Vital Therapies

VTL : NASDAQ : US$12.50

BUY

Target: US$20.00

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COMPANY STATISTICS:

Market Cap (M):	US$264
52-week Range:	10.66 - 13.00
Avg. Daily Vol. (000s):	138.3

EARNINGS SUMMARY:

FYE Dec		2013A	2014E	2015E
P/E:		NM	NM	NM
Revenue (M):	Q1	0.0	0.0	0.0
	Q2	0.0	0.0	0.0
	Q3	0.0	0.0	0.0
	Q4	0.0	0.0	0.0
Total		0.0	0.0	0.0
EPS:	Q1	(0.49)	(0.48)	(0.51)
	Q2	(0.34)	(0.50)	(0.53)
	Q3	(0.43)	(0.53)	(0.56)
	Q4	(0.59)	(0.55)	(0.59)
Total		(1.85)	(2.06)	(1.94)

SHARE PRICE PERFORMANCE:

Source: Interactive Data Corporation

COMPANY DESCRIPTION:
Vital Therapies is a development stage biotherapeutic company focused on developing their ELAD system for the treatment of acute liver disease and failure.

All amounts in $US unless otherwise noted.

Life Sciences -- Biotechnology

ORPHAN BIO-ARTIFICIAL LIVER ADDRESSES $4B ACUTE LIVER MARKET; NEAR-TERM PHASE 3 DATA

ELAD targets $4B orphan acute liver market; no effective therapies

We believe Vital shares are attractive based on a $4B orphan biologic opportunity in acute liver failure, where no effective non-transplants are available. We expect pricing >$100k, with liver transplant pricing as a robust comparator, and rapid uptake if approved.

Expect positive Phase 3 data H1/15 to boost shares

We expect Vital shares to gap higher based on positive Phase 3 data in H1/15 for alcohol-induced liver decompensation (AILD). Previous positive Phase 2b data in a subset of AILD patients combined with tighter enrollment criteria in Phase 3 and high statistical powering give us higher confidence of success.

ELAD biologic advantageous vs. mechanical failures

Our analysis suggests that Vital's human liver cell approach should succeed vs prior mechanical failures - ELAD provides a full complement of liver enzymes and proteins, unlike mechanical approaches. Also, a prior pig-based liver cell approach showed a notable efficacy signal that should be magnified given ELAD's more robust human liver cells.

Establishing $20 price target on ~$1B peak revenues

We are establishing a $20 price target based on a probability-adjusted NPV broken out by indication. ELAD could reach $1B peak sales if successful in all indications, with $600M in US revenues from alcohol-induced liver disease alone. We utilize an effective 30% discount rate given the risk and stage of development for Vital.

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INVESTMENT THESIS

We are initiating coverage of Vital Therapies with a BUY rating and $11 price target. We believe Vital's Extracorporeal Liver Assist Device (EALD) should show a survival benefit for alcohol-induced liver decompensation patients in Phase3 with data expected H1/15. Vital's ELAD product has orphan designation, facilitating pricing of ~$100,000, which should ensure rapid growth and high barriers to entry if approved. No treatment exists today that extends life for liver failure patients other than a transplant, creating an attractive opportunity for Vital.

Vital has previously produced positive Phase2b data in a subset of alcohol-induced liver decompensation patients suggesting a trend towards improved overall survival, increasing the chance of success in Phase 3. The company has optimized Phase 3 enrollment criteria in order to eliminate cirrhotic patients and those who may die very quickly regardless of treatment, which should improve odds of success. The Phase 3 study is also highly powered to detect a survival benefit. Vital has also powered the Phase 3 study at 90% with $p \leq 0.01$, and 95% for $p \leq 0.05$ to detect a difference in median survival of ~50 days (122 vs. 68 days), which should be suitable.

Vital's C3A human liver cell line should also improve odds of success in Phase 3, given that an efficacy signal was seen in a prior Phase 3 study using pig hepatocytes. Importantly, Vital's cells are fully functional, providing liver enzymes as well as protein production. Prior mechanical attempts by Prometheus and Fresenius that focused on "cleaning" the blood by removing albumin bound toxins without providing the full complement of liver enzymes and proteins both failed, showing no difference in overall survival versus control. Therefore, we believe that Vital's biologic approach, which attempts to provide a fully active liver replacement, should have a good chance of success.

