

State-of-the-art cell lines and flexible collaboration with experts in biomedical research



As a niche Contract Research Organization (CRO) focused on ion channel discovery, B'SYS has spent nearly 20 years on creating a service offering that best fits the needs of its customers. The team is committed to customer satisfaction – and automated patch clamp technology has played a key role in their journey.



Daniel Konrad, CEO at B'SYS GmbH

Simon Hebeisen, CSO at B'SYS GmbH

Ellen Braksator, Deputy CSO at B'SYS GmbH



B'SYS is a Swiss-based niche contract research organization specializing in cell culture and biomedical research applications for ion channel drug discovery.

B'SYS and Sophion have a strong partnership that goes back many years. The staff are experienced QPatch users and have been using Sophion's automated patch clamp technology for more than 12 years. The company's first QPatch was installed in 2009 and now B'SYS has 4 QPatch instruments running in its lab. Over the years, the collaboration has expanded and today Sophion sells a large number of the cell lines from B'SYS.

A flexible setup for assay optimization

A typical mid-throughput project at B'SYS runs over several weeks to years and involves the IC50 generation of 10-50 compounds per week. "Right now, we are operating two 48-channel QPatch instruments and two 16-channel instruments," says B'SYS CSO Simon Hebeisen. "That means we can use the platforms with fewer channels for smaller projects, but we can also use them to validate against our manual patch clamp results. In parallel, the larger instruments are running our regular screenings, which helps us with assay optimization and increasing overall throughput. This flexibility is a huge advantage for us."



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"The QPatch instruments are very reliable, and we can easily transfer manual patch clamp assays to the automated assays."

Simon Hebeisen

Focused on customer needs

"From day one we have always been reflecting on how we can create a service offering that best suits our customers," says Daniel Konrad. "That means we not only offer biological tools, but also services. We organize our patch clamp and molecular biology studies with the aim to provide our customers with the perfect experience."

As a niche provider, B'SYS aims to accommodate the wishes and requirements of its clients in a fast, reliable, and cost-effective way. "Close communication between our business development and our scientists is essential. It means we can give our clients advice right from the beginning," says Simon Hebeisen.

B'SYS believes that clear and precise communication is critical for success. "We have a very short line of communication within our company, and it helps that we are a GLP-accredited company with everything neatly organized in standard operating procedures," says Daniel Konrad.

Thanks to its streamlined setup, B'SYS can establish an adaptable workflow that meets the exact requirements of its customers, and its team can serve clients in an efficient and professional way. "We stay close to the process and engaged with the study and the findings. Our ambition is always to make the whole thing work, so we want to be part of the study as it moves along – that's part of our mission," says Daniel Konrad.

Innovating the ion channels of tomorrow

Typically, ion channels have not been developed as stably transfected tools. This is where B'SYS comes in. "We jump in there, we read the literature, we find out the market needs and the gaps in the current medical science – and then we develop the right tools," says Daniel Konrad. "If you are a CRO focused on ion channels, you can't always ride a single horse. There are a lot of ion channels out there and the biology is complex."

"Many targets are important for making medications – you have kinases, GPCRs, and proteins – but ion channels play a big role," says Daniel Konrad. "We believe, in addition to the known ion channels, that there are many neglected ion channel co-receptor interactions. If they are detected, they will be interesting pharmacophores, and our work can unleash a huge potential of new treatments."



High-quality and reliable cell lines are key

"In our industry, we are always reconsidering the way we treat neuropsychiatric disorders or pain, for example. What targets do we have? It's not enough and that's why we cannot tackle pain or cancer the way we want to. New developments don't rely on a known set of ion channels. Novel ion channels must come into play," explains Daniel Konrad.

B'SYS is well-known for its high-quality and reliable cell lines, and the company has developed the knowledge and tools to make its cell lines faster over the years – even as the complexity of these cell lines constantly increases.

"Sophion provides the best solution for us when it comes to system, service, and support. Thanks to a long-term collaboration, the majority of B'SYS cell lines are validated for use across Sophion's APC platforms." *Daniel Konrad*

Efficient cell line development

The specific timeframe for developing a cell line all depends on its complexity. But the B'SYS team has proven time and again that the size of an organization and speed are not always connected. What's important is having the right setup and knowledge. "It takes a lot of time and effort to produce cell lines – particularly when it comes to validation and meeting customer expectations. It's a whole ecosystem within B'SYS to create these cell lines," says Daniel Konrad.

