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ERIK PENSER BANK

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Abliva

New hope for patients with mitochondrial diseases

Orphan drug company at the cutting edge

Abliva is an orphan drug company that focuses on mitochondrial diseases. Its lead project, KL1333, is one of four drug candidates in late-stage development in primary mitochondrial diseases (PMD), a complex field with a high unmet medical need and no approved drugs for the general population. The market potential is thus attractive, and we judge that the first drug to hit the market will have extensive potential to become a blockbuster with annual sales in excess of USD 1bn.

Upcoming interim results – a key event

KL1333 is undergoing a placebo-controlled phase II study (n=120), which, given positive results, can lay the groundwork for market approval in the US and Europe during 2026. An interim readout from the first 40 patients is expected in H1 2024, which will be a crucial indicator for the company's future. If there is evidence of a treatment effect, the study will continue, with full data readout expected in 2025.

High risk – high potential returns

An investment in Abliva is associated with high risk, but also with high potential returns. The company's ownership list is good, with robust finances (SEK 145m) that should be sufficient through to the interim data readout. At its current EV of around SEK 100m, we believe the stock market has very low expectations of a positive interim data readout, and we see upside of >100% in the share price should the study continue. We estimate the downside if the study is terminated due to a lack of efficacy at 80–90%. We see a high likelihood of growing interest in the share in H2 2023 as the interim data readout draws closer.

Change in estimates

	23e	24e	25e
Total revenue	-	-	-
EBITDA, adj.	0,0%	0,0%	0,0%
EPS, adj.	0,0%	0,0%	0,0%

Upcoming events

Q1 - report	23 May 2023
Q2 - report	18 August 2023

Company facts (SEK m)

Number of shares	1 056m
Market capitalization	240
Net debt	-145
EV	95
Free float	77%
Daily trading volume, average	3 898k
Bloomberg Ticker	ABLI SS EQUITY

Forecast (SEK m)

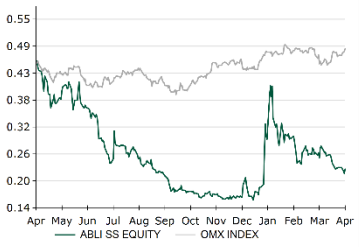
	2022	2023e	2024e	2025e
Total revenue	2	0	0	0
Revenue growth	>100%	N.m.	N.m.	N.m.
EBITDA, adj.	-81	-121	-139	-154
EBIT, adj.	-83	-124	-142	-157
EPS, adj.	-0,1	-0,1	-0,1	-0,2
EPS growth, adj.	N.m.	N.m.	N.m.	N.m.
BV/share	0,2	0,0	0,1	0,1
Dividend per share	0,0	0,0	0,0	0,0
EBIT margin	Neg.	Neg.	Neg.	Neg.
ROE, adj.	Neg.	Neg.	Neg.	Neg.
ROCE, adj.	Neg.	Neg.	Neg.	Neg.
EV/Sales	25,0x	-	-	-
P/BV	1,2x	6,3x	2,6x	1,8x
Net debt / EBITDA	1,8x	0,2x	0,6x	0,8x

Rating

Potential	5
Risk	5
Financial position	3
History & track record	3

Share price	SEK 0,2

Price Performance 12 months



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Conflicts of interest

	Yes	No
Liquidity provider		✓
Certified adviser		✓
Transactions 12m	✓	

Investment case

Abliva is an orphan drug company that focuses on mitochondrial diseases. An investment in Abliva is associated with high risk, but also with high potential returns. Its leading project, KL1333, is one of four late-stage drug candidates for primary mitochondrial diseases (PMD), a complex field with high unmet medical need and no approved drugs for the general population. We believe the first drug to hit the market will have extensive potential to become a blockbuster with annual sales in excess of USD 1bn.

Historically, it has been challenging to conduct clinical trials in mitochondrial diseases owing to the diseases' heterogeneity and the lack of well-defined and relevant endpoints. Diagnostic advancements and the identification of different subgroups within the diseases have improved the ability to develop drugs, and activity in the field has increased in recent years.

Based on the promising phase Ia/Ib data (n=72), KL1333 is now in a larger placebo-controlled phase II study (n=120), which, if results are promising, can lay the groundwork for market approval in the US and Europe during 2026. An interim readout from the first 40 patients is expected in H1 2024, which will be a crucial indicator for the company's future. If there is evidence of a treatment effect in the interim data, the study will continue to recruit patients, with the full data readout expected in 2025.

The company's ownership list is good, with robust finances (SEK 145m) that should last until the interim data readout in H1 2024. At its current EV of around SEK 100m, we believe the stock market has very low expectations of a positive interim data readout, and we see upside of >100% in the share price should the study continue. The company's reliance on KL1333 is currently enormous, and a setback in the interim data would thus spell share price downside of 80–90%.

In the long term, the company's future depends on KL1333 reaching the market and on Abliva generating revenue streams through own sales, or out-licensing to a partner (most likely). Abliva has another project in its portfolio, NV354, which is in early development for Leigh syndrome. For the time being, though, this should only be seen as an option in the company, and its full focus in the coming years will be on KL1333.

Company description

Abliva is a biotech company in the clinical phase, addressing drug development for primary mitochondrial diseases (PMD). The company has two clinical-stage projects: KL1333 for the treatment of mutations in mitochondrial DNA (mtDNA), and NV354 for treatment of Leigh syndrome. As these are very rare diseases, both drug candidates qualify as orphan drugs. Orphan drugs enjoy multiple benefits during clinical development, including a shorter route to market and regulatory flexibility.

The company holds the patents for both of its drug candidates. The compound patent for KL1333 expires in 2034 and applies in the most relevant markets. The compound patent has been granted for NV354 in a number of countries and a broadening of this is expected in the coming years. As both drug candidates qualify as orphan drugs, they would also benefit from market exclusivity for seven years in the US and ten years in Europe following market approval.

Pipeline

Project	Indication	Discovery	Pre-clinical	Phase I	Phase II/III	NDA/BLA	Market
KL1333	PMD (mtDNA mutations)						
NV354	PMD (Leigh syndrome)						
Early programmes	PMD						

Finalised
Ongoing

Source: EPB

Abliva's business model is to develop drug candidates through phase I studies and potentially also phase II/III studies ahead of signing licensing agreements with major pharma companies. As the market for primary mitochondrial diseases is relatively concentrated, there might be an opportunity for Abliva to commercialise the drugs in-house, but our main assumption is that a licensing/distribution partner is the most likely option for commercialisation.

Abliva has eight employees and is based in Lund, Sweden. It has been listed on Nasdaq Stockholm Small Cap since 2013.

Primary mitochondrial diseases – an overview

Abliva focuses on the treatment of primary mitochondrial diseases, a class of genetic diseases that affect the mitochondria. Mitochondria are often called the power source of cells as they produce the energy that cells need to function. The organs most affected by mitochondrial diseases are therefore those that require the most energy, in particular the muscles, brain, and liver.

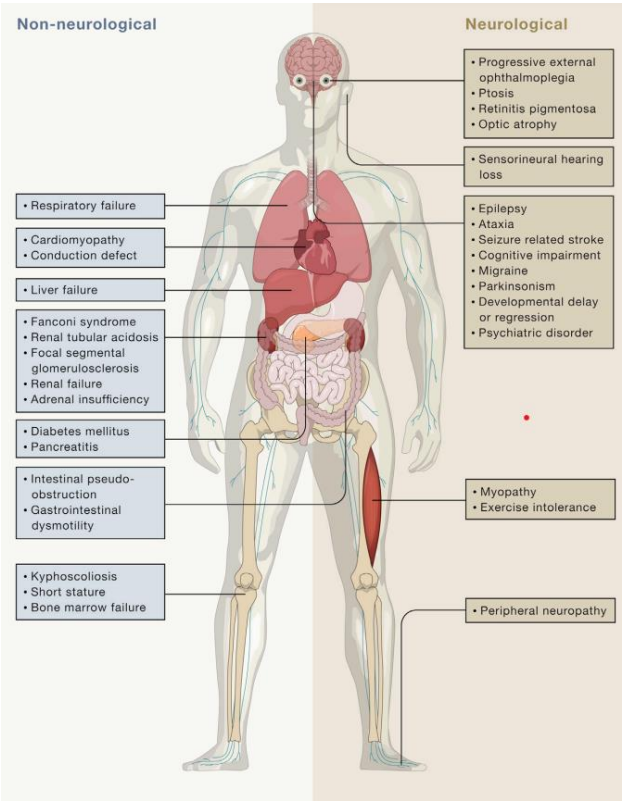
Primary mitochondrial diseases occur when genes mutate, either in the mitochondria's own DNA, or in the DNA of the cell nucleus. The most common mutations in adult patients occur in the mitochondria's own DNA (~80%). The diseases originate in the mitochondria, but because of their key role for all a body's cells, this often has a negative impact of large parts of the body.

