



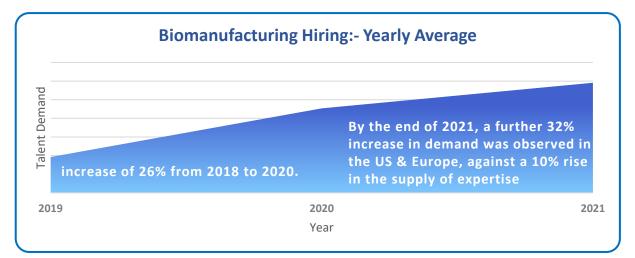
Table of contents

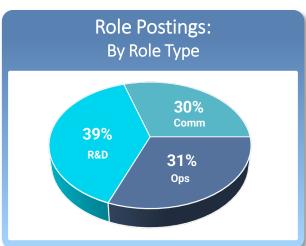
- 03. Executive Summary
- 05. Introduction & Methodology
- 08. Industry Sub Sector
- 28. Predictive Talent Market Dynamics





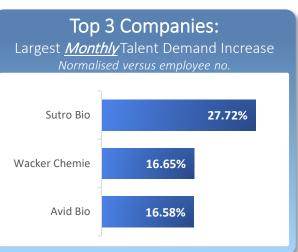


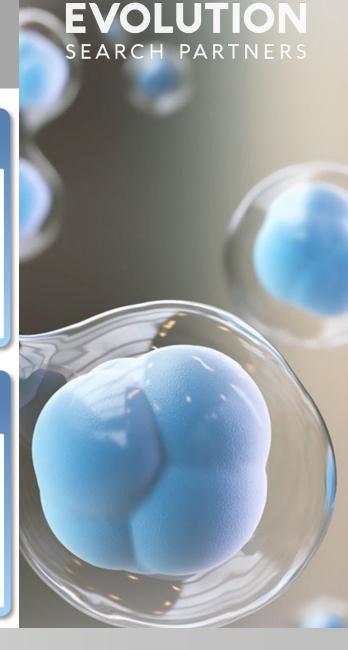
















Introduction & Methodology



+40K Operations, Commercial & Executive profiles Junior/Mid/Senior



5 Year Historic Data x5 node supply chain analysis Supply Trend Analysis CMO, CGT, CRO & Pharma sector

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Mathematical Modelling

Mathematical modelling of Biomanufacturing talent dynamics'; Monte Carlo; Lotka-Volterra model and K-gamma distribution



Hiring Data: 'metadata analysis using data gathered from website change detection, data mining and public data monitoring







Introduction & Methodology

To measure, model and predict 'supply versus demand' of Biomanufacturing talent across the global **CMO**, **CGT** and **Pharma** sectors.

Evolution Search Partners, University of Dundee, University College London (UCL)

To provide analytical, strategic intelligence to industry leadership to allow future facing workforce planning, aligned to support capital expansion project decisions, recognising the value of human assets for the economic success of the firm.

The outcome data aims to allow specific planning, where required, on creative talent acquisition, specific to segments of biomanufacturing workflows

Short Term

Aim

Purpose

Research

Partners

There is evidence that the bioprocessing sector is experiencing operational and staffing problems directly related to an increase in activity and demand. All sectors are experiencing an increase in R&D, manufacturing, and production, with a shifting of resources towards pandemic response. Most bioprocessing-related industrial activities are considered 'essential' and continue largely unaffected in terms of operations and output, while many are planning to ramp-up R&D and manufacturing. While there are many near-term changes in onsite staff management, broader business plans are generally not affected in the near-term.

Specific to Biomanufacturing talent, CMO and Pharma companies can no longer wait to develop talent strategies. They already have job openings they cannot fill, and the gap is widening as megatrends disrupt and transform biomanufacturing. Adopting talent management programs and processes will help manufacturers attract and retain workers with the desired skill sets. This is a challenge that requires flexibility and insight. And the stakes are high. Manufacturers with an engaged and skilled workforce will be more likely to enjoy a successful and sustainable future.









