Equity Research

May 22, 2025

Biotechnology

Capricor Therapeutics, Inc.

Uncertainties Regarding Capricor's CAP-1002 Approval

Underweight
Price Target: $3.5

Ticker	CAPR
Upside to Target (sell)	68%
Price (2025.05.21)	$11.12
52 Week Range	3.56-21.99
Market Cap. (MM)	$492
Enterprise Value (MM)	$373
Dividend Yield	0.0%

Our Analysis

Regarding the story and data of Capricor and its technology, a full approval by the FDA in August 2025 appears to us as the least likely outcome. The main issue resides in the low number of patients treated patients indicating unconvincing efficacy and a questionable safety profile.

Founded in 2004 following the discovery of their main technology, Capricor Therapeutics (CAPR), aims to change the fate of Duchenne Muscular Dystrophy patients (DMD). Their core program, dubbed Deramiocel, uses cardiosphere-derived cells (CDC) to stabilize or improve the heart's functions in DMD patients.
Recently, the company issued the results of their latest Phase II trial and its open-label extension (OLE) investigating CAP-1002, their CDC technology. Based on these results, they seek a Biologics License Application (BLA) from the FDA. The Prescription Drug User Fee Act (PDUFA) target action date is set for the 31st of August 2025.
In light of the submitted results and using previous results of the company, we express doubts regarding the acceptance of the BLA for CAP-1002 by the FDA.

Duchenne Myopathy and CAP-1002

DMD is an X-linked disease affecting around 2 males per 10'000. The disease results from a genetic alteration of dystrophin, a protein responsible for helping muscles in the body to perform their function. A loss of this protein, like in DMD is responsible for progressive weakness in the muscles with an estimated time to wheelchair use of 12 years. Heart weakness, also a muscle, is the main cause of death in DMD. Currently, only non-specific medical options are given to address the decrease in heart function experienced in DMD.
To tackle this serious disease, Capricor developed CDC. CDCs are cells derived from the heart of a human donor. Studies suggest the potential of CDC is curing the heart lies in the molecules and proteins these cells secrete. The component secreted will help the heart function by notably decreasing fibrosis and scarring, thus allowing a better contraction of the heart.
While the science appears promising, and before digging into the studies submitted to the FDA for approval, we would like to analyse previous studies led by the company to better grasp the real potential of the drug.

CDC in patients after myocardial infarction - Phase 1 CADUCEUS Trial

In 2012, Capricor investigated the CDC in patients after myocardial infarction (MI). The hypothesis was to use the potential of the CDC to reduce scarring caused by IM and prevent the decline of function in the heart caused by the remodeling.
To proceed, they treated 17 patients with the CDC infused in the heart artery responsible for the MI 2 to 4 weeks after MI and compared the results with 8 patients assigned to standard of care. The primary endpoint was the safety of the drug, and additional endpoints investigated the efficacy of the CDC infusion.

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While no significant safety events resulted, the efficacy of the drug was mitigated. They observed a significant reduction in scarring and positive remodeling of the heart between groups at 6 months, favoring the treated group. However, while promising, none of these were associated with a functional improvement in the treated group, with no difference in the volume ejected by the left ventricle (LVEF), a key marker of heart function in clinical practice, and no change in the distance walked in 6 minutes (6MWD), also a key clinical test assessed in heart drug efficacy.

One can suggest that this population of patients does not present a sufficiently deteriorated heart function for both of these key parameters to turn significantly different. It is true, and we think Capricor was on the same line. Indeed, after this trial, they quickly stopped focusing on the MI population and moved on to a more affected population: DMD patients.

CDC in DMD patients: HOPE Trials - HOPE 1

HOPE 1 is a Phase 1/2 trial investigating the potential of CAP-1002 in improving the heart function of DMD patients. The design of the study consists of DMD patients with substantial myocardial fibrosis randomized 1:1 to either intracoronary delivered CDC or usual care. Again, primary endpoints were related to safety and exploratory endpoints addressed the investigation of the heart function after treatment.

