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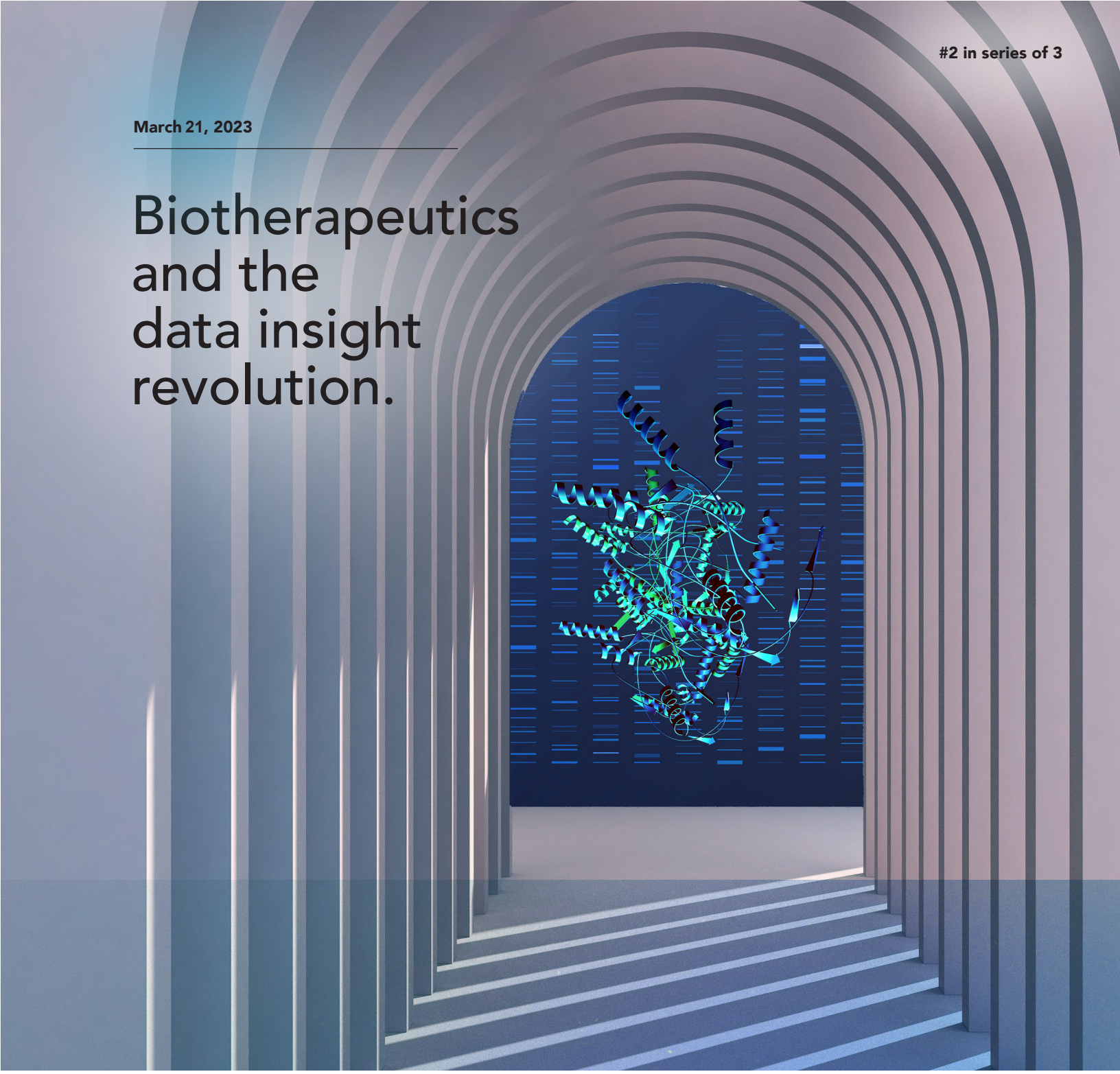
Biotherapeutics and the data insight revolution.



Massive shifts are on the horizon:

One tool to rule them all

LENS[ai] Integrated Intelligence Technology

Understanding big data and what it means to the field of biotherapeutics:

The power of multi-omics

Multi-omic analysis is a field of research that involves the integration and analysis of multiple types of biological data from various "omes", such as genomics, transcriptomics, and proteomics.

With the goal to gain a more comprehensive understanding of complex biological systems by combining information from different molecular levels, identifying connections between them, and using the output information to crack previously unsolvable scientific questions.

For example, a multi-omic analysis of a disease might involve examining genetic variations, gene expression patterns, and protein abundance across multiple samples to identify potential biomarkers and pathways involved in a disease. It can also be used to study the interactions between different biological systems, such as the interactions between the microbiome and host disease susceptibility or disease progression.

Historically, the complex analysis has been challenging due to the large amount of data generated and the need for sophisticated computational methods to integrate and analyze the data effectively. However, the insights gained can provide a more complete understanding of biological systems and help to identify new targets for therapeutic intervention.

Multi-omic analysis has the potential to revolutionize personalized medicine by enabling the identification of more precise and effective treatments for individual patients based on their unique genetic and molecular profiles. →

A few of the ways it may be used for personalized medicine:

1. Disease diagnosis and prognosis:
Help identify biomarkers that are associated with specific diseases or conditions. By analyzing data, doctors can develop personalized diagnostic and prognostic tools that consider each patient's unique biological makeup.

2. Treatment selection and monitoring:
Guide the most effective treatments for each patient based on their individual molecular profile. This can help doctors select the right drugs or therapies for each patient and monitor treatment response and side effects.

3. Drug development:
Uncover new drug targets and predict which patients are most likely to benefit from specific drugs. This can accelerate drug development and lead to more personalized and effective treatments.

4. Precision oncology:
Putting the patient first: in the field of oncology, where tumors are highly heterogeneous and respond differently to different treatments — data analysis shows particular promise. By analyzing the genomic, transcriptomic, and proteomic profiles of tumors, doctors can develop personalized treatment plans that target specific molecular pathways and mutations.

In short, the technology has the ability to enable doctors to develop more precise and effective treatments that are tailored to each patient's unique biological makeup.

Making personalized medicine real: how LENS^{ai} is shaping the future of genomic intelligence

BioStrand, an ImmunoPrecise Antibodies company, has developed LENS^{ai}, a cloud-based platform that utilizes artificial intelligence and machine learning algorithms to analyze diverse data and detect relationships between genes, transcripts, proteins, and their functions. With its vast capabilities, LENS^{ai} aids researchers and clinicians in comprehending large and complex omic data sets, accelerating the discovery of new biomarkers, identifying novel drug targets, and designing safer and more effective therapies.

The platform creates a comprehensive knowledge base of biological functions and interactions from various data sources, including public -omic databases and user-generated data. Users can upload their databases into the platform, which uses LENS^{ai}'s algorithms to analyze the data and detect relationships between genes and other molecular entities. Artificial intelligence also has the remarkable ability to continuously learn and improve its performance with more data.

LENS^{ai}'s Integrated Intelligence technology has the potential to accelerate research in several fields, including drug discovery, agriculture, and personalized medicine.

LENS^{ai} can be used to organize and analyze massive data, answer complex biological questions, and potentially design new, personalized drugs, using entirely an *in silico* method (computer-driven).

Current perceptions on complex omics data analysis:

One major misconception that exists is the false belief that there isn't a single algorithm capable of simultaneously performing complex analysis on all types of data.

It is a widespread belief that different omics data require different types of algorithms and computational methods for analysis. As a result, researchers, including the largest of pharma, rely on computational tools to integrate insights from omics data.