

Verve Therapeutics: 通过基因疗法彻底改变心血管健康

美国东部时间 2023 年 12 月 11 日上午 11:57 | Verve Therapeutics, Inc. (VERV) 股票



康特拉生物技术评论

1.96K 关注者

About this article

Ticker VERV	Analyst rating	Price at publication \$12.41		Last price \$15.14	Change since publication 22.00 %
S&P 500 change since publication 9.87%		cation	Days since publication 86		

概括

Verve Therapeutics 是一家生物技术公司,专注于开发针对心血管疾病(CVD),特别是动脉粥样硬化性心血管疾病(ASCVD)的单疗程基因编辑药物。

该公司已将其首个心血管疾病基因编辑器 VERVE101 推进全球 1b 期临床试验,展示了 CVD 基因编辑方面的重大进展。

Verve 专有的脂质纳米颗粒递送技术 GalNAcLNP 是其领先候选药物的核心,包括针对 PCSK9 的 VERVE101 和 VERVE102,以及针对 ANGPTL3 的 VERVE201。

该公司的目标是将 CVD 治疗从长期护理转变为一次性治疗,从而有可能减轻患者和医疗保健系统的负担。 Verve Therapeutics 已获得战略合作伙伴关系和资金,包括礼来公司 (Eli Lilly) 的 6000 万美元注资,为 2026 年提供财务稳定。



拜亚卡亚

概括

Verve Therapeutics (纳斯达克股票代码: VERV) 是一家临床阶段的生物技术公司,专注于开发心血管疾病的单疗程基因编辑疗法。

该公司的专有技术 GalNAcLNP 旨在增强基因编辑工具的交付和效力,其主要候选药物 VERVE101 针对心脏病基因 PCSK9。

Verve 面临巨大风险,包括在临床试验中复制临床前结果、获得监管部门批准以及在筹集额外资金的同时管理费用的能力。

与礼来公司 (Eli Lilly) 的合作等战略关系提供了财务支持和行业信心,将 Verve 的运营跑道延长至 2026 年。

总之,作者预计 Verve Therapeutics 的 2 年目标价为"持有",乐观情况为 20 美元/股。

1/9: 概述

Verve Therapeutics 因其专注于治疗心血管疾病("CVD")的基因编辑疗法而在生物技术领域享有盛誉。该公司正在开创性的治疗方法,可以用单疗程基因疗法取代持续用药的需要。他们的主要候选药物 VERVE-101 已开始临床试验,这是测试其人体功效的关键一步。通过与礼来公司建立战略合作伙伴关系,Verve 在财务上有能力至少持续运营到 2026 年。该公司专有的 GalNAc-LNP 输送系统可以提供更精确、更有效的治疗,使其在竞争对手中脱颖而出。然而,Verve 必须应对许多临床阶段生物技术公司面临的挑战,包括在严格的监管环境下证明其基因编辑治疗的安全性和有效性。



Verve 投资者介绍会 (2023)

The competitive landscape for CVD treatments and the high costs associated with drug development may require Verve to secure additional funding and manage its finances strategically. From an investment perspective, Verve represents the high-risk, high-reward nature of the biotech sector. The company's innovative approach has the potential to revolutionize CVD treatment. However, investors should weigh the company's transformative potential against the complex and competitive process of developing and marketing new treatments. The success of Verve will depend on its ability to successfully conduct clinical trials and navigate market and regulatory hurdles, making it an intriguing option for those interested in investing in advanced medical therapies.

2/9: Core technology

Verve Therapeutics is at the forefront of developing gene editing treatments for cardiovascular diseases, specifically targeting conditions like atherosclerotic cardiovascular disease ("ASCVD") and familial hypercholesterolemia ("FH"). Their innovative in vivo base editing technology aims to make precise DNA changes in liver cells, which could lead to a lasting reduction in harmful low-density lipoprotein cholesterol ("LDL-C") levels. The potential to replace long-term medication with a one-time treatment could revolutionize the management of CVD. Verve's drug candidates are in various stages of development, each designed to address different aspects of CVD using novel delivery methods such as lipid nanoparticles. The company's collaboration with Eli Lilly and strong financial footing until 2026 position it well for continued research and development. However, Verve must navigate the complexities of clinical trials, regulatory landscapes, long-term safety concerns, and the competitive CVD treatment market to achieve commercial success.



