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INSIGHT REPORT

Predictive Talent Dynamics - September 2022

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CELL & GENE THERAPY

Executive Summary

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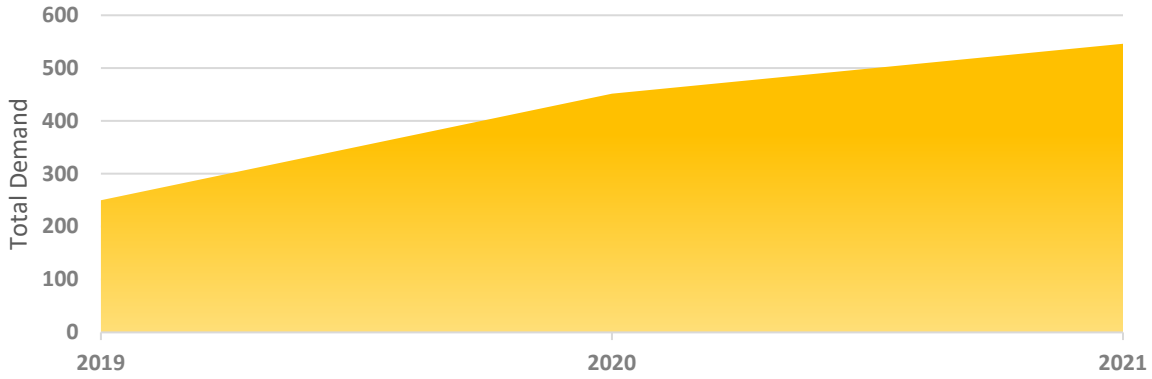
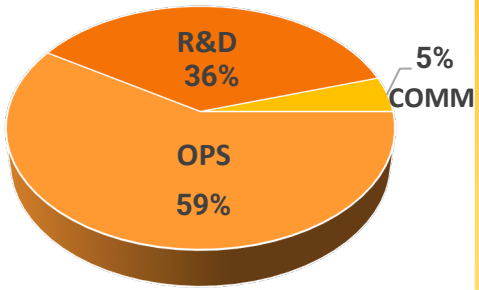
C&GT Hiring: Yearly Average



Role Postings: By Role Type



Top 3 Companies:

Largest ***Annual*** Talent Demand Increase

Normalised versus employee no.

Spark THERAPEUTICS

Sangamo THERAPEUTICS

ATARA BIO®

2022

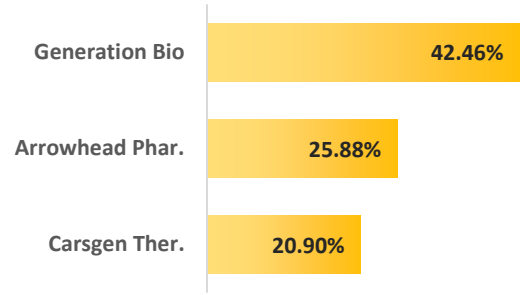
Monthly ***Hiring Demand*** Change

▼ -19%

Top 3 Companies:

Largest ***Monthly*** Talent Demand Increase

Normalised versus employee no.



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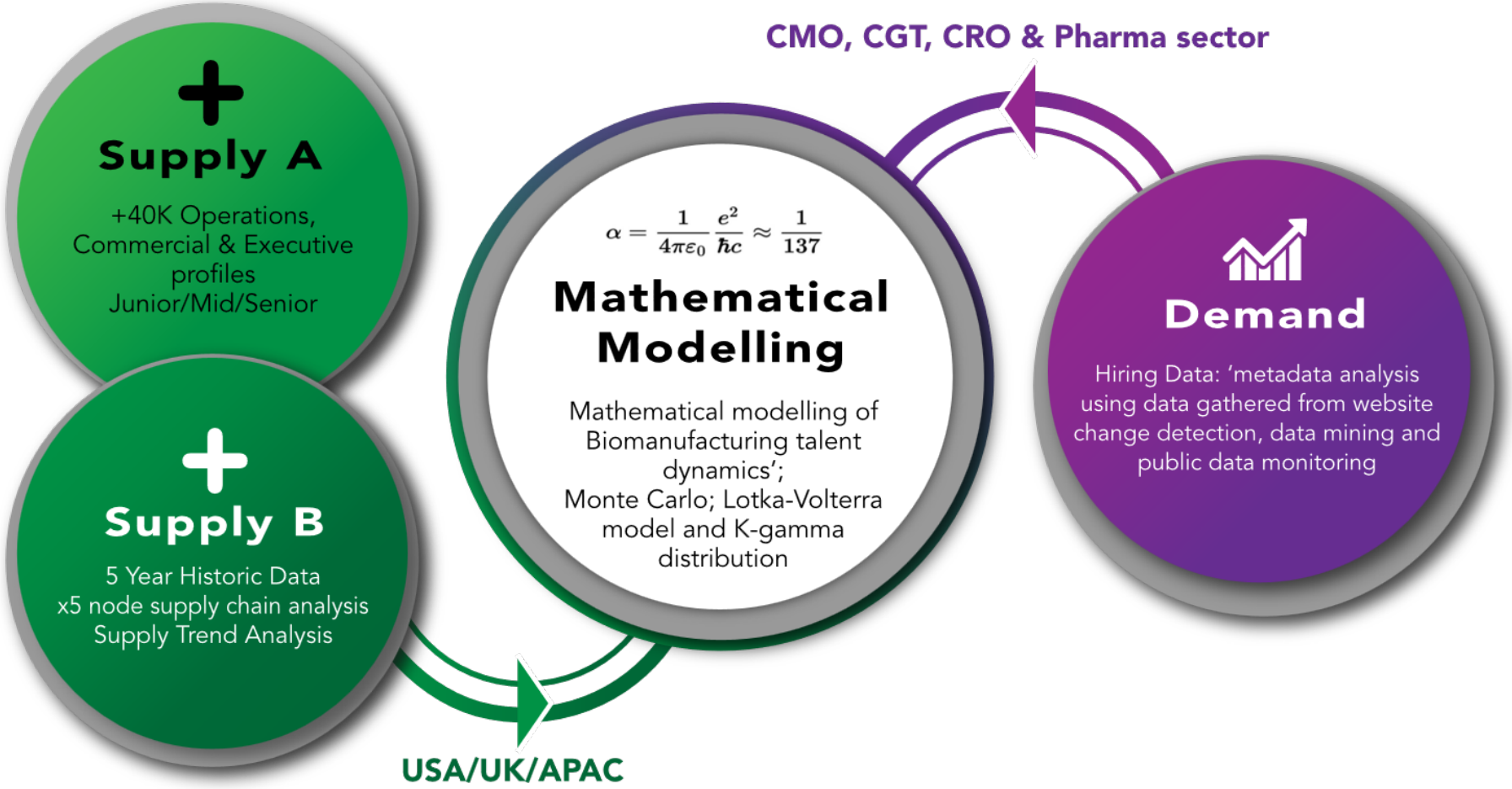
Introduction and Methodology

Introduction & Methodology



Insight Report

Aim

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

Research Partners

Evolution Search Partners; **University of Dundee**; **University College London (UCL)**

Purpose

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 in 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

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 & production, with a shifting of resources towards responding to the pandemic 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.

Long 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.