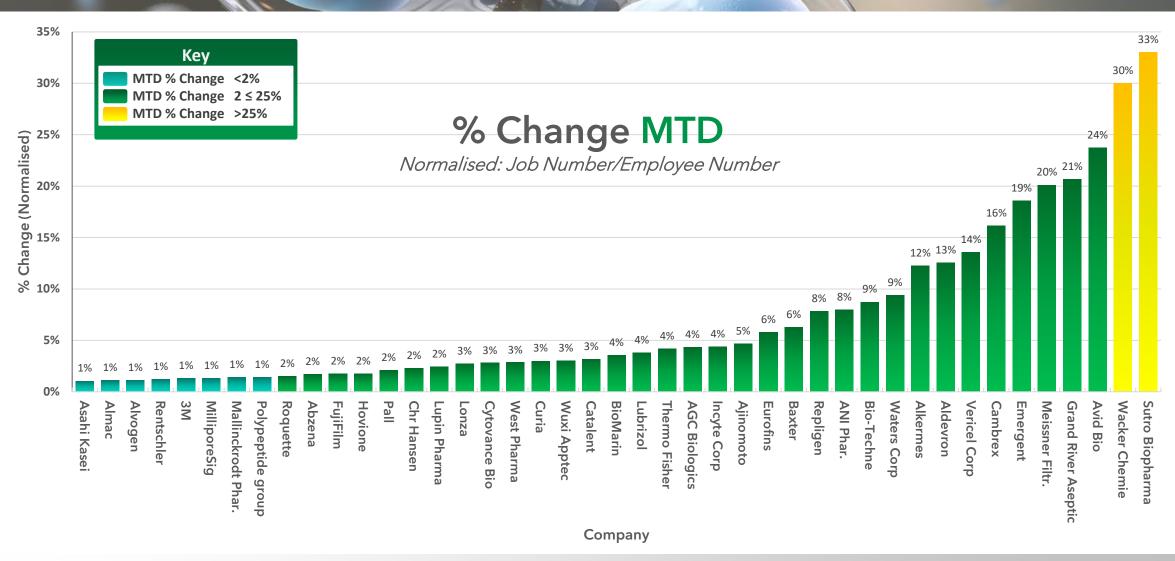


Industry Sub-Sector

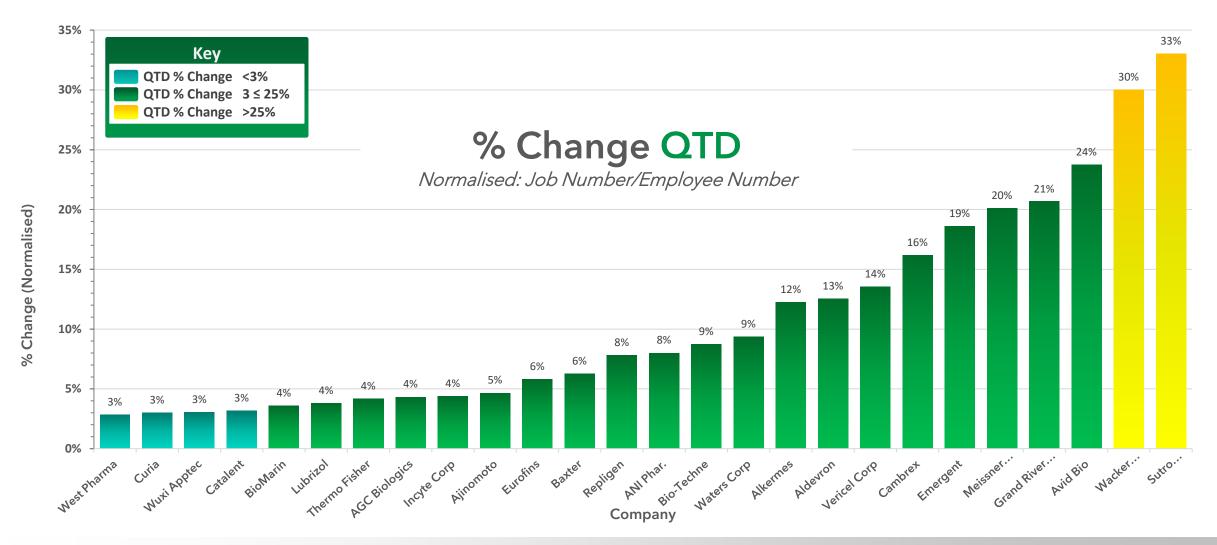
| 10 | By Job Number – MTD / YTD (Normalised) | 18 | Data Summary – Monthly Hiring Insight |
|----|---|----|---------------------------------------|
| 12 | Average Total Job Number (MTD, QTD, YTD, 2-YTD) | 26 | Market Drivers |
| 14 | Total Job Number by Job Type | 28 | Predictive Talent Market Dynamics |