The diseases usually begin at an early age and patients often die young. These are highly heterogeneous diseases, where the symptoms can vary between patients, but the three most common symptoms are extreme tiredness, fatigue, and muscular weakness. In many cases, these are so extreme that patients lack the energy to perform daily tasks. A study has shown that some 70–100% of patients with mitochondrial diseases suffer, to varying degrees, from fatigue that limits their daily lives (Parikh, 2019).

Because of the diseases' heterogeneity, diagnosing them has posed a challenge in the past. Drug development in this area has been further complicated by the lack of relevant and accurate endpoints in clinical trials. Advancements in diagnostics have been aided by genetic testing. Moreover, the identification of different subgroups within the diseases has improved the conditions for developing drugs, and activity in the field has increased in recent years.

Primary mitochondrial diseases are very rare, and today, there are no approved treatments that address the underlying diseases in the general population. The most common method to treat these patients today is to manage their symptoms and provide palliative care. The demand for effective treatments is high, and only 17% of patients with mitochondrial diseases believe the current treatment paradigm provides a significant improvement in their quality of life (Voice of the patient, 2019).

Clinical indications of PMD



Source: Russell (2020), EPB

KL1333 – treatment of mutations in mitochondrial DNA (mtDNA)

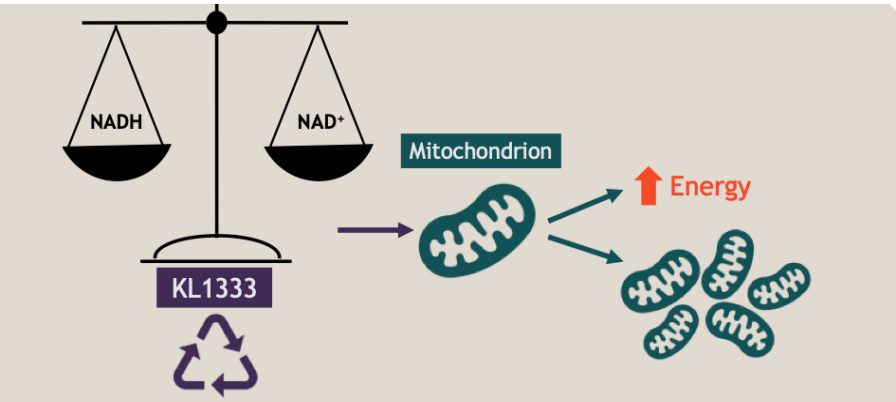
Abliva's most advanced drug candidate is KL1333, an NAD+ modulator, which it is developing for the treatment of patients with mitochondrial diseases – most specifically, with mutations of mitochondrial DNA (mtDNA). KL1333 is administered orally, and the plan is that it should be a chronic treatment taken daily.

Mechanism of action

A patient with mitochondrial DNA mutations has a reduction in the level of NAD+, a coenzyme naturally present in the body that is important for energy metabolism. NAD+ can be found in different forms in the body, including NADH (reduced form) and NADP+ (phosphate form).

KL1333 has a unique mechanism of action that aims to improve the mitochondrial function by increasing energy production in the cells. KL1333 boosts the levels of NAD+ by stimulating the NQO1 enzyme. This contributes to rebalancing the important NAD+/NADH ratio. The normalised levels of NAD+ contribute to biogenesis (regeneration of mitochondria) and improved energy levels. The intention is that this should lead to improved clinical parameters in patients with mitochondrial diseases.

KL1333 - mechanism of action



KL1333 has the ability to restore the ratio of NAD+ and NADH, and thus leads to the formation of new mitochondria and improved energy levels.

Source: Company

KL1333 – in-licensed from Yungjin Pharm
During 2017, Abliva entered into an agreement with South Korea's Yungjin Pharm for the inlicensing of KL1333. The licensing agreement covers all rare conditions associated with mitochondrial dysfunction. According to the deal, Abliva holds the rights to develop and commercialise KL1333 globally, with the exceptions of Japan and South Korea.

In return, Abliva will pay milestone payments up to a maximum of USD 46m as various milestones are achieved, the majority of which are coupled with commercial milestones. Should KL1333 reach the market, Yungjin also has the right to progressive increases in royalty payments on future net sales, rising from single-digits to low double-digits.

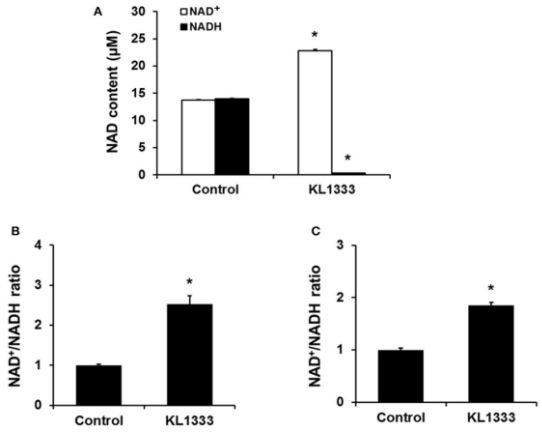
Pre-clinical data

Pre-clinical studies have produced positive safety data for KL1333, along with indications of a treatment effect. In a pre-clinical study, we have seen that treatment with KL1333 can, among other things, lead to:

- an increase in mitochondrial energy production
- long-term positive effects on energy metabolism
- strong muscle function
- an improvement in biomarkers for mitochondrial diseases

As is commonly known, pre-clinical data is often difficult to translate to human, but we consider these results promising and suggest a potential treatment effect also in humans.

KL1333 – pre-clinical data



Source: Seo (2018), EPB

Clinical data

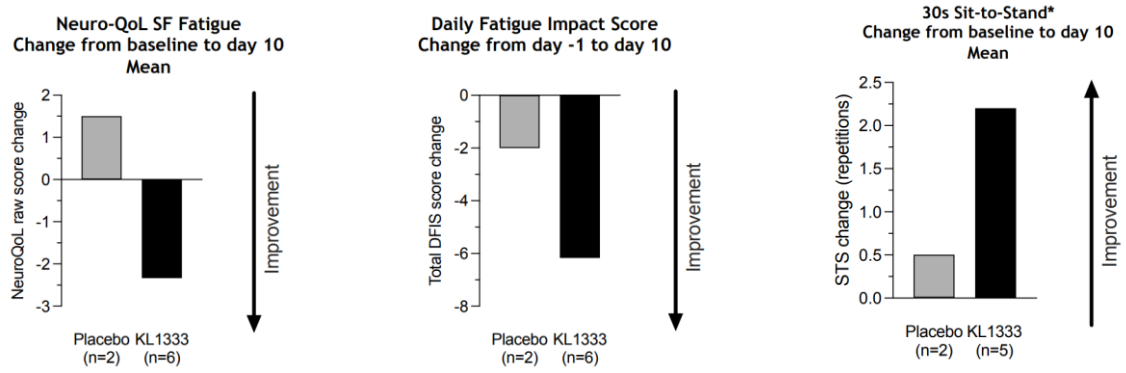
Abliva has also carried out a clinical study with KL1333 that included both healthy volunteers (n=64) and patients with mutations in their mitochondrial DNA (n=8). This study had especially broad inclusion criteria and, in principle, all patients diagnosed with any type of mitochondrial disease, regardless of mutation, were welcome to participate. It was a double-blinded, randomised, placebo-controlled phase Ib study. As it was classified as a phase I study, its primary objective was to look at safety parameters and how the body handles KL1333. In addition, the study also included some efficacy endpoints for exploratory purposes.

We have an overall positive impression of the results that were presented. Safety and tolerability were good for both the SAD group (single ascending doses) and the MAD group (multiple ascending doses) in both patients and healthy volunteers. No serious side effects were reported during the study, and the majority of the participants tolerated KL1333 well. There were some side effects related to the gastrointestinal tract at higher doses which were alleviated by splitting the daily dose across several administrations. The plan is to do this in the future.

On the effects side, there were indications that treatment with KL1333 had a positive impact on both fatigue (through a questionnaire) and in a 30-second sit-to-stand test. A further beneficial effect was a positive dose-response curve in patients. The patients with the highest exposure to KL1333 in their blood plasma were those who saw the greatest magnitude of effect in the parameters studied. For the vast majority of medicines, a higher exposure results in a better response, and we believe this reinforces the view that it is largely KL1333 behind the improvement in the performance parameters.

While we are in favour of the data presented, one caveat is, of course, the very limited amount of study data. In total, only six patients received KL1333 and two received placebo. This is far too small a sample to demonstrate a statistically significant difference between the groups, and we cannot draw conclusions from this about the treatment effect. The risk in the project thus remains high, but we believe most parameters point in the right direction.

KL1333 phase Ib study: Results on fatigue parameters



Source: Company

The ongoing pivotal phase II study

In late 2022, Abliva began a potentially pivotal phase II study with KL1333. This can form the basis for the potential market approval of KL1333 in the US and Europe. We consider the study to be well-designed, providing KL1333 with a favourable opportunity to demonstrate an effect – assuming an effect exists.