The commercial opportunity for Vital is very attractive, since ELAD has orphan designation in alcohol-induced liver disease and fulminant hepatic failure, allowing for a high ~$100,000 treatment price. We estimate ~$1B in combined peak sales across all indications in the US and EU, assuming a royalty for EU commercial sales. Importantly, liver transplant is the only currently available treatment that can extend life, but the cost of procurement alone is ~$75,000, with total cost approaching ~$500,000, and supply is extremely limited. The small market size for AILD and FHF (30,000 and 2,000) would require a very small salesforce, creating extremely high operating margins. Finally, given the lack of effective treatments for alcohol-induced liver disease, we believe that uptake for ELAD would be very rapid, assuming a survival benefit.

VALUATION

Our $20 price target is based on a probability-adjusted sum-of-the-parts net present value (NPV) analysis based on revenue builds for alcohol-induced liver decompensation, surgery-induced liver failure and fulminant hepatic failure. Our model assumes asset ownership in the US and a tiered royalty agreement for commercialization in the EU ranging from fifteen to twenty percent.

Figure 1: Valuation

	Peak Sales	Year	Current Value	Probability Adjustment	Value Per Share
US					
AILD	$564	2021	$613	45%	$13
SILF	$158	2021	$183	25%	$2
FHF	$64	2021	$75	25%	$1
EU - Royalty					
AILD	$90	2021	$146	45%	$3
SILF	$23	2021	$37	25%	$0
FHF	$9	2021	$14	25%	$0
Total			**$1,069**		**$20**

Risk Free Rate	2%
Beta	1.45
Risk Premium	9%
Discount Rate	15%

Shares outstanding (M's)	21

Source: Canaccord Genuity, company reports

EXPECTED CATALYSTS

Figure 2: Catalysts

Event	Timing	Trial Name	Description	Effect	Importance	Notes
Data	1H15	VTI-208	Phase 3 for Alcohol Induced Liver Decompensation	↑	Critical	Expect Positive Data in Lead Product
Data	2015/2016	VTI-210	Phase 3 for Acute Alcoholic Hepatitis	↑	High	Expect Positive Data in AAH
Data	2015/2016	VTI-212	Phase 2 for Fulminant Hepatic Faliure and Surgery Induced Liver Failure	↑	High	Expect Positive Data in FHF and SILF

Source: Canaccord Genuity, company reports

RISKS TO OUR OUTLOOK

Risks to our outlook and price target include the following: Vital Therapies' clinical studies may fail, requiring additional clinical trials and further capital; clinical trials may be terminated altogether, decreasing the overall value of the company's pipeline; competitors may attain the technology surrounding the ELAD system, increasing the likelihood of a competitive/generic product.

Even if the ELAD system is approved, resulting revenues may be below investor expectations due to lack of efficacy, competition, complexity, or all three. Safety issues may

also emerge after FDA approval that could limit the usage of the ELAD system, also reducing sales.

Competitors could gain access to the ELAD systems technology and potentially create a competitor product. Vital Therapies' keeps much of its IP as trade secrets, creating the opportunity for competitors to poach employees for intelligence. In addition, competitors may be able to gather ELAD's technology through reverse engineering the ELAD system after appropriating it from a hospital.

Congress has recently questioned high pricing for biotech drugs, which could become a trend, creating broad downward pressure across the biotech sector. Although we believe oncology drugs will receive less pricing pressure due to the seriousness of the disease, lawmakers may eventually make public calls for lower pricing.

COMPANY DESCRIPTION

Vital Therapies is a development stage biotherapeutic company focused on developing their ELAD system for the treatment of acute liver disease and failure. The ELAD system is an "out of body" artificial liver consisting of a bedside unit with four disposable cartridges that harbor Vital Therapies' C3A cells. The system is based on a cardio-pulmonary bypass machine to move patients' blood plasma into the cartridges where it is treated before returning to the patient. VTL C3A cells are derived from human liver cells and mimic their function, displaying similar metabolic processes and hepatocyte function. Importantly, they simulate an active P450 toxin-processing enzyme system and produce liver-specific proteins such as albumin, alpha-1-antichymotrypsin, alpha-1-antitrypsin, alpha-fetoprotein, anti-thrombin III, C3 complement, Factov V, and transferrin.