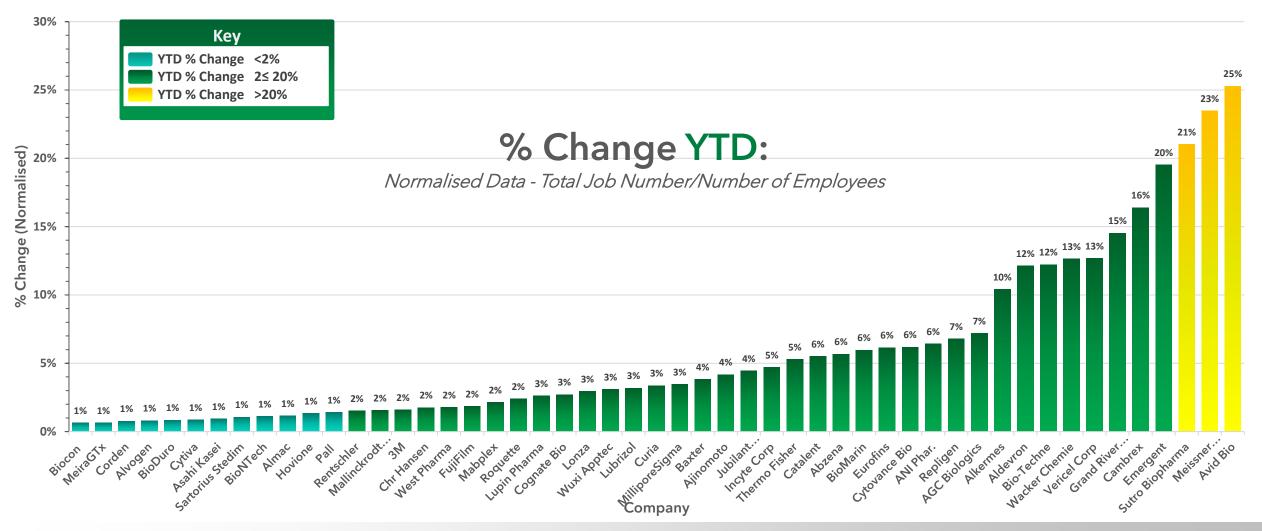








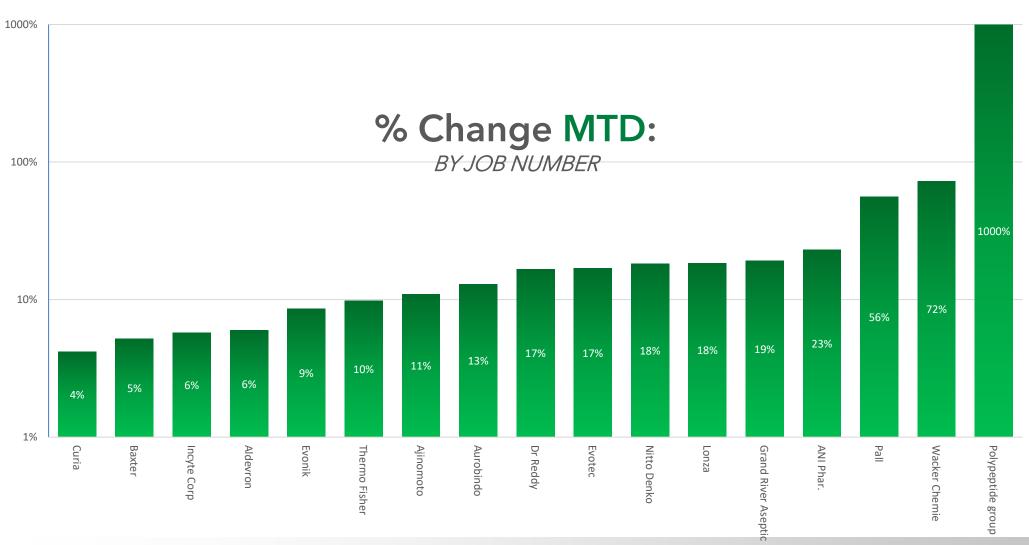






MTD
CDMO
BY JOB NUMBER

EVOLUTION SEARCH PARTNERS





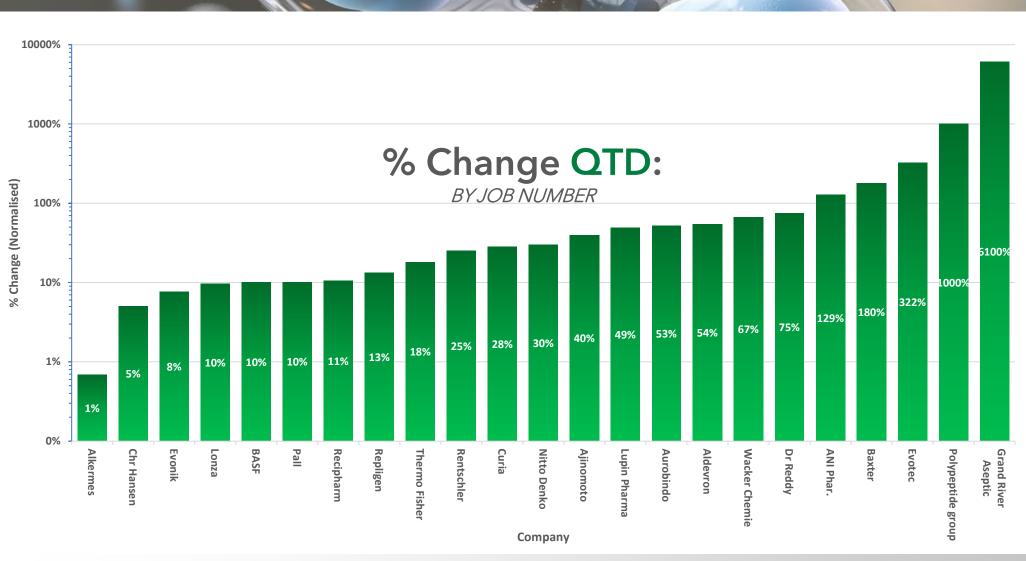


BioDuro Mabplex Novasep



QTD
CDMO
BY JOB NUMBER

EVOLUTION SEARCH PARTNERS





