

**Contact**

Joe Illingworth *PhD*
Co-Founder & CSO

Website

djsantibodies.com

Industry

Biotechnology

Location

Oxford, UK

Employee count

1-10

Developing a Robust, Reliable and Sensitive Antibody Detection Assay

Overview

Founded in Oxford in 2014, DJS Antibodies is a biotechnology company aiming to bring new treatments against chronic inflammatory diseases to market. They developed a technology platform for the discovery and development of novel therapeutic monoclonal antibodies against GPCRs, harnessing the company's deep understanding of immunology and antibody induction.

DJS utilises their breakthrough technology to produce first-in-class antibody therapeutics for complex disease targets which have - until now - remained intractable to drug discovery. Their current pipeline includes two programmes targeting GPCRs central to diabetic kidney disease and vascular inflammation.

Goals & Obstacles

One of the key challenges faced by DJS was to validate their novel antibodies for their therapeutic programmes. DJS found that the first step for antibody validation is access to a robust and reliable assay enabling them to rank therapeutically relevant antibodies. However, the GPCR-specific primary cell proliferation assay they had developed internally was labour-intensive and faced critical challenges of low sensitivity as well as limited reproducibility.

Action & Results

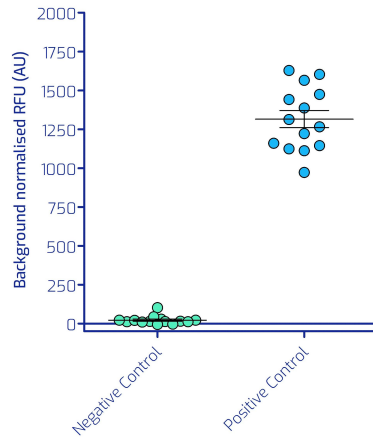
Due to the labour-intensive nature of the assay and significant variability in readouts, DJS approached Arctoris for its use of advanced robotics and automation for assay execution. During the scientific exploration with the Arctoris cell biology team, the current assay protocol and design were reviewed in depth, and it became clear that there was potential for improvement.

With consultation and guidance from the cell biology team at Arctoris, an improved assay was established on the automated Ulysses™ technology platform with markedly increased signal confidence, robustness and unparalleled sensitivity.



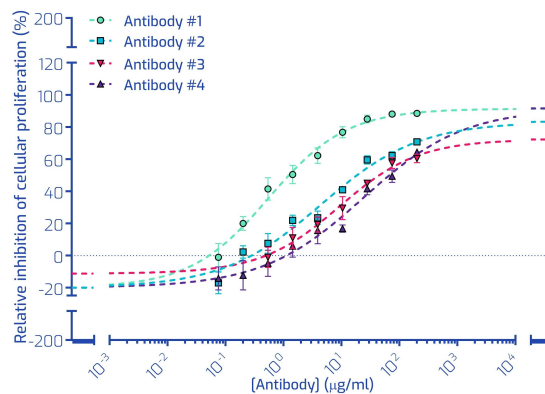
“When we approached Arctoris, it was all about increasing experimental reproducibility for our workhorse assay. But then we realised that there is also a sensitivity angle: normally, IC50s need to be <10 nM for true antibody differentiation. The automated assay developed by Arctoris is sensitive enough to distinguish antibodies at 1nM potency - this makes a huge difference to our company, and will be extremely helpful for anyone involved with antibody research.”

- Joe Illingworth PhD,
DJS Antibodies, Co-Founder
& CSO



High signal ratio in cell proliferation between negative and positive controls in the automated antibody detection assay.

Error bars denote SEM; data representative of 14 technical replicates.



Fitting of concentration response curves via non-linear regression revealed that 3 of the 4 novel DJS antibodies acted as full inhibitors of the cell proliferation signal while antibody #4 acted as a partial inhibitor.

Error bars denote SEM; data representative of 6 technical replicates.

Value

Consultation and guidance from Arctoris' expert scientific team coupled with the superior sensitivity of the assay developed on the automated platform enabled DJS to validate their antibodies in a robust and physiologically relevant format. The Arctoris team worked very closely with DJS, providing inputs during assay setup, planning and execution and ensuring the timely generation of data in an accessible and informative way.

For biotech companies like DJS, outsourcing to service providers and CROs is key to scale and grow in a capital-efficient way. However, challenges to outsourcing experienced by DJS included lack of transparency, limited scientific inputs on protocol design, and high onboarding costs. With Arctoris' transparent processes, deep scientific consultation, and automated assay execution, DJS now has access to a highly sensitive, one-of-its kind assay for antibody detection established as new workhorse assay.

From now on, DJS uses the assay developed and established by Arctoris to validate their arrays of antibodies generated by their unique discovery process.