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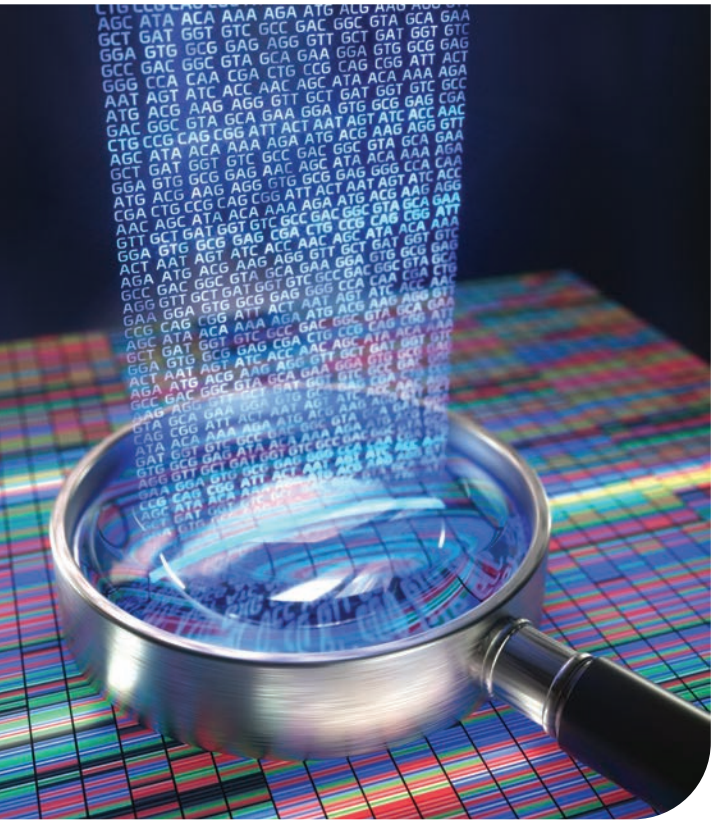
BioPharma Services
News

BIO/PHARMA - MEDICAL DEVICES - COSMETICS - BIOCIDES



Eurofins Viracor targets precision oncology with the launch of PanCancerIQ

By Doug Irving, Sr. Marketing Manager, Eurofins Viracor BioPharma, DougIrving@eurofins-viracor.com

In the past decade, the field of oncology has witnessed substantial changes, with an increasing focus on precision medicine based on genomic variants. Molecular biomarkers have therefore become fundamental, not only to inform tumour diagnosis and prognosis, but also to drive therapeutic decisions in daily practice, as well as shaping the design of clinical trials for targeted cancer therapy development.

Precision medicine research is realising rapid adoption driven by several factors, including the introduction of next-generation sequencing (NGS) technologies, and advancements in bioinformatics, which have accelerated scientific discovery in genomics. The implementation of precision medicine and genomic profiling technologies is revolutionising the field of precision oncology, as comprehensive genomic analyses become increasingly available in both clinical and research settings.

NGS-based approaches are informing every stage of the drug discovery process, from basic research and target identification through to clinical trials. The new Eurofins Viracor PanCancerIQ™ NGS-based genomic profiling assay service uses the Illumina TruSight Oncology 500™ (TSO) technology to identify genomic aberrations in tumour samples. More specifically, it is a comprehensive genomic profiling service that reports on a panel of 523 genes, supporting identification of all four main classes of alterations known to drive cancer growth: mutations, insertions and deletions (indels), copy number variations (CNV), and gene fusions. It therefore provides a more efficient, cost and tissue saving tumour analysis compared to serial single-biomarker analyses. This type of broader genomic analyses can also look beyond actionable variants in known genes, offering the potential to provide insight on acquired resistance to treatments or to suggest potential synergistic drug combinations.

With the addition of this new service, Eurofins Viracor expands its footprint in oncology clinical trial testing. Combined with Viracor's broader analytical testing solutions, PanCancerIQ can help accelerate precision oncology studies by screening patients for recruitment in genomically informed trials, unveiling potential new markers of resistance or response to new drugs currently in biopharma pipelines, as well as monitoring tumour molecular evolution upon recurrence or metastasis.

