# CATAPULT
Cell and Gene Therapy

UK cell and gene therapy skills demand report 2019

Impact summary

This report is intended to provide an overview of the current and forecasted skills demand in the cell and gene therapy industry, from 2019 to 2024, with a focus on crucial biomanufacturing capabilities. The last skills demand survey was conducted in 2017 and had a significant positive impact in establishing the Advanced Therapies Apprenticeship Community (ATAC) in partnership with the Medicines Manufacturing Industry Partnership (MMIP) and establishing the Advanced Therapy Manufacturing Industry Consortium (AToMIC), which are recognised as already having a positive effect. With current employment figures way ahead of what was forecasted in 2017, there is an urgent need, however to act now to ensure that the recruitment and retention of talent across many levels, does not cause a delay, to the growth of the rapidly expanding Cell and Gene Therapy industry. Demand for talent in this rapidly growing global sector was mapped through an industry survey, to precisely detail the requirement and to help inform further UK skills initiatives such as ATAC. We thank all participating companies for providing such a high level of engagement.

Total number of jobs:
+3387 ↑**112%**

Number of bioprocessing roles:*
+2175 ↑**126%**

*Includes manufacturing, supply chain and logistics, process development and total quality.

■ Bioprocessing*   ■ Total
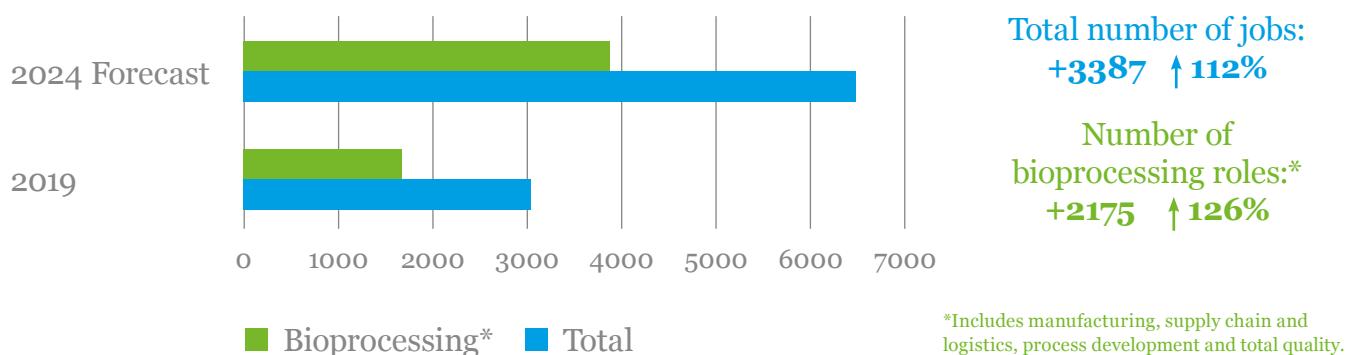
Methodology

70 cell and gene therapy companies were identified as being active within the UK when scoping the skills demand survey. Through examining the landscape, 55 of these companies were identified as having ATMP bioprocessing activity, and therefore became the focus of this survey. From these 55 companies, 41 completed the survey, with approximately 30 of these companies employing the majority of bioprocessing employees. The survey has thus received responses from >95% of the industry capacity, resulting in a significant picture of the anticipated skills challenges and opportunities over the next 5 years. The 2017 skills demand survey focused purely on bioprocessing roles across the industry, with 10 employers responding demonstrating the growth in numbers of companies active in the UK.

Skills forecast

The 2017 survey established there were approximately 500 roles in bioprocessing[1], which was anticipated to double to 1000 roles in a 3 (2020) to 5 (2022) year timeframe. The 2019 survey demonstrates significant growth beyond this earlier forecast with current bioprocessing employment at > 1,700 roles with a forecast of > 3,800 by 2024. This bioprocessing component represents approximately 60% of employment in the sector, with other roles in these companies expanding in the same proportion. Currently, the total count encompassing all roles is approximately > 3,000 growing to > 6,400 over a 5-year period. Bioprocessing roles are expected to increase further by 2,175, which is a 126% increase by 2024, and this takes no account of the growth in bioprocessing roles in the aligned biologics and vaccines bioprocessing sector.

