



Illumina

The Google of Genomics

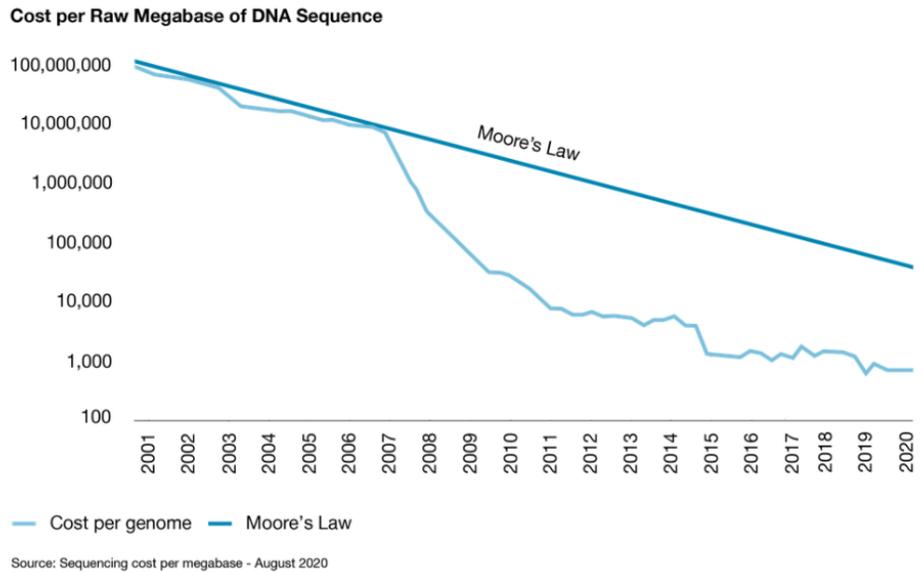
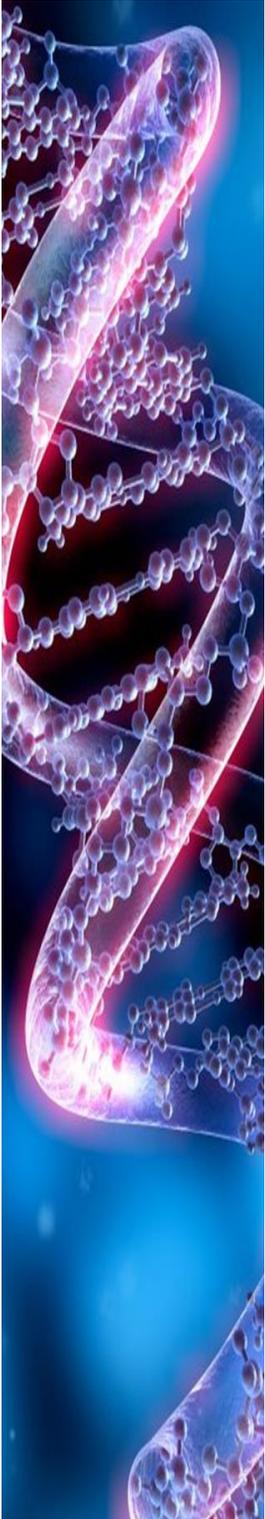


The Google of Genomics

Illumina's sequencing machines are estimated to control 90% of the market in the US and compile 80% of genomic information that exists in the world in a given year. The company is sometimes described as the 'Google of the genomics business', not just because it commands its market, but also due to its products' ability to 'search' our complete genetic makeup. Illumina sequenced the novel coronavirus in two days, with Moderna taking an additional two days to translate that sequencing data into a mRNA molecule which is the basis of its vaccine.

Illumina enables its customers to read and understand genetic variations. Its products allow for the sequencing of genomes at an unprecedented scale. Human biology is very complex, and thus our understanding of the underlying causes of many diseases is limited. As a result, most treatments tend to be based on treating symptoms rather than underlying causes. Many treatments are therefore ineffective in the long run. Illumina's goal has been to develop products that significantly improve our understanding of genetics and human disease. Illumina aids in pushing medicine forward, enabling it to become more preventative and precise.

Since we bought shares in the company, the proof of practical concept has become established from pre-natal, to rare diseases, to oncology. Illumina's industry leadership has surged. This could be a settled domination. The company has played a significant role in driving down the costs of gene sequencing. In 2002, it cost about USD100m to process the human genome. Today it can be done for less than USD600.



An exciting opportunity in health care with long term potential

Illumina is already a profitable business with very attractive financial characteristics. 70% of revenues are recurring. It is encouraging to see that Illumina continues investing in its sequencing technology and clinical applications of sequencing. Illumina's R&D spending is 18–26% of sales (substantially above competitors spend) and their history suggests that the company doesn't suffer from complacency.

The growth opportunity is huge, unlocked as sequencing costs march downward. Illumina's competitive position has been strengthened with Qiagen's capitulation – this is now a global oligopoly. Oncology is a \$1bn business with 1% of patients having their tumours sequenced globally. The case for this rising to 90%+ as sequencing costs come down is strong. Illumina can capture at least a third of that market for \$30bn in revenues, with net margins of 30% achievable at such scale. Oncology alone could therefore deliver >5x today's valuation, before we contemplate the longer-term potential of sequencing for more routine conditions. Timeframe is the biggest question mark here – this stock requires a lot of patience.

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