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SilverSky Insights:

ECCMID 2019

Amsterdam, Netherlands
13 – 16 April 2019



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Diagnostics Partnering

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SilverSky Insights: ECCMID 2019, April 13th – 16th, Amsterdam, Netherlands

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At SilverSky LifeSciences GmbH, we have a strong focus on consulting and developing companies in the diagnostic space. Together with some colleagues, we are organizing a Diagnostics Partnering (DxPx) Conference on November 18th as a deal-orientated conference specifically and only for stakeholders from the diagnostics (Dx) and research tool industry. This targets established companies, innovative startups and investors and intends to address personal frustrations with deal execution in our field: as former executives of Dx and research tool companies who attended BioEurope, JPMorgan and other partnering platforms, we always felt that our industry was significantly underrepresented and outnumbered by biotech and pharma. We attended the ECCMID in part to find promising new startups to pitch their business plans at DxPx and will continue to identify those at other upcoming conferences, such as BARCELONA, AACC and ASM. For now, and for those who did not make it to Amsterdam, we have summarized our impressions and highlight what we consider to be exciting in this meeting report.



Monday, 18th
November,
Maritim Hotel,
Düsseldorf,
Germany
[www.dxp-
conference.com](http://www.dxp-conference.com)



Overall Impression

The 29th European Congress of Clinical Microbiology & Infectious Diseases took place in Amsterdam, Netherlands, from April 13th – 16th 2019, and brought together more than 13,000 delegates from science and industry to present their latest findings, experiences and innovations. Out of the 127 countries taking part, the best represented, with regards to participant number, was the United States of America. For the first time though, China was among the top ten, highlighting the growing importance of this region.





Exciting keynote lectures on the transmission of commensal bacteria and ancient DNA studies teaching about human infections were accompanied by a wide range of symposia and poster sessions. Furthermore, an interactive workshop on machine learning for clinical microbiology took place and discussed possible applications of artificial intelligence (AI) in the daily routine of clinical laboratories. Highlights of the exhibition are described below.

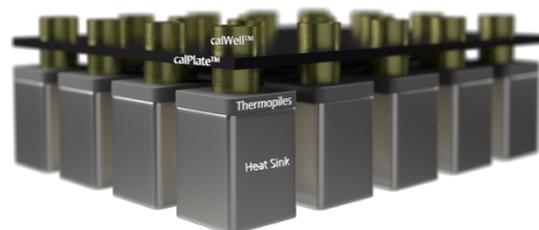
Pathogen ID and AST

A major focus of the exhibition was on new technologies and innovations in AST (antimicrobial susceptibility testing) to improve treatment of infections and meet the challenge of rising antimicrobial resistance (AMR). Indeed, a new AST hotspot appears to have arisen in Uppsala, Sweden. **Gradientech AB** displayed their **QuickMIC™** solution for the first time. This device generates phenotypic AST results with precise MIC (minimal inhibitory concentration) values within 2 to 4 hours, directly from positive blood cultures. The technology's high sensitivity is based on growth of microcolonies in a linear antibiotic gradient.