The table below, shows the breakdown of 2019 roles (by headcount), forecasted 2024 headcount, the number of the increase by skill area and the level of concern raised during the company interviews (- being minimum concern and +++ being a substantial concern).

| Skill area	Total headcount 2019	Forecasted total headcount 2024	Increase	Increase %	Level of concern raised during interview
Research and Development / Discovery	590	1080	+490	83%	-
Manufacturing (including Engineering support and H&S)	491	1456	+965	196%	+++
Supply Chain and Logistics (note: some respondents included these figures in Manufacturing)	104	306	+202	194%	+
Process Development (including analytics)	623	1214	+591	95%	++
Regulatory Affairs	66	156	+90	136%	+
Total Quality (including QP, QA and QC)	502	919	+417	83%	++
Commercial (including clinical trials)	208	511	+303	146%	+
Support Services (such as HR/L&D, Finance/ Payroll, IT, Comms/ Marketing)	345	580	+235	68%	-
Other	104	198	+94	90%	-
Total	**3033**	**6420**	**+3387**	**112%**	

It is important to note that the above forecasted increases are dependent on factors such as fund raising often linked to clinical programme success. The figures have been provided based on forecasts available at the time of the survey and are therefore subject to change.

The skills survey data has indicated an average industry ratio of skills between 2019 to 2024, as follows:

- 59% of roles in bioprocessing (manufacturing, process development, supply chain and logistics and total quality)
- 18% of roles in research and development (and discovery)
- 16% of roles are in 'other' (regulatory affairs, support services and 'other')
- 7% of roles are in commercial

The anticipated 2024 forecast data supports the above ratio of skills, indicating an increase of volume within these ratios at 112% overall, but not a change in skill set.

The below chart provides an overview of the forecasted source of skills that companies are considering from 2019 to 2024. The second chart shows that 85% of employers have also indicated that they intend on recruiting for their expansions through a phased approach. These charts combined demonstrate that most companies will be recruiting for skilled and experienced people at the same time. Parallel, phased recruitment is expected to present an issue to industry as it is anticipated that not enough trained individuals will be available to fulfil the demand.

- Apprentice
- New graduate / postgraduate
- Skilled with industry experience

■ Estimated timelines of expansion
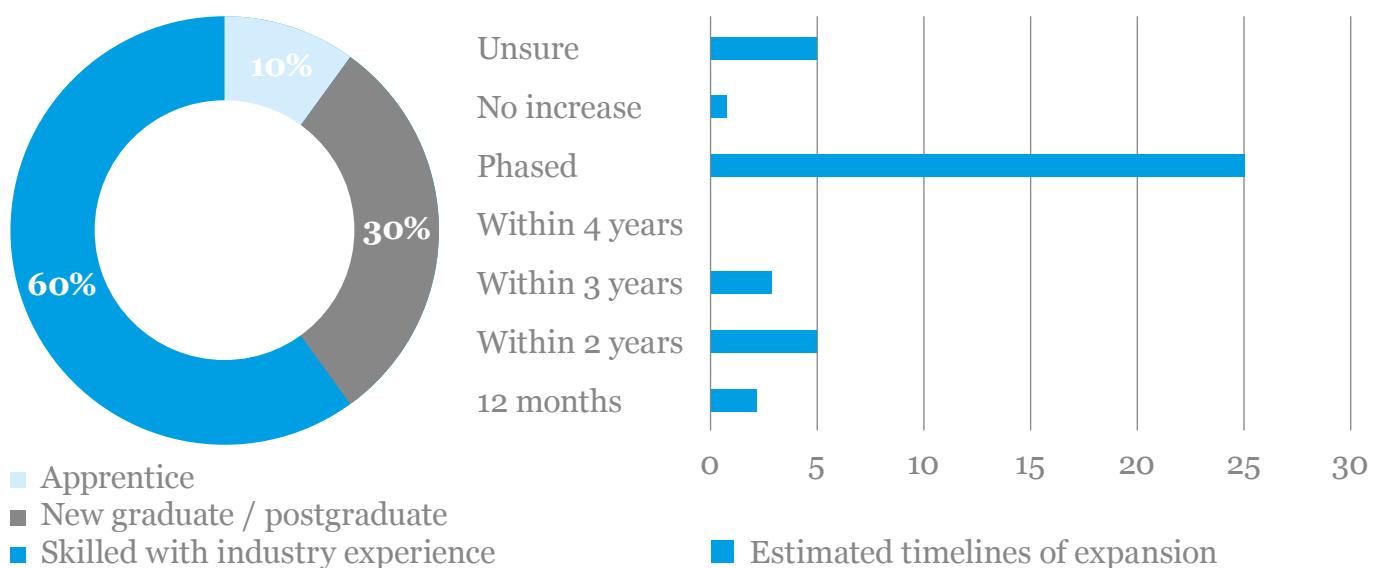
Summary