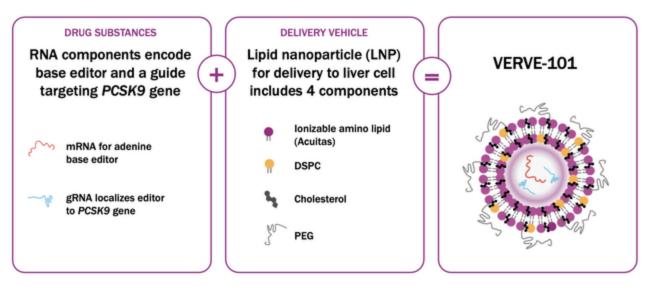
Verve Investor Presentation (2023)

Verve Therapeutics is a clinical-stage biotechnology company focused on developing gene editing treatments for cardiovascular disease. Their approach involves using base editing technology to make precise DNA modifications within liver cells. The goal is to achieve a sustained decrease in LDL-C levels, which play a significant role in the progression of CVD. The company has several drug candidates in its pipeline:

VERVE-101 is a base editor designed to address heterozygous familial hypercholesterolemia ("HeFH") and ASCVD, delivered via lipid nanoparticles ("LNPs").

VERVE-102, similar to VERVE-101, is a base editor targeting HeFH and ASCVD but utilizes a GalNAc-LNP delivery system, which may enhance liver targeting and efficacy.

VERVE-201 is another base editor, this time focusing on homozygous familial hypercholesterolemia ("HoFH") and refractory hypercholesterolemia, also using a GalNAc-LNP delivery vehicle. The Lp(a) program is developing a novel editor to help ASCVD patients with high levels of lipoprotein(a) in their blood. The delivery method for this program has not been disclosed.

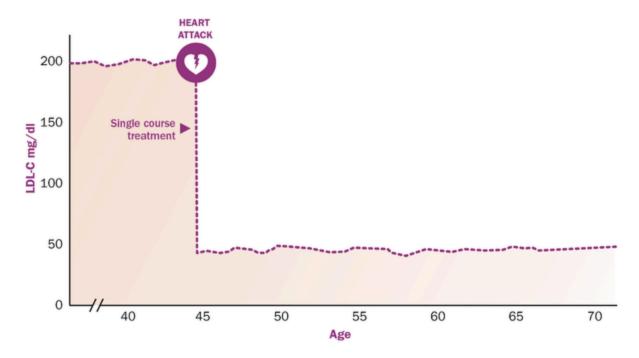


Verve Investor Presentation (2023)

The advantages of Verve's technology include the potential to replace lifelong CVD medication with a single-course therapy and the use of a proprietary delivery system that may improve the delivery and efficacy of gene editing tools. The company's partnership with Eli Lilly provides financial support and credibility, and Verve's financial runway into 2026 allows for ongoing R&D without immediate additional funding needs. However, Verve faces challenges as a clinical-stage company. These include the risks associated with clinical trials, regulatory hurdles, safety concerns, and the uncertainty surrounding the long-term effects and potential off-target consequences of their gene editing technology. Furthermore, they will likely need additional capital for commercialization and must carefully manage costs and secure further funding. Competition in the CVD treatment market is intense, and Verve will need to establish a strong presence for its gene editing therapies to succeed. In conclusion, Verve Therapeutics is positioned to potentially transform the treatment landscape for CVD with its gene-editing platform. While the company has a strong partnership and financial stability, it will have to carefully navigate the inherent risks and challenges of bringing novel treatments to market. Success will depend on the company's ability to execute its clinical development strategies efficiently and effectively.