Evotec
Polypeptide group
Grand River Aseptic



BioDuro Mabplex



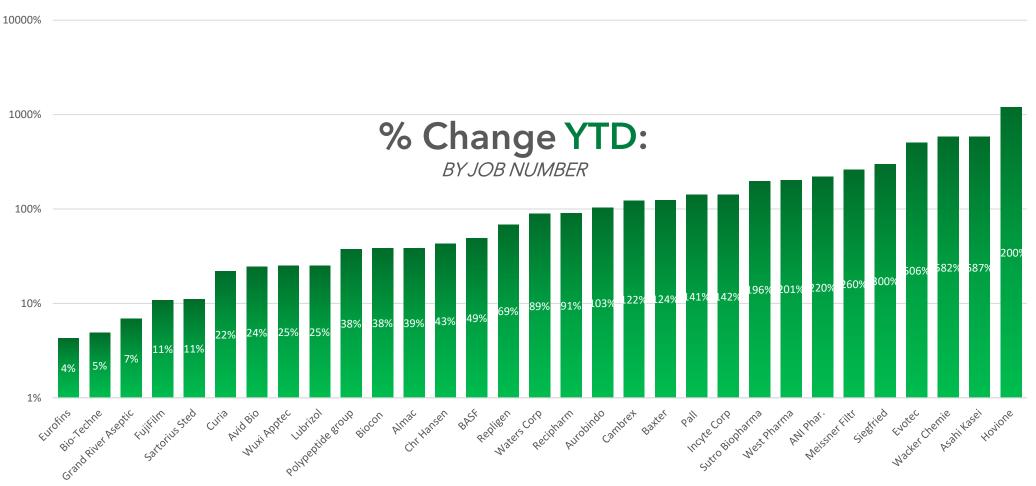


Hiring Trend Sept 2022

YTD CDMO BY JOB NUMBER

EVOLUTION SEARCH PARTNERS







Wacker Chemie Asahi Kasei Hovione



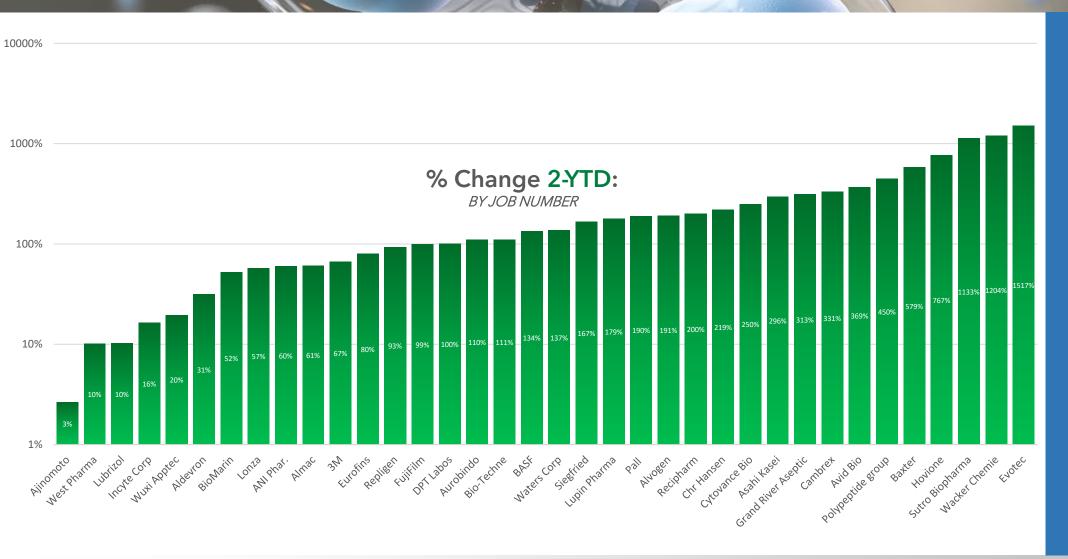
