



Source: Eikon Thomson Reuters

Market data

EPIC/TKR	AVCT
Price (p)	86.5
12m High (p)	109.0
12m Low (p)	61.0
Shares (m)	68.4
Mkt Cap (£m)	58.9
EV (£m)	42.8
Free Float*	57%
Market	AIM

*As defined by AIM Rule 26

Description

Avacta is a pre-clinical stage biotechnology company developing biotherapeutics based on its proprietary Affimer protein technology which benefits from near-term revenues from research and diagnostic reagents

Company information

CEO	Alastair Smith
CFO	Tony Gardiner
Chairman	Trevor Nicholls
	+44 1904 217 046
	www.avacta.com

Key shareholders

Directors	4.2%
IP Group	24.8%
Lombard Odier	11.5%
Aviva	9.7%
Baillie Gifford	7.2%
Ruffer LLP	7.1%

Diary

3Q-17	Affimer data
Oct-17	Finals
Jan-18	AGM

Analysts

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Avacta

De-risking of the partnership with Moderna

Avacta is the proprietary owner of Affimer technology for the development of biotherapeutics, diagnostic tests and research reagents. Affimers represent a radical alternative to established antibody technology which dominates the drug industry despite its limitations. Moderna was the first to enter into an agreement with Avacta to use the Affimer technology, in tandem with Moderna's mRNA drug delivery platform. Moderna has just disclosed Phase I trial data for its mRNA technology which is the first public evidence that it works, which meaningfully de-risks the partnership plans to deliver Affimer therapeutics using mRNA

- **Strategy:** To commercialise Affimer technology through out-licensing deals for research and diagnostic reagents, and to identify and develop its own proprietary therapeutic Affimer leads. The company has sufficient cash to take an Affimer lead through to IND submission (end 2018) and Phase I trials (2019).
- **Affimers:** They are small and stable engineered proteins that may represent a realistic alternative to antibodies in diagnostics, reagents and as therapeutics. Affimer constructs based on a human protein, were recently shown to have very low immunogenicity, hitting an important drug development milestone.
- **Moderna deal:** In 2015, Avacta entered into an agreement with Moderna with an upfront payment of \$0.5m and undisclosed pre-clinical developments milestones. Under the terms, Moderna has an exclusive access to the Affimer technology against certain targets to use for its mRNA platform.
- **Phase I data:** Moderna has just released data from 31 patients in a placebo-controlled Phase I trial against influenza using an mRNA vaccine. These figures represent the first efficacy and safety data for their mRNA platform and the first evidence that Moderna's drug delivery technology works.
- **Investment summary:** Avacta has made considerable progress towards its goal of having its own proprietary Affimer-based drugs. In just 18 months, it has completed a number of *in vitro* and *in vivo* pre-clinical tests, and aims to select a lead candidate and file an Investigational New Drug (IND) in late 2018. The more advanced stage of the Moderna partnership provides strong validation the Affimers represent an interesting *de novo* technology platform.

Financial summary and valuation

Year end July (£m)	2014	2015	2016	2017E	2018E	2019E
Sales	3.18	1.81	2.17	2.85	3.40	3.80
R&D spend	0.00	-0.03	-0.86	-1.98	-2.43	-2.88
EBITDA	-1.16	-2.28	-4.15	-5.94	-6.48	-7.00
Underlying EBIT	-1.69	-2.85	-4.75	-6.94	-7.48	-8.00
Reported EBIT	-2.07	-5.57	-5.66	-7.81	-8.44	-9.05
Underlying PBT	-1.66	-2.83	-4.65	-6.86	-7.44	-8.00
Statutory PBT	-2.04	-5.54	-5.57	-7.73	-8.40	-9.05
Underlying EPS (p)	-2.66	-4.38	-5.51	-8.75	-9.42	-10.05
Statutory EPS (p)	-3.57	-9.84	-6.86	-10.02	-10.82	-11.57
Net (debt)/cash	11.48	7.33	19.52	12.26	4.01	-4.86
Capital increases	14.54	0.02	21.05	0.00	0.00	0.00
EV/sales (x)	27.1	47.5				

Moderna update

Moderna partnership

In May 2015, Avacta and Moderna entered into a licensing partnership for exclusive access to the Affimer technology...

In May 2015, Avacta announced a significant research partnership with Moderna Therapeutics to provide a range of Affimers against a number of selected targets for messenger RNA (mRNA) therapeutics. At that time, the deal was of great significance for Avacta as it was the first to be signed and represented an important endorsement that Avacta had generated sufficient early proof-of-concept data to support its claims regarding Affimers and attract a reputable drug developer.

...which generated an up-front payment with potential development milestones

The collaboration, licensing and option agreement with Moderna Therapeutics, Inc. provided Avacta with an upfront payment of \$500,000 and undisclosed pre-clinical developments milestones. Under the agreement, Avacta has provided Moderna with exclusive access to the Affimer technology against certain targets which may be extended to include additional targets by further payments.

Moderna has the option to enter into exclusive license agreements for selected therapeutic Affimer candidates for clinical development as mRNA therapeutics and in each case, Avacta will be entitled to milestone payments. It is believed that the total value of these payments could reach several tens of millions of dollars with the potential for royalties on future product sales.