3/9: Diseases being targeted

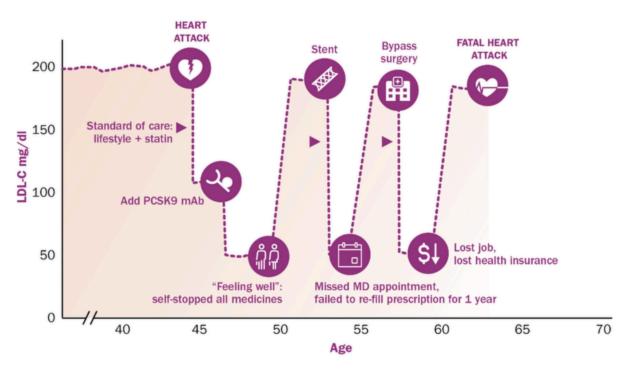
Atherosclerotic Cardiovascular Disease (ASCVD) and familial hypercholesterolemias, such as Heterozygous Familial Hypercholesterolemia (HeFH) and Homozygous Familial Hypercholesterolemia (HoFH), represent significant health challenges due to the buildup of cholesterol in arterial walls, leading to heart attacks, strokes, and peripheral vascular disease.



Verve Investor Presentation (2023)

These conditions are the leading causes of death globally. Despite standard treatments like lifestyle changes and statins, many patients fail to reach their low-density lipoprotein cholesterol (LDL-C) targets, signaling a need for more effective therapies.

- 1. ASCVD is marked by cholesterol plaque accumulation in arteries, increasing heart attack, stroke, and peripheral vascular disease risks. Current treatments include lifestyle modifications, statins, ezetimibe, and PCSK9 inhibitors, but a significant patient subset remains at high cardiovascular risk despite these.
- 2. HeFH, a genetic disorder, results in lifelong high LDL-C levels and an elevated risk of early ASCVD due to mutations in the LDL receptor gene or related genes. High-intensity statin therapy, combined with other lipid-lowering agents, is the standard care, but many patients still do not achieve LDL-C goals, indicating the necessity for new treatments.
- 3. HoFH is an even more severe familial hypercholesterolemia form, with both copies of the LDLR gene mutated, leading to extremely high LDL-C levels from a very young age and a high risk of early cardiovascular events. Treatment includes a combination of lipid-lowering therapies and potentially lipoprotein apheresis or newer agents like evinacumab, yet achieving LDL-C targets remains challenging for many.
- 4. Refractory hypercholesterolemia refers to the condition where patients' LDL-C levels remain high despite using maximally tolerated lipid-lowering therapies. These patients may need additional treatments like evinacumab and other novel agents, as their cardiovascular risk is high.
- 5. Lipoprotein(a) [Lp(a)] is a variant lipoprotein that is an independent risk factor for ASCVD. Genetic factors mainly determine Lp(a) levels, and they are not significantly altered by lifestyle or statins. Niacin and PCSK9 inhibitors may have some effect, but there are no specific approved treatments to lower Lp(a) levels, making this an active research area.



Verve Investor Presentation (2023)

Verve Therapeutics is developing gene-editing therapies aimed at providing single-course treatments for these diseases by targeting genes like PCSK9, ANGPTL3, and LPA. These therapies are in various preclinical and clinical development stages and could revolutionize the treatment paradigm for patients with ASCVD and familial hypercholesterolemia. However, the technology is still early in development and carries significant risks and uncertainties regarding clinical success, regulatory approval, and commercialization.

4/9: Platform competitiveness

In evaluating the potential of Verve Therapeutics' drug candidates to surpass the current standard of care for cardiovascular diseases and familial hypercholesterolemia, it is essential to analyze both the safety and efficacy data of similar gene editing modalities and to weigh the pros and cons of such treatments. Gene editing therapies, particularly those utilizing CRISPR/Cas9 and base editing, are in the nascent stages with ongoing accumulation of long-term safety and efficacy data. Insights are primarily derived from clinical trials of gene therapies for various conditions, which have demonstrated potential but also raised safety concerns including immune reactions, off-target effects, and other long-term unknowns.