BioDuro Novasep Cognate Bio



2-YTD CDMO BY JOB NUMBER

EVOLUTION







Evotec Wacker Chemie Sutro Biopharma

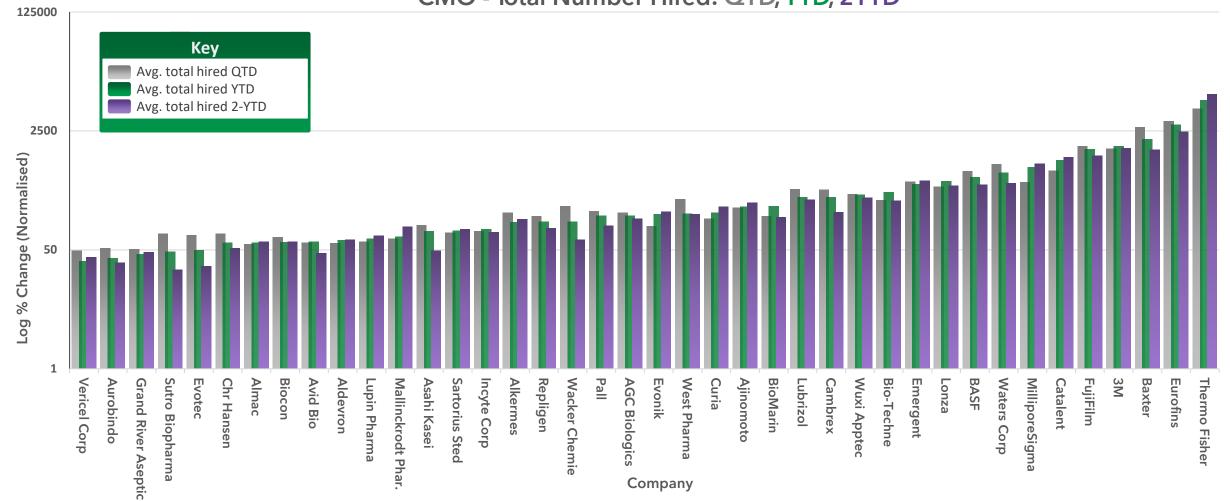


Unither Pharma Vetter Pharma Mabplex





CMO - Total Number Hired: QTD, YTD, 2YTD

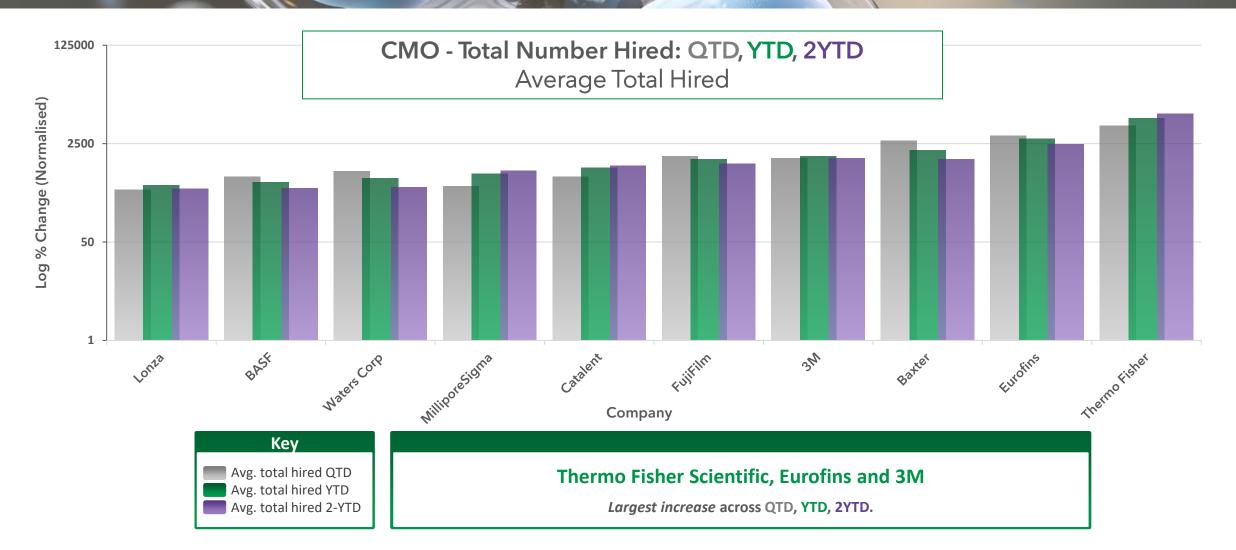