The company was incorporated in 2003 and is based in San Diego, CA. As of December 31, 2013, it had 70 employees, of which, 46 were engaged in research and development, 11 in manufacturing and 13 in administration.

ELAD – ORPHAN PRODUCT FOR TREATING LIVER FAILURE

Vital Therapies is developing its ELAD system for the treatment of acute liver failure caused by: alcohol-induced liver decompensation (AILD), acute alcoholic hepatitis (AAH), surgery-induced liver failure (SILF), fulminant hepatic failure (FHF), and acute flare viral hepatitis. We forecast peak sales of $564M for AILD and AAH combined by 2021, $158M for SILF by 2021, and $64M for FHF by 2021. We do not model revenues from acute flare viral hepatitis; however, we believe it may be a contributor to longer term growth. Importantly, ELAD has been designated as an orphan product in the US and EU.

$564M potential peak sales in alcohol-induced liver decompensation and acute alcoholic hepatitis

We model ~$564M peak sales in 2021 based on a market build of patients receiving treatment for acute alcoholic hepatitis and do not include non-acute alcoholic hepatitis patients, for a patient population of ~15,000 in 2013. We assume a 1% growth rate in patient population per annum and peak market share of ~28% in 2021, or 4,638 patients. We estimate a treatment cost of $100,000 in 2017 when the product launches, rising 5% per annum to ~$122,000 in 2021. Our cost estimate is based on liver transplant, which can reach $500,000 per patient. Importantly, we have not modeled for non-AAH patients as

data have not seemed to show efficacy in this treatment group; however, we note the potential for future upside should ELAD be approved for non-AAH treatment.

Figure 3: US AILD market build

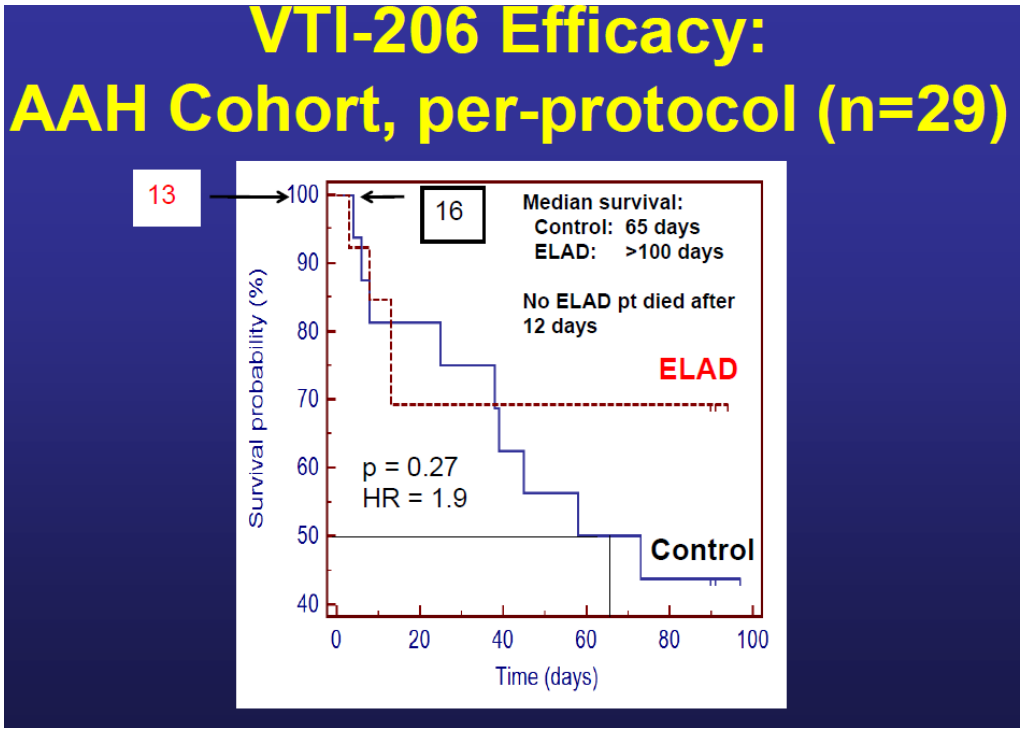
	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Patient Population	15,761	15,918	16,077	16,238	16,400	16,564	16,730	16,897	17,066	17,237	17,409	17,584	17,759	17,937	18,116
Market Share		5%	17%	25%	26%	28%	30%	31%	32%	33%	34%	17%	5%	4%	3%
Total Patients	-	796	2,733	4,060	4,264	4,638	4,935	5,154	5,376	5,602	5,832	2,945	892	722	548
Cost of Treatment		$100,000	$105,000	$110,250	$115,763	$121,551	$127,628	$134,010	$140,710	$147,746	$155,133	$162,889	$171,034	$179,586	$188,565
Total Revenues (000's)	-	$ 79,591	$ 286,980	$ 447,563	$ 493,626	$ 563,759	$ 629,895	$ 690,648	$ 756,446	$ 827,678	$ 904,760	$ 479,749	$ 152,632	$ 129,654	$ 103,337