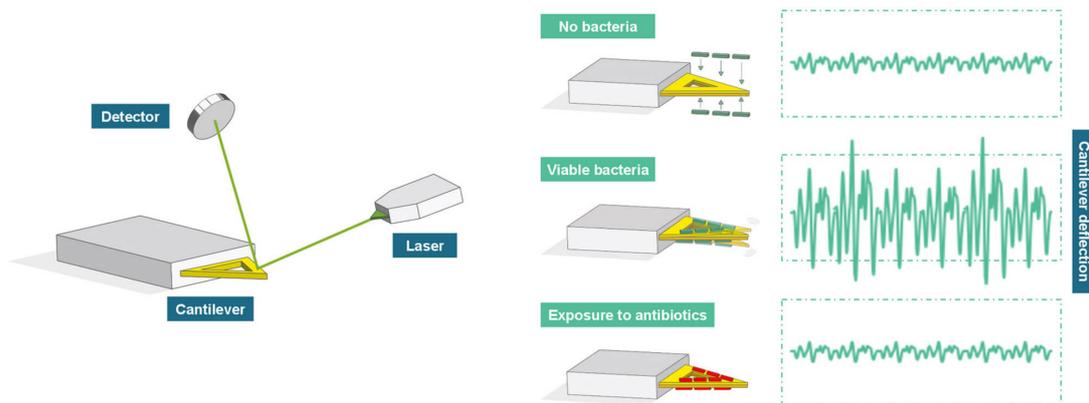
In contrast, the **ASTar™** system of **Q-linea AB**, also from Uppsala, relies on broth microdilution (BMD) for true MIC results within 3 to 6 hours in a high throughput fashion. Q-linea presented the first devices from its final production series at their booth and are anticipated to soon gain CE certification. Congratulations to the Q-linea team! These ultra-rapid diagnostic tools pursue the aim of better and faster treatment decisions for sepsis patients.

Swedish **Symcel AB** presented their new **calScreener™** technology. By measuring heat production, the analytical device reveals true phenotypic response of a bacterial sample to an antimicrobial. This can be used for *in vitro* Dx focused on AST to provide rapid and accurate diagnosis of infections caused by multi-resistant bacteria. The system can also be used for other applications, such as antibiotics development, AMR research and quantification of biofilm formation. In a European Horizon2020 project, the calScreener is currently being evaluated as a rapid diagnostic tool for combination AST.





In addition, the young company **Resistell AG** from Basel, Switzerland proposed an alternative to the culture based antibiogram, the current AST gold standard. Their rapid method is based on detection of movement attributable to living bacterial cells. As the test is growth-independent, time-to-result is reduced from days to minutes. Living bacteria cause a cantilever's oscillation, which is detected by their device. When an appropriate antibiotic is added, bacteria react, and the cantilever's vibrations return to the level of an abiotic sample (that without bacteria) within minutes. Laser and photodiode are used to detect cantilever movement. An in-house developed software is used to process the signal and classifies the strain as susceptible or resistant.



The technology was invented by Prof. Giovanni Dietle at the Laboratory of Physics of Living Matter (LPMV) at EPFL.



A new match in the identification of pathogens and resistances was achieved by **Danaher / Cepheid** and **SpeedDx**. Together, the partners announced a test partnership in which the SpeedDx **ResistancePlus™ MG** is manufactured for use on the Cepheid **GeneXpert™** system to detect sexually transmitted infections and associated resistances. 

We believe that this kind of partnership between established Dx players and innovative smaller startups will be seen more frequently in the future and should be encouraged, with the **Diagnostics Partnering (DxPx) Conference** being the ideal platform for such deals.