Moderna mRNA vaccine

Interim Phase I data

Results from 31 patients using Moderna's mRNA vaccine...

Moderna is also utilising its mRNA platform to deliver other proteins (antigens) that will ultimately trigger a targeted immune response to be used as a vaccine.

Moderna has just released the first set of data for its on-going Phase I trials in a study involving 31 patients against H10N8 Influenza, where there are no approved vaccines. This randomised, double-blind, placebo controlled and dose escalation study involves the mRNA vaccine that codes for full-length membrane-bound hemagglutinin.

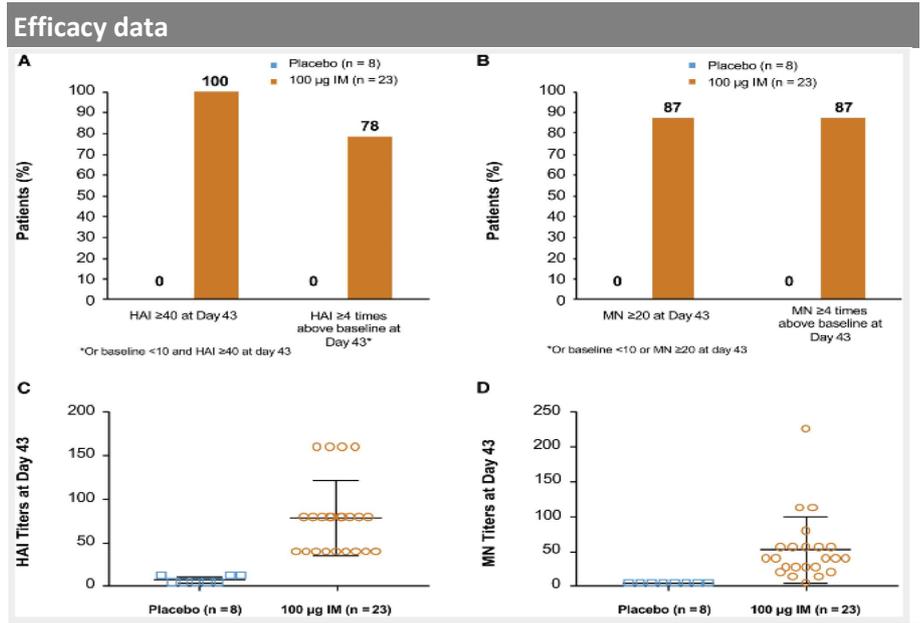
...with positive interim data, showing good safety, tolerability, and a high level of immunogenicity

Safety and immunogenicity were evaluated, with each patient receiving two doses, on day 1 and on day 22. A strong response was observed compared to placebo 43 days post vaccination:

- ▶ Mean hemagglutinin inhibition (HAI) titers were 68.8, with all patients above 40 (a value above 40 is associated with at least 40% reduction in risk for influenza and as the approval endpoint for seasonal flu vaccines)
- ▶ Mean Microneutralisation (MN) titers were 38.8, with 78% of the patient population above 20 (a value above 20 is thought to be clinically meaningful)

The data show that Moderna's mRNA vaccine induces high levels of immunogenicity via production of the hemagglutinin (which is the desired result for a vaccine) and, in addition, has a good safety and tolerability record.

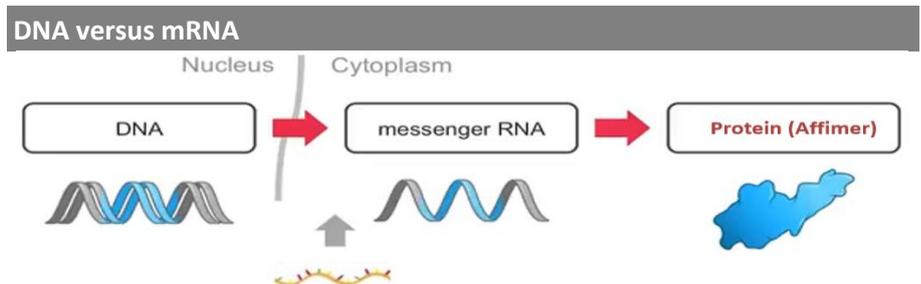
The complete study aims to enrol a total of 201 patients and full findings are expected during 2018. No adverse event, other than those expected for an Influenza vaccine, were recorded and the tolerability is consistent with approved vaccines.



Source: Moderna

Further programmes are being developed by Moderna using its proprietary mRNA vaccine platform, including cytomegalovirus, human metapneumovirus and Parainfluenza virus 3. More than 440 healthy volunteers have been dosed with Moderna mRNA vaccines in four different programmes, including a Phase I/II study against the Zika virus.

The prime advantage of mRNA vaccines over DNA is their ability to elicit an effect and be expressed by the cells to ultimately trigger an immune response without entering the nucleus.



Source: Adapted from Moderna

Importance for Avacta

The positive data represent for Avacta a de-risking factor for the development partnership with Moderna

To date, no evidence of the efficacy or safety of the Moderna’s mRNA platform had been made public. So this recently published Phase I data arising from one of its vaccine programmes, is the first evidence the mRNA drug delivery platform actually works .

This has important de-risking implications for the long term success of the partnership between Avacta and Moderna to deliver Affimer therapeutics via Moderna’s mRNA technology.

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