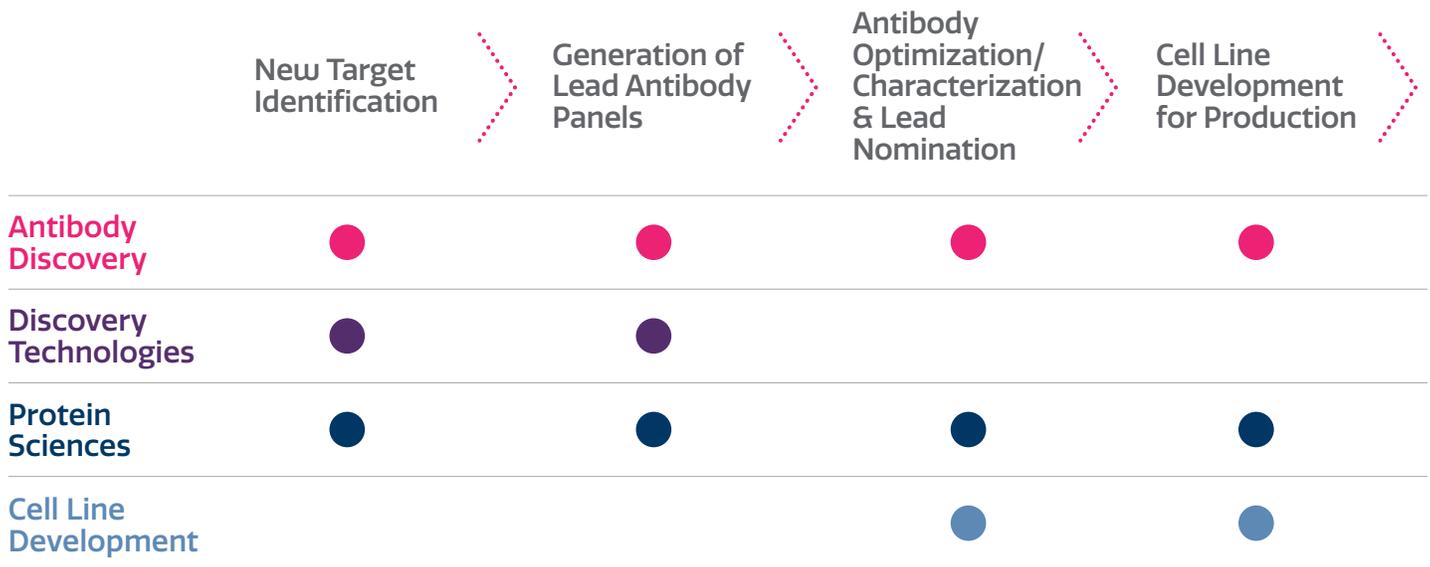


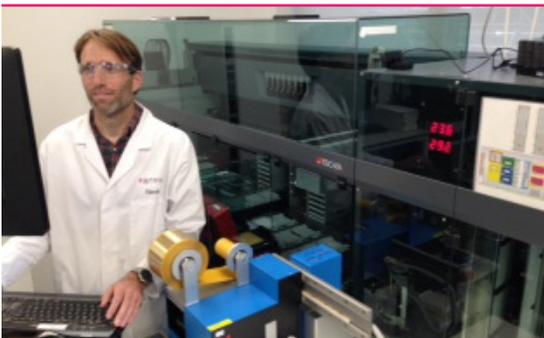
## Innovation and Speed in Antibody Discovery

Agenus UK is one of our centers for antibody discovery and engineering and comprises four integrated functional teams: Antibody Discovery, Discovery Technologies, Protein Sciences and Cell Line Development. These integrated in-house teams drive both high speed and lower cost of process development from antibody identification to production of cell lines. This, in turn, enables us to rapidly advance our therapeutic pipeline. As an example, for [AGEN1307](#) (best in class anti-TIGIT), we advanced from target nomination to generating a commercially viable master cell bank within a remarkably short period of ~2 years.

### Teams Involved In Various Stages of Development At Agenus UK



## Antibody Discovery



The Antibody Discovery team is responsible for pre-project activities through to nomination of antibody candidates. Aided by two unique antibody display platforms (Mammalian Retrocyte Display and Phage Display) and with an automated high throughput screening platform, Agenus UK is able to discover novel antibodies and deliver high quality producer cell banks at extraordinary speeds. Our team continues to innovate and improve process optimization and technology development.

## Discovery Technologies

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Our Discovery Technologies group is focused on bringing new antibody technologies into Agenus. The group focuses on improving antibody technologies to enhance safety, efficacy and speed into the clinic. The group's focus includes bispecific antibody technologies to build our bispecific platforms that include first-in-class and best-in-class therapies intended to address mechanisms of immune evasion and therapeutic resistance. Our bispecific platforms are amenable to high throughput screening, and we are working towards taking outputs from phage display directly into bispecifics, enabling us to select the best candidates by screening hundreds of bispecific antibody combinations rapidly.

## Protein Sciences

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As evident in the schematic above, the role of Protein Sciences is integrated into the antibody development process. Our team is responsible for the generation and quality control of all tools and reagents (including antigens) and for testing all new biological entities across the Agenus portfolio. The team accomplishes this in collaboration with multiple partners within Agenus UK and US, including the Biology Teams and Process/Manufacturing Sciences. The team continues process improvement including innovative automation approaches.

In 2018, we doubled the number of reagents generated compared to the previous year, to enable testing of our best in class or first in class molecules for INDs and intellectual property filings.

## Cell Line Development

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The Cell Line Development group uses state-of-the-art technologies to deliver stable cell lines for high expression and production of lead molecules. These cell lines are used to provide material for conducting preclinical (PK/PD and toxicity) and clinical studies, as well as efficient technology transfer for commercial supply. The ability to deliver high expressing, stable cell lines rapidly is critical to shortening timelines from candidate molecule nomination to IND filing and treating patients.

## Cell Line Development (Continued)

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For example, the cell lines for [AGEN1223](#) and [AGEN1423](#) were delivered in 4.5 and 6 months, respectively, from construction of expression vectors to generation of research cell banks. Cell bank generation to at scale manufacturing of these bispecific assets was achieved in ~2 months.

Fully integrated capabilities, including in-house discovery, development and GMP manufacturing, are essential for delivering innovation with speed. This is critical for success in I-O, where drug development timelines have shortened while product obsolescence rates are climbing. Agenus' fully integrated capabilities have put us on track to achieve an [industry record](#) of delivering a total of 13 INDs in ~3 years by 1H 2019, which includes: 5 INDs in 2016-17; 3 INDs so far this year; on track to file 3 additional INDs by end of 2018 and 2 more INDs planned for 1H 2019. These include first-in-class and best-in-class agents.

Our world-class R&D facility in Lexington, MA, and our in-house GMP manufacturing facility in Berkeley, CA, work in close collaboration with Agenus UK to continually deliver innovation with speed. In fact, following early research and development, we can deliver clinical grade material from research cell bank in ~4 months, which is 3-4 times faster than the industry average of 12-18 months. Leveraging all these capabilities, we continue to design, optimize and manufacture mono- and bi-specific antibodies and vaccines, which we are advancing into clinical trials to bring curative treatments for cancer patients.