13 patients received treatment compared to 12 controls. Interestingly, scar reduction in the heart between groups was not significant at 6 months but was significant later, at 12 months. Conversely, authors observed a better systolic function in the inferior segments at 6 months but not at 12 months in the treated group. In addition to these mixed results, again, no change in LVEF was observed, suggesting no clinically meaningful improvement brought by CAP-1002. Safety was in line, with no significant difference between groups. These results suggest scarring is not a good biomarker for the systolic function in this population of patients, and with time, patients seem to lose their improved systolic function and return to at close levels to controls.

Rich from their previous experience, Capricor decided to initiate a Phase 2 trial, HOPE 2, and to complete it with an open label extension phase (OLE).

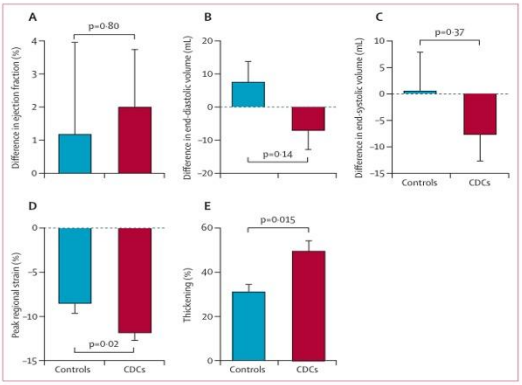


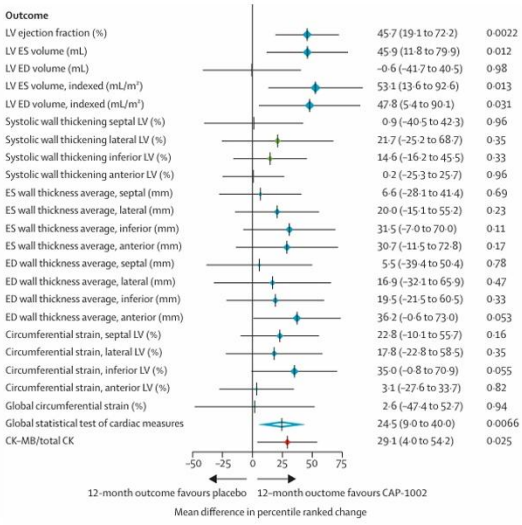
Figure 6: **Global function, chamber volumes, and regional function in participants in the CADUCEUS study**
(A) Treatment effects (baseline vs 6 months) for MRI-derived ejection fraction. (B) Treatment effects (baseline vs 6 months) for end-diastolic volume. (C) Treatment effects (baseline vs 6 months) for end-systolic volume. (D) Regional strain in infarct-related segments at 6 months. (E) Systolic thickening in infarct-related segments at 6 months. CDC=cardiosphere-derived cell.

CDC in DMD patients: HOPE Trials - HOPE 2 and HOPE 2 OLE

In HOPE 2, Capricor explored the intravenous infusion (compared to intracoronary previously) of repeated doses of CAP-1002 in non-ambulant DMD patients, without regard to their cardiac function. Infusions were repeated every 3 months for a total of 4 infusions. The trial was controlled by a placebo with assignment by randomization 1:1. The primary endpoint was related to limb function, an indication which is not covered by CAP-1002's BLA.

Over two years, 8 patients were enrolled in the treatment group compared to 12 in the placebo. This relatively low number of patients is due to a recommendation of the FDA to quickly transition to a Phase 3 trial, as stated in the published paper. Patients already enrolled in HOPE 2 would be offered to enter an OLE 12 months after treatment.

Looking at the results, while offering interesting results in limb function, results in cardiac function remain mixed. Indeed, for the first time, we can see a significant LVEF improvement in treated patients at 12 months (but not at 6 months). As seen in the figure below, and put simply, we can expect the improvement in LVEF to come from a better filling of the ventricle since both diastolic and systolic volume improved with no changes in thickening. This seems to mean the heart does not contract better but is more able to receive more blood and thus, eject more. In a dramatically advancing disease such as DMD, we can expect this improvement to be quickly overcome by the natural history of the disease.



