offer extensive support potentially including biophysical, biostructural and in vitro DMPK experiments to further characterise the hit compounds and establish structure-activity relationships. Using the QHL as a starting point, we will apply our medicinal chemistry expertise to identify important functional groups and explore how changes to those groups can provide the programme owner with compounds showing the best activity levels."

The European Lead Factory aims to accept and execute another 100 public programmes over the next four years. “By combining the innovation of academia, the agility of SMEs and the experience of pharma, the European Lead Factory is a true public-private partnership aiming to change the game of drug discovery in Europe,” said Michel Goldman, Executive Director of the Innovative Medicines Initiative.

The European Lead Factory is a novel, open-innovation platform for drug discovery, managed by an international consortium of 30 partners and funded under the European Innovative Medicines Initiative (IMI). It has been designed to offer unrivalled opportunities to non-contractual public and private parties for the discovery of new drug lead molecules.

European academics and SMEs benefit from access to an ‘industry-like’ discovery platform that encourages active participation. The ultimate goal is to address neglected diseases including bacterial infections, psychiatric disorders and oncology.
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Total project budget is around €196 million, with €80 million from the European Commission and €91 million of ‘in kind’ contributions from participating members of the European Federation of Pharmaceutical Industries and Associations (EFPIA). A further €25 million comes from non-EFPIA participants.

High quality biology targets and chemistry scaffolds are being sought to promote cutting-edge research, with the aim of moving quickly to development of high-quality drug lead molecules on an unprecedented scale. Submitters of promising targets can also choose to partner with EFPIA companies, accessing the resources and support needed to progress all the way to drug trials.

To take advantage of this opportunity, or for further information, see the website at www.europeanleadfactory.eu.

*Innovative Medicines Initiative, Europe’s largest public-private partnership (www.imi.europa.eu)

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Project executive partners communicating on behalf of the European Lead Factory:

About Bayer HealthCare

The Bayer Group is a global enterprise with core competencies in the fields of health care, agriculture and high-tech materials. Bayer HealthCare, a subgroup of Bayer AG with annual sales of €17.2 billion (2011), is one of the world’s leading innovative companies in the healthcare and medical products industry and is based in Leverkusen, Germany.
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The company combines the global activities of Animal Health, Consumer Care, Medical Care and Pharmaceuticals divisions. Bayer HealthCare’s aim is to discover, develop, manufacture and market products that will improve human and animal health worldwide.

Bayer HealthCare has a global workforce of 55,700 employees (Dec 31, 2011) and is represented in more than 100 countries.


About TI Pharma

Top Institute Pharma (TI Pharma), a non-profit organization, enables groundbreaking pharmaceutical research for the development of new medicines by establishing and managing international public-private partnerships. Within an open innovation model, scientists, the business world, patient organizations and others collaborate in frontrunner, multidisciplinary research aimed at improving the development of socially valuable medicines.


About Taros Chemicals

Taros Chemicals, an independent and privately owned contract research company based in Dortmund, Germany, has been serving the needs of biotech, pharmaceutical and chemical companies since 1999. More than 6,000 research and process chemistry projects have been successfully delivered to a global customer base. Taros Chemicals runs state-of-the art lab facilities and employs a team of graduates (50% of whom hold PhD degrees in Chemistry) who are committed to supporting the diverse needs of its customers in efficient drug discovery and medicinal chemistry. Being committed to supporting customers in efficient drug discovery and medicinal chemistry initiatives, Taros developed the software suite “Taros Gate”. Taros Gate is unique software that puts cost, time and chemistry information at a Project Leader’s fingertips - 24/7 from anywhere in the world.

More information on Taros Chemicals: www.taros.de.

Note: For a full list of partners, please go to www.europeanleadfactory.eu.
About the Innovative Medicines Initiative

The Innovative Medicines Initiative (IMI) is the world’s largest public-private partnership in health. IMI is improving the environment for pharmaceutical innovation in Europe by engaging and supporting networks of industrial and academic experts in collaborative research projects. The European Union contributes €1 billion to the IMI research programme, and this is matched by in kind contributions worth at least another €1 billion from the member companies of the European Federation of Pharmaceutical Industries and Associations (EFPIA). The Innovative Medicines Initiative currently supports 40 projects, many of which are already producing impressive results. The projects all address major bottlenecks in drug development, and so will accelerate the development of safer and more effective treatments for patients.
