Interview: David Kasper â?? CEO, ARCHIMEDlife, Austria

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David Kasper, CEO of ARCHIMEDlife, an innovative Austrian company focused on novel laboratory diagnostics, discusses the innovative solution of a dried blood sample in daily routine diagnostics and novel assays as well as the intricacies of working in rare diseases. Furthermore, he provides an insight into the companyâ??s legacy project with Sanofi Genzyme as well as the dynamics of having diagnostics operations as an Austria company providing services for over thousands of physicians in more than 60 countries.

ARCHIMEDlife is a fairly young company, founded back in 2012. What need did you see in the healthcare market?

Prior to ARCHIMEDlife I worked in public hospitals for a decade, giving me the chance to fully understand how the Austrian public healthcare system functions. The majority of my time was spent at the childrenâ??s hospital, AKH Vienna, one of the largest hospitals in Europe, giving me an opportunity to get in touch with pharmaceutical and laboratory diagnostic companies in relation to clinical studies. During this period, I headed the hospitalâ??s pediatric laboratory, was program director of the Austrian Newborn Screening Program and had the unique opportunity to work on diagnostics for rare disorder.

Due to my background as a chemist and years in the hospital setting, I saw room for improvement to develop novel innovative blood tests; therefore, ARCHIMEDlife was founded to offer but also develop, validate and release novel diagnostic assays. The original idea was to provide niche diagnostics from metabolic diseases to oncology with special focus on newborn screening and rare

disorders. We started in a small lab with a handful of people and within five years we have organically grown to be active in more than 60 countries and provide diagnostic services to some 30,000 physicians.

What specific services does ARCHIMEDlife provide?

We have a dual system; daily routine laboratory and the development of novel diagnostic assays under ISO 13485. Firstly, we always wanted to provide daily diagnostics to patients as it is more and more difficult to undertake this innovative test in hospitals, while in the meantime caring for patients; therefore, we conduct biochemical and genetic tests and use novel biomarkers.

Secondly, the development of our own novel diagnostic assays entails using partnerships with leading diagnostic companies, with the idea that if a particular biomarker is being utilized in a research study, ARCHIMEDlife can run clinical and performance evaluation studies on it. We then can see if it is worth implementing this new biomarker for diagnostic purposes and understand if there are any potential future benefits for patients. Our relationships with internationally renowned experts and publications gives us the opportunity to ensure our new products are present all over the world, and opens up doors for future collaborations. The products we develop with other research groups and companies are then able to be easily brought into to our daily routine laboratory.

How do you specifically work in the areas of rare disease diagnostics?

The leading diagnostic companies are usually interested in high volume tests that cover a broad range of conditions and can be sold to third parties. Economically, there is no benefit for them to provide small volume tests used in hospitals for rare diseases; this is the area ARCHIMEDlife fills. Medical professionals from around the world send us samples; therefore, we can undertake these personal diagnostic tests in-house at our Austrian laboratories, utilizing our cutting-edge technology, highly qualified staff and our ambitious goal to improve and provide faster and more reliable diagnostics, particularly for rare disease patients.

What innovative processes are you bringing to the realm of diagnostic testing?

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It all comes under one banner; the easier a test is to conduct than the more tests will be done. We have simplified the process by undertaking tests from a single drop of blood on filter paper. This allows tests from all around the world to be sent to us easily, in-turn reducing transportation costs, while maintaining a high quality. Therefore, patients can be tested more frequently without any discomfort and diseases can be ruled out at an early stage, rather than when it is too late.

The great thing about this filter paper samples is they are still scientifically viable for weeks or months in most cases, and for genetic testing up to five years. Our innovation has also moved into functional tests for biochemistry, so a certain toxic metabolite can be tested to determine if its level will have an impact on a patientâ??s health. This, coupled with our genetic tests, ensures in the eyes of physicians ARCHIMEDlife remains an attractive company to work with. It is amazing to think all these innovative tests can be done on a small filtered paper card with only a few drops of blood!

In the near future, we are launching a diagnostic panel to be used in preventive medicine. This will allow patients to be tested easily for many rare conditions, instead of moving from move from doctor to doctor searching for a solution to their condition. Furthermore, we are using these tests specifically for rare diseases in a comprehensive newborn screening program that will be launched in 2018. It will make important diagnostic tests accessible for parents and their babies; to identify potential life-threatening inherited (metabolic) diseases immediately after birth and give best chance

for early start of treatment and clinical outcome.

How do you contribute towards a more holistic approach to a preventative medicine system within the Austrian healthcare landscape?

Preventative medicine is challenging for hospitals as they are more focused on treating patients, and from a government perspective they have fund limitations in this sector. Nevertheless, many programs are free, such as vaccinations and screening programs; for example, metabolic diseases which contribute towards better preventative procedures â?? although â?? more can be done. As a company, our processes are an innovative form of preventative medicine and we attend meetings and conferences to push the endless possibilities of diagnostic testing using cutting-edge technology from a single drop of blood. Hopefully, down the line this is acknowledged further at a governmental level.

How do you maintain well-functioning operations abroad when all the testing is done in Austria?

Globalization has made the world smaller and with our easy blood sampling system within 24 hours we can have a sample from our physicians in South America, Asia, Africa, Europe and the Middle East. Our operations function incredibly well in Austria as we have intelligent staff, a world-class diagnostic lab, and besides working directly together with healthcare professionals, we also have built a great relationship with pharma companies such as Sanofi Genzyme, and others over years. Furthermore, we have an e-health network for medical records, and next year we are launching an own new interactive webportal for our diagnostic services to grant physicians and their patients access to novel diagnostics.

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What is the legacy project that defines the work that ARCHIMEDlife undertakes?

In 2012, we published a study in *The Lancet*, and showed that it is feasible to implement lysosomal storage disorders in a newborn screening program. This stirred discussion in many institutes worldwide. Two diseases (MPS I and Pompe) of this group are really worth to be implement in screening, and fortunately the U.S. has started to do so!

But in contrast, in many other nations these diseases were not taken up in screening; hence, ARCHIMEDlife was founded. We partnered with Sanofi Genzyme, and have since then transferred the knowledge from babies to adults. Next year ARCHIMEDlife will offer a newborn screening program for lysosomal disorders and further push awareness in this area. Thankfully, our simple dried blood filtered paper test will make the process easier than ever before.

Have your services translated into the clinical trials field?

We undertake out clinical diagnostics by performing clinical research studies when drugs have been released onto the market. Once the drug is approved, we use our innovative technologies and methods to find patients that may benefit from these novel treatments.

In near future, once we complete GLP certification, we believe we will move more into clinical trials. This should be fairly simple transition as we provide excellent market and diagnostic knowledge as well as having a world-class laboratory infrastructure and international network of experts and physicians.

What recommendations would you give to anybody who is looking to take the same leap you took, moving from a career in academia to business?

My advice for anyone looking to start their own enterprise is to ensure you have highly dedicated staff and a culture that stimulates ideas; ARCHIMEDlife has had this from the beginning. This is especially important in the very complex world of healthcare. Nevertheless, it is incredibly rewarding, and makes me extremely proud to be helping patients by developing diagnostic solutions.

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