Patient population

The study will include 120–180 adult patients with primary mitochondrial diseases who suffer from severe chronic fatigue and muscular weakness. Compared with the earlier completed phase Ib, this study has narrower inclusion criteria. More specifically, the study will recruit a subgroup of patients with specific mutations where the diseases result in symptoms affecting several parts of the body. The rationale behind this decision is that this subgroup of patients is typically 'more sick' and the hope is that it will prove easier to demonstrate an improvement in clinical symptoms after treatment with KL1333. This was also the patient group that responded best to treatment with KL1333 in the phase Ib study.

Design

The study is randomised, double-blinded, and placebo-controlled (2 receiving placebo/3 active). Following a screening period of 8–12 weeks, patients will be dosed with KL1333 twice a day for 48 weeks. At 48 weeks, there will also be a cut-off, at which point the primary endpoints of the study will read out and be compared to the placebo group. The primary endpoints of the study are: 1) a change in chronic fatigue and reported quality of life, and 2) a change in the 30-second sit-to-stand test. Abliva has discussed the study with several regulatory authorities. Both these endpoints have been validated by the FDA as pivotal and Abliva believes it is thus in a healthy position to seek market approval in the US and Europe based on this study, should it prove successful.

It is slightly unusual for this study to have two primary endpoints. This could be a suitable approach to evaluate efficacy in diseases that bring several relatively distinct symptoms. In the case of KL1333, the FDA has approved the dual endpoint concept in this study and it is sufficient that just one of these is met for the drug to be approved. With alternative primary endpoints, all else being equal, slightly more patients are required to keep the power of the test constant for the primary impact measures - something Abliva has compensated for in its calculations.

In terms of the first primary endpoint – a change in chronic fatigue and reported quality of life – Abliva has developed its own questionnaire, based on the standardised "Patient-Reported Outcomes Measurement Information System (PROMIS) Fatigue PMD Short Form". This questionnaire asks the patients to rate their fatigue and say how often this affects their day-to-day activities on a scale of 1–5 ("Never" to "Always"). Abliva's questionnaire is designed to be an even more relevant and exact measure of fatigue in order to successfully capture the possible treatment effect with KL1333. In a meeting with the FDA, Abliva received positive feedback on the questionnaire's design and a green light to use it as a primary endpoint in the study.

One risk with subjective endpoints like these, where the patients assess their own symptoms, using a questionnaire, is that the placebo response may be surprisingly high and might make it more challenging to see a significant effect in the study. To minimise the risk of a high placebo response, Abliva has designed the study so that each patient is their own control, and it has chosen a relatively long study period because the placebo effect tends to fade more rapidly than a potentially true effect. One example is the 48-week study with omaveloxolone, in which both study arms performed equally well in the first

12 weeks, before there was a clear separation between the curves and the placebo arm was above baseline after 48 weeks (Lynch, 2020).

The other primary endpoint, a change in the 30-second sit-to-stand test is designed to measure leg strength by measuring how many times the patient is able to get up from a chair in 30 seconds. In this, Abliva and KL1333 differ from the other projects in the PMD pipeline, which instead use a six-minute walking test as the endpoint in their pivotal studies. The rationale for Abliva to use the 30-second sit-to-stand test is that KL1333 is targeting a patient population with symptoms in several parts of the body, and the company believes this offers a more precise measure to consider muscle function in isolation and to reduce the impact of other variables on the results.

Interim analysis and full results

An interim analysis of the study will occur after up to 40 patients have been dosed for 6 months. Based on this analysis, a decision will be made whether to extend, close, or continue the study as planned. The purpose of this interim analysis is to potentially calibrate the study's statistical strength – to increase the likelihood of successfully demonstrating a statistically significant effect compared to placebo for the full range of studies.

The company expects the full results from the study to be available in 2025/2026.

Tentative timeline for the FALCON study

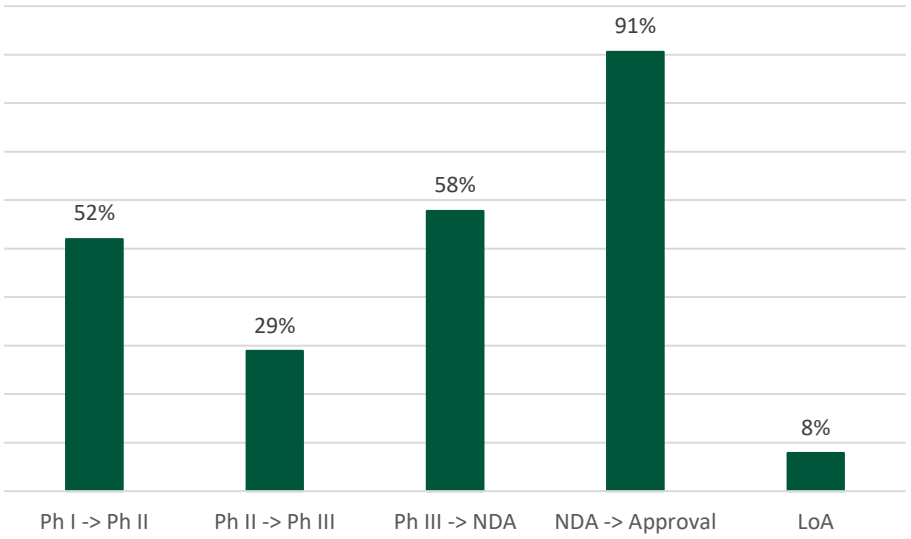
Source: EPB

Likelihood of reaching the market

In 2020, the largest study to date was published on the likelihood of a drug in the clinical phase reaching the market. The study included data from 7,455 different clinical programmes during 2006-2015 to investigate what the historical empirical data tells us about the probability of achieving regulatory approval (Bio, Biomedtracker, Amplion, 2020). When we study drugs aggregated across all disease areas, the likelihood of reaching the market from phase I has been around 8% (n=12,728).

We have used this data when estimating the likelihood of KL1333 succeeding in its studies and ultimately reaching the market.

Likelihood of approval (LoA) - all disease areas



Source: Bio, Informa, QLS, EPB

The likelihood can also be categorised by disease areas to distinguish between areas of relatively high risk and of lower risk. In terms of the mitochondrial diseases that KL1333 is targeting, there is not yet a sufficiently large data set from which to draw meaningful conclusions on how it differs from the aggregate level. We have thus chosen to use the statistics for all disease areas.

The route to market for Abliva and KL1333 looks slightly different as the drug candidate is being developed for a very rare disease and can thus enjoy a faster route to market. Practically speaking, for KL1333, this means the possibility of combining the phase II and phase III studies as a pivotal phase II study. While this is a unique opportunity for the company to reach the market more rapidly and at a lower cost, we believe it entails a greater development risk compared with a traditional late-stage project, since KL1333 enters its pivotal study with a thinner dataset.

We have chosen to apply a likelihood of 25% that the phase II/III study with KL1333 results in positive data that can form the basis for market application, which represents a higher risk than for a traditional phase III candidate but a lower risk than for a phase II candidate. We have then factored in the likelihood of regulatory success at 91% - in line with historical empirical data. Overall, this suggests an LoA (likelihood of approval) of 23% for KL1333 at the present stage.

Likelihood of KL1333 reaching the market (LoA)

	Pre-clinical -> Phase Ib	Phase Ib -> Phase II/III	Phase II/III -> NDA	NDA -> Approval	LoA
KL1333	100%	100%	25%	91%	23%

Source:
EPB

KL1333 – Market potential

Prevalence, diagnosis, and treated patients

Epidemiological data for prevalence and incidence of primary mitochondrial diseases is poor and, at the same time, difficult to assess since it involves multiple subgroups of various mutations. One study we found estimates the prevalence of adult patients with mitochondrial diseases at 9.6 for every 100,000 individuals (Gorman, 2015). This is equivalent to some 32,000 patients in the US and around 40,000 in the most relevant European markets. We note that Abliva has itself mentioned prevalence figures of around one in 5,000 for the total PMD-affected population, which implies a larger addressable patient population than we calculate.

It is also challenging to gauge the share of the patient population that is diagnosed and receiving treatment. In an investor presentation, Abliva has mentioned that its model assumes a 56% diagnosis rate and a 50% treatment rate, based on interviews with doctors in the field. However, we judge that these figures can be conservative, since there has been a clear increase in disease awareness in recent years, while widespread use of genetic testing has helped to facilitate diagnosis. Our analysis assumes a combined diagnosis and treatment rate of 50% for a potential launch in 2026, rising further when a first drug is authorised on the market.

Market penetration

Today, there are no approved drugs available for treatment of primary mitochondrial diseases. Abliva thus has the possibility to launch KL1333 as the first such drug on the market. There are two projects in phase III development in this field that could potentially reach the market before KL1333. It is naturally a challenge to determine at this stage, and with limited clinical data, how KL1333 compares to the other drug candidates in terms of efficacy and safety.

We have thus chosen as a reference a study that looked at a number of drug launches and their highest market shares in the US during their first four years after launch. Drugs launched as the second on the market had an average market share of 34%, while the third launched had 17%, and the fourth had 12%. The study has some limitations, however, such as the time period was limited until the fourth year on the market and that the study data consisted only of drugs that underwent a "standard review" and did not represent a significant improvement over the standard of care at the time.

