Busta 3

-Si discuta di possibili altri metodi di fissazione di campioni biologici e si commentino i vantaggi e gli svantaggi delle alternative

- Si facciano esempi di modalità di marcatura in fluorescenza di strutture subcellulari

- Secondo il Codice di comportamento della Scuola Sant'Anna, come si deve comportare il lavoratore che ritenga possa sussistere un conflitto, anche potenziale, tra le attività del proprio ufficio e un interesse personale proprio?

- Legga e traduca il paragrafo scelto aprendo a caso la rivista "European Biotechnology" ISSN 2364-2351Autumn Edition 2023

- Quali sono i test statistici più comuni utilizzati in biologia?

Busta 4

-Quali tipi diversi di anticorpi esistono per immunocitochimica/immunoistochimica?

- In che modo si smascherano gli antigeni?

- Quali sono i compiti e attribuzioni del Servizio di Prevenzione e Protezione?

- Legga e traduca il paragrafo scelto aprendo a caso la rivista “European Biotechnology” ISSN 2364-2351Autumn Edition 2023

-Quali sono le caratteristiche dei software di elaborazione ed analisi di immagini in immunocitochimica

Mark Post presents the first cultured hamburger made from animal muscle stem cells back in 2013.

tablished companies from other areas of biotechnology have also asked how this could be done for fermentation, for example," says van Haaster. Biotech organisations from other countries have also started talking about the new legislation and how to get their own politicians to act. In light of the progress made in the Netherlands, the German biotech organisation BIO Deutschland has now called for significant improvements in the framework conditions for the development, production, testing and approval of these novel foods in the EU and Germany, and has published a position paper on the subject.

However, this does not change the fact that the framework for the approval of novel foods in the EU is still more lengthy and uncertain than in places like Singapore, the US, but also possibly Switzerland or the UK. Hollandbio is actively working to raise Dutch government and stakeholder awareness of these necessary improvements, which will contribute not only to a thriving biotech sector, but more importantly to healthier and more sustainable food production.

An example for Europe

A pan-European organisation in the novel food industry, Food Fermentation Europe (FFE) is using the new regulation as an opportunity to step up calls for improved framework conditions. The new industry alliance represents companies like Better Dairy, Formo, Imagindairy, Onego Bio, Standing Ovation, Those Vegan Cowboys, and others. FFE spokesman Christian Poppe told EUROPEAN BIOTECHNOLOGY that the organisation welcomes the Netherland initiative with open arms. "This is also a demand that we make of German politics," he said.

"Food Fermentation Europe (FFE) enthusiastically supports the Dutch initiative, which allows innovators in the cultivated meat sector to conduct pre-market tastings of their novel products. This not only provides consumers with an invaluable opportunity to engage with these products but also proves crucial as these companies approach the brink of commercialisation. FFE strongly encourages other European Union (EU) member states to follow the Dutch example by establishing comparable regulatory frameworks," FFE spokesman Poppe concluded.

After all, it is the customer who in the long run decides. And the earlier in the process that feedback can be fed back, the better. ■

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Source of Picture: © Mosa Meat

AI – tool or trouble?

DATA SCIENCE CONSULTING Depending on who you talk to, artificial intelligence (AI) is either a saviour or an enslaver. The concerns range from loss of jobs through to robots running society. However, in the life sciences, the use of AI and machine learning (ML) have created some excitement over their potential applications.

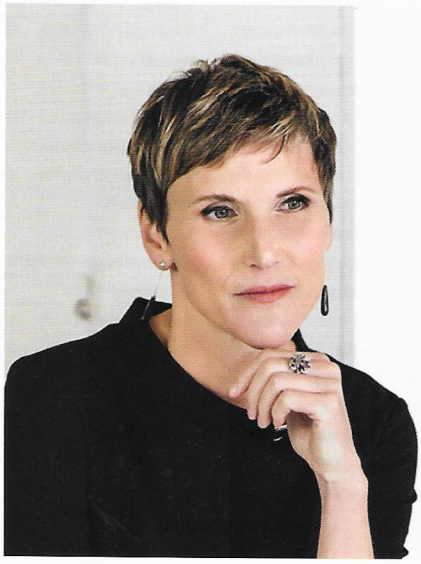
› Dr Liesbeth Ceelen, CEO and board member of BioLizard, Belgium

While AI has been steadily evolving in the IT community for decades, for the general public it seems to have only recently made the leap from science fiction to reality. Authorities have identified the need for regulation of AI, while technology-savvy entrepreneurs have already created applications for both highly-skilled personnel and the average consumer, the most prominent example being ChatGPT.

This has led to an ongoing critical review of AI to investigate its uses in and effects on industry and society, such as cost savings, innovation and employment. New applications of AI are also steadily being developed, and data-intensive disciplines in the natural sciences, such as biology or medicine, can particularly benefit from the new possibilities, which enable users to process more data than ever before.

To demonstrate the impact of AI, Mount Sinai Hospital in the US is among a group of leading hospitals pouring hundreds of millions of dollars into AI software. They are buoyed by a growing body of scientific literature – such as a recent study finding that AI readings of mammograms detected 20% more cases of breast cancer than radiologists – along with the conviction that AI is a valuable component of the future of medicine.

As most scientists are neither programmers nor informaticians, a new consulting industry is budding. Supporting the evolution and application of AI in science, and providing the interdisciplinary expertise required to translate the story of any research undertaking into code, they become a gateway for accessing AI, supplementing a difficult-to-find expertise.



Dr Liesbeth Ceelen, CEO and board member of BioLizard

Applications in biotech

In the evolution of medicine, technology has always played a part. In the 1990s and early 2000s, AI algorithms began deciphering complex patterns in X-rays, CT scans and MRI images to spot abnormalities. Likewise, companies incorporated algorithms that scanned masses of patient data to spot trends when developing tailored treatments. AI has generally been welcomed by life science companies for its ability to work with massive amounts of data, and to generate data-driven results such as new drug targets.

Several AI-native drug discovery companies have progressed AI-based molecules into clinical trials, reporting greatly accelerated timelines and reduced costs, and raising high expectations in the R&D community. This performance has been discussed in a recent Nature Reviews article, where the disclosed discovery programmes and preclinical assets of the top 20 of these companies were compared with the top 20 of Big Pharma. Astoundingly, these young AI-native companies already have a combined pipeline with close to 50% of the number of assets that the top 20 of big pharma are running.

AI behind the curtain

Being involved in bringing many projects and innovations from concept to user, the BioLizard team has experienced and worked with a wide range of requests and ideas for the application of AI across the biotech and pharma space.

To give an example of how AI is implemented from concept to product, one recent project for a client was an end-to-end, data-driven solution for predicting clinical outcomes in transplantation patients. The main focus was on using RNA sequencing (RNASeq) data to predict different types of organ transplant rejection in patients. The task was to expand and improve the efficiency of the approach by providing an end-to-end workflow, from input of raw RNASeq data through to the prediction of transplantation rejection.

The data analytics & AI team first set out to create predictive models for both acute and long-term organ rejection using a dataset of 60,000 genes from 150 patients. However, the complexity of