Source: Canaccord Genuity estimates

Prior ELAD data in alcohol-induced liver decompensation encouraging

Vital has produced positive Phase 2b data for ELAD in the AAH subgroup of AILD patients showing a trend towards overall survival, increasing the chance for success in Phase 3. Vital conducted a Phase 2b study in n=37 subjects with AILD at n=26 sites. Upon enrollment, patients were diagnosed as having either acute alcoholic hepatitis (AAH), or non-acute alcoholic hepatitis (non-AAH). The primary endpoint was overall survival at 90 days, with pre-specified subgroup analyses for (1) AAH + non-AAH, (2) AAH, and (3) non-AAH. Results were presented for both modified Intent To Treat mITT and Per Protocol (PP) analyses. Per Protocol patients received ≥ 72 hours of treatment.

Figure 4: ELAD Phase2b overall survival data AAH subgroup



Source: Company presentations

Survival trend for ELAD in AAH patients

ELAD showed a survival trend at 90 days versus control (69% vs. 44%), but did not reach statistical significance (p=0.27). Data are shown for the Per Protocol analysis, which include patients treated for 72 days or greater. The median survival for ELAD on a Per Protocol basis was >100 days for ELAD, and ~65 days for control. Importantly, no ELAD patient died after 12 days. Interestingly, five patients in the overall ELAD group received treatment for less than 72 hours versus only one in the control group, suggesting that the ELAD group involved sicker patients.

Figure 5: Efficacy for AAH subgroup

VTI 206 Efficacy: AAH Cohort

	MITT		PP	
	ELAD n = 15	Control n = 16	ELAD n = 13	Control n = 16
OS through Day 90	9 (60%)	7 (43.8%)	**9 (69.2%)**	**7 (43.8%)**
Median survival, days	>100	73	>100	65

