

## PENETRATING NICHE MARKETS AND ANTICIPATING CLIENT NEEDS



An interview with

**DR JOSÉ RAMALHO (SICGEN ANTIBODIES)**

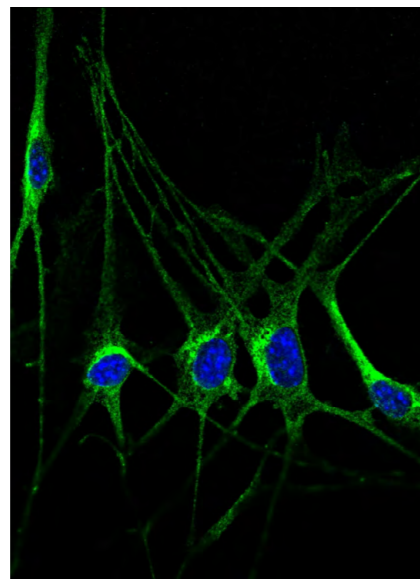
SICGEN Antibodies is a leading biotechnology company focused on the development and production of polyclonal antibodies specifically for life sciences research. Catering to major national and international universities, various research institutions, pharmaceutical manufacturers, and biotechnology companies, SICGEN has a global reach, aiding clients with antibody design, synthesis, conjugation, immunisation, purification, and characterisation. Customisation, competitive prices, and incredible quality are its forte, but what really sets SICGEN apart is its ability to anticipate the needs and further curate effective solutions for clients in niche market areas. Here we caught up with founder Dr José Ramalho to discuss the company's roots, successes, and future plans.

### Can you tell us about the NEOTEC Portuguese Initiative and how it led to the founding of SICGEN Antibodies?

The NEOTEC Initiative, launched in 2005, emerged as part of the Innovation Agency's mission to promote the valorisation of R&D results that support the creation of technology-based companies. This initiative aims to accompany the maturation of the business project from the proof of concept to the start of the new company's activity. It was financed by the Knowledge Society Operational Programme (European Union) and certainly gave a strong financial boost to the project we were trying to implement – which resulted from several years of research and development carried out by SICGEN.

### What are polyclonal antibodies, and what role do they play in life science research?

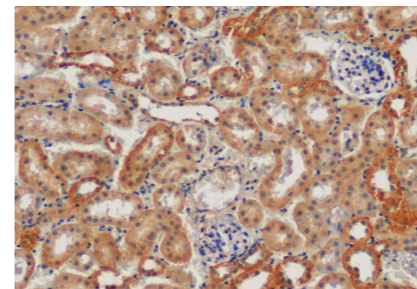
Antibodies are glycoproteins called immunoglobulins (Ig), which are secreted by plasma cells in response to antigen exposures and are considered a product that majorly affects humoral immunity. The commercially available Igs play critical roles in diagnostic



assays, therapy, and purification of specific target compounds. Polyclonal antibodies are a mixture of distinct monoclonal antibodies generated by different lines of antibody-secreting plasma cells. This mixture of immunoglobulins targets different epitopes (i.e. parts) of a specific antigen. And they can be obtained from different host species, including goats. The polyclonal antibody production process is simpler, faster and cheaper compared to monoclonal antibody production.

### Can you tell us more about the advantages of conjugated antibodies with fluorescent molecules and how they work to speed up the research process for clients?

Antibodies are used to detect and quantify antigens using the appropriate detection techniques, such as immunofluorescence, immunohistochemistry, flow cytometry, ELISA and Western blot. Often for signal amplification and detection purposes, purified antibodies are conjugated to enzymes such as horseradish peroxidase (HRP), alkaline phosphatase (AP) or fluorophores. Fluorescent detection is based on the use of these fluorophores that have unique and characteristic spectra for absorption and emission – they emit light at one wavelength when excited by light of another shorter wavelength. The advantages of using a fluorescent-labelled antibody include a brighter signal, multiplexing capabilities, and ease of use (many are available pre-conjugated to many different fluorophores). In addition, in some techniques, it can reduce the number of steps, thus shortening the time of the experiment.