Verve Therapeutics' modality presents several advantages. It offers the possibility of a one-off treatment with sustained results, a significant improvement over the lifetime medication regimens currently prescribed. The precision of base editing could minimize off-target effects, and the targeted delivery systems, such as LNPs and GalNAc-LNP, promise enhanced efficacy and fewer systemic side effects. Additionally, Verve's therapies may fulfill the unmet needs of patients who are non-responsive or intolerant to existing treatments.

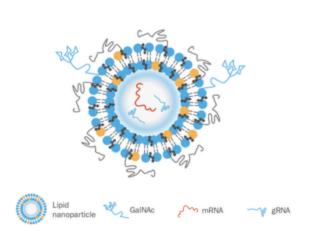
Conversely, there are notable disadvantages and challenges. The novelty of gene editing brings a lack of long-term safety data and the possibility of unexpected side effects. The regulatory landscape for gene therapies is complex and may impede timely access to treatments. Patient and physician apprehension about the new technology, ethical concerns, and cost could affect market acceptance. Moreover, the anticipated high cost of such therapies may restrict accessibility and uptake, particularly if not covered by insurance.

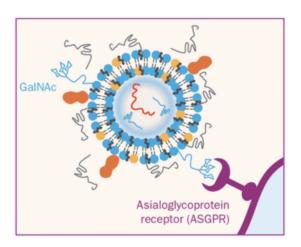
When compared to the current standard of care, which includes statins, ezetimibe, PCSK9 inhibitors, and lifestyle modifications, Verve's therapies could represent a transformative leap. Current treatments necessitate ongoing compliance and may not be effective or tolerable for all patients. Notably, no specific treatments currently exist for reducing Lp(a) levels, an area Verve's Lp(a) program could potentially address. If Verve's therapies can demonstrate superior safety and efficacy, they could revolutionize treatment by offering a lasting solution without the need for continuous medication. However, they must establish themselves as markedly better in terms of efficacy, safety, and cost-effectiveness to displace existing treatments.

In summary, Verve Therapeutics' drug candidates hold the promise of significantly improving upon the current standard of care for cardiovascular diseases and familial hypercholesterolemia, particularly for those with unmet medical needs. The success of these therapies hinges on clinical trial results, regulatory approval, market reception, and affordability. While it remains uncertain if they will be 10x better, they have the potential to fundamentally change the treatment landscape.

5/9: Technology competitiveness

Verve Therapeutics stands out in the gene editing and cardiovascular disease treatment landscape with its proprietary technology and innovative approach to therapy. The company's unique lipid nanoparticle delivery system and ambition to develop single-course treatments position it well in the market. However, it faces significant competition and must overcome challenges related to its newness, clinical trial progression, and financial sustainability.





Verve Investor Presentation (2023)

Verve's proprietary GalNAc-LNP delivery system is designed to target the liver, potentially increasing the success of their gene therapies while minimizing side effects. This technology could be particularly advantageous for liver-related diseases. Additionally, the company's focus on creating single-course treatments for cardiovascular diseases is a bold strategy that could lead to improved patient outcomes and compliance, as well as lower healthcare costs. The preclinical success of their lead candidate, VERVE-101, is encouraging. It aims to reduce LDL-C by targeting PCSK9, a novel approach that could be highly effective in treating hypercholesterolemia. On the flip side, Verve's limited operating history presents risks, as the company has yet to prove its ability to navigate the challenges of clinical development and regulatory approval. Replicating the positive results from preclinical studies in human trials is another significant hurdle, as success in animal models does not always predict clinical success in humans. Financially, the company must manage its expenses and secure funding to sustain operations until it can generate its own revenue-a common challenge in the biotech industry.