Source: Company presentations

Figure 6: VTI-206 study population

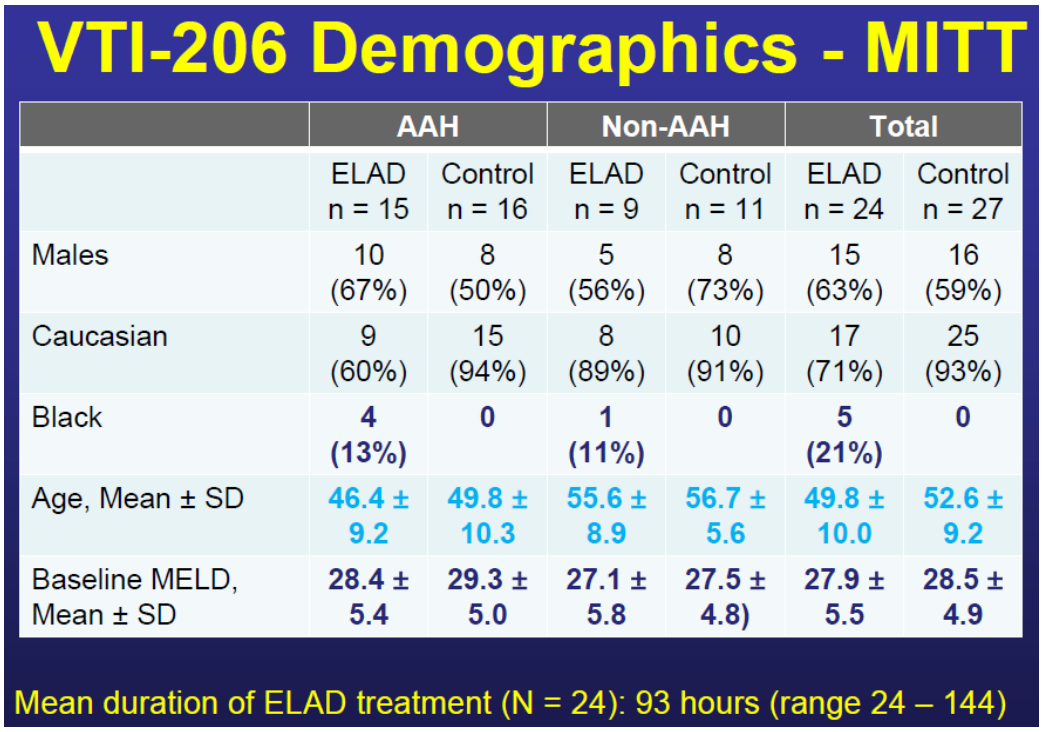
VTI-206: Study Population

	AAH		Non-AAH		Total	
	ELAD	Control	ELAD	Control	ELAD	Control
Randomized	**16**	**21**	**13**	**12**	**29**	**33**
Baseline failure	0	2	4	0	4	2
Withdrew consent / Lost to follow up	1	3	0	1	1	4
MITT	**15**	**16**	**9**	**11**	**24**	**27**
<72 hrs therapy	**2**	**0**	**3**	**1**	**5**	**1**
PP	**13**	**16**	**6**	**10**	**19**	**26**
Reasons for Baseline Failures:						
Death	0	0	1	0	1	0
Transplant	0	0	1	0	1	0
Ineligible	0	2*	2**	0	2	2
Total	**0**	**2**	**4**	**0**	**4**	**2**

* DNR, portal vein thrombosis
** Hemodynamic instability, systemic fungal infection