All estimates/forecast are as of 2025.11.10 unless otherwise stated. Please refer to further important Information at the end of this document. Investors should consider this report as only a single factor in making their investment decision.

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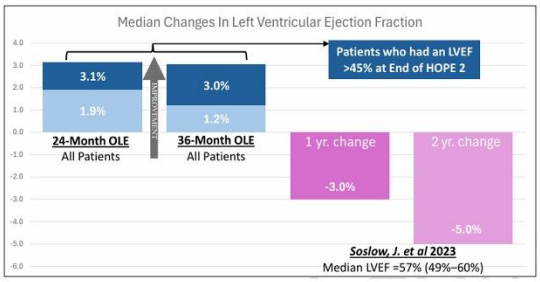
This is confirmed in the OLE study. Indeed, while figures display improvement in LVEF and end diastolic and systolic volume after 36 months, it is not significant when compared to a historical cohort of DMD patients. Moreover, those improvements were modest in patients with less than 45% of LVEF.
A second point raising flags at the HOPE 2 trial is safety. In the initial trial, 1 patient out of 8 experienced a severe hypersensitivity reaction that led to discontinuation. Down the road, 38% of the patients experienced hypersensitivity reactions related to the product. Looking at the OLE data, 5 events were of Grade 3 over a total of 13 events (38%).

Summary of Cardiac Outcomes in HOPE 2 and HOPE 2 OLE

In light of those results, we think that the loss of significance after OLE and the relatively poor safety profile of the drug will lead the FDA to reject the current BLA. This is reinforced by the fact that Capricor is seeking full approval where most companies in DMD first applied for an accelerated approval. Finally, the FDA recently requested an advisory committee to review the BLA application.
We think that while the drug may work, the number of patients included in HOPE 2 and its OLE is too small to draw any conclusion on safety and efficacy, leading the FDA to a probable rejection of the BLA. Looking at previous data, even if not incorporated in the package for the FDA, can convince us, as investors, of the modest efficacy of the drug.



Financial Analysis and Valuation

Let's now see what could happen to Capricor stock in case of a BLA rejection by the FDA.
Currently, Capricor holds a cash balance of $145M and burns around $25M per quarter. This is expected to support its operation over 2025 until mid-2026. Except for potential milestones, the company does not have any revenue. Total liabilities are $26M. Given that CAP-1002 is the only tangible asset under development of Capricor, a failure to get the FDA approval would weigh a lot on the stock price, currently holding a market valuation of $492M. At ELAM1, we always look at what we would lose first. Therefore, here we provide a simple valuation of Capricor in the case of Deramiocel's approval:
DMD drugs are highly priced given the scarcity of treatment available, the severe progression of the disease, and the relatively low addressable market. Therefore, let's assume an annual cost of $1M for Deramiocel, a reasonable price for a cell therapy. Given the HOPE 2 design and the natural history of the disease, we expect the indication for Deramiocel to concern only older patients aged 10 years and above. This represents a total addressable market of around 75% of all patients. In the U.S., 10'000 cases were estimated in 2019. If approved with these data, we can expect clinician adoption to be fairly slow given the safety profile of the drug. Accounting for the time to set up for commercialization as well, let's assume a market penetration of 10% in 5 years.

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Our Valuation

Therefore, at a cost of $1M for 10% of 7'500 patients, the peak revenue at 5 years would be $750M. Discounting this value to present at 15%, given the risk associated with a clinical-stage company, the present value of Capricor would be $700, including its cash upon approval. Accounting for the low market capitalization and the uncertainty of the FDA decision, we expect the stock to reach at least $1B in the case of a positive decision of the FDA. In case of rejection, we could expect the company to trade around its cash value. For the upside and downside of the trade to hold an expected value of 0, the probability of approval should be around 35%. We think this probability is lower and therefore would assign a sell recommendation to the stock.