Hot Technologies

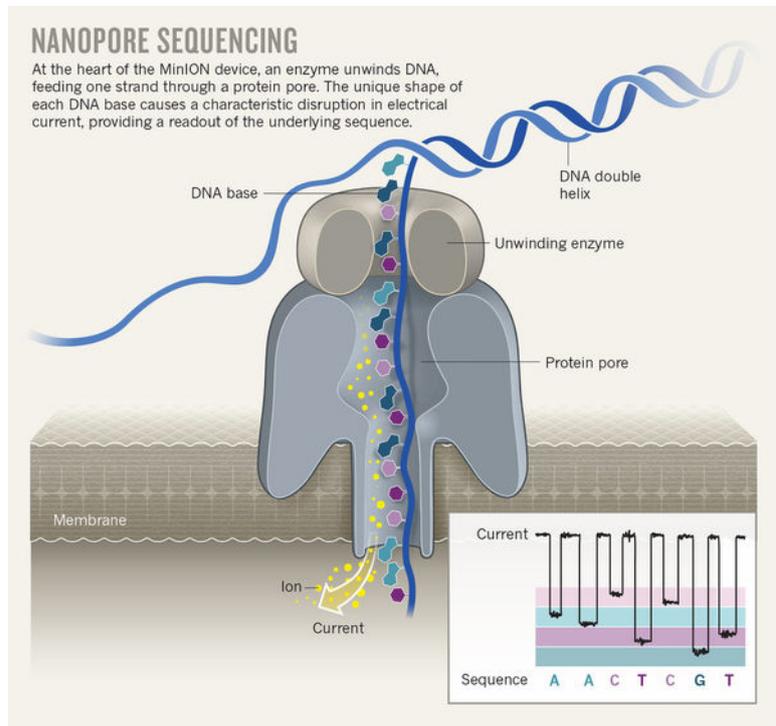


Curetis' subsidiary **Ares Genetics** introduced its NGS services for pharma and the public health sector and announced the setup of its own NGS service laboratory in Vienna, Austria. From mid 2019, Ares Genetics will offer its **ARESupa** (universal pathogenome assay) for whole-genome sequencing of bacterial strains isolated from clinical specimens. Applications will be in epidemiology, infection control and outbreak analysis. Based on genetic profile of the respective clinical isolate, ARESupa precisely identifies bacterial strain and detects AMR. ARESupa should greatly facilitate monitoring of AMR evolution and spreading at

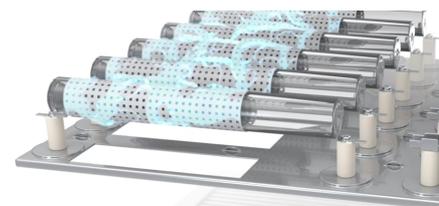


the molecular level and provide rapid insights into origin and dynamics of outbreaks of critical, often multi-drug resistant pathogens in hospitals and care facilities.

Oxford Nanopore Technologies have developed a unique technique that offers direct DNA/RNA sequencing in real-time allowing ultra-long reads up to 2 Mb. It is scalable to portable or desktop devices, easy to handle, rapid and leads to high yields for large genomes. The **MinION** device weighs under 100 g and is very small. This technology works with enzyme motors attached to the nanopores that control translocation of the DNA or RNA strand. The fluctuations in current during translocation are used to determine sequence.



Novaerus uses patented atmospheric plasma technology for deactivation of airborne bacteria and viruses and reduction of particles from mold spores, dust mites and pollen. The plasma discharge comprises electrons and ions that cause extensive damage to microorganisms. Unlike other products, environmental microorganisms are exposed directly to plasma discharge as opposed to discharge by-products.



LOW-ENERGY PLASMA

Ultra-low energy patented plasma field deactivates microorganisms at DNA level

Applied in emergency rooms, intensive care units, senior living facilities and offices, Novaerus can significantly improve air quality and reduce occurrence of upper respiratory infections.



AI / Deep learning impact on Dx

FastFinder Automated PCR-analysis

UgenTec is an exciting company based in Belgium bringing AI to the diagnostic industry. **FastFinder** is a PCR analysis software platform that intelligently analyzes raw data from multiple commercial devices, resulting in a more reliable measurement, with better accuracy and virtually no eyes-on time. It comes packed with a customized algorithm that automatically interprets, without any user bias, the data that PCR assays generate. The platform dramatically improves quality and decreases overall time-to-result.

The microscopy specialist **MetaSystems** utilizes FISH for their DMI (direct multiplex imaging) technology allowing pathogen ID from blood cultures via high throughput microscopy. They also use deep learning for imaging analysis, e. g. for automated TB identification.



Clever Culture Systems AG from Switzerland introduced their intelligent culture plate reader **APAS Independence**. It can sort plates into those that need review by a microbiologist and those with no significant growth. This reduces the total number of plates to be reviewed allowing microbiologists to focus on those that require their expertise.



Should you be interested in meeting up with investors, stakeholders and Dx companies such as those mentioned above, we hope to see you in Düsseldorf during the DxPx on November 18th, 2019. For comments, feedback, criticism or praises, please refer to info@dpx-conference.com.



SilverSky initiatives



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