Verve Therapeutics must be evaluated against a backdrop of competitors with varying technological strengths and clinical development stages, including Beam Therapeutics, Editas Medicine, CRISPR Therapeutics, Intellia Therapeutics, Sangamo Therapeutics, and Alnylam Pharmaceuticals. The company's ability to overcome early-stage development risks and financial challenges will be crucial for its success. Innovating and advancing its pipeline will be key to distinguishing itself from these competitors and achieving a leading position in the market.

6/9: Competitors

In the biotech industry, various companies are pioneering the development of gene therapies and genetic medicines, each with its unique technological approaches and strategic focuses. Beam Therapeutics (BEAM) specializes in base editing, a form of genome editing that offers precision with potentially fewer off-target effects. Editas Medicine (EDIT) and CRISPR Therapeutics (CRSP) are utilizing CRISPR/Cas9 technology to address a range of genetic disorders, with Editas also employing CRISPR/Cas12a. Intellia Therapeutics (NTLA) is advancing in vivo CRISPR/Cas9 treatments, while Sangamo Therapeutics (SGMO) works with zinc finger nuclease (("ZFN")) technology. Alnylam Pharmaceuticals (ALNY) stands out with its focus on RNA interference (("RNAI"))) therapeutics, which silence specific genes without permanently modifying them. Each company's progress, potential market reach, and therapeutic impact are balanced against the challenges and risks associated with developing and commercializing gene therapies, such as regulatory hurdles, technological limitations, and the need for clinical validation.

Deeper dive into competitors

Beam Therapeutics' approach to precision genetic medicine involves base editing, which allows for precise DNA base conversions without the double-strand breaks associated with CRISPR/Cas9. This could lead to safer gene editing with fewer unintended modifications. Their pipeline targets a variety of genetic conditions, including sickle cell disease and beta-thalassemia. However, the technology is still preclinical, and the regulatory landscape remains uncertain due to its novelty.

Editas Medicine is at the forefront of CRISPR technology, with EDIT-101 being developed for a rare genetic eye disorder known as Leber congenital amaurosis 10 (("LCA10")). The company's expertise in complex genetic diseases could provide transformative treatments. Nevertheless, the specificity and efficiency of CRISPR/Cas9 and Cas12a are under close examination, and any negative clinical outcomes could affect the company's value and progress.

CRISPR Therapeutics, in collaboration with Vertex Pharmaceuticals (VRTX), is developing CTX001 for transfusion-dependent beta-thalassemia and sickle cell disease. The partnership enhances the development and commercialization potential, and early clinical results are promising. Still, there are concerns about off-target effects and immune responses that could impede approval or acceptance.

Intellia Therapeutics focuses on in vivo treatments, such as NTLA-2001 for transthyretin amyloidosis ("ATTR"). Their in vivo method and lipid nanoparticle delivery system could revolutionize treatment delivery and safety. However, the concentration on non-cardiovascular diseases and the unproven nature of the in vivo approach in clinical settings add to the company's uncertainties.

Sangamo Therapeutics utilizes ZFN technology to target a diverse range of diseases. With a relatively advanced pipeline and industry collaborations, Sangamo may enter the market sooner. However, the precision and efficiency of ZFN may not match newer gene editing methods, and the company's broad focus could spread its resources thin, affecting the success of individual programs.

Alnylam Pharmaceuticals has successfully commercialized RNAi therapeutics, which silence genes involved in disease without permanent modification. This has led to multiple approved products and a broad disease target range. However, the need for repeated treatments could increase costs and patient burden, and their RNAi focus may limit their engagement in gene editing ventures. For a biotech venture capitalist, understanding these companies' strengths, limitations, and strategic positions is crucial for making informed investment decisions in the rapidly evolving field of gene therapy. Each company's technology, pipeline, and collaborations must be carefully considered against the backdrop of technological risks and the challenges inherent in bringing gene therapies to market.