Source: Company presentations

Figure 7: VTI-206 demographics

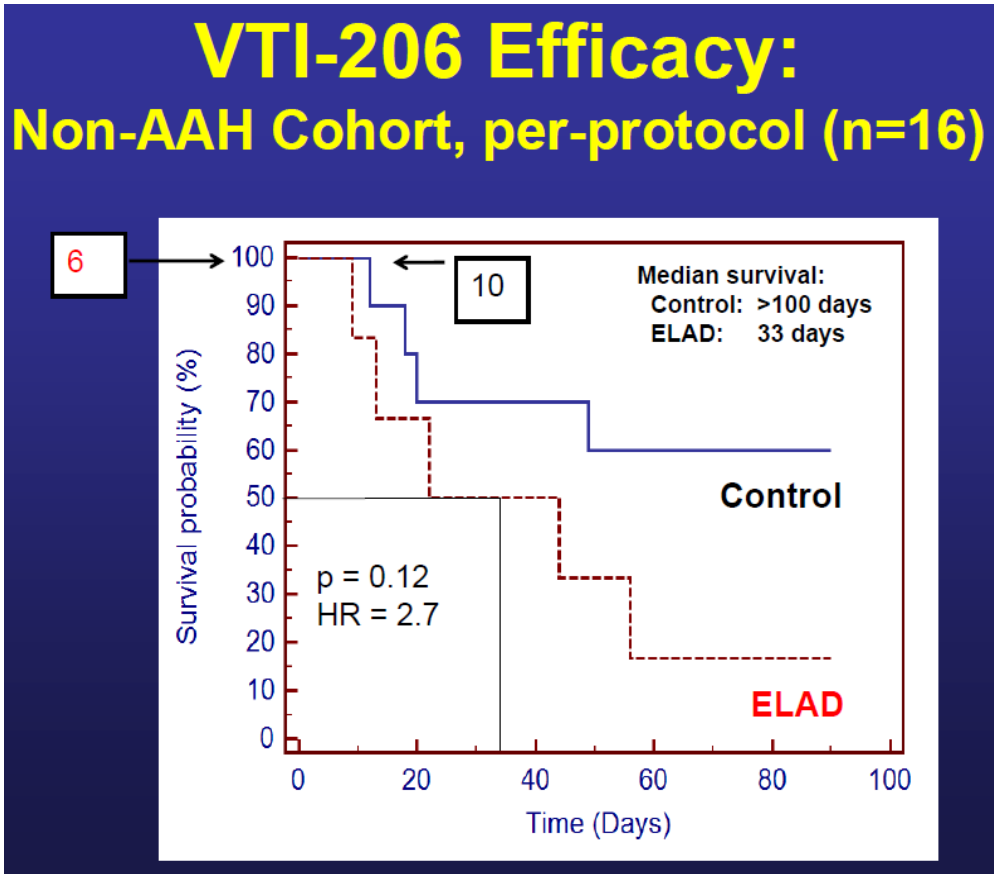


Source: Company presentations

ELAD fared less favorably in non-AAH patients

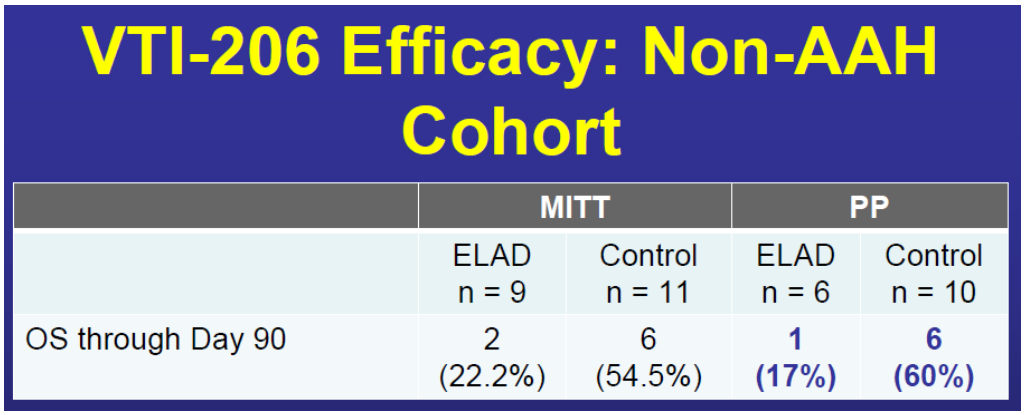
ELAD seemed to show a survival disadvantage for patients in the non-AAH cohort, with a control survival of >100 days versus ~33 days for ELAD, although differences were not statistically significant. The Per Protocol analysis involved n=16 patients. Importantly, Vital had pre-specified separate analyses for both AAH and non-AAH patients. Also, patients were diagnosed as AAH or non-AAH before randomization. We believe that the Phase 3 design will address this issue by restricting non-AAH patient enrollment to those who are less likely to die within the first few days of treatment.

Figure 8: VTI-206 efficacy



Source: Company presentations

Figure 9: VTI efficacy non-AAH cohort



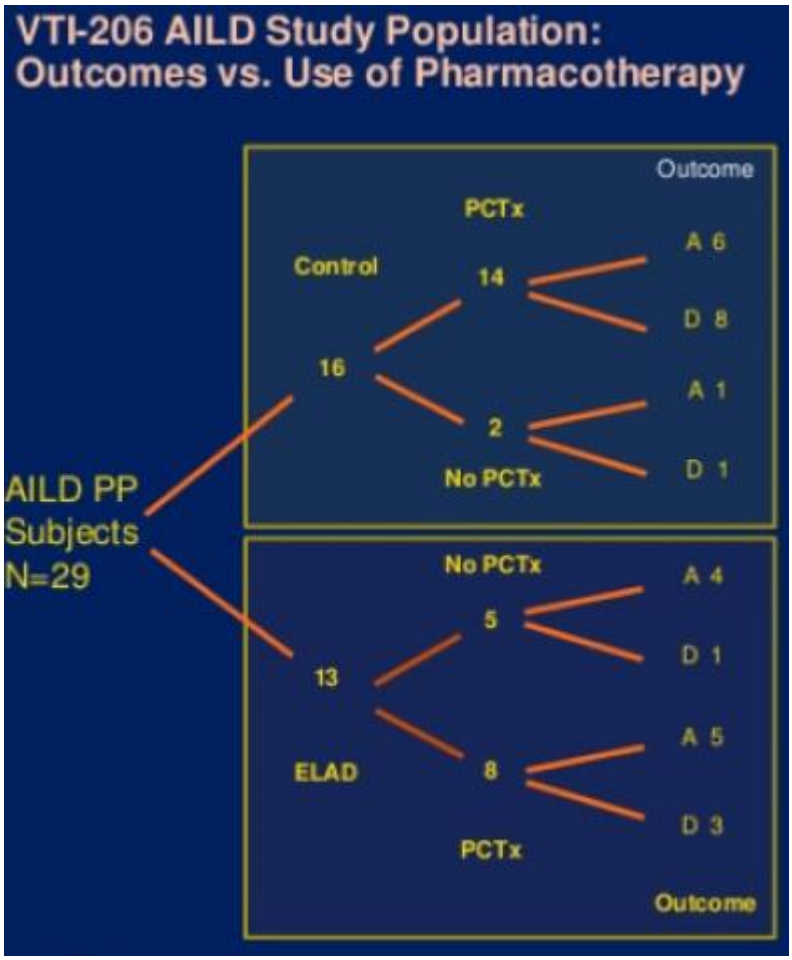
	MITT		PP	
	ELAD n = 9	Control n = 11	ELAD n = 6	Control n = 10
OS through Day 90	2 (22.2%)	6 (54.5%)	**1 (17%)**	**6 (60%)**