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Industry Sub Sector

Industry Sub-Sector

10 | By Job Number – MTD /QTD/ YTD (Normalised)

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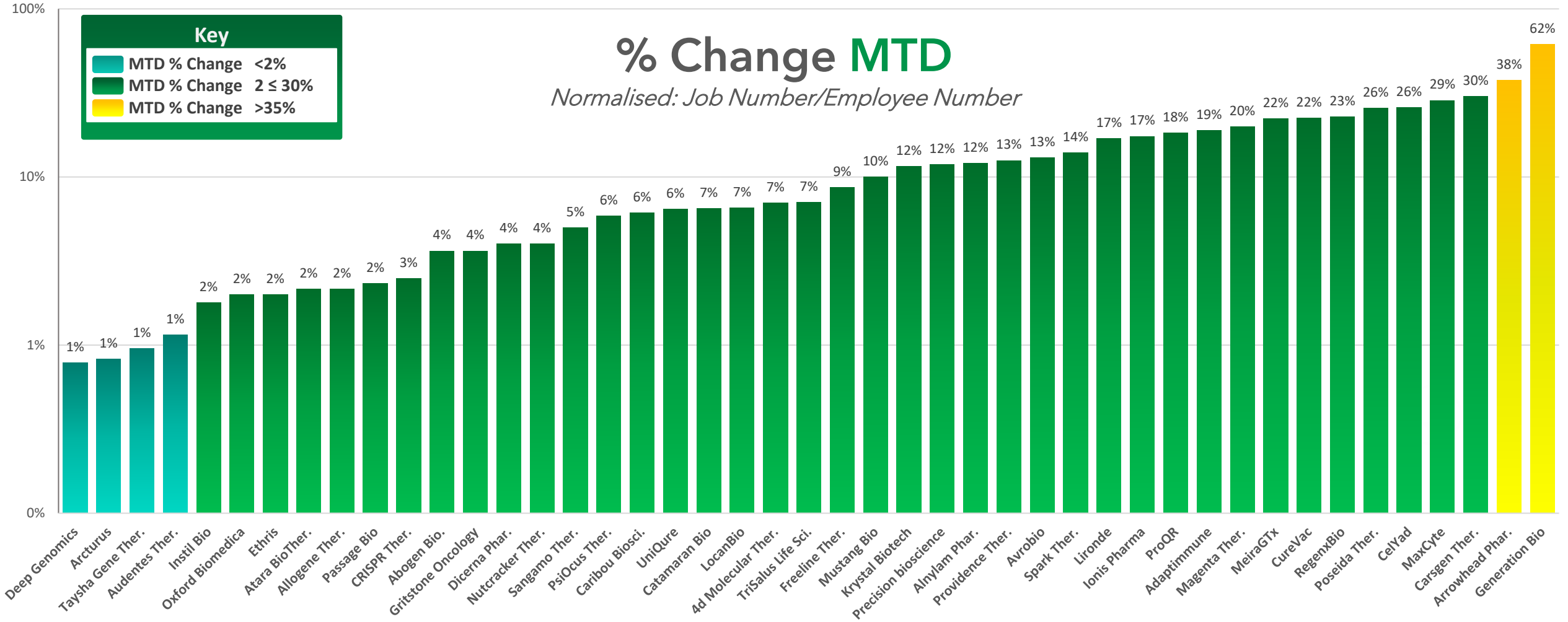
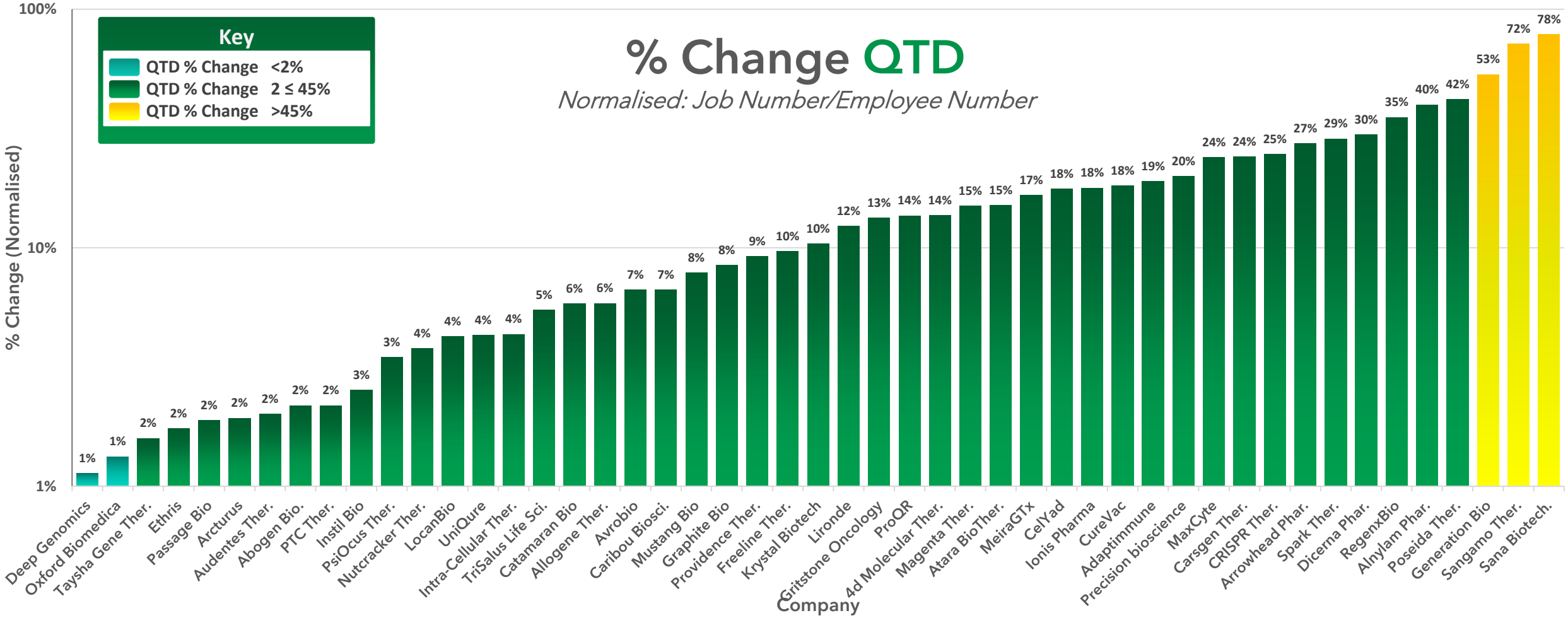
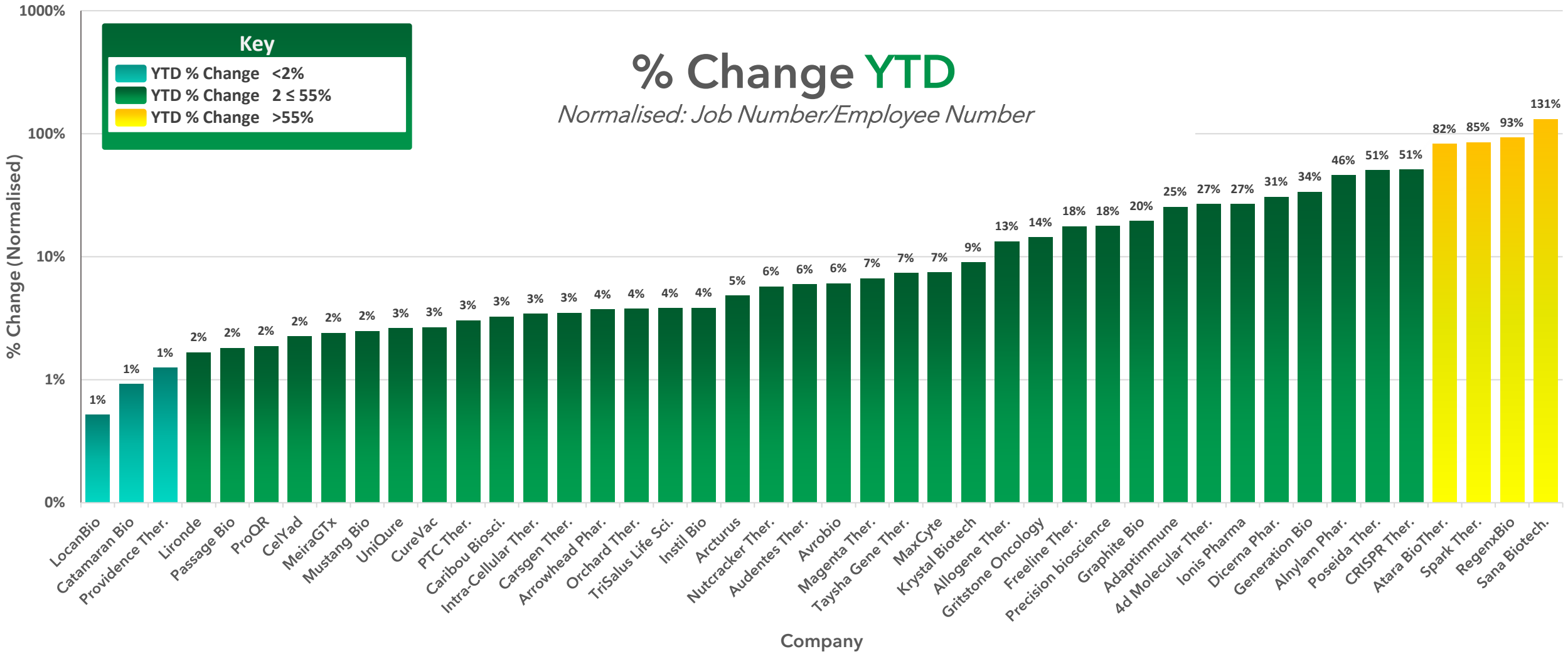
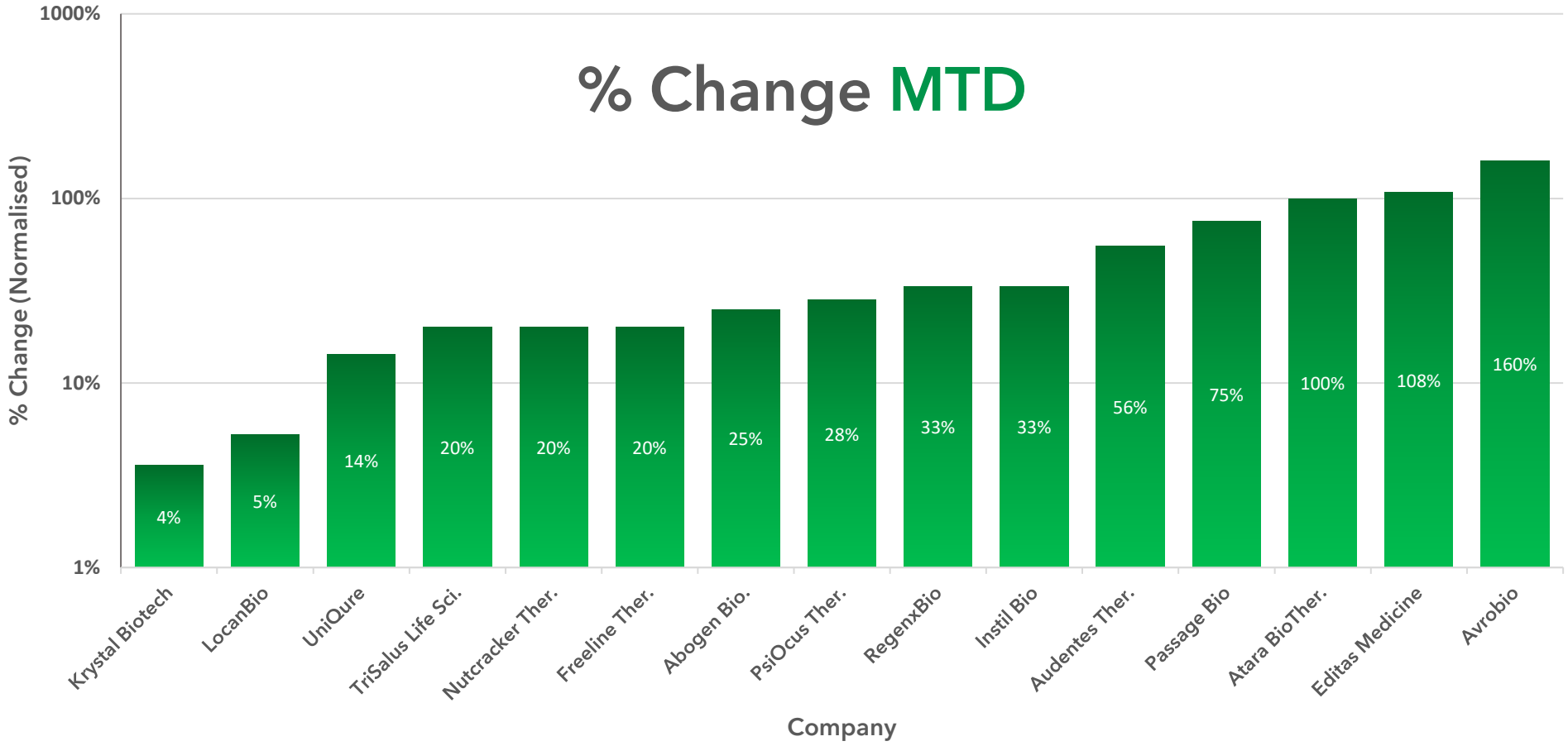
Assessment of Hiring Frequency by Job Number *(Normalised)*


