



2021 UK Cell and Gene Therapy Skills Demand Survey Report



Summary

The forecast skills demand for 2026 is 10,000 bioprocessing jobs, a growth of 151% from today. There is an urgent need to prioritise skills provision to continue the substantial growth of UK companies and for the UK to be a global leader in advanced medicine manufacturing.

The Cell and Gene Therapy Catapult 2019 UK Cell and Gene Therapy Skills Demand Survey Report predicted more than 3,400 new jobs would be needed in the industry by 2024, doubling the existing workforce. The 2021 report shows that current employment has already surpassed these predictions and industry is forecasting significantly higher growth.

Current demand for talent in this rapidly growing sector was evaluated through an industry survey and compared against the data reported from the same survey run in 2019. We thank all participating companies for providing such a high level of collaboration in building this data.

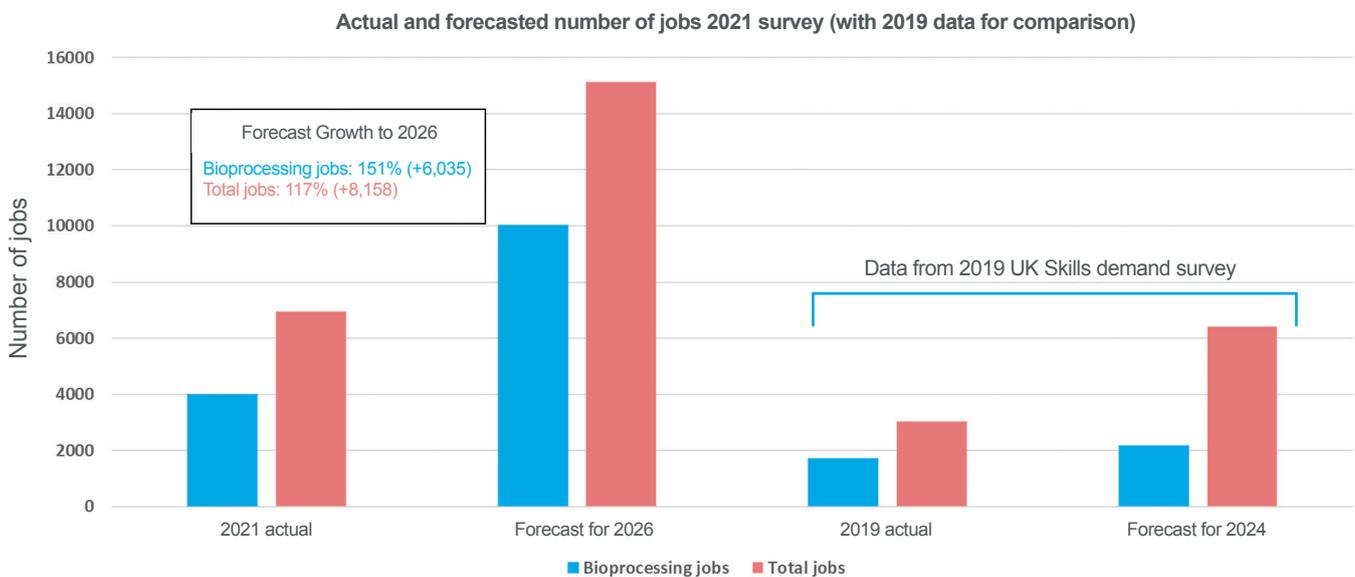


Figure 1: Reported number of jobs from 2021 UK Cell and Gene Therapy Skills Demand Survey with data from the 2019 UK Cell and Gene Therapy Skills Demand Survey report added for comparison.

Sector background

The UK cell and gene therapy and vaccine manufacturing industry continues to grow and build on the favourable ecosystem for research, development, manufacture, clinical adoption, and reimbursement. The 2020 Cell and Gene Therapy Catapult ATMP clinical trials database reported a 20% increase in the number of clinical trials ongoing in the UK compared to the previous year and a snapshot of the Cell and Gene Therapy Catapult's UK GMP cell and gene therapy manufacturing report for 2020 reported a 48% increase in the manufacturing space in the industry, counting over 11,756m² supported by 1,310 full time staff. The rapid pace of scale-up of the vaccine manufacturing processes in the UK this year was remarkable given the complexity and challenges of the biological systems. Having access to the technical skills and scientific knowledge to rapidly scale innovative manufacturing technologies was key to this success.

