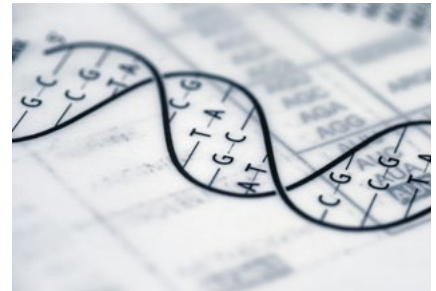


Genetic therapies

Longer Term Investments (LTI)

Genetic therapies use cells, genes, and other genetic material to treat serious diseases. They act “upstream” of traditional drugs to target the fundamental causes of disease, potentially enabling cures for rare and inherited diseases. Some may have applications in more common conditions.



Projections and opportunities

Approved therapies

The first cell therapy received US approval in August 2017, and the first gene therapy in December 2017. RNAi therapies were first approved in the US in 2016 (antisense) and siRNA in 2018.

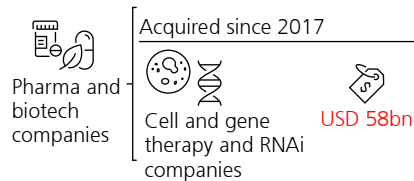
Number of marketed drugs in the US



Source: UBS
Note: excludes mRNA-based covid vaccines

Biopharma acquisition interest

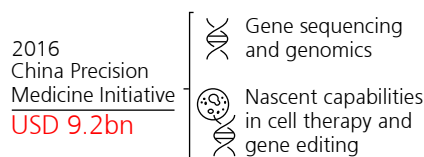
Big pharma and biotech companies have spent USD 58bn acquiring cell and gene therapy and RNAi companies since 2017.



Source: UBS estimates

China

China’s USD 9.2bn China Precision Medicine Initiative was launched in 2016, initially focusing on gene sequencing and genomics. It has shown nascent capabilities in cell therapy and gene editing. As of late 2019, over 200 CAR-T therapies were being developed in China.



Source: Goldman Sachs, UBS

Positive regulatory outlook

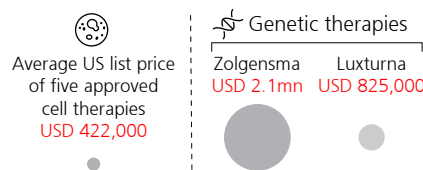
The US FDA has stated it expects to approve 10–20 new cell and gene therapies per year by 2025.



Source: FDA

High up-front costs

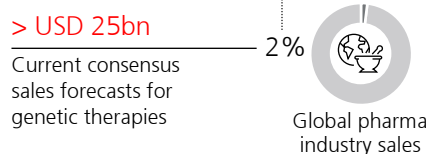
The average US list price of the five approved cell therapies is USD 422,000. Gene therapies are more expensive: Zolgensma costs USD 2.1mn and Luxturna USD 825,000.



Source: Company data, UBS

Market potential

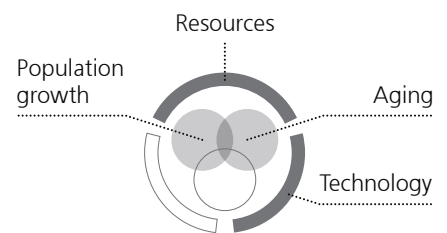
Current consensus forecasts estimate over USD 25bn in sales for genetic therapies by 2026. This is around 2% of global pharma industry sales.



Source: Bloomberg, UBS
Note: excludes mRNA-based covid vaccines



Genetic therapies properties



○ Influencer ⊗ Key drivers



Near-term drivers

- New clinical data expanding genetic therapies pipeline
- Commercial progress including reimbursement
- Large pharma investment



Sustainable investing

- SDG 3: Good health and well-being

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