We have chosen to adopt a scenario in which KL1333 reaches the market as the second drug and we model a market penetration of 30% in the US in the patient population in which the phase II/III study is being carried out. In Europe, which is typically a more fragmented healthcare market than the US and harder to determine, we assume a market penetration of 20%.

Compliance with treatment is likely to be particularly high. Mitochondrial diseases have many serious symptoms and patients are crying out for treatment alternatives to improve their quality of life. We have modelled treatment compliance at 95%.

Pricing

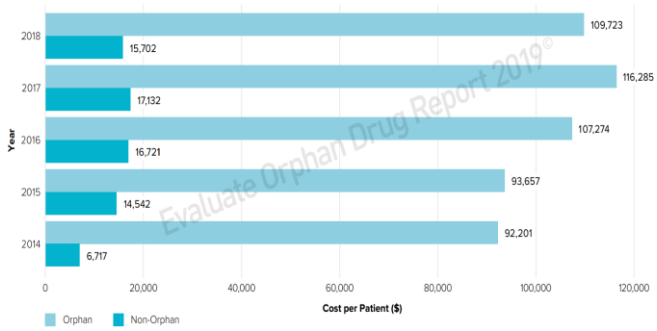
Our pricing estimate for KL1333 considers two different factors: 1) pricing of orphan drugs, and 2) pricing of reference products. We have assumed a net price of USD 120,000 in the US and USD 100,000 in Europe.

1) Orphan drugs

In 2018, the most recent data point we have found, median pricing for orphan drugs in the US was around USD 110,000. We believe that prices for orphan drugs will continue to rise, but not at the same pace as before, as the field has now grown to account for more than 15% of all prescription drug sales. We anticipate that willingness to pay for orphan drugs will diminish as they come to represent an increasing share of total healthcare expenditure. We have thus chosen a conservative stance and assume no price increases for KL1333 during our forecast period.

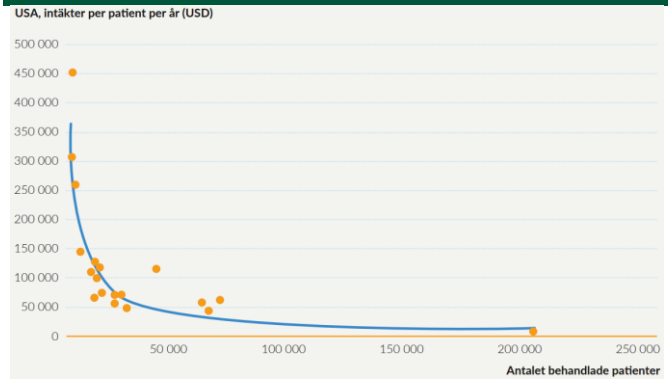
When it comes to orphan drugs, there is a clear inverse correlation between pricing and prevalence. This relationship is illustrated in the graph below right, showing that the rarer a disease is, the more expensive the treatment tends to be. Our view is that KL1333 can, given the low prevalence rate for primary mitochondrial diseases, be priced higher than the median orphan drug price in the US.

Pricing, orphan drugs in the US



Source: Evaluate Pharma, EPB

Inverse correlation between price and prevalence



Source: Calliditas Therapeutics, EPB

2) Reference products

In our search for potential price equivalents for KL1333, we have focused on drugs for sale in all disease areas except oncology. Taking Evaluate Pharma's database of orphan drugs as a starting point, we have separated out the number of patients treated in the US in 2021. We have chosen to look at drugs treating a largely similar number of patients to what KL1333 should be able to treat in the US when the drug reaches a more advanced phase. Given the inverse correlation between pricing and prevalence, we believe KL1333 should be priced in line with this sampling of drugs.

In this sample, the average price for the drugs is around USD 130,000 per year, while the median price is about USD 80,000 a year. We have chosen to adopt a net price of USD 120,000 in the US. Drugs prices in Europe are generally lower than in the US, but the difference is typically narrower for orphan drugs. We have assumed a price for KL1333 in Europe of USD 100,000.

Reference products for KL1333

Product	Indication	Patients treated (2021)	Price (2021)
Soliris	PNH, aHUS, etc.	7801	166492
Trikafta	Cystic fibrosis	14183	311506
Remodulin	PAH	5012	68600
Crysvita	XLH	7191	70171
Uptravi	PAH	18218	67091
Prevymis	CMV	8684	88604
	Average	**10182**	**128744**
	Median	**8243**	**79388**

Source: Evaluate, EPB

In conclusion

Given all these assumptions, we have estimated the global sales potential for KL1333 for primary mitochondrial diseases at USD ~850m. Below, we provide a sensitivity analysis of the peak sales for KL1333 in the US/EU with regards to different variables for net pricing and market penetration.

Sensitivity analysis for peak sales (US)

		Market penetration				
		10%	20%	30%	40%	50%
	75 000	117	233	350	467	584
	100 000	156	311	467	623	778
Net price	120 000	187	374	**560**	747	934
	150 000	233	467	700	934	1167
	200 000	311	623	934	1245	1557

Source: EPB

Sensitivity analysis for peak sales (EU)

		Market penetration				
		5%	10%	20%	30%	40%
	25 000	26	53	106	158	211
	50 000	53	106	211	317	422
Net price	75 000	79	158	**317**	475	633
	100 000	106	211	422	633	844
	150 000	158	317	633	950	1266

Source: EPB

Sales model for KL1333 for primary mitochondrial diseases

		2026	2027	2028	2029	2030	2031	2032	2033
US									
Prevalence, mtDNA PMD		32612	32775	32939	33104	33269	33436	33603	33771
Growth	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Diagnosed and treated patients	50%	54%	55%	56%	57%	59%	60%	61%	62%
Number of diagnosed and treated patients		17650	18093	18547	19013	19490	19979	20481	20995
Share of patients with chronic tiredness	80%	80%	80%	80%	80%	80%	80%	80%	80%
Number of patients with chronic tiredness		14120	14475	14838	15210	15592	15983	16385	16796
Launch curve		0.01	0.15	0.37	0.67	0.86	0.95	1.00	1.00
Market penetration	30%	0%	5%	11%	20%	26%	29%	30%	30%
Number of treated patients		42	651	1647	3057	4023	4555	4915	5039
Net price (USD)	120000	120000	120000	120000	120000	120000	120000	120000	120000
Treatment compliance	95%	95%	95%	95%	95%	95%	95%	95%	95%
Sales (USDm)		**5**	**74**	**188**	**349**	**459**	**519**	**560**	**574**
Europe									
Prevalence, mtDNA PMD		40036	40236	40437	40639	40842	41047	41252	41458
Growth	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Diagnosed and treated patients	50%	54%	55%	56%	57%	59%	60%	61%	62%
Number of diagnosed and treated patients		21668	22212	22769	23341	23927	24527	25143	25774
Share of patients with chronic tiredness	80%	80%	80%	80%	80%	80%	80%	80%	80%
Number of patients with chronic tiredness		17334	17769	18215	18673	19141	19622	20114	20619
Launch curve			0.02	0.12	0.28	0.47	0.68	0.82	0.92
Market penetration	20%		0%	2%	6%	9%	14%	16%	18%
Number of treated patients			71	437	1046	1799	2669	3299	3794
Net price (USD)	75000		75000	75000	75000	75000	75000	75000	75000
Treatment compliance	95%		95%	95%	95%	95%	95%	95%	95%
Sales (USDm)			**5**	**31**	**75**	**128**	**190**	**235**	**270**
Global sales (USDm)		**5**	**79**	**219**	**423**	**587**	**709**	**795**	**845**

Source: EPB

Competitors

Historically, it has been challenging to conduct clinical trials in mitochondrial diseases owing to the diseases' heterogeneity and the lack of well-defined and relevant endpoints for clinical studies. Several studies have been carried out in this field, but we have yet to see a real success story. Below, we run through some of the clinical pipeline for primary mitochondrial diseases. Unlike KL1333, all the other projects concentrate on treating mitochondrial disease patients for whom muscle function is the main expression of the disease.

Elamipretide – Stealth Biotherapeutics

Stealth Therapeutics is a US company developing the small molecule elamipretide for treatment of mitochondrial myopathies (primary mitochondrial diseases mainly affecting the muscles). The company undertook a randomised, double-blinded, placebo-controlled phase III study (MMPOWER-3) that included 218 patients who were treated for 24 weeks, after which efficacy was evaluated in the form of the six-minute walking test and a questionnaire on perceived fatigue.

At the end of 2019, Stealth Therapeutics announced the study had failed to reach its primary endpoint and had not demonstrated any significant difference in effect between the treatment and placebo groups. We believe several factors played a role in this lack of results.

There was no clear biological rationale beforehand as to which patients would be most likely to respond to treatment with elamipretide, which led to the company using particularly broad inclusion criteria for the study. This led to the inclusion of a relatively heterogeneous study population. In the subgroup analyses carried out when the full dataset was available, the company was able to discern a stronger treatment effect in a specific patient group, which we believe indicates inconsistent results across the patient population. Large variations in treatment response among patients typically make it hard to prove a statistically significant improvement versus placebo. Moreover, we believe the primary endpoints chosen for the study were not the most accurate for evaluating treatment efficacy in mitochondrial diseases.