Key
MTD % Change <2%
MTD % Change 2 ≤ 30%
MTD % Change >35%
% Change MTD
Normalised: Job Number/Employee Number
100%
10%
1%
0%
1% 1% 1% 1% 2% 2% 2% 2% 2% 2% 3% 4% 4% 4% 4% 5% 6% 6% 6% 7% 7% 7% 7% 9% 10% 12% 12% 12% 13% 13% 14% 17% 17% 18% 19% 20% 22% 22% 23% 26% 26% 29% 30% 38% 62%
Deep Genomics
Arcturus
Taysha Gene Ther.
Audentes Ther.
Instil Bio
Oxford Biomedica
Ethris
Atara BioTher.
Allogene Ther.
Passage Bio
CRISPR Ther.
Abogen Bio.
Gritstone Oncology
Dicerna Phar.
Nutcracker Ther.
Sangamo Ther.
PsiOcus Ther.
Caribou Biosci.
UniQure
Catamaran Bio
LocanBio
4d Molecular Ther.
TriSalus Life Sci.
Freeline Ther.
Mustang Bio
Krystal Biotech
Precision bioscience
Alnylam Phar.
Providence Ther.
Avrobio
Spark Ther.
Lironde
Ionis Pharma
ProQR
Adaptimmune
Magenta Ther.
MeiraGTx
CureVac
RegenxBio
Poseida Ther.
CelYad
MaxCyte
Carsgen Ther.
Arrowhead Phar.
Generation Bio