7/9: Upside potential

In the volatile landscape of biotech investments, Verve Therapeutics has recently witnessed a significant market downturn following the release of clinical data for its lead program, VERVE-101, targeting heterozygous familial hypercholesterolemia ("HeFH"). The market response raises questions about the future trajectory of the company's stock price. This analysis aims to dissect the key factors influencing Verve Therapeutics' stock and offer insights into potential scenarios.

Safety Concerns and Market Reaction

The recent phase 1b clinical trials of VERVE-101 revealed safety concerns, with incidents of heart attacks leading to a substantial drop in the company's stock. While the fatal heart attack is deemed unrelated to the treatment, the non-fatal heart attack is being cautiously considered as "potentially" related. The market's reaction suggests an immediate and pronounced response to these safety issues, emphasizing the significance of safety data in the biotech sector.

Clinical Context and Investor Perception

Despite the setbacks, the market might be overlooking the broader clinical context. Analysts suggest that the safety concerns, while impactful, may not fully represent the overall potential of VERVE-101. Investors are advised to consider the complexity of clinical data interpretation, recognizing that early-stage trials are designed to identify safety concerns and provide insights for larger trials.

Financial Position and Future Funding

Verve Therapeutics currently boasts \$485 million in cash, equivalents, and investments, with operations funded through the start of 2026. While the company may need additional capital in the future, collaborations with Eli Lilly and Vertex Pharmaceuticals could provide significant funding support. This financial stability tempers immediate concerns about the company's viability.

Likely Scenarios

Considering the safety concerns, analysts suggest that the market's skepticism toward safety factors could persist. The likelihood of another substantial drop in share price remains high, given the uncertainties associated with early-stage pipeline programs. However, as more clinical safety data becomes available, positive developments could lead to a gradual rebuilding of investor confidence and significant upside.

Opinion on Future Share Price

Given the current uncertainties and the market's heightened sensitivity to safety issues, a cautious outlook on Verve Therapeutics' share price is warranted in the short to medium term. While positive clinical data could potentially drive a rebound in investor confidence, the inherent risks associated with early-stage biotech ventures suggest that the road to recovery may be gradual.

Potential Scenarios for 2024:

\$ in actual	FYE 2024			
Scenarios	Pessimistic	Base	Optimistic	
Industry Avg. Multiple (Price to earnings)	30.0	30.0	30.0	
ASCVD market (in M)	\$67,950	\$67,950	\$67,950	
HEFH market (in M)	\$38,990	\$38,990	\$38,990	
Total market size in 2030 (in M)	\$87,445	\$87,445	\$87,445	
Market penetration	20%	30%	40%	
Verve's expected market share (in M)	\$17,489	\$26,234	\$34,978	
Expected profit (in M)	\$6,996	\$10,493	\$13,991	
EPS Forecast (at approval / E 2030)	\$110	\$165	\$219	
Expected valuation of the company in 2030 (in M)	\$3,292	\$4,938	\$6,584	
Probability of approval	8%	14%	20%	
Expected market cap by Contraview in 2024 (in M)	263	691	1,317	
Expected market cap by Wall Street in 2024 (in M)	1,434	2,805	4,271	
Shares Outstanding (in M)	64	64	64	
Total Debt (+) -Q3 (in M)	\$77	\$77	\$77	
Total Cash (-) -Q3 (in M)	\$485	\$485	\$485	
Share Price Forecast by Contraview	\$4.1	\$10.8	\$20.7	
Share Price Forecast by Wall Street	\$22.5	\$44.0	\$67.0	
Current Stock Price	\$11.23	\$11.23	\$11.23	
% Change (Wall Street)	100%	292%	497%	
Weighted (Wall Street)		298%		
% Change (Contaview)	-63%	-3%	84%	
Weighted (Contraview)		10%		

Contra Biotech Review

Verve's focus on developing high-impact first-line treatments for Atherosclerotic Cardiovascular Disease ("ASCVD") and Heterozygous Familial Hypercholesterolemia ("HeFH") forms the core of the analysis. Assumptions of an approximate 30x PE industry average multiple sets the stage. Contra believes this is warranted due to the expected impact of their gene therapy if successful and the broad focus on CVD generally. Calculations of market cap, based on market size and penetration assumptions, reveal a 2030 market projection of \$87b. Profit expectations, assuming a 40% margin, range from \$7b to nearly \$14b across scenarios.