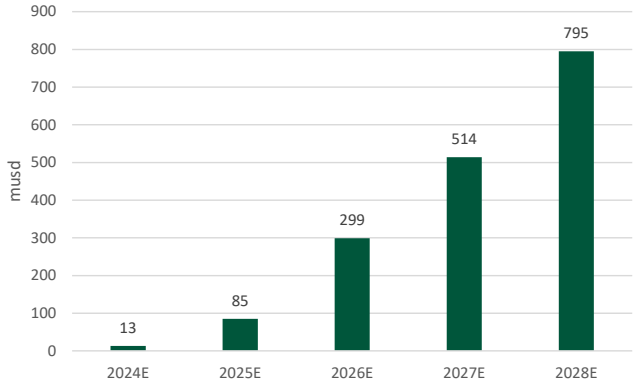
Having analysed the dataset, Stealth Therapeutics has opted for a new prospective, placebo-controlled phase III study with elamipretide that includes a more limited group of patients (who responded better to treatment). The primary endpoint in the study is a six-minute walking test evaluated at different time periods, up to 52 weeks. The study will include 130 patients, and the aim is to present the first data during 2024.

REN0111 – Reneo Pharmaceuticals

REN0111 is a small molecule developed by Reneo Pharmaceuticals targeting PPARδ – a group of receptors involved in a later stage of the cascade in mitochondrial diseases. Reneo is currently undertaking two clinical studies with REN0111 in patients with mitochondrial myopathy. One is a phase II study of 200 patients that aims to demonstrate a treatment effect using the 12-minute walking test. The company expects top-line data from the study to read out during H2 2023. The other study will include 80 patients and focuses on the long-term safety and tolerability profile. It includes patients who have taken part in earlier studies with REN0111. Results from this are expected in 2025.

The FDA and EMA have both given the go-ahead for the phase II study to potentially be pivotal and REN0111 could thus be the first drug out on the market, given positive data. According to Evaluate Pharma, the consensus is that REN0111 will see sales of almost USD 800m in 2028.

Estimated sales in PMD, REN0111 (USDm)



Source: Evaluate Pharma, EPB

ASP0367 – Astellas Pharma

Like REN0111, ASP0367 is a small molecule targeting PPARδ. Astellas is currently conducting a placebo-controlled phase II/III study with 195 patients with mitochondrial myopathy. The study has several primary endpoints, including safety parameters and the six-minute walking test. We believe the first data from this study can come in 2024.

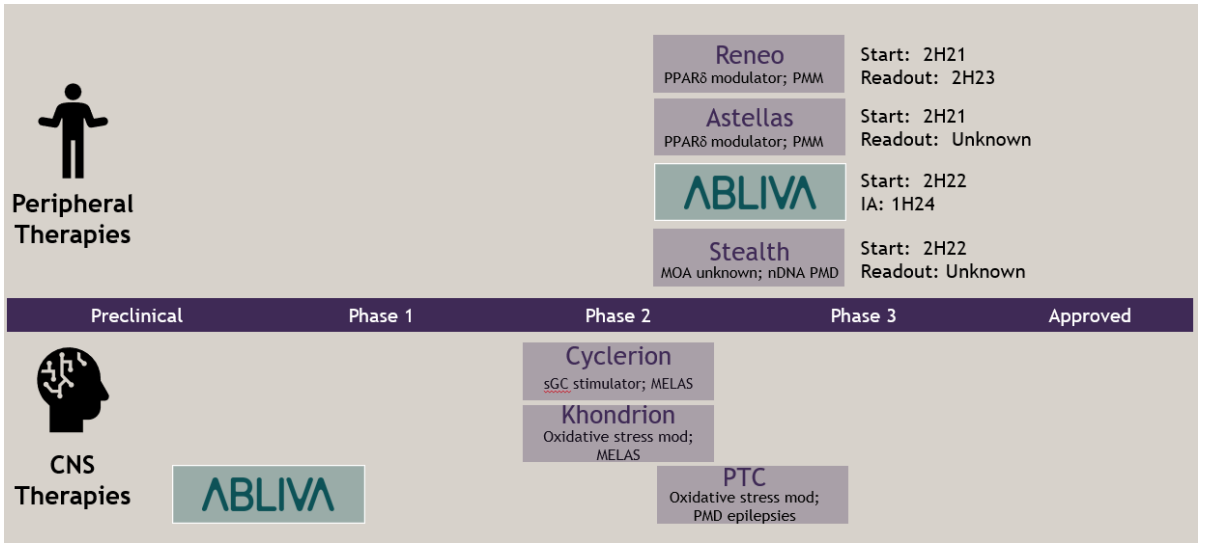
As far as we can see, no previous study has been carried out with ASP0367 specifically in patients with mitochondrial diseases, which implies a relatively high-risk level in the study. Data from pre-clinical models has been promising and the safety profile in healthy volunteers is good.

ASP0367 originates from Mitobridge, which was acquired by Astellas in 2017 for USD 450m. ASP0367 is also being studied as a potential treatment for the rare Duchenne muscular dystrophy (DMD).

Other competitors

Beyond these three competitors, we can see some other projects focusing on treatment of those aspects of mitochondrial diseases that affect the brain and cause neurological damage. The diagram below shows what we consider the most important projects in the pipeline targeting mitochondrial diseases.

Clinical pipeline for primary mitochondrial diseases



Source: Company, EPB

NV354 – treatment of Leigh syndrome

NV354 and Leigh syndrome

Unlike KL1333, which is in-licensed from another company, NV354 stems from Abliva's own research. NV354 is an early-stage drug intended to treat Leigh syndrome.

Leigh syndrome is a very aggressive mitochondrial disease that typically begins before the age of two. Many of the children who fall ill die before the age of five of respiratory or cardiac failure. The most common symptoms are muscular weakness, difficultly in swallowing, vomiting, and breathing and eye problems. There are no approved drugs for the disease and current treatment focuses simply on alleviating the symptoms.

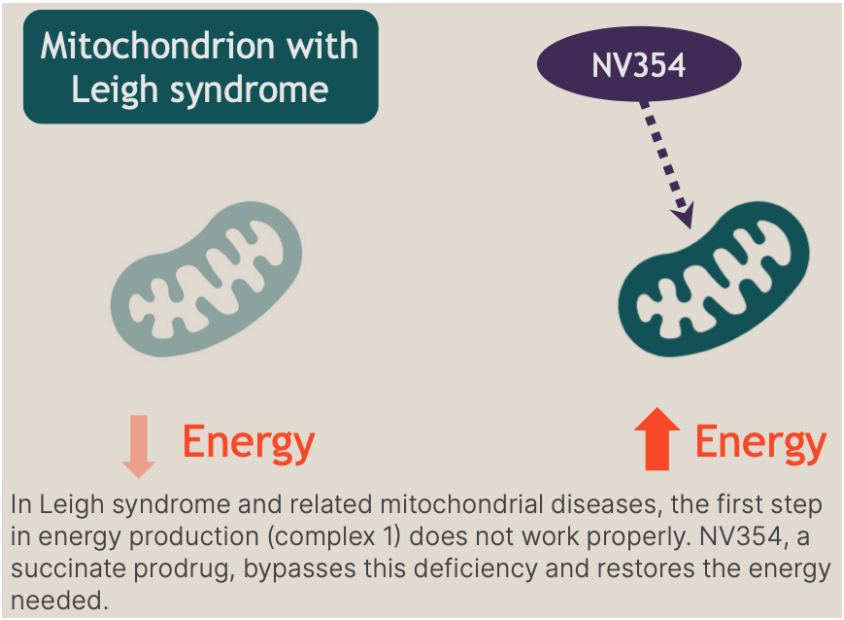
The estimated prevalence of Leigh syndrome is relatively scattered and varies between studies. Most studies suggest an interval of 5,000–10,000 patients in the US, and we believe there are about the same number in Europe (Orpha.net).

Mechanism of action

NV354 is a pro-drug, which means it is only activated when it enters the body. Its mechanism of action is, like KL1333, to increase the mitochondria's energy production, but in a different manner.

There are five protein complexes in the mitochondria that together generate energy. A typical cause of mitochondrial diseases, including Leigh syndrome, is that protein complex 1 does not work as it should. NV354 delivers the body's own energy substrate succinate, to the cell, increasing the activity in protein complexes 2, 3, 4, and 5. The hope is that the increased activity in these other protein complexes helps to compensate for the dysfunctional complex 1.

NV354 – mode of action



Source: Company

NV354 has completed the pre-clinical phase, and the company expects the project to advance towards clinical studies this year. Pre-clinical data for the candidate has been promising and shown an improvement in several disease parameters, including encephalitis, motor activity, and weight gain.