"The key to our success in developing cell lines and validating these on our QPatch instruments, is the close interaction and communication between our electrophysiologists, molecular biologists, and the cell culture team," says Ellen Braksator. "We've developed a number of processes and molecular biology tools, so we know even before we test if we need to make an improvement, if we need to modify the cDNA, or if we should use another host cell line," continues Simon Hebeisen.

While B'SYS produces many different types of cell lines, its hERG cell lines are considered among the best in the world and it's among the few CROs, that can offer very high-quality $Na_v1.9$ services. Because of the excellent quality and adaptability of B'SYS cell lines, many of the cell lines used in Sophion's own laboratories come from B'SYS, and whenever Sophion is able to offer cell lines as part of its automated patch clamp solutions, B'SYS cell lines are the preferred choice.

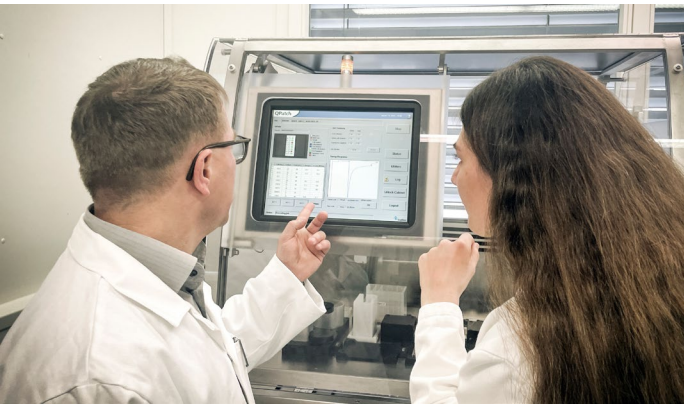
Collaborating for the best solutions

"B'SYS is a niche CRO and Sophion is working together with us in a great way," says Daniel Konrad. "We have evaluated and tested other systems on the market, but we've chosen Sophion because of the quality of their systems and our great relationship."

“Support from a knowledgeable team goes a long way, especially when combined with the user-friendly QPatch.”

Daniel Konrad

“Everyone at Sophion understands what a CRO needs – from a management perspective, but also when it comes to technical and scientific support. It’s a big benefit,” says Simon Hebeisen. “Every field service engineer is so familiar with the instruments and how they have been set up right from the start. The Sophion field service engineers who visit us are very experienced and flexible. Oftentimes they already know what the issue is just by analyzing the debug file,” says Simon Hebeisen.



“We use the Sophion Analyzer software every day to check the quality of our cells and the variability of the results. This is important to decide if further re-runs or adaptations are necessary.”

Simon Hebeisen



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The QPatch advantage

B'SYS has also seen throughput increase when using automated patch clamping along with the QPatch software. “The software from Sophion gives us many opportunities to adapt assay parameters, but not too many. It’s just the right balance, because too many parameters can spell failure and lost time,” says Simon Hebeisen. “Sophion gives you freedom, but many things are also pre-set, so not only the very experienced electrophysiologists are able to optimize their systems.”

Additionally, B'SYS save time in its larger screening programs by using Sophion’s automated analysis software to report results. “We can customize the result tables so they can be exported to our clients in a format that they can simply import into their own databases,” explains Simon Hebeisen. “The software is quite flexible and that’s a big advantage. It means we don’t need to do too many iterations before we can deliver the data to the client.”

Today, the B'SYS team is very experienced in operating the Sophion instruments, and they have expert knowledge of cell cultures – the perfect setup for optimizing both instruments and cells in parallel. As the collaboration moves forward, Sophion will continue offering guidance for working with cell lines, such as how the cell lines need to be cultivated in order to get the best results with the QPatch – knowledge that B'SYS can directly transfer to its clients.



Sophion Bioscience is a leading global life science company, founded in 2000 by a group of passionate electrophysiologists. We develop, manufacture, and market solutions for automated patch clamping. With our complete technical, biological, and application support, we help our partners pioneering ion channel research and drug discovery. Through continued development of our QPatch Compact, QPatch, and Qube platforms, we offer uncompromised data quality in a user-friendly environment from assay setup to advanced data analysis. We are headquartered in Denmark and have subsidiaries in Japan, China, and the United States. For more information, visit [Sophion.com](https://www.sophion.com)