Key
QTD % Change <2%
QTD % Change 2 ≤ 45%
QTD % Change >45%
% Change QTD
Normalised: Job Number/Employee Number
% Change (Normalised)
100%
10%
1%
Company
Deep Genomics 1%
Oxford Biomedica 1%
Taysha Gene Ther. 2%
Ethris 2%
Passage Bio 2%
Arcturus 2%
Audentes Ther. 2%
Abogen Bio. 2%
PTC Ther. 2%
Instil Bio 3%
PsiOcus Ther. 3%
Nutcracker Ther. 4%
LocanBio 4%
UniQure 4%
Intra-Cellular Ther. 4%
TriSalus Life Sci. 5%
Catamaran Bio 6%
Allogene Ther. 6%
Avrobio 7%
Caribou Biosci. 7%
Mustang Bio 8%
Graphite Bio 8%
Providence Ther. 9%
Freeline Ther. 10%
Krystal Biotech 10%
Lironde 12%
Gritstone Oncology 13%
ProQR 14%
4d Molecular Ther. 14%
Magenta Ther. 15%
Atara BioTher. 15%
MeiraGTx 17%
CelYad 18%
Ionis Pharma 18%
CureVac 18%
Adaptimmune 19%
Precision bioscience 20%
MaxCyte 24%
Carsgen Ther. 24%
CRISPR Ther. 25%
Arrowhead Phar. 27%
Spark Ther. 29%
Dicerna Phar. 30%
RegenxBio 35%
Alnylam Phar. 40%
Poseida Ther. 42%
Generation Bio 53%
Sangamo Ther. 72%
Sana Biotech. 78%


Key
YTD % Change <2%
YTD % Change 2 ≤ 55%
YTD % Change >55%
% Change YTD
Normalised: Job Number/Employee Number
% Change (Normalised)
1000%
100%
10%
1%
0%
1% 1% 1% 2% 2% 2% 2% 2% 2% 3% 3% 3% 3% 3% 3% 4% 4% 4% 4% 5% 6% 6% 6% 7% 7% 7% 9% 13% 14% 18% 18% 20% 25% 27% 27% 31% 34% 46% 51% 51% 82% 85% 93% 131%
LocanBio
Catamaran Bio
Providence Ther.
Lironde
Passage Bio
ProQR
CelYad
MeiraGTx
Mustang Bio
UniQure
CureVac
PTC Ther.
Caribou Biosci.
Intra-Cellular Ther.
Carsgen Ther.
Arrowhead Phar.
Orchard Ther.
TriSalus Life Sci.
Instil Bio
Arcturus
Nutcracker Ther.
Audentes Ther.
Avrobio
Magenta Ther.
Taysha Gene Ther.
MaxCyte
Krystal Biotech
Allogene Ther.
Gritstone Oncology
Freeline Ther.
Precision bioscience
Graphite Bio
Adaptimmune
4d Molecular Ther.
Ionis Pharma
Dicerna Phar.
Generation Bio
Alnylam Phar.
Poseida Ther.
CRISPR Ther.
Atara BioTher.
Spark Ther.
RegenxBio
Sana Biotech.
Company



Atara BioTher.

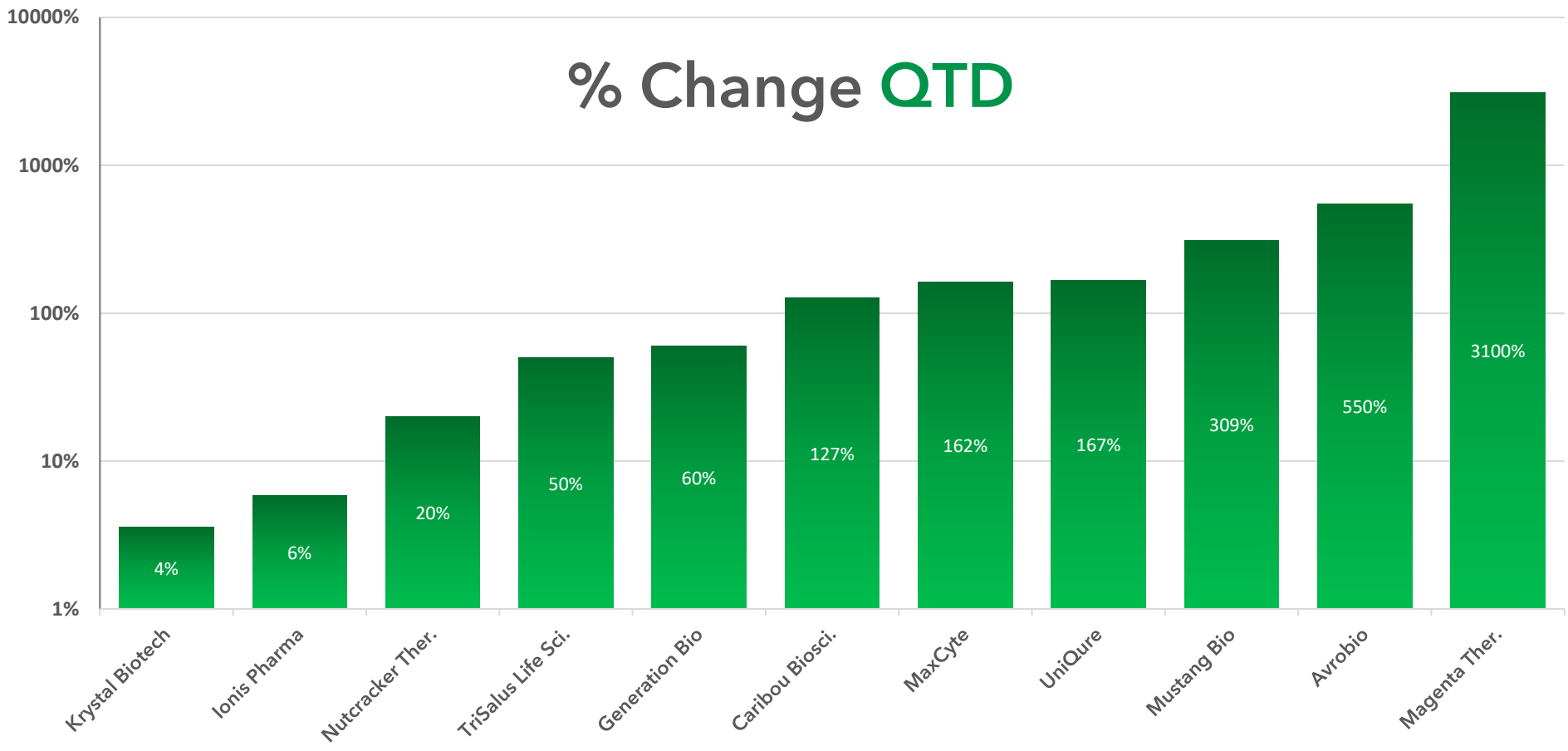
Editas Medicine

Avrobio

Adicet

Intra-Cellular Ther.

Dicerna Phar.



Magenta Ther.