The new PanCancerIQ panel is also planned to be offered for liquid biopsies (cfDNA) in late 2021, expanding Eurofins Viracor's oncology portfolio for biopharma clients by enabling studies where tissue biopsies might not be an option. For more information, visit: *www.Viracor-Eurofins.com*

In Vitro potassium release assay for liposomal formulations of Amphotericin B – a requirement for Bio-IND applications

Ritika Uppal Mukherjee, PhD, Section Head, DMPK, ritika.u@advinus.com; Bhavesh Patel, PhD, Head of Department, DMPK, bhavesh.patel@advinus.com.

Amphotericin B remains the standard of care for life-threatening fungal infections. However, its use is limited due to its severe acute and chronic toxicity. Amphotericin B forms pores in sterol-containing membranes, resulting in leakage of monovalent ions such as potassium and other cell constituents. This is the primary mechanism of action for its anti-fungal activity, as well as toxicity.

Liposomal formulations where Amphotericin B is embedded in the phospholipid layer have been developed to improve this safety profile. These formulations achieve slow release of Amphotericin B and reduce toxicity while retaining potency. During the COVID-19 pandemic, Amphotericin B liposomal formulation was the single line of treatment for patients suffering from Mucormycosis.

Due to high demand, generic companies are investing in developing similar products. To prove bioequivalence of such products, one of the studies that needs to be performed (based on the draft Office of Generic Drugs guidance) is the *in vitro* potassium release assay.

Eurofins Advinus has:

- Established this assay to compare the potassium released from red blood cells upon incubation with reference (RLD) and test formulations to support Bio-IND applications.
- Measured potassium concentration using Inductively Coupled Plasma Mass Spectrometry (ICP-MS).
- Validated the *in vitro* potassium release assay and bioanalytical method in RBCs from human and preclinical species.

The *in vitro* assay can be used during screening or batch release of exhibit batches of generic Amphotericin B formulations. The assay developed is a high throughput assay performed in 96-well plates and replaces traditional methods of potassium analysis with more sensitive ICP-MS. The concentration of formulation that causes 50% release of potassium is considered as K50 and is a measure of relative toxicity. This *in vitro* assay substitutes the need for *in vivo* studies to prove similarity of the test formulations to the innovator product. For more information, visit: *www.advinus.com*

EU MDR requires onsite Person Responsible for Regulatory Compliance

Daniele Lioi, Senior Consultant and Team Leader, Eurofins Medical Device Consulting, DanieleLioi@eurofins.com

The Medical Devices Regulation (MDR) (EU 2017/745) has recently established significant changes to European legislation in relation to medical devices. Article 15 of MDR now requires that manufacturers and Authorised Representatives (ARs) must have at least one Person Responsible for Regulatory Compliance (PRRC) nominated within their organisation.

Who is the PRRC? The PRRC is a qualified professional who is a university or other form of formal education graduate in law, medicine, pharmacy, engineering or another relevant scientific discipline, and has at least one year of professional experience in regulatory affairs or in quality management systems relating to medical devices. Alternatively, a person with at least four years professional experience in regulatory affairs or with medical device quality management systems is eligible to become a PRRC.

The PRRC should be an employee of the manufacturer (or the AR), unless the company has fewer than 50 employees and an annual turnover less than EUR 10 million. In this case, the organisation can outsource the PRRC role to an expert.

What are the responsibilities of a PRRC? The PRRC has to supervise and control the manufacturing of medical devices and carry out post-market surveillance and vigilance activities. The PRRC has to make sure that the conformity of the devices is appropriately checked before a device is released; that the technical documentation and the EU declaration of conformity are drawn up and kept up-to-date; that the post-market surveillance obligations are compiled; that the reporting obligations referred to Vigilance in Articles 87 to 91 are fulfilled; and that, in the case of investigational devices, the required statement (ref. Section 4.1 of Chapter II of Annex XV) is issued.

Eurofins support for manufacturers: Eurofins' experts provide support to Medical Device Manufacturers to meet PRRC requirements, including role outsourcing. Visit: *www.Eurofins.com/Medical-Device* for all assistance needed.