Methodology

78 cell and gene therapy companies identified as having core bioprocessing capabilities within the UK were surveyed for this report. For reference, this includes 23 additional companies compared to the 2019 UK Cell and Gene Therapy Skills Demand Survey. The large increase in companies is mainly due to numerous small companies, with minimal bioprocessing activity and small predicted manufacturing workforce impact. There is, however, a significant impact by broad-based manufacturers who work with both cell and gene therapies plus advanced biologicals and vaccines. The survey has received responses from 63 companies, which equates to responses from more than 90% of the industry biomanufacturing capacity, resulting in a significant picture of the anticipated skills challenges and opportunities over the next 5 years.

Skills demand

The 2021 survey demonstrates remarkable growth in the demand for skilled personnel compared to the 2019 survey, and the anticipated 2024 rate of growth has already been achieved by 2021. Total current employment for 2021 is reported at more than 6,900 staff, with more than 3,900 staff being in bioprocessing roles. Respondents forecast that by 2026 employment will increase to more than 15,100 roles, which is an anticipated increase of over 8,100 additional roles.

Approximately 59% of current employment is in the bioprocessing area and this is expected to increase even further to 74% (over 6,000 roles) by 2026, highlighting the opportunity to establish a robust and flexible biomanufacturing workforce in the UK.

The table below shows the breakdown of:

- 2019 data: reported roles by headcount, and 2024 forecast headcount
- 2021 data: reported headcount and forecast headcount for 2026
- The increase by skill area
- The level of concern raised during the interviews to the participating companies regarding the forecast increase (- being minimum concern and +++ being a substantial concern).

| Year of Survey | 2019 Survey Report (42 companies) | | 2021 Survey Report (63 companies) | | | |
|--------------------------------------|---|---|---------------------------------------|----------------------|-----------------|-------------------------|
| | 2019 survey reported existing headcount | 2024 forecast growth | 2021 survey report existing headcount | 2026 forecast growth | 2026 Increase % | Level of concern raised |
| Research and Development / Discovery | 590 | 1080 | 1343 | +897 | 67% | - |
| Manufacturing | 491 | 1456 | 1863 | +3426 | 184% | +++ |
| Supply Chain and Logistics | 104 | 306 | 321 | +407 | 127% | ++ |
| Process Development | 623 | 1214 | 752 | +897 | 119% | ++ |
| Total Quality | 502 | 919 | 1049 | +1305 | 124% | +++ |
| Regulatory Affairs | 66 | 156 | 75 | +82 | 108% | - |
| Commercial | 208 | 511 | 121 | +245 | 202% | - |
| Clinical Trials | Included in Commercial category in 2019 | Included in Commercial category in 2019 | 161 | +164 | 102% | - |
| Support Services | 345 | 580 | 780 | +571 | 73% | - |
| Other | 104 | 198 | 491 | +164 | 33% | - |
| Total | 3033 | 6420 | 6956 | +8158 | 117% | ++ |

Table 1. The above figures are estimates by respondents, not actuals, and therefore may vary based on various factors.

The 2021 Cell and Gene Therapy Skills Demand Survey data has indicated that between 2021 and 2016 the average ratio of required skills by industry will be as follows:

- 74% of roles in bioprocessing (manufacturing, process development, supply chain and logistics and total quality)
- 11% of roles in research and development (and discovery)
- 7% of roles are in support services (such as HR/Learning & Development, Finance/ Payroll, IT, Communications/Marketing etc)

The below chart (Figure 2) provides an overview of the forecast source of skills that companies are considering turning to in order to fulfil their anticipated growth in personnel between 2021 and 2026. The second chart (Figure 3) shows that 62% of employers intend to recruit to expand within the next 2 years. These charts combined demonstrate that most companies will be recruiting for skilled and experienced people at the same time. The scale of growth 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
- Within the cell and gene industry and with experience
- Outside the cell and gene industry and with experience