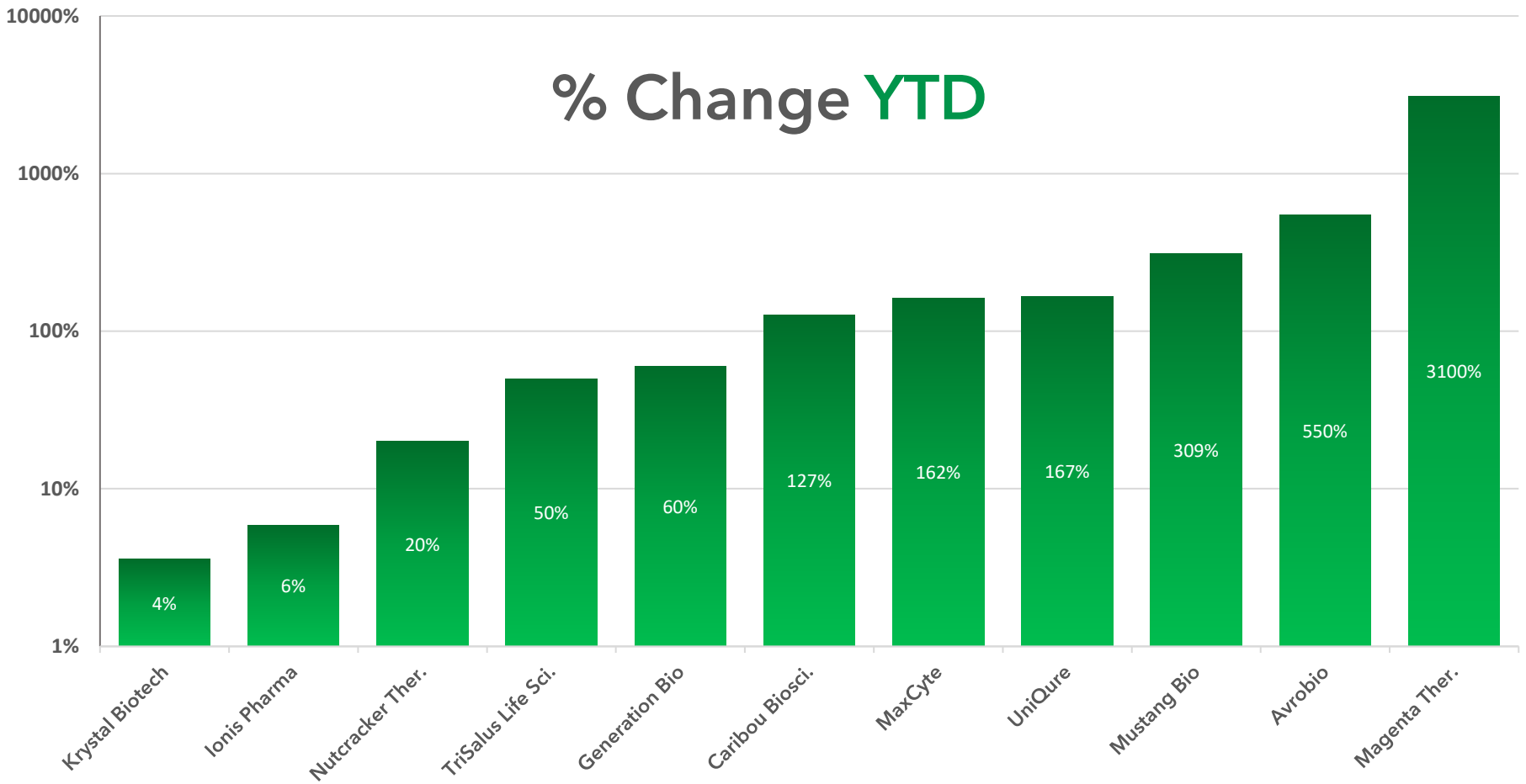
Avrobio

Mustang Bio

Talaris Ther.

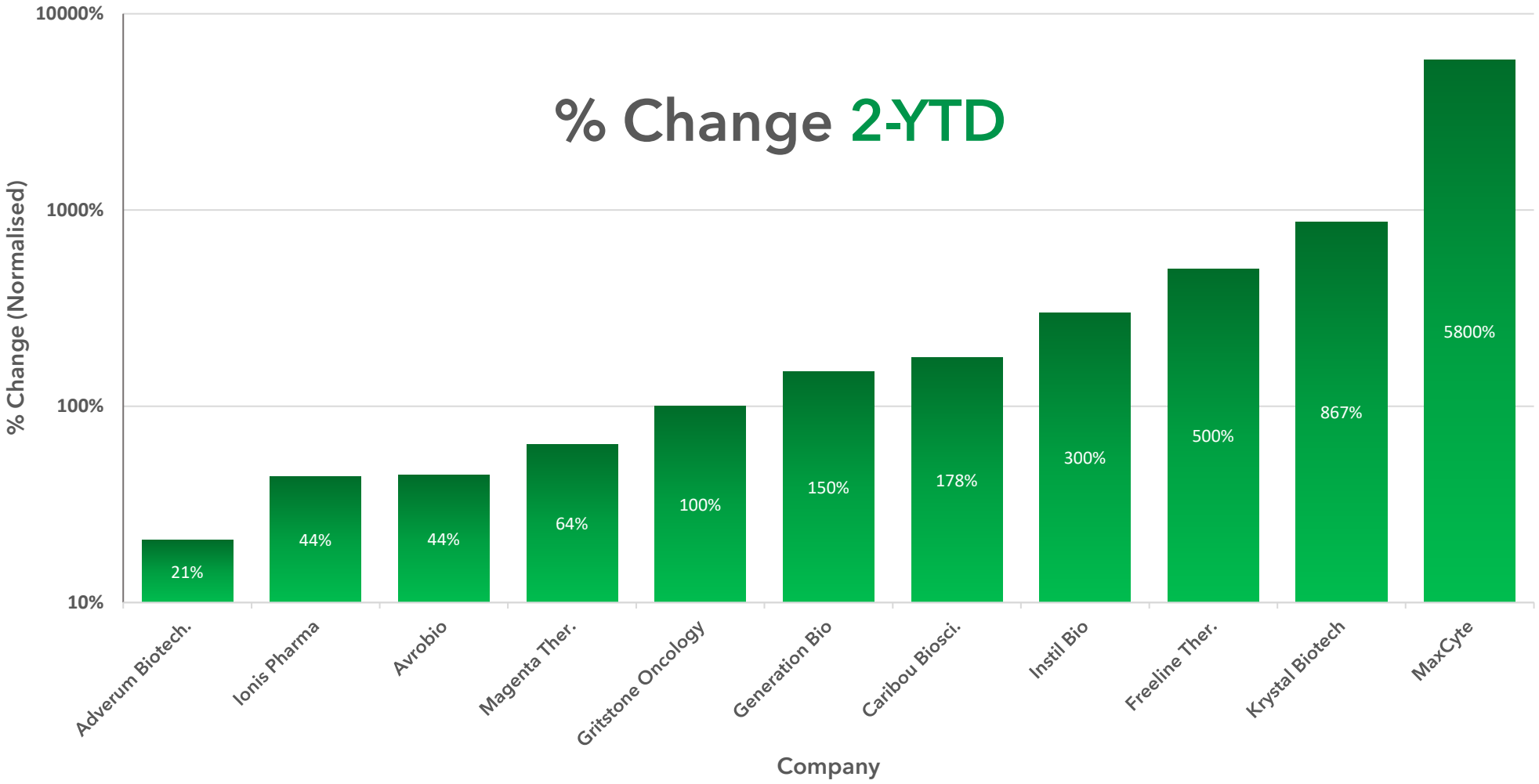
Verve Ther.

Voyager Ther.



MeiraGTx
MaxCyte
Mustang Bio

Talaris Ther.
Verve Ther.
Voyager Ther.



MaxCyte
Krystal Biotech
Freeline Ther.

Talaris Ther.
Verve Ther.
Voyager Ther.