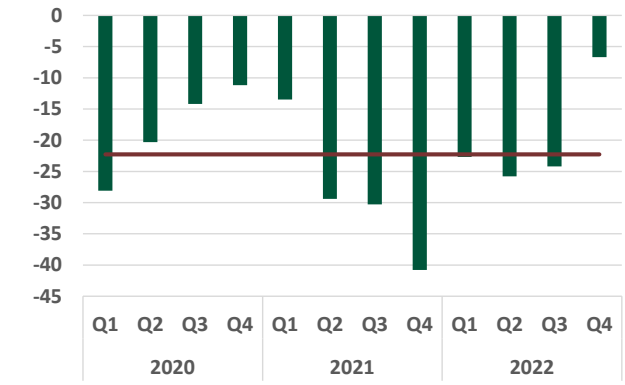
We have chosen not to calculate the fair value for NV354 just yet because of its early stage. We will return to this once the project advances to the clinic and we have better insight into its future clinical programme.

Financial overview

Abliva ended 2022 with stable finances and a cash position of SEK 145m. Operating cash flows have varied historically between the quarters, depending on whether the company has been undertaking active studies or not. Quarterly operating cash flows have averaged SEK -22m since 2020. We expect costs to rise in 2023 as the company begins activating clinical sites and recruiting patients to its pivotal phase II study with KL1333.

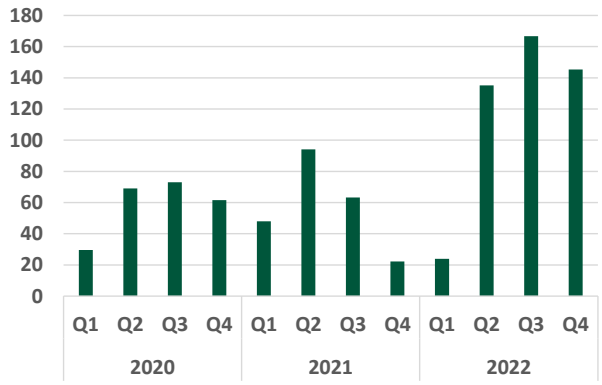
The company states that its current cash position is sufficient to finance it until interim data from this study can be presented. We believe this could be by the end of 2023, but more likely in early 2024. We model an issue of SEK 200m being undertaken in H1 2024.

Operating cash flows, quarterly (SEKm)



Source: Company, EPB

Cash + short-term investments, quarterly (SEKm)



Source: Company, EPB

The table below shows the company's capital raises in recent years. In our view, Abliva has been successful in raising capital from the stock market, especially compared with other companies in this sector. It is not unusual for early-stage biotech companies to take in money on bad terms (heavily discounted rights issues) as they lack well-capitalised owners.

During 2020, Abliva successfully attracted institutional capital through a directed issue to Hadean Ventures, a European specialist investor. Hadean has continued to support the company in subsequent capital raises and is now the largest shareholder with a holding of just over 22%. The table below shows that Abliva has successfully taken in capital at a much lower discount since 2020, when Hadean became a shareholder, which shows the importance of a good shareholder list for a small biotech company.

We expect Abliva to continue taking in capital in shareholder-friendly ways, provided, of course, the business continues to develop in a positive direction.

Issues carried out in recent years

Year	Type	Total (SEKm)*	Discount**
2022	Rights issue	51	10%
2022	Directed issue	150	10%
2021	Directed issue (convertibles)	26	n/a
2021	Directed issue	80	1%
2020	Directed issue	20	5%
2020	Rights issue	67	34%
2019	Directed issue	28	5%
2019	Rights issue	99	44%

Source: Company, EPB

*Gross proceeds

**Versus previous day's closing price

Valuation

Rating

In this analysis, we assign no fair value to the Abliva share. Instead, we use a rating to assess the company based on four key areas - potential, financial position, risk, and history and track record.

- **Potential (5/5 points)**

Today, there are no approved drugs for primary mitochondrial diseases. We judge the first drug to reach the market will hold considerable potential to be a blockbuster with annual sales exceeding USD 1bn. Abliva's KL1333 is one of four drug candidates in development phase and thus has the potential, given positive data, to take a significant share of the market.

- **Risk (5/5 points)**

An investment in Abliva is associated with very high risk. The outcome of the ongoing phase II/III study with KL1333 is crucial to the company's future and if it were to fail to demonstrate a treatment effect, the downside in the share could be enormous.

- **Financial position (3/5 points)**

Abliva's cash position at the end of 2022 was SEK 145m. In line with company guidance, we believe its cash chest will be sufficient to finance the business until the interim data from the phase II/III study is presented (likely H1 2024). Abliva has a financially robust shareholder list and has managed to raise money from the equity market on favourable terms in recent years.

- **History and track record (3/5 points)**

Abliva is run by a good management team with relevant industry experience. CEO Ellen Donnelly has a long history with both large pharma companies and smaller Swedish biotechs.

Valuation rationale

Despite not assigning a fair value to Abliva, we want to highlight how the share could be valued based on different valuation methodologies. We use two methods here: 1) DCF model, and 2) peer valuation. We also present some of the transactions regarding mitochondrial diseases in recent years.

DCF valuation

In our DCF analysis, we have started from some key assumptions and then made a sensitivity analysis in which we have tweaked certain parameters to envisage how these changes would affect the company's valuation. The parameters we have chosen are those with the greatest potential impact on valuation: peak sales for KL1333 and required return (WACC). As we can see, expectations are relatively modest at the current price level.

Key assumptions			
USD/SEK	10,50	KL1333: US market exclusivity	2033
Number of shares (m)	1056	KL1333: EU market exclusivity	2036
KL1333: launch year	2026	KL1333: number of years to peak sales	7
KL1333: likelihood of approval	23%	Abliva's share of sales	30%
KL1333: Royalties to Yungjin Pharm	10%		

Source: EPB

Sensitivity analysis, share price (risk-adjusted)

		WACC						
		22%	20%	18%	16%	14%	12%	10%
Peak sales (USDm)	100	0.03	0.03	0.04	0.05	0.06	0.07	0.09
	400	0.21	0.24	0.28	0.33	0.39	0.46	0.55
	700	0.39	0.45	0.53	0.61	0.72	0.85	1.00
	1 000	0.57	0.66	0.77	0.90	1.05	1.23	1.46
	1 300	0.76	0.87	1.01	1.18	1.38	1.63	1.93
	1 700	1.00	1.15	1.34	1.56	1.83	2.15	2.54
	2 000	1.18	1.36	1.58	1.84	2.16	2.54	3.01

Source: EPB

In the table below, we assume a 100% probability that KL1333 will reach the market. This illustrates the scenario for the share's possible valuation if all of the development risk in the company were to be eliminated.

Sensitivity analysis, share price (non-risk-adjusted)

		WACC						
		22%	20%	18%	16%	14%	12%	10%
Peak sales (USDm)	100	0.13	0.16	0.19	0.24	0.29	0.35	0.44
	400	0.93	1.08	1.26	1.48	1.74	2.06	2.44
	700	1.73	2.01	2.34	2.73	3.20	3.77	4.46
	1 000	2.54	2.94	3.41	3.98	4.66	5.49	6.48
	1 300	3.34	3.86	4.48	5.22	6.11	7.19	8.49
	1 700	4.41	5.10	5.91	6.89	8.06	9.47	11.18
	2 000	5.20	6.02	7.00	8.16	9.56	11.26	13..31

Source: EPB

Peer valuation

Looking at other Swedish peers also conducting pivotal studies, we see much higher valuations than Abliva. We do believe some discount is justified as several of the projects below are a year or so closer to the market and the drug candidates have generated more clinical data so far. However, we believe that the valuation gap between Abliva and these companies supports our view that the stock market has very low expectations for Abliva at the current share price.

Selection of Swedish phase III companies (SEKm)**

Company	Market capitalisation	Net cash position*	EV
Ascelia Pharma	560	-150	410
Egetis Therapeutics	1260	-324	936
Diamyd Medical	1130	-131	999
Infant Bacterial Therapeutics	530	-368	162
Mean	870	-243	627
Median	845	-237	673
Abliva	**280**	**145**	**135**

Source: Company reports, EPB

**Latest quarterly report, adjusted for possible issuance*

***At the day of the Swedish initiation report release (March 24th)*

Licensing deals and acquisitions in the field of mitochondrial diseases (USDm)					
Company	**Focus area**	**Upfront**	**Deal value**	**Royalties**	**Details**
Astellas -> Mitobridge	Mitochondrial diseases	225	450	N/A	At the time of the deal, Mitobridge had a number of promising early-stage candidates for genetic, metabolic, and neurodegenerative diseases with its drug discovery platform.
Zogenix -> Modis	Rare genetic diseases	250	400	5%	Modis's leading candidate, MT1621, had presented promising phase II data (n=68) in patients with Thymidine Kinase 2 deficiency, a mitochondrial disease, at the time of the deal.
PTC -> BioElectron	Metabolic and mitochondrial diseases	10	200	N/A	PTC acquired all the assets in BioElectron, of which the leading candidate was EPI-743 for the treatment of metabolic and mitochondrial diseases.

Source: Company press releases, EPB

Risks

Investing in a biotech company can be especially profitable, but there are also certain risks to be aware of. Here, we list some of the most prominent to consider when investing in biotech.