Top 10: QTD, YTD, 2-YTD

AVG. TOTAL NUMBER HIRED

EVOLUTION SEARCH PARTNERS

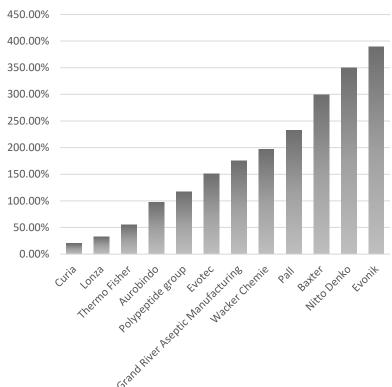




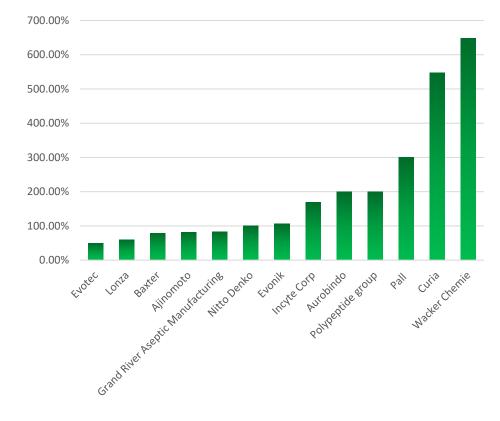




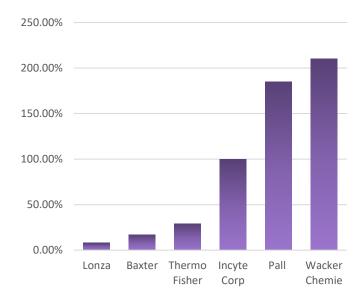




Operations



Commercial

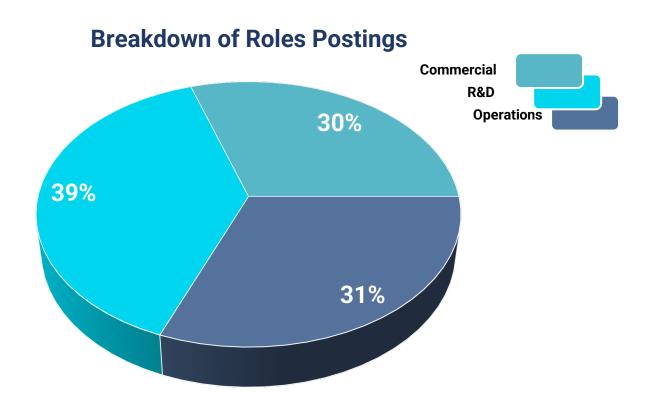


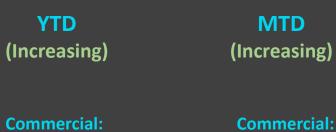


OVERALL

BY JOB TYPE

CDMO





Evotec

R&D:-

Baxter **Evotec**





| v | va | CKE | 1 | 2111 | 211 | ШЭ | 9 |
|---|----|-----|---|------|-----|----|---|
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Evonic