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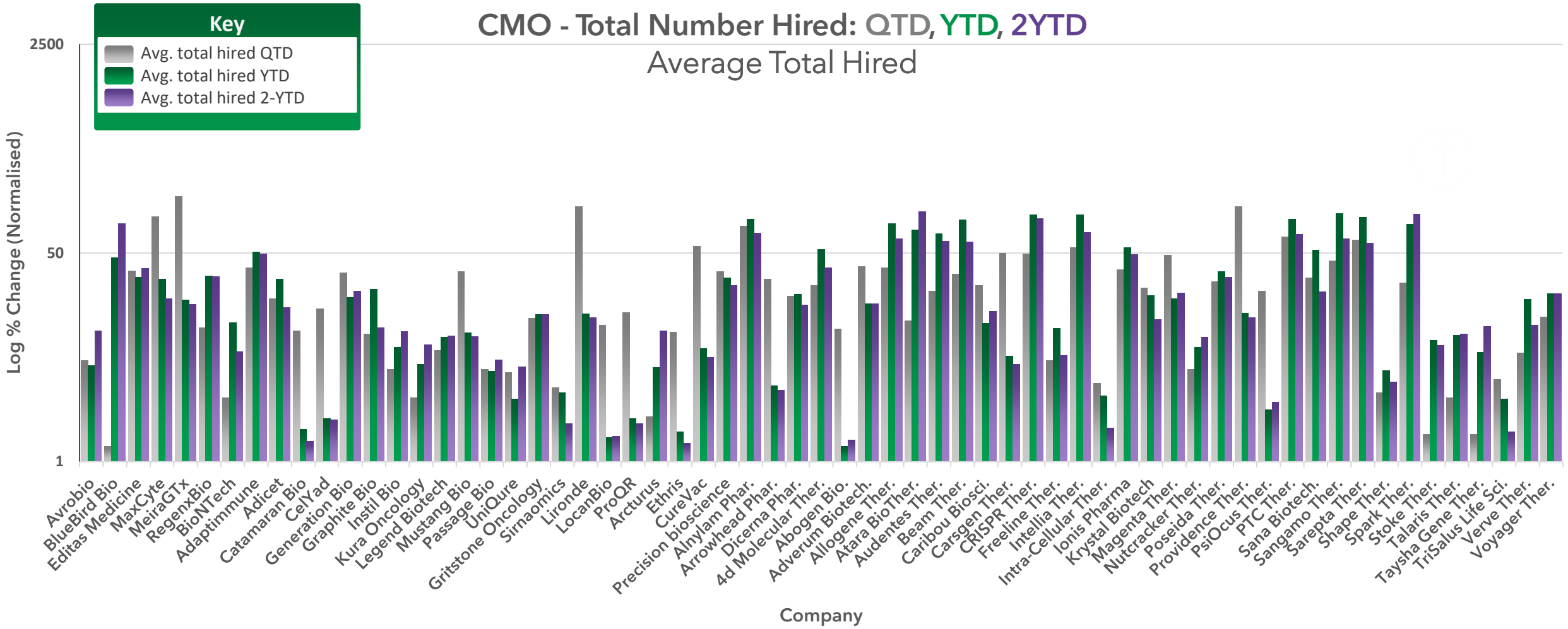
Assessment of Hiring Frequency by Job Number *(Average)*


Key
Avg. total hired QTD
Avg. total hired YTD
Avg. total hired 2-YTD
CMO - Total Number Hired: QTD, YTD, 2YTD
Average Total Hired
2500
50
1
Log % Change (Normalised)
Avrobio
BlueBird Bio
Editas Medicine
MaxCyte
MeiraGTx
RegenxBio
BioNTech
Adaptimmune
Adicet
Catamaran Bio
CelYad
Generation Bio
Graphite Bio
Instil Bio
Kura Oncology
Legend Biotech
Mustang Bio
Passage Bio
UniQure
Gritstone Oncology
Sirnaomics
Lirondé
LocanBio
ProQR
Arcturus
Ethris
CureVac
Precision bioscience
Alnylam Phar.
Arrowhead Phar.
4d Molecular Ther.
Dicerna Phar.
Abogen Bio.
Adverum Biotech.
Allogene Ther.
Atara BioTher.
Audentes Ther.
Beam Ther.
Caribou Biosci.
Carsgen Ther.
CRISPR Ther.
Freeline Ther.
Intellia Ther.
Intra-Cellular Ther.
Ionis Pharma
Krystal Biotech
Magenta Ther.
Nutcracker Ther.
Poseida Ther.
Providence Ther.
PsiOcus Ther.
PTC Ther.
Sana Biotech.
Sangamo Ther.
Sarepta Ther.
Shape Ther.
Spark Ther.
Stoke Ther.
Talaris Ther.
Taysha Gene Ther.
TriSalus Life Sci.
Verve Ther.
Voyager Ther.
Company

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

Average Total Hired

Key

- Avg. total hired QTD
- Avg. total hired YTD
- Avg. total hired 2-YTD

Intellia Therapeutics, Sarepta Therapeutics & Alnylam Therapeutics

Largest increase **across QTD, YTD, 2YTD.**

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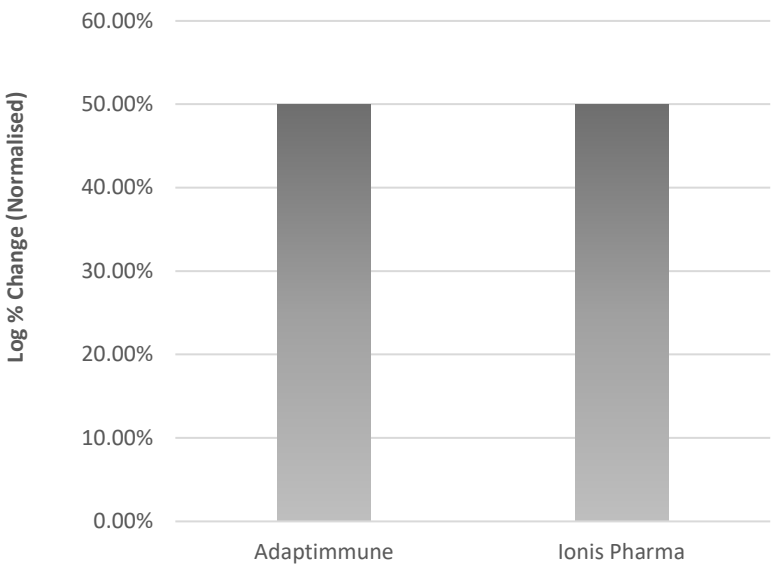
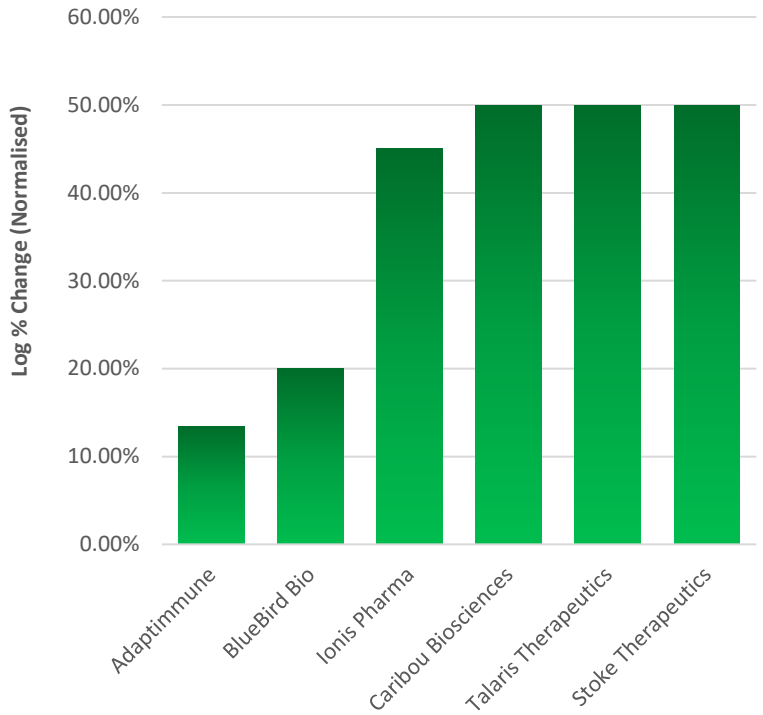
Assessment of Hiring Frequency by *Job Type*

