

# LEUKOCARE AG

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TECH OUTLOOK

TOP 10  
**DRUG DISCOVERY &  
DEVELOPMENT**  
SOLUTION PROVIDERS IN EUROPE - 2019

*An annual listing of 10 companies that are at the forefront of  
providing drug discovery and development solutions  
and impacting the industry*

# pharma

## TECH OUTLOOK

Drug Discovery and Development  
Europe Special

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## Top 10 Drug Discovery and Development Solution Providers in Europe - 2019

In the pharmaceutical industry, the process of developing nascent drugs to cure a disease is quite long, costly, and at the same time uncertain. In light of this, many experts in this space cite that the costs of developing new drugs can be reduced by the use of new technologies and with a deep understanding of biology. Albeit the objectives of drug delivery remain the same, the methods and techniques used in drug development continue to experience radical changes. In a nutshell, the standard approach to drug discovery is to identify a single molecular disease target and subsequently identify a compound that interacts and modulates with high specificity. Today, majority of the innovation reinvigorating the drug development methodologies seeks to access and integrate more information – about targets, compounds, and disease phenotypes. Next, the increasing size of chemical libraries and

high throughput screening (HTS) technologies have enabled thousands or millions of compounds to be screened and the concomitant increase in compounds have supplemented the urgency for the bioanalysis of metabolites, and a need for faster turnaround.

To assist CIOs maneuver in the right direction while adopting resilient Drug Discovery and Development Solutions, a distinguished panel of CEOs, CIOs, VCs, and analysts along with the Pharma Tech Outlook's editorial board has selected the leading Drug Discovery and Development providers in Europe. The companies featured in this edition demonstrate an ability to develop innovative technologies combined with outstanding customer service.

We present to you “Top 10 Drug Discovery and Development Solution Providers in Europe - 2019.”



**Company:**  
LEUKOCARE AG

**Description:**  
Provides a formulation technology platform for the increased stability and improved protection of biopharmaceuticals

**Key Person:**  
Michael Scholl  
CEO

**Website:**  
leukocare.com

## LEUKOCARE AG

### Formulation Platform for Stabilizing and Protecting Biologics

**B** iologics, also known as biological medical products or biopharmaceuticals, suffer from various stability issues and are prone to both chemical and physical degradation. These products, including vaccines, blood components, therapeutic proteins, and more, are very likely to undergo oxidation and deamidation. Munich-based LEUKOCARE provides development expertise and a formulation technology platform that not only guarantees superior stability for better-preserved functionality and extended shelf life of biologics but also ensures improved protection during their processing. The platform, called Stabilizing and Protecting Solutions (SPS<sup>®</sup>) formulation technology platform, makes drug development more cost-effective and also allows for a shorter time to market, thus giving a significant competitive edge to the final drug product.

The SPS<sup>®</sup> formulation technology platform consists of two major elements: a library of approximately 100 regulatory well-known and pharmacopoeia-listed excipients and, moreover, a rational development approach to combine these excipients towards advanced formulations specifically targeting product-specific degradation pathways and hot spots. For identification of the optimal combination of excipients for a certain drug, LEUKOCARE employs a database-driven and algorithm-based development approach. It starts with the definition of the target product profile (TPP), followed by a basic characterization of the molecule to determine relevant hot spots and degradation pathways. Further, the company continually reduces the design space by using deep learning algorithms to specifically address such hot spots, making the approach unique. “We leverage artificial intelligence (AI) for automatic pre-selection and combination of optimal formulation components. This results in substantially higher stability along with making the entire drug development process faster, robust, and more reliable,” adds Michael Scholl, CEO of LEUKOCARE.

LEUKOCARE’s SPS<sup>®</sup> technologies improve the quality of biological products by enhancing the thermal stability of therapeutic proteins, which prevents degradation and potentially allows for room temperature storage of biologics as opposed to the usual norm of storing them at 2-8 °C. Furthermore, for biopharmaceuticals that



Michael Scholl

are lyophilized or freeze-dried, LEUKOCARE transforms them into liquid formulations, which reduces manufacturing costs, adds convenience in administration, and comes without loss of drug activity. In the same vein, the company’s ongoing collaboration with the Danish peptide-based anti-infective developer Xellia Pharmaceuticals ApS involves switching these lyophilized anti-infectives to liquid products using LEUKOCARE’s SPS<sup>®</sup> platform. In another project for a client that produces therapeutic vaccines based on a viral vector, LEUKOCARE has been stabilizing the non-attenuated virus in both liquid and lyophilized format. As a result, this extremely delicate virus can now be stored for up to two years.



### LEUKOCARE’s SPS<sup>®</sup> technologies improve the quality of biological products by enhancing the thermal stability of therapeutic proteins

LEUKOCARE’s advanced formulation technologies have been benefitting clients ranging from big pharmaceutical companies and small, innovative biotechs to specific vaccine and medical device producers. “We are more or less of a problem-solver for big pharma companies that have their own clinical research departments and in-house formulation development facilities; they approach us with unique problems that their teams struggle to solve. And in the case of biotech companies aiming for shorter time to market but lack fully-fledged in-house chemistry, manufacturing, and control (CMC) departments, we are not only a specialized technology provider but also a prolonged workbench,” states Scholl. With an ability to extend the patent cliff of a product, LEUKOCARE’s formulation technologies offer a tremendous market advantage to the clients.

LEUKOCARE is currently working on 20 different projects for a variety of clients. While the unique algorithm-based development approach and a vast library of excipients help LEUKOCARE serve its clients successfully, the company looks forward to establishing an entity in the US. “Currently, most of our clients are based in Europe. Hence, our expansion strategy to the US provides us with the biggest growth opportunity,” concludes Scholl. 