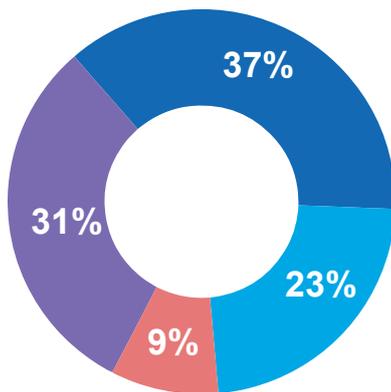


Figure 2 - Source of skills

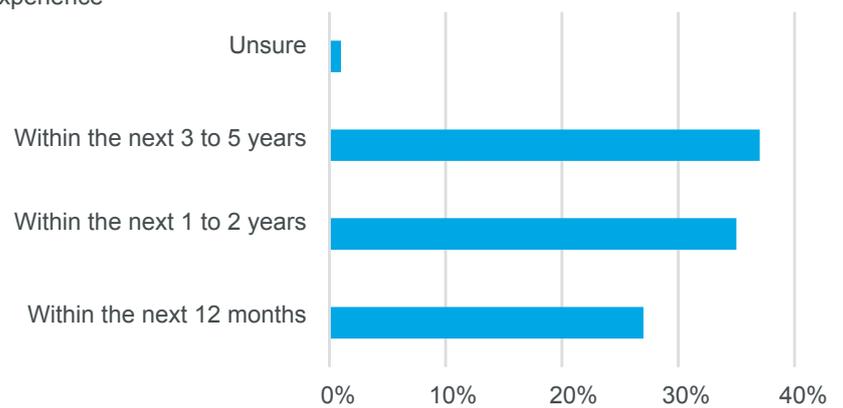


Figure 3 - Anticipated timeline of growth

Risks and opportunities identified by industry

Key areas of challenge and opportunity identified by industry respondents are:

- **Increasing their headcount within the next 5 years (95% of respondents)**
- **Recruitment and/or retention of people (98% of respondents)**

The top 5 recruitment and retention barriers to growth and forecast expansion, in order of concern are (further barriers can be found in the graph below in Figure 4):

1. Identifying skilled/experienced people
 2. Inflated salaries due to there being such competition for skills
 3. Limited access to suitable alternative talent pools – such as apprentices, students
 4. Restricted transferable skills from outside the cell and gene therapy industry
 5. Lack of training and development courses in a particular area
- **Apprentices engaged through the Advanced Therapies Apprenticeship Community (ATAC) programme.** 47% of respondents have confirmed that they currently have an active apprentice through ATAC and have indicated that they would recommend ATAC to others. 7 companies have expressed an interest to look to join ATAC in the next few years. The remaining respondents have advised that time, resources, support and infrastructure are the main barrier to participating in recruiting an apprentice at this time.
 - **Access to ATMP specific training.** 41% of companies were aware and have a licence for the Advanced Therapies Skills Training Network (ATSTN) Online Training Platform (OTP). 59% were not aware that the ATSTN OTP was available and intended to register after completion of the survey.
 - **The lack of graduate life sciences apprenticeship programmes.** This has been identified as a barrier by all but one company in Scotland and one in Wales.
 - **Need for people to have industry experience or relevant transferable skills.** This provides a great opportunity for cross sectoral training.
 - **Availability of sector specific skilled people.** This point remains a significant concern as it potentially inhibits anticipated expansions within the rapid timescales identified.