Various themes have been identified from the respondent interviews; these are:

- 98% of companies are increasing their headcount within the next 5 years (only 1 company is not intending to grow).

- 83% of respondents have raised concerns that recruitment and/or retention of skilled individuals will be an issue for growth. This is supported by 60% of their expansion of staff to be experienced people. This will be difficult to achieve based on the scale of demand expected within the industry.

- Requirement for prior industry experience provides a great opportunity for cross sectoral training, to capture workplace experience from other declining manufacturing sectors.

- Apprenticeships through ATAC are seen as a positive option to address some of the skill shortages, therefore companies have asked for funding to continue and for this to be expanded.

- 63% of respondents believe that digital skills will be important for their future workforce, mainly due to automation and data management

- Concerns have been highlighted that academic courses are not producing industry ready graduates and postgraduates.

- Some companies believe that specialist validation skills may be a potential skill gap issue.

- Inflated salaries are seen as an issue due to there being such competition for skills.

- Some respondents were concerned that Brexit will have a negative impact on recruiting and retaining skilled non-UK EU people.

- Respondents believe that a lack of skilled and experienced people will be one of the main issues that could slow down or cause a delay to their forecasted expansions, therefore there is a significant need for focused government funding in partnership with industry to assist with skills.

Addressing the need

The cell and gene therapy sector is highly innovative and speed of progress, from early development through to pivotal clinical trial and beyond, is a key global driver of business location. The lack of talent will highly likely act as a brake to growth, with significant negative consequences on both organic and inward investment. It is recommended, that companies are supported to deliver on their growth strategies, through the provision of supportive schemes, to both upskill their existing workforce as well as recruiting new talent, from outside of the sector. ATAC has been identified by respondents as having a positive impact on their company, but is only expected to have a significant, but limited impact (10% of demand). Likewise, the AToMIC[2] initiative is at an early stage in supporting the skills agenda, but for the graduate/post-graduate requirement (30% of demand). The biggest challenge, and opportunity, is to provide platforms to allow skills from other industries, to flow into the sector to fulfil the biggest requirement (60%). A core skills-based approach shall both enhance the sector with new skills and be rapidly deployable through targeted cross-sector training, and intra-sector upskilling.

There is an urgent need to act now, to ensure that the recruitment and retention of essential talent does not hinder industrial growth and investment. A coherent offering will stimulate more inward investment, in what is a very competitive global environment. We intend to produce an industry skills strategy to inform further UK skills initiatives that will be shared with respondents to the 2019 skills demand survey in early 2020.

[2] AToMIC (Advanced Therapy Manufacturing Industry Consortium) is an initiative that is focussed on building bridges between academic education programmes, their students and industry to meet employers needs.

Special thanks to all respondents
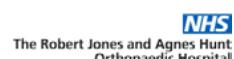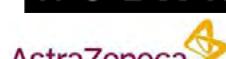
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