Innovative particle size distribution and thermal analysis techniques are key to solving powder characterisation challenges

Mathieu Van Schel, Group Leader, Eurofins BioPharma Product Testing, Les Ulis, France, mathieuvanschel@eurofins.com; Terry Schuck, Senior Manager of Biologics Raw Materials, Eurofins BioPharma Product Testing, Lancaster, PA, TerrySchuck@eurofinsUS.com

Powder characterisation is a key challenge for the pharmaceutical industry at every step of the product lifecycle: from R&D formulation, production, as well as quality control for testing raw materials, API, or even final products. Particle size of a pharmaceutical material can affect the flow characteristics of a powder. This can impact manufacturing processes, such as blending, tableting, dissolution, and bioavailability of the active ingredient. Thermal characterisation of pharmaceuticals can help identify polymorphism and purity. These characteristics provide information for drug development, pre-formulation, and quality control. Moreover, the regulation chapters around the powder characterisation are becoming more restrictive as authorities expect the use of more state-of-the-art and innovative techniques and data to support pharmaceutical products.

To achieve these powder characterisation techniques, the Wet Chemistry / Particle Size Distribution (PSD) teams at Eurofins EPQC (les Ulis) and Eurofins BioPharma Product Testing (Lancaster, Pa) use a broad range of equipment to perform PSD analysis at macro and nano scales and thermal analysis.

- For PSD analysis, the teams are capable of analysing powder at the macro scale level using various types of sieves (air jet or regular sieves), visible microscopes, as well as analysing powder at the nano and macro scale using laser diffraction equipment (Beckman Coulter LS 13 320, Malvern Mastersizer 3000, equipped with a couple of analysis modules – e.g.: aero S).
- For thermal characterisation, the teams have the ability to quantify melting temperature (Tm), crystallisation temperature (Tc), glass transition temperature (Tg) and purity testing using Differential Scanning Calorimetry (DSC) or a broad range of thermometers.

Today, numerous powder matrices are analysed every year at Eurofins EPQC and Eurofins BioPharma Product Testing sites according to Ph. Eur., USP regulations, and customer-based methods.

In addition, if clients are more interested in Particle Size Distribution characterisation of liquid or micelles, Eurofins is also able to perform such activities (using either our Malvern Mastersizer 3000 or our Malvern Zetasizer). Contact us for further information or visit: *www.eurofins.com/ebpt*

EBPT Ireland expands footprint into high-throughput glycoprofiling of biologics with 2-AB labelling, offering development, qualification and validation services

Ignacio Portero Cabriada, Senior Scientist, Biopharmaceutical Chemistry Method Development and Validation, Eurofins BioPharma Product Testing, IgnacioPorteroCabriada@eurofins.ie

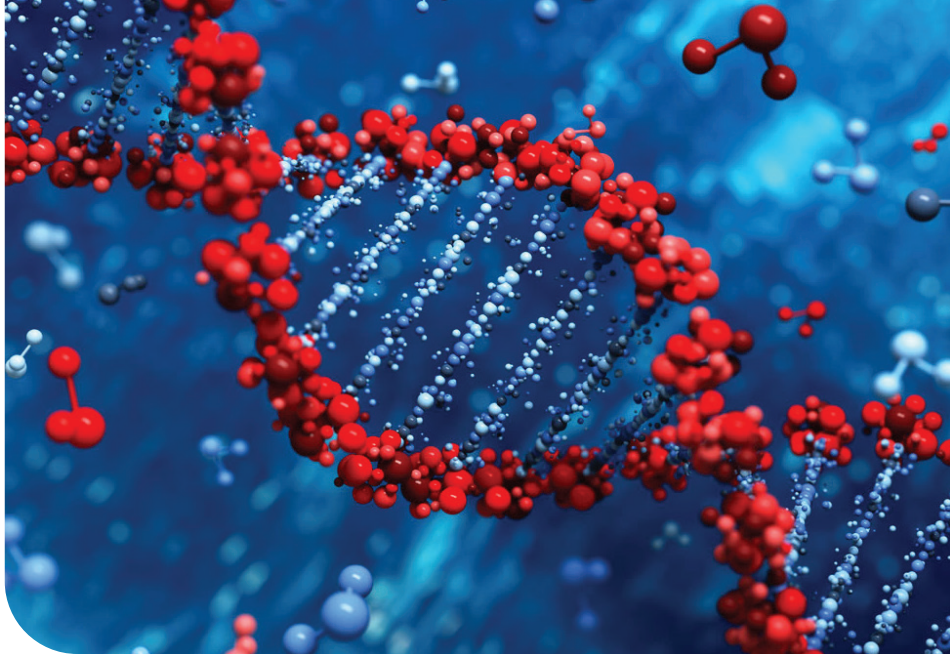
Glycosylation (addition of sugar moieties) is one of the most common and predominant post-translational modifications in proteins. Glycosylation plays a critical role in the protein structure integrity, stability and is essential for the functionality of proteins. In protein based biologics drugs, glycosylation impacts receptor binding and other recognition functions, essentially influencing the efficacy of the drug. Glycosylation is considered as a Critical Quality Attribute (CQA) for its direct impact on the safety and efficacy of the drug.