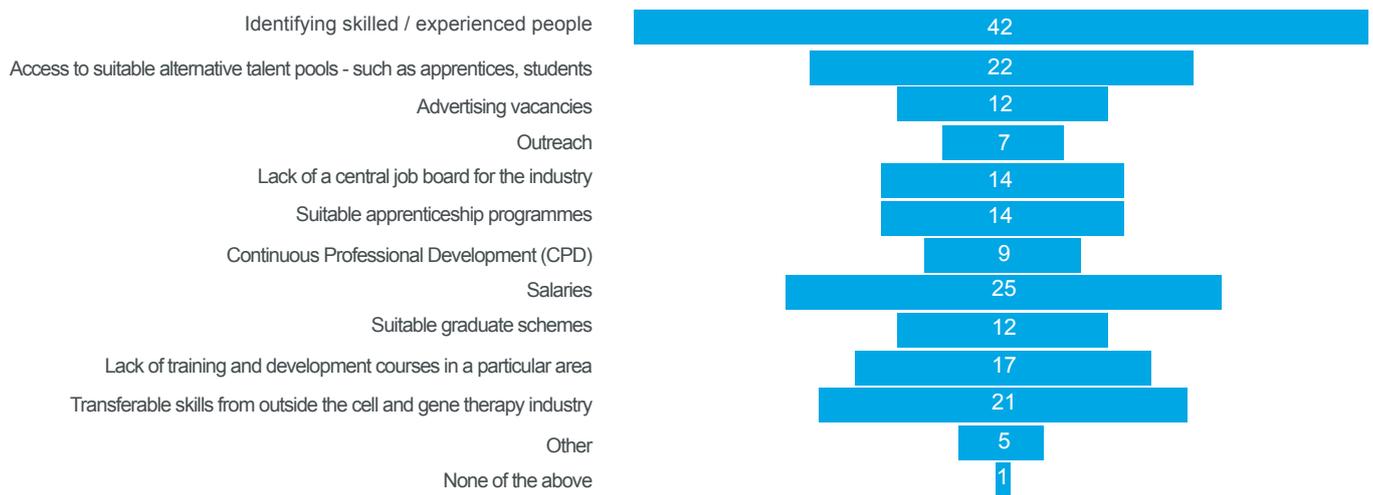


Figure 4: Count of the number of companies who have indicated these barriers as a concern to recruitment and/or retention of people

Addressing the need

The 2021 Cell and Gene Therapy Skills Demand Survey indicates that industry is anticipated to grow by 117% by 2026 (equating to more than 8,100 roles), with some respondents also having planned for continued growth up until 2028 with at least 2,000 additional roles for the sector. Identifying skilled and experienced people is seen as the top barrier to recruitment and retention of people. Companies are expected to be recruiting from the same talent pools within the UK, therefore a shift to recruiting from declining sectors, assessing transferable skills and upskilling people are vital.

The cell and gene therapy sector continues to be a highly innovative sector and speed of progress, from early development through to pivotal clinical trial and beyond, is a key global driver in defining business location. The lack of talent to fuel the speed of progress continues to be a barrier which could impact negatively on growth, with significant negative consequences on both organic and inward investment.

The ATAC and ATSTN national initiatives have made (and continue to make) a positive contribution to assisting companies with their growth strategies. There is now an urgent need to expand these skills programmes further and to offer clear and visible routes to attract, train and retain highly skilled talent. Respondents are keen to access various skills development programme options, such as apprenticeships, graduate, industrial placements, continuous professional development and upskilling/transferable skills programmes and/or platforms, to both upskill their existing workforce as well as attract and recruit new talent, from outside of the sector.

Action Plan

To address the skills gap, respondents provided the following feedback and recommendations on what would assist them in minimising their recruitment and retention barriers:

- Initiatives to centralise cell and gene therapy skills and training, improving harmonisation and access
- Options to shorten the length of time to train people
- Establishment of industry quality trademark to know 'good' programmes
- Availability of transparent schemes to get people into industry
- Identifying and recognising transferable skills
- Continued focus towards attracting people with potential, attracting people to work in Manufacturing and Quality roles and in GMP environments. Option of creating an industry guidance board to assist outreach
- Increased number of free courses on OTP
- Training programmes to 'seed the market' with skills
- Grants to support Equality, Diversity & Inclusion in terms of social mobility
- The need to work as a community to share talent, with the option to use pooled resource to work across companies was a theme across multiple respondents

Appendix

UK sector key figures from 2017 to 2026

| | | | | | |
|--|---|---|---|---|--|
| 2017 survey existing employee headcount | 2019 survey existing employee headcount in 2019 | 2019 survey forecast 2024 employee headcount to be: | 2021 survey for existing employee headcount in 2021: | 2021 survey forecast total 2026 employee headcount to be: | 2021 survey forecast 2026 employee headcount to increase by: |
| No data available | 3,033 | 6,420 | 6,956 | 15,114 | +117% |
| 2017 survey headcount for bioprocessing roles* | 2019 survey headcount for bioprocessing* roles in 2019 was: | 2019 survey forecast 2024 headcount for bioprocessing* roles: | 2021 survey headcount for existing bioprocessing* roles in 2021 is: | 2021 survey forecast 2026 headcount for bioprocessing* roles to be: | 2021 survey forecast 2026 bioprocessing* roles to increase by: |
| ~ 500** | 1,720 | 2,175 | 3,985 | 10,022 | 151% |

Headcount from cell and gene therapy and/or vaccine manufacturing
**includes manufacturing, supply chain and logistics, process development and total quality.

Special thanks to all respondents



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