### How does the company's decision to produce polyclonal antibodies in goats help it to ultimately provide high-quality products at competitive prices?

Whilst there are currently many companies producing antibodies, many are located in North America and a few in Europe. SICGEN was founded with the ultimate purpose of producing in and providing Portugal and wider Europe with high-quality antibodies at competitive prices. This was possible because we chose to produce antibodies in goats (thus increasing the amount produced per animal). We further took advantage of a specific product gap in the market and continue to utilise cutting-edge technologies with the goal of becoming a global producer of polyclonal antibodies that are attractive both for their price and their exceptional quality.

### For some clients, the use of an animal-based approach may raise a number of ethical and sustainability-related concerns. In your opinion, as the world as a whole moves away from such practices, how significant will the impacts be on SICGEN Antibodies' future operations, and are there plans to offer an alternative?

The antibody industry has expanded significantly in the last decade. Yes, there are challenges for all antibody producers that result from such scientific and technological developments – the most significant of which for the near future will be to use advances in vitro technologies. Thus, using non-animal-based approaches for antibody generation.

This will offer greater versatility and reproducibility over animal immunisation and will also alleviate ethical concerns. However, this transition will require decades in order to develop and validate millions of antibodies that already exist and are right now available to biomedical researchers.

### With SICGEN Antibodies producing polyclonal antibodies for an array of clients, from universities to biotechnology companies, how does the company ensure it best meets the individual needs and goals of all?

Most of our customers that work within the same research area use the same tools and, therefore, the same antibodies. Although we are a small company, we have great flexibility and can easily accommodate specific customer requests. We can easily produce customer-tailored antibodies while maintaining the costs we are known for.

### Can you provide any examples of successful client research projects utilising SICGEN Antibodies' products?

SICGEN has developed and produced polyclonal antibodies that have been successfully used in several life sciences research projects. These include:

- A cancer research project led by Dr Maries van den Broek at the University of Zurich in Switzerland.
- Several neuroscience research projects led by Dr Zhao-Qi Wang at Friedrich Schiller University of Jena in Germany and Dr Daniel Mucida at The Rockefeller University in USA.
- An immunology research project led by Dr Sonia Tugues at Julius-Maximilians-Universität in Würzburg in Germany.

Further examples can be found here: [www.scholar.google.com/scholar?hl=pt-PT&as\\_sdt=0%2C5&q=sicgen+antibody&btnG=](https://www.scholar.google.com/scholar?hl=pt-PT&as_sdt=0%2C5&q=sicgen+antibody&btnG=)

### How does SICGEN Antibodies' team of experts ensure they remain ahead of technological advancements and anticipate the needs of clients operating in niche market areas?

I believe that our success can largely be attributed to our ability to focus on niche areas where there are clear gaps in the supply of high-quality antibodies. We do invest as much as possible in research and development to explore new ideas, aiming to address the competitiveness and demanding nature of this industry. The fact that the company developed as a spin-off from academia, with founders that were scientists, has further helped SICGEN to identify and narrow its focus to the development and production of antibodies that are in demand. Perhaps, more importantly, our ability to anticipate how some scientific areas are likely to evolve and what their needs would be in terms of antibodies. By focusing on those products, we have been able to gain a competitive advantage and an opportunity in a very competitive market.

### What do the next 12 months hold for SICGEN Antibodies? Are there any plans to expand product offerings or move into new trading territories?

Our constant challenge is to continue developing, producing, and supplying high-quality antibodies globally. We trust that, in collaboration with our partners in academia and with the support of our customers, we will remain an international reference for the production of antibodies and antibody-related products and technology in the years ahead. We are also focused on expanding to new markets.



SICGEN Antibodies has developed more than 19,500 antibodies and 3,000 proteins to date with over 150 distributors and 100 alliances. For more information, please visit [www.sicgen.masterinsoft.com](http://www.sicgen.masterinsoft.com).