Clinical trials

Clinical trials can take several years to complete, and there is always a risk that the product does not work as expected or that side effects appear. This can force the company to terminate the study and thus lose much of the investors' money.

Financing

Biotech companies often require large amounts of capital to finance R&D, which can leave them particularly vulnerable to stock market and economic volatility.

Intellectual property

Biotech companies are dependent on protecting their patents and technology to compete in the industry. It would likely have a negative impact on a company's sales should a competitor successfully copy its technology.

Management, board of directors, and owners

Owners

Abliva's largest shareholder is life science investor Hadean Ventures, which holds 22.44% of the capital and votes. The next largest is Oslo Pensjonsforsikring AS with 14.88%. The third-largest owner is investment firm IP Group Plc with a 9.42% holding. After that come Avanza Pension (3.62% of capital and votes) and Christen Sveaas (2.70%).

Board of directors

The current board of directors in Abliva comprises 1+5 ordinary board members, as presented below.

David Laskow-Pooley – chair of the board

Chair of the board since 2017 (elected in 2016). Other board assignments include board member at Marker Therapeutics Inc, Pharmafor Ltd, and LREsystem Ltd, as well as chair of the board at OSPT Ltd.

Roger Franklin – board member

Board member since 2020. Other activities include being a partner at Hadean Ventures and on the board at Gesynta Pharma AB, Crosslanes Holding AB, and TargED Biopharmaceuticals B.V.

Denise Goode – board member

Board member since 2018. Other activity includes as board member and CEO of QED Life Sciences Limited, as board member at Alligator Bioscience, and as VP Business Development at AnaMar AB.

Jan Törnell – board member

Board member since 2017. Other ongoing assignments include CEO and board member at Innoext AB. Chair of the boards at LIDDS AB, Isofol Medical AB, and Glactone Pharma AB. Board deputy at LIDDS Pharma AB.

David Bejker – board member

Board member since 2017. Other activities include being a board member at LIDDS AB and Amylonix AB, and as CEO of Affibody Medical AB.

Edwin Moses – board member

Board member since 2023. Additional activities include being chair of the boards of Achilles Therapeutics, Avantium, and LabGenius.

Management

Ellen K. Donnelly – CEO

Ellen has held management positions at both large and small pharma/biotech companies, including as CEO of Modus Therapeutics AB (Sweden), CEO of Souvien Therapeutics (US), and CEO of the Epigenetics Division at Juvenescence (UK). She spent almost a decade at Pfizer, Inc. (US) in several management roles. She has a PhD in pharmacology from Yale University. Ellen currently owns 374,652 shares in Abliva.

Catharina Jz. Johansson – Deputy CEO, CFO, and VP Investor Relations

Catharine has experience with growth companies in medical technology with international operations. She has a degree in economics from Mittuniversitetet (Mid Sweden University) and has, among other roles, previously worked as acting CFO for the medical device company Cellavision. Catharina currently owns 314,994 shares in Abliva.

Eskil Elmér – CSO

Eskil is the Head of Research at Abliva and thus has overall responsibility for research. He also works as a researcher and associate professor at Wallenberg Neuroscience Center in Lund, Department of Clinical Neurophysiology, and as a doctor at the neurophysiology clinic at Skånes universitetssjukhus (Skåne University Hospital) in Lund. Eskil is one of the founders of Abliva and was previously its CEO. He currently owns 735,155 shares and holds 16.2% of Maas Biolab, LLC, which has a 2.1% ownership of Abliva.

Magnus Hansson – CMO, VP Preclinical & Clinical Development

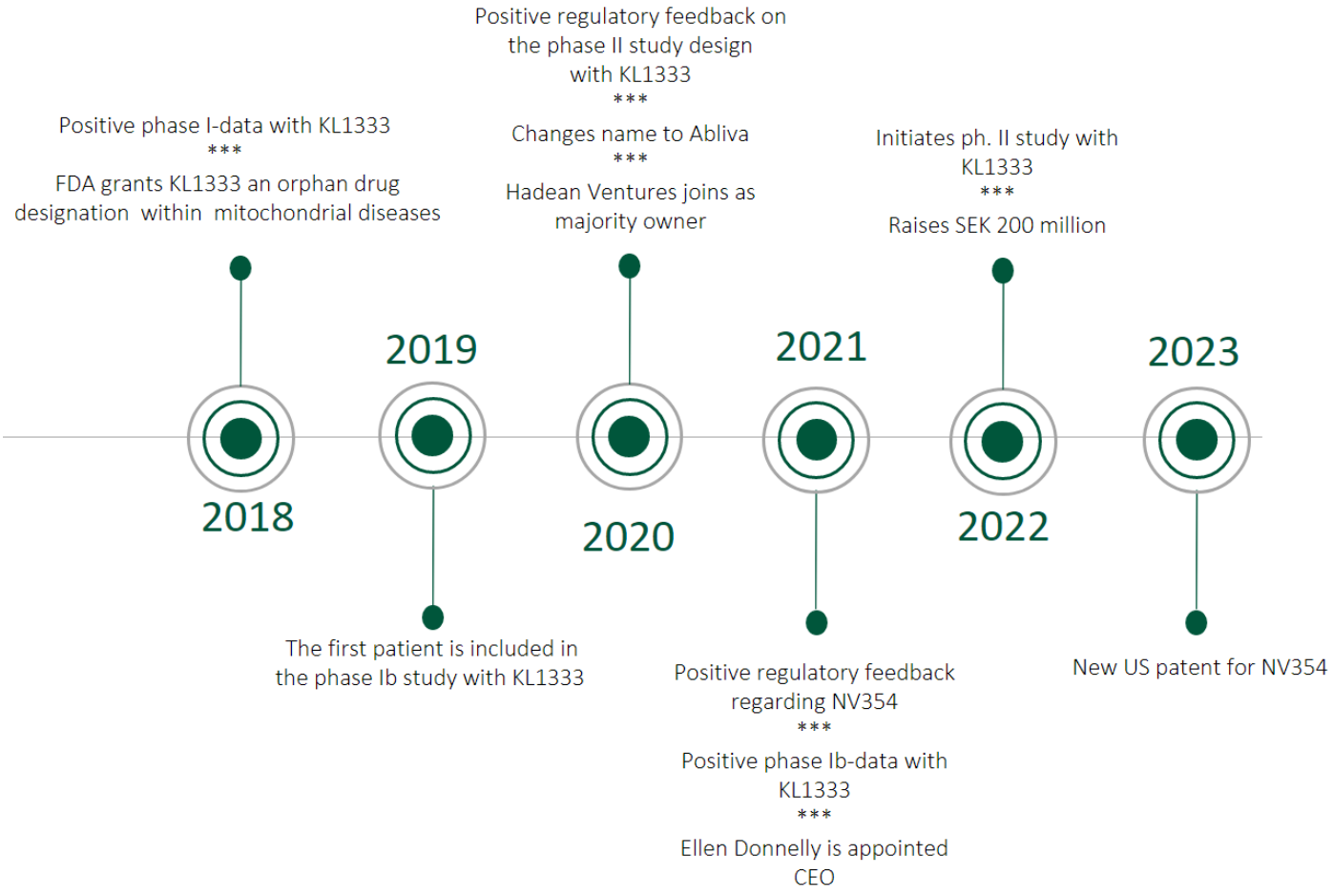
Magnus has extensive experience in mitochondrial medicine. He has overall responsibility for Abliva's pre-clinical and clinical development programmes. Magnus holds a PhD in experimental brain research at Lund University and has authored more than 30 scientific papers and ten patent applications. Magnus currently owns 837,855 shares in Abliva.

Dag Nesse – VP Clinical Operations

Dag has extensive experience of clinical operational activities at all stages of development, including leadership from pivotal studies to study data readouts, market authorisation, and launch. Before moving to Abliva, he was responsible for Clinical Operations at EpiEndo. He has previously been Head of Clinical Operations at Calliditas Therapeutics AB and before that was Head of Clinical Operations at Modus Therapeutics AB. Dag currently owns 21,650 shares in Abliva.

Historical timeline and key events

Historical timeline



Source: PR, EPB

Appendix 1: Standard questionnaire on fatigue

Fatigue – Short Form 10a

Fatigue – Short Form 10a (FACIT-Fatigue-10)

Please respond to each question or statement by marking one box per row.