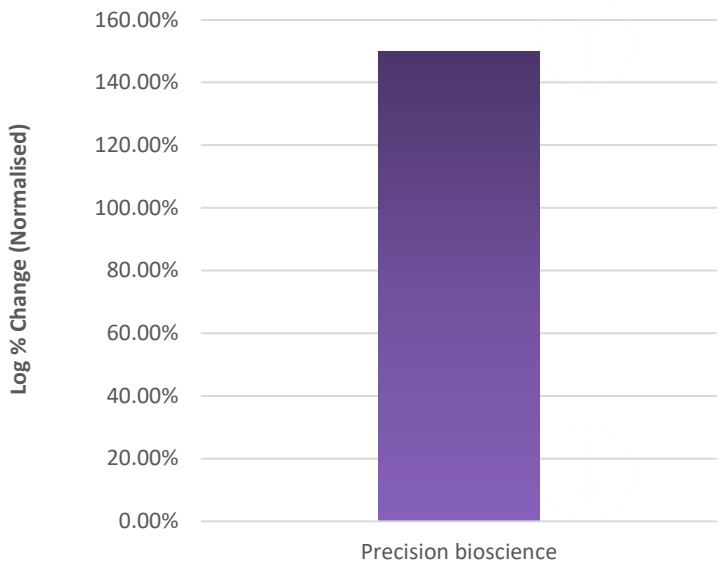
R&D



Operations



Commercial



OVERALL CELL & GENE THERAPY by Job Type

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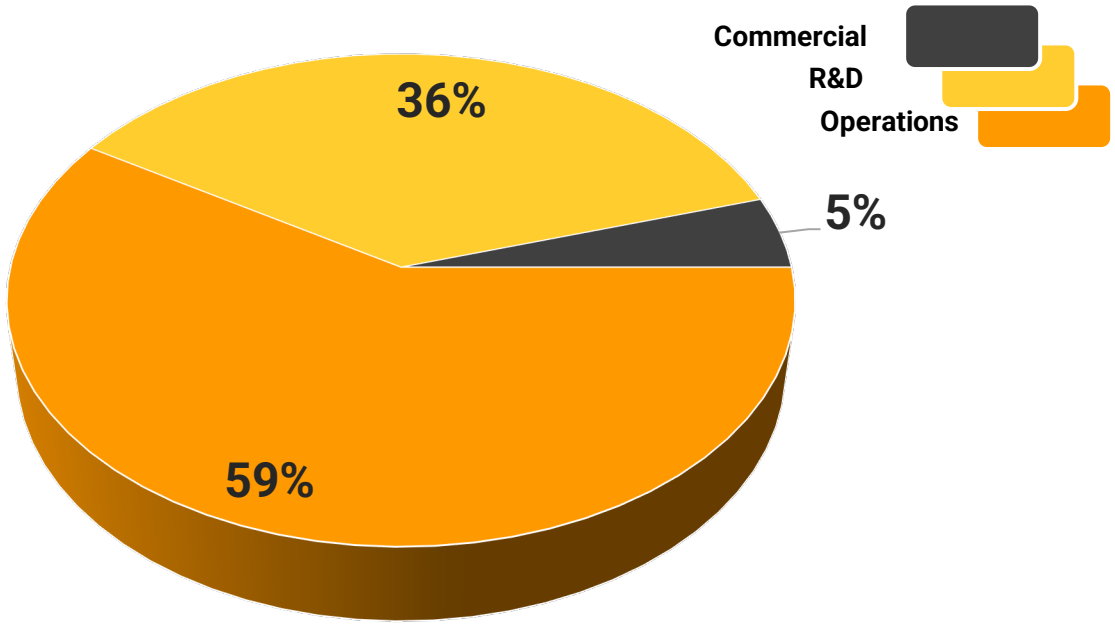
Breakdown of Roles Postings



YTD (Increasing)		MTD (Increasing)	
Commercial:		**Commercial:**	
-		Precision Bioscience	
Operations:		**Operations:**	
Intellia		Talaris Therapeutics Stoke Therapeutics	
R&D:		**R&D:**	
Intellia Sangamo		Adaptimmune Ionis Pharma	

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Data Summary – Monthly Hiring Industry Insight

YTD CELL & GENE THERAPY by Job Type

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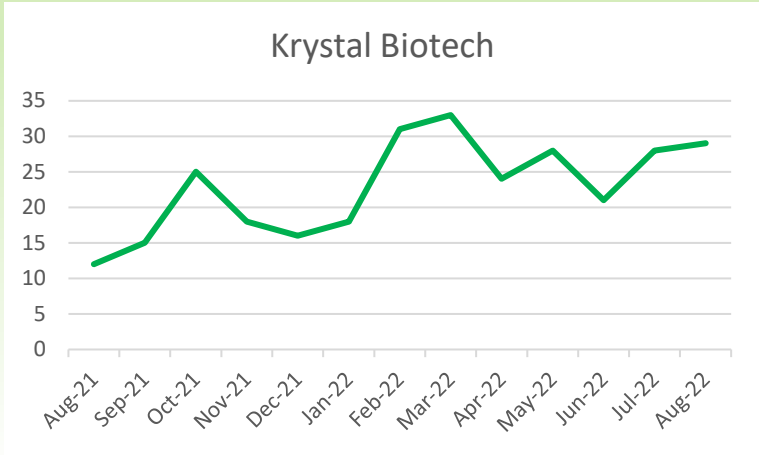
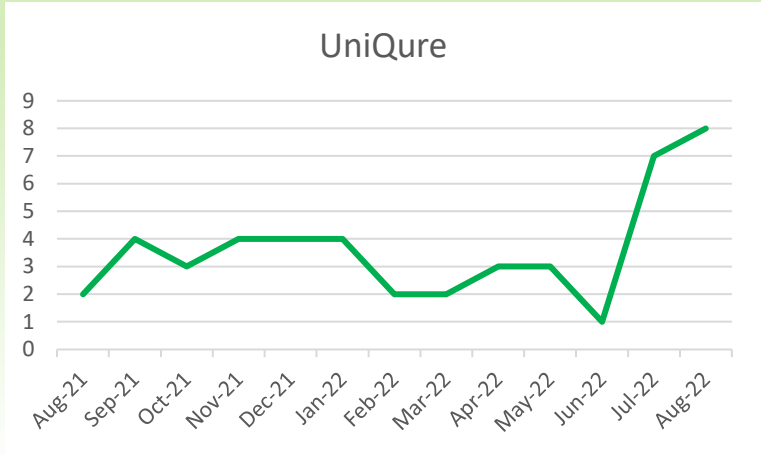
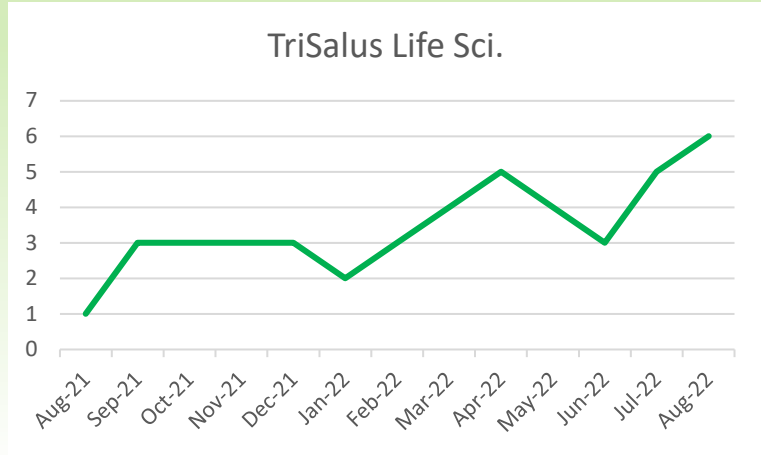
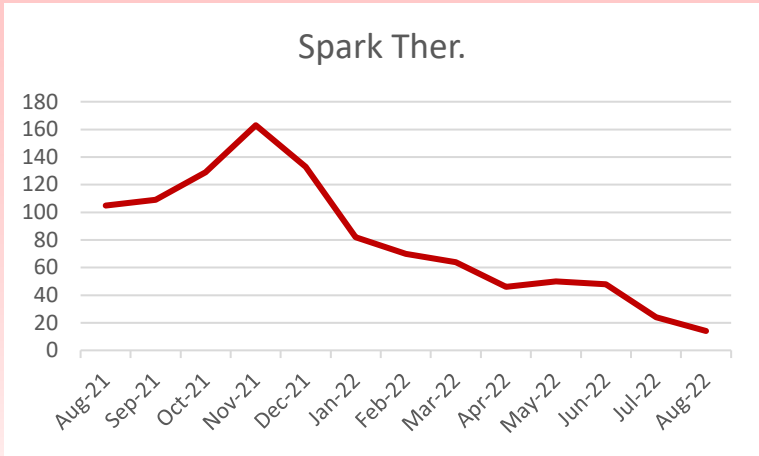
INCREASING