With the advent of biosimilars, “fingerprint” match for CQAs is expected by various regulatory agencies for biosimilar application, and a clinical equivalence is not enough. Hence, characterisation of glycosylation (glycol-profiling) during development and manufacturing of a drug product is essential to ensure the required safety and efficacy and, in applicable cases, to establish biosimilarity.

Glyco-profiling is usually carried out by releasing the glycan moieties from the protein, labelling them with a fluorescent dye and analysing the labelled glycan moieties using a fluorescence detector. A hydrophilic interaction liquid chromatography (HILIC) is typically used for resolving the glycan moieties in the sample. The gold standard for fluorescent labelling for glycoprofiling has been the 2-AB dye. The traditional method for glycoprofiling is time consuming (2-3 days), which poses a severe challenge in high-throughput screening and characterisation of glycan. Recent advances in technology have resulted in the development of kit-based 2-AB labelling, reducing the sample preparation time from days to 2-3 hours.

EBPT Ireland now has the capability of and capacity to execute glycoprofiling using kit-based 2-AB labelling to assist clients through all the steps of their development and manufacturing process – from analytical method development to analytical method validation and from screening and confirmatory testing to routine quality control needs related to glycoprofiling. The team has established a platform development and qualification (HILIC-UPLC) approach for this technique that would significantly reduce the overall project timelines and hence cater to the fast-paced demand in the current market. For more information, visit: *www.eurofins.ie/biopharma-services*

US Air Force awards $30 million contract to Eurofins Genomics to expand Oligonucleotide (DNA) capacity for diagnostic testing



James Corne, Business Unit Manager for Applied Genomics and VP of Marketing, Eurofins Genomics, JamesCorne@eurofins.com

The US Department of Air Force (DAF), in coordination with the Department of Health and Human Services (HHS), awarded a $30 million contract to Eurofins Genomics US to build a new production facility and expand capacity for the manufacturing of reagents used in COVID-19 diagnostic tests.

The new facility will focus on the production of GMP grade synthetic DNA, also called oligonucleotides (oligos), for molecular diagnostic testing. Molecular testing is an extremely accurate method for identifying viruses and utilised by a wide array of different applications. In fact, all PCR-based COVID-19 tests are based on molecular technology and accredited as the most reliable type of COVID-19 test.

Oligos are a key reagent in molecular diagnostic testing but vulnerable to supply shortages. Producing synthetic DNA requires highly regulated, high-throughput manufacturing. During spikes in demand, such as the current COVID-19 pandemic, oligo manufacturers face capacity constraints when meeting demand. This industrial expansion for Eurofins will significantly increase oligonucleotide production capacity. The partnership with DAF and HHS will solve a critical supply chain problem. The new facility will increase domestic production of oligos to combat current and future pandemics and empower a broader range of research in the molecular diagnostic field.

The new 65,000 ft^2 facility will be located next to Eurofins Genomics' current facility in Louisville, KY, which is a logistical hub for the Eurofins Group in the United States. The strategic location of the new facility will enable fast and reliable distribution of these key reagents across the country, further mitigating supply chain issues and supporting domestic laboratory testing for COVID-19. The expected completion date of the new building is the second quarter of 2023. For more information, visit: *www.eurofinsgenomics.com*

General contact
pharma@eurofins.com

Early Clinical Development
(Full service CRO, Phases I and II, Clinical Trials Unit)
early-clinical@eurofins.com

Bioanalytics, pharmacokinetics, metabolism
bioanalysis@eurofins.com

Global Central Laboratory
clinicaltrials@eurofins.com

BioPharma Products Testing US & EU
pharma@eurofins.com

Pharma Discovery Services
discoveryservices@eurofins.com

CDMO Services
cdmo@eurofins.com

For further information & contacts in other countries please refer to our website *www.pharma.eurofins.com*.