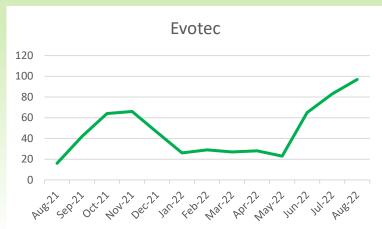
R&D:-

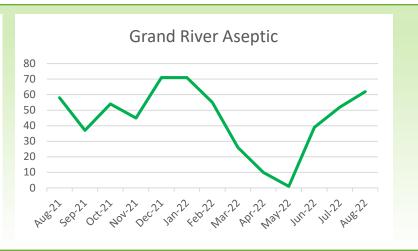


EVOLUTION SEARCH PARTNERS

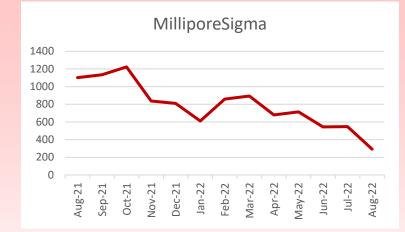
INCREASING

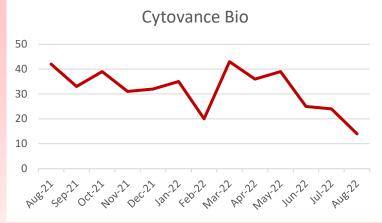


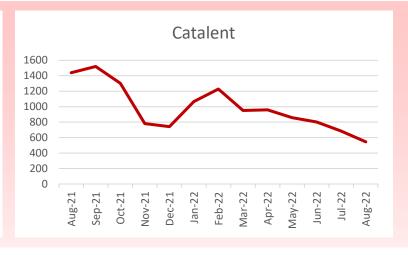




DECREASING















- In 2022, Sutro Biopharma entered a worldwide, strategic collaboration and licensing agreement with Astellas focused on the discovery and development of novel immunostimulatory antibody-drug conjugates (iADCs).
- Sutro initiated a collaboration and licensing agreement with BioNova Pharmaceuticals Limited (BioNova) to develop and commercialize STRO-001, a CD74-targeting Antibody-Drug Conjugate (ADC)
- Sutro initiated a collaboration and licensing agreement with Tasly Biopharmaceuticals Co., Ltd



- Meissner Filtration Products Awarded Contract from BARDA for COVID-19 Production Capacity Expansion (\$13.4 million)
- Meissner Announces Its New European Manufacturing Facility in Castlebar, Ireland
- Meissner Filtration products announced that it has acquired PDC Aseptic Filling Systems, a supplier of advanced aseptic filling systems and sealers to the pharmaceutical industry.



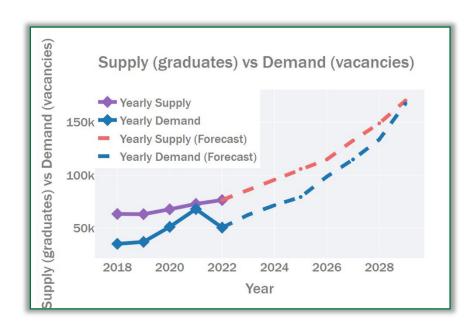
- Avid Bioservices Announces Launch of Analytical and Process Development Suites Within New, World-Class Viral Vector Development and Manufacturing Facility
- Avid Bioservices Announces Expansion into Viral Vector Development and Manufacturing Services for Cell and Gene Therapy
- Avid Bioservices, Inc. is expanding its CDMO service offering into the cell and gene therapy market: constructing a purpose-built 53,000 sq. ft. viral vector development and CGMP manufacturing facility in Costa Mesa, CA.

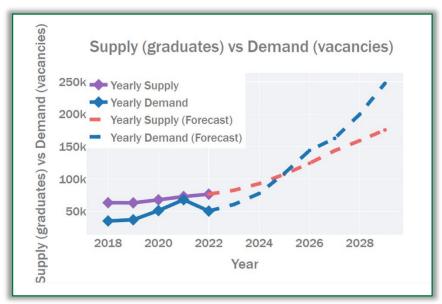




Predictive Talent Market Dynamics

Various models presented below exemplify the 'Supply versus Demand' market growth assumptions:





USA Biomanufacturing Supply versus Demand modelling. Various market growth options. Talent Supply presented at 10% growth (median over 12 years); Talent Demand growth projected at 10% (left) and 20% (right) respectively. Intersecting lines illustrate where talent demand and supply are in equilibrium (Evolution, 2022). Supply refers to number of graduates and post-graduates entering Biomanufacturing industry; demand specific to Biomanufacturing job vacancies.