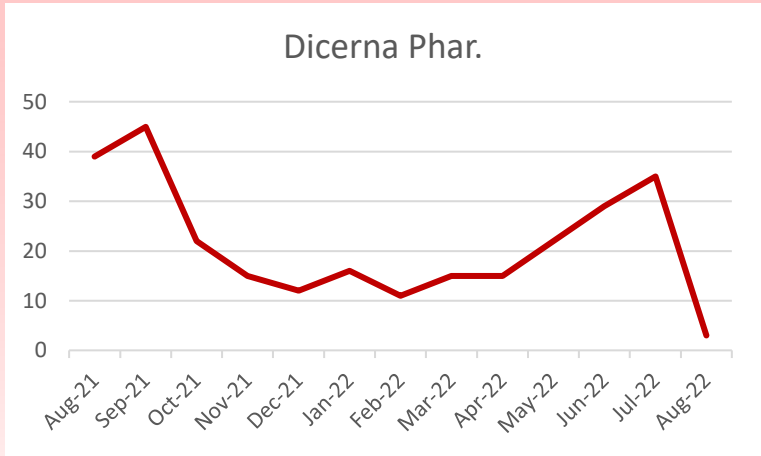


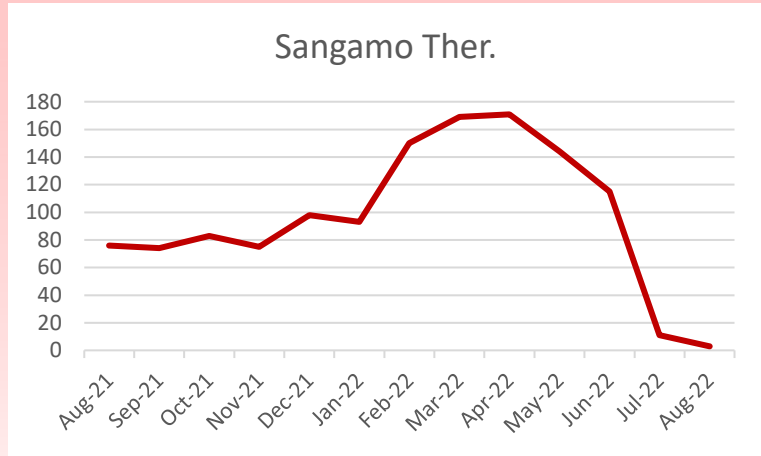




DECREASING







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Market Drivers

Spark Therapeutics to Invest $575M in New 500k Square Foot State-of-the-Art Gene Therapy Innovation Center on Drexel's University City Campus

Notably, Sangamo Therapeutics actually ramped up its cash burn very hard and fast in the last year, by 109%, signifying heavy investment in the business.

Atara plans to use $100 million in cash to fund its operations into late 2023. By then Atara plans to have finished its Phase 2 study of ATA188, a T-cell therapy designed to treat multiple sclerosis.

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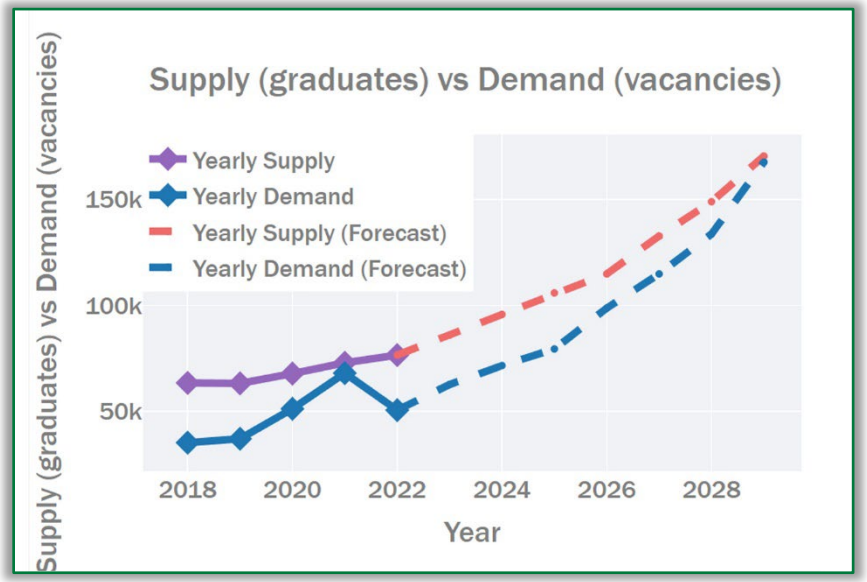
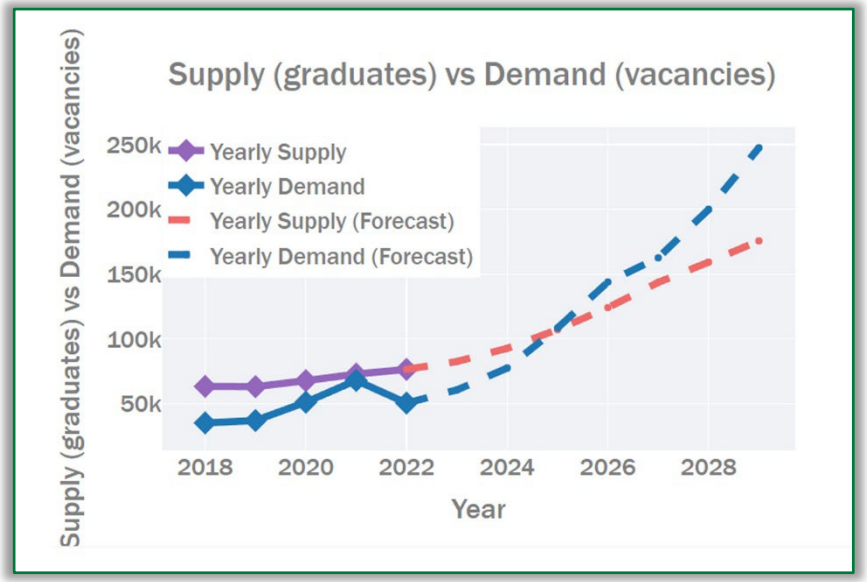
Predictive Talent Dynamics

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.