

Company Overview

Figure 1. CRISPR/Cas9 Technology Mechanism of Action



Figure 2. CRISPR Therapeutics 1Y Historical Share Price Performance against Healthcare Industry (Services)



CRISPR Therapeutics AG ("CRISPR" or the "Company") is a gene-editing company. It uses the CRISPR/Cas9 gene-editing platform to develop new treatment options. It is developing treatments across different therapeutic areas, namely hemoglobinopathies, oncology and regenerative medicine. While none of its treatments have reached commercialisation, it has several treatments that are already in the clinical trial phase.

(USD '000)	FY18A	FY19A	FY20E	FY21E
Revenue	3,124	289,590	169,410	237,174
Gr Rate (%)	(92.4)	9,269.8	(41.5)	40.2
EBITDA	(160,909)	72,031	42,138	58,993
Margin (%)	-	24.9	24.9	24.9
Net Income	(164,981)	66,858	39,111	54,757
Margin (%)	-	23.1	23.1	23.1
P/E Ratio	-	53.0x	90.6x	64.7x
D/E Ratio	0.1x	0.0x	0.0x	0.0x

Investment Thesis

Figure 5. Increasing market size for treatment of sickle cell disease

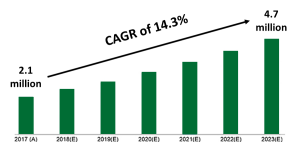


Figure 6. CRISPR Therapeutics R&D and Clinical Trials Pipeline

Programs	Number of Programs in Each Stage			
	Research	IND-Enabling	Clinical	Marketed
Hemoglobinopathies			2	
Immunology		1	2	
Regenerative medicine	1			
In vivo approaches	4			

- Strong collaborations ensure steady recurring revenue.** CRISPR has collaborations with top names such as Vertex Pharmaceuticals and Bayer, through which it earns strong and continuous cash flows. The deal with Vertex has earned CRISPR US\$175 million upfront and potentially US\$825 million in future milestone payments. However, revenue in FY2020 is expected to decline due to lower expected periodic milestone revenue.
- Entry into untapped market of sickle cell disease.** Current sickle cell disease treatment only remedies symptoms through constant blood transfusions, posing high risks of complications relating to overload of iron content from excess blood. This is an opportunity for CRISPR to enter the untapped and growing market of sickle cell anaemia treatment by targeting its root cause.
- Healthy pipeline across various therapeutic areas.** CRISPR is diversifying its portfolio through regenerative medicine and vivo therapy. CRISPR also has a staggered pipeline such that there are products currently in different stages of development, hedging the risk of clinical trial failure, ensuring sustainable long-term growth.

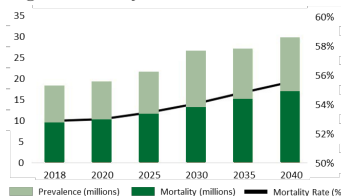
Sources: Company Filings, Bloomberg, Yahoo Finance, NUS Investment Society Estimates and Research

12M Industry Outlook

Figure 3. CRISPR/Cas9 Segment Projected Growth Rate from 2017 to 2024



Figure 4. Increasing prevalence of cancer & higher mortality rates



- Move towards gene therapy as the new standard of care.** Gene-editing technology is projected to be the new gold standard of treatment based on efficacy results from clinical trials. For example, CRISPR/Cas9 has strong therapeutic potential in manipulating T-cells to enhance the efficacy of cell immunotherapy. The CRISPR/Cas9 segment is expected to experience a 14.5% CAGR, highlighting extremely strong growth potential for this form of treatment across many therapeutic areas.
- Increasing prevalence of cancer and higher mortality rates.** In 2018, the worldwide cancer incidence rate hit a high of 18.1 million new cases of cancer incidence. Of this, the mortality was 9.6 million, a rate of 52.9%. According to Global Cancer Observatory, the number is expected to grow, even up till 2040 where we also see increases in mortality. We predict this will call for greater emphasis on oncology and pursuance of treatment options.

Valuations

Figure 7. CRISPR/Cas9 and Biotech Industry P/S Ratio Relative Valuation

Company	Share Price (USD)	Revenue CY2019	P/S CY2019
CRISPR Technology Markets			
Editas Medicine, Inc.	26.86	61.81	0.43x
Intellia Therapeutics, Inc.	15.58	42.10	0.37x
CRISPR Therapeutics AG	57.75	254.65	0.23x
CRISPR Technology Markets Mean		119.52	0.34x

Figure 8. Street Estimates for CRISPR's 12M Price Target

Contributor	Rating	Price Target	Upside
Wells Fargo Securities LLC	BUY	US\$ 95.00	70.25%
Roth Capital Partners Inc.	BUY	US\$100.00	79.21%
Needham & Company Inc.	BUY	US\$84.00	50.54%

P/S Ratio Valuation

P/S ratio was used as CRISPR's peers have yet to be profitable. CRISPR is relatively under-valued, with a P/S ratio of 0.23 against a peer group average of 0.34. With the peer group average, CRISPR's intrinsic share price can be found with P/S Ratio * Sales per share = 0.34 * 254.65 to give US\$86.58.

Price Target

The 12M price target is US\$86.58 using P/S ratio for relative valuation, with an upside of +49.9% based on last closing price of US\$57.75. While this price target is above general street estimates, we believe this premium is justified based on our expectation that CRISPR will increase revenue through more collaborations.

Buy Rating Proposed

Current Price: US\$ 57.75
Target Price: US\$ 86.58 (+49.9%)

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