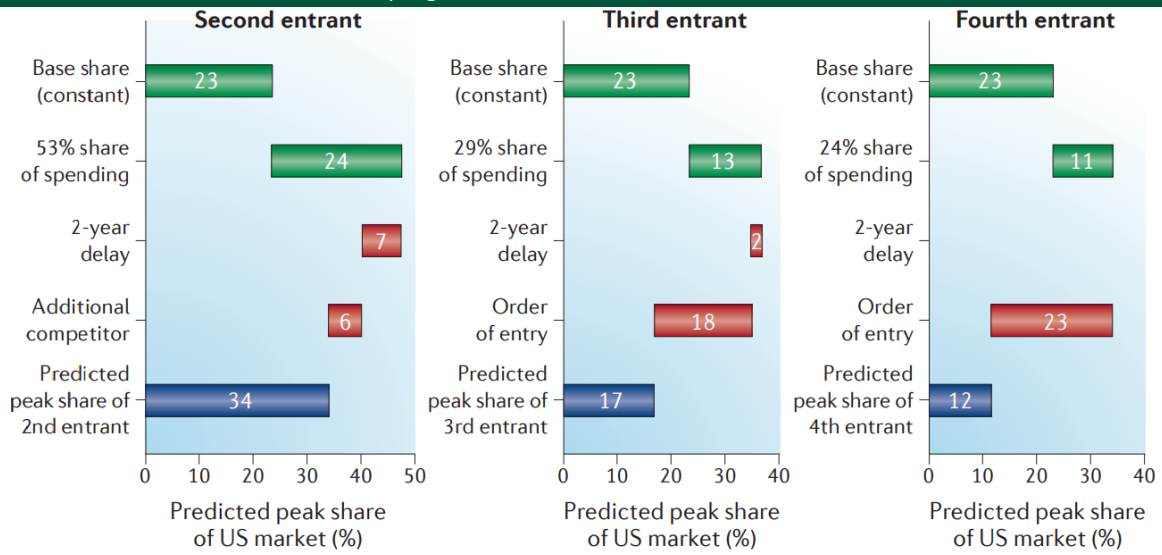
During the past 7 days…

		Not at all	A little bit	Somewhat	Quite a bit	Very much
HI7	I feel fatigued	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
AN2	I feel tired	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
AN3	I have trouble starting things because I am tired	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
AN4	I have trouble finishing things because I am tired	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
AN5	I have energy	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
AN7	I am able to do my usual activities.....	☐ 5	☐ 4	☐ 3	☐ 2	☐ 1
AN8	I need to sleep during the day	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
AN14	I need help doing my usual activities.....	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
AN15	I am frustrated by being too tired to do the things I want to do.....	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
AN16	I have to limit my social activity because I am tired	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Source: Facit.org

Appendix 2: Expected market share in terms of launch programme

Expected market share in terms of launch programme



Source: Regnier 2014, EPB

Income statement

	2020	2021	2022	2023e	2024e	2025e
Other operating income	2	0	2	0	0	0
Total revenus	**2**	**0**	**2**	**0**	**0**	**0**
Gross profit	**2**	**0**	**2**	**0**	**0**	**0**
Other Operating Expenses	-59	-121	-82	-121	-139	-154
EBITDA	**-58**	**-121**	**-81**	**-121**	**-139**	**-154**
EBITDA, adjusted	**-58**	**-121**	**-81**	**-121**	**-139**	**-154**
EBITA, adjusted	**-58**	**-121**	**-81**	**-121**	**-139**	**-154**
EBIT	**-60**	**-123**	**-83**	**-124**	**-142**	**-157**
EBIT, adjusted	**-60**	**-123**	**-83**	**-124**	**-142**	**-157**
Net Financial Items	0	0	-2	-2	-2	-3
Profit before tax	**-60**	**-123**	**-85**	**-126**	**-144**	**-160**
Profit before tax, adjusted	**-60**	**-123**	**-85**	**-126**	**-144**	**-160**
Net income	**-60**	**-123**	**-85**	**-126**	**-144**	**-160**
Net income, adjusted	**-60**	**-123**	**-85**	**-126**	**-144**	**-160**
Sales Growth	-	*-92%*	*>100%*	*N.m.*	*N.m.*	*N.m.*
Gross Margin	*>100%*	*100,0%*	*>100%*	*Neg.*	*Neg.*	*Neg.*
EBIT Margin, Adjusted	*Neg.*	*Neg.*	*Neg.*	*Neg.*	*Neg.*	*Neg.*
EPS, Adjusted	*-0,24*	*-0,33*	*-0,08*	*-0,12*	*-0,14*	*-0,15*
EPS Growth, Adjusted	-	*N.m.*	*N.m.*	*N.m.*	*N.m.*	*N.m.*

Source: Abliva, EPB

Cash flow statement

	2020	2021	2022	2023e	2024e	2025e
EBIT	-60	-123	-83	-124	-142	-157
Other Cash flow Items	3	3	3	1	1	0
Changes in working capital	-10	6	-80	1	2	4
Cash flow from operating activities	**-68**	**-114**	**-161**	**-122**	**-139**	**-153**
Investments in intangible fixed assets	-1	-1	-1	-1	-1	-1
Cash Flow From Investments	**-1**	**-1**	**-1**	**-1**	**-1**	**-1**
Free cash flow	**-69**	**-116**	**-162**	**-123**	**-140**	**-154**
New share issue / repurchase	73	76	180	0	200	200
Change in liabilities	0	0	24	0	0	0
Cash flow from financing	**72**	**76**	**204**	**0**	**200**	**200**
Cash flow	**3**	**-40**	**43**	**-123**	**60**	**46**
Net debt	**-62**	**-22**	**-145**	**-23**	**-83**	**-129**

Source: Abliva, EPB

Balance sheet

	2020	2021	2022	2023e	2024e	2025e
ASSETS						
Other intangible assets	22	22	20	20	19	19
Tangible fixed assets	0	0	1	1	1	1
Financial assets	13	13	13	13	13	13
Total fixed assets	**36**	**35**	**34**	**34**	**33**	**33**
Other current assets	2	2	4	4	5	6
Cash and cash equivalents	62	22	145	23	83	129
Total current assets	**63**	**24**	**150**	**27**	**88**	**135**
TOTAL ASSETS	**99**	**59**	**184**	**61**	**121**	**168**
EQUITY AND LIABILITIES						
Equity	89	42	164	38	94	134
Total equity	**89**	**42**	**164**	**38**	**94**	**134**
Other long-term liabilities	0	0	1	3	4	6
Total long-term liabilities	**0**	**0**	**1**	**3**	**4**	**6**
Accounts payable	4	10	5	7	8	11
Other current liabilities	6	8	14	13	15	17
Total current liabilities	**10**	**17**	**19**	**20**	**23**	**28**
TOTAL EQUITY AND LIABILITIES	**99**	**59**	**184**	**61**	**121**	**168**

Source: Abliva, EPB

Growth and margins

	2020	2021	2022	2023e	2024e	2025e
Revenue growth	-	-92%	>100%	N.m.	N.m.	N.m.
EBITDA growth, adjusted	-	N.m.	N.m.	N.m.	N.m.	N.m.
EBIT growth, adjusted	-	N.m.	N.m.	N.m.	N.m.	N.m.
EPS growth, adjusted	-	N.m.	N.m.	N.m.	N.m.	N.m.
Gross margin	>100%	100,0%	>100%	Neg.	Neg.	Neg.
EBITDA margin	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
EBITDA margin, adjusted	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
EBIT margin	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
EBIT margin, adjusted	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
Profit margin, adjusted	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.

Source: Abliva, EPB

Return

	2020	2021	2022	2023e	2024e	2025e
ROE, adjusted	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
ROCE, adjusted	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
ROIC, adjusted	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.

Source: Abliva, EPB

Capital efficiency

	2020	2021	2022	2023e	2024e	2025e
Total short-term liabilities / total cost	17%	14%	23%	17%	17%	18%
Working capital / total revenue	-466%	-10248%	-832%	-	-	-

Source: Abliva, EPB

Financial position

	2020	2021	2022	2023e	2024e	2025e
Net debt	-62	-22	-145	-23	-83	-129
Equity ratio	90%	70%	89%	63%	78%	80%
Net debt / equity	-0,7x	-0,5x	-0,9x	-0,6x	-0,9x	-1,0x
Net debt / EBITDA	1,1x	0,2x	1,8x	0,2x	0,6x	0,8x

Source: Abliva, EPB

Per share data

	2020	2021	2022	2023e	2024e	2025e
EPS	-0,24	-0,33	-0,08	-0,12	-0,14	-0,15
EPS, adjusted	-0,24	-0,33	-0,08	-0,12	-0,14	-0,15
FCF per share	-0,28	-0,31	-0,15	-0,12	-0,13	-0,15
Dividend per share	0,00	0,00	0,00	0,00	0,00	0,00
Book value per share	0,35	0,11	0,16	0,04	0,09	0,13
Number of shares, m	250	370	1 056	1 056	1 056	1 056
Number of shares after dilution, average	250	370	1 056	1 056	1 056	1 056

Source: Abliva, EPB

Valuation

	2020	2021	2022	2023e	2024e	2025e
P/E, adjusted	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
P/BV	2,1x	5,2x	1,2x	6,3x	2,6x	1,8x
P/FCF	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
FCF-yield	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
Dividend yield	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Payout ratio, adjusted	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
EV/Sales	67,2x	1 281,3x	25,0x	Neg.	Neg.	Neg.
EV/EBITDA, adjusted	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
EV/EBIT, adjusted	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
EV	125	193	44	240	240	240
Share price, year end	0,7	0,6	0,2	0,2	0,2	0,2

Source: Abliva, EPB

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