EPS forecasts lead to 2030 valuations ranging from \$3.3b to \$6.6b. Adding the probability of drug approval (8% to 20% | Pharmagellan Guide to Biotech Forecasting, 2017) and considering 2024 market cap scenarios, Contra adopts a conservative stance with estimates of \$263 million, \$691 million, and \$1.3 billion for Pessimistic, Base, and Optimistic scenarios. In contrast, Wall Street's share price forecasts of \$22.5, \$44.0, and \$67.0 paint a more optimistic picture near-term with equivalent market caps of \$1.4b, \$2.8b, and \$4.3b.

基于华尔街的 298% 的加权平均上涨空间提供了一个微妙的视角。值得注意的是,Contra 的保守态度凸显了华尔街 预期的潜在差异。根据 Contra 的数据,悲观、基本和乐观情景下的股价分别为 4.1 美元、10.8 美元和 20.7 美元,未来 12 个月平均上涨 10%。这一见解强调了采用敏锐的方法来评估 Verve Therapeutics 的潜在估值的重要性,表明股价可能与 Contra 提供的保守估计更加一致。在不断变化的生物技术投资格局中,平衡且明智的策略对于应对不确定性和做出明智的投资决策至关重要。

9/9: 结论

Verve Therapeutics 在生物技术行业是一个有吸引力的投资机会,特别是因为它专注于治疗心血管疾病的基因编辑。该公司创新的单疗程治疗得到专有技术和强大的科学团队的支持。VERVE-101 进入全球 1b 期临床试验的进展以及与礼来公司的战略合作伙伴关系都验证了该公司的潜力。Verve 的基因编辑平台可能会改善患者的治疗效果和依从性,从而彻底改变心血管疾病的治疗。其独特的GalNAc-LNP递送系统也可能在基因治疗方面提供竞争优势。从财务角度来看,该公司在 2026 年之前处于有利地位,降低了早期生物技术公司的一些固有风险。然而,Verve 面临着重大挑战,例如其有限的运营历史和其主要候选人的早期发展阶段的不确定性。其新疗法的长期效果和市场接受度尚不清楚,并且可能存在来自现有疗法的竞争。此外,尽管目前财务稳定,但 Verve 可能需要额外的商业化资金,其成功将取决于有效的成本管理和获得更多资本的能力。总之,由于早期药物开发的高风险性质,Verve Therapeutics提供了一项有前途但有风险的投资。该公司的战略方针和财务状况是积极的,但投资者应继续意识到未来的临床、监管和竞争挑战。建议多元化管理生物技术投资固有的风险。

总之,作者预计 Verve Therapeutics 的 2 年目标价为"持有",乐观情况为 20 美元/股。

这篇文章的作者是



康特拉生物技术评论

1.96K 关注者

通过人工智能驱动的洞察力调查, 为逆向生物技术远见者提供新的公司分析请求

分析师披露: 我/我们在上述任何公司中没有股票、期权或类似衍生品头寸,并且没有计划在未来 72 小时内启动任何此类头寸。 这篇文章是我自己写的,表达了我自己的观点。我没有收到任何补偿(除了来自 Seeking Alpha 的补偿)。我与本文中提到的任何其股票的公司没有业务关系。

寻求阿尔法的披露:过去的表现并不能保证未来的结果。对于任何投资是否适合特定投资者,没有给出任何建议或建议。上述任何观点或意见可能不反映Seeking Alpha的整体观点。Seeking Alpha 不是持牌证券交易商、经纪人或美国投资顾问或投资银行。我们的分析师是第三方作者,包括专业投资者和个人投资者,他们可能未获得任何机构或监管机构的许可或认证。

评论

排序方式

最新

•