Source: Company presentations

Control arm may have been affected by pharmacotherapy

Approximately 88% (14/16) patients in the Phase2b control arm for ELAD received pharmacotherapy versus ~62% in the ELAD arm, which may explain better results for control non-AAH patients. Interestingly, ~57% (8/14) of control patients receiving pharmacotherapy were alive at the end of the study vs. 80% (4/5) receiving ELAD, which may suggest that ELAD is improving function such that pharmacotherapy might provide a better outcome. (Figure 10).

Figure 10: AILD study population



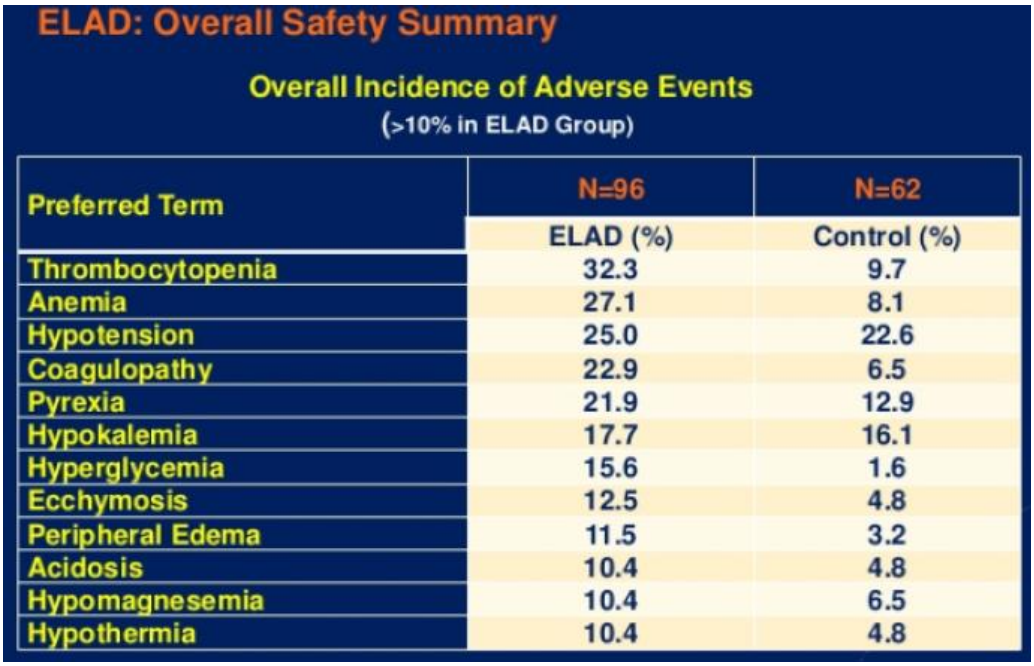
Source: Company presentations

ELAD safety manageable in patients with high mortality risk

Safety for ELAD in Phase 2b was reasonable when considering the high mortality of the patient population. Thrombocytopenia, anemia, and coagulopathy were seen at higher rates versus control, which is not surprising given that patient plasma is being subject to mechanical stress. Importantly, hypotension was seen at similar rates between control and ELAD (Figure 11). Serious events were relatively similar between the ELAD treatment group and control, with the exception of thrombocytopenia and hepatic failure. Notably,

~50% of ELAD subjects compared to 45% of control subjects had at least one SAE during the study.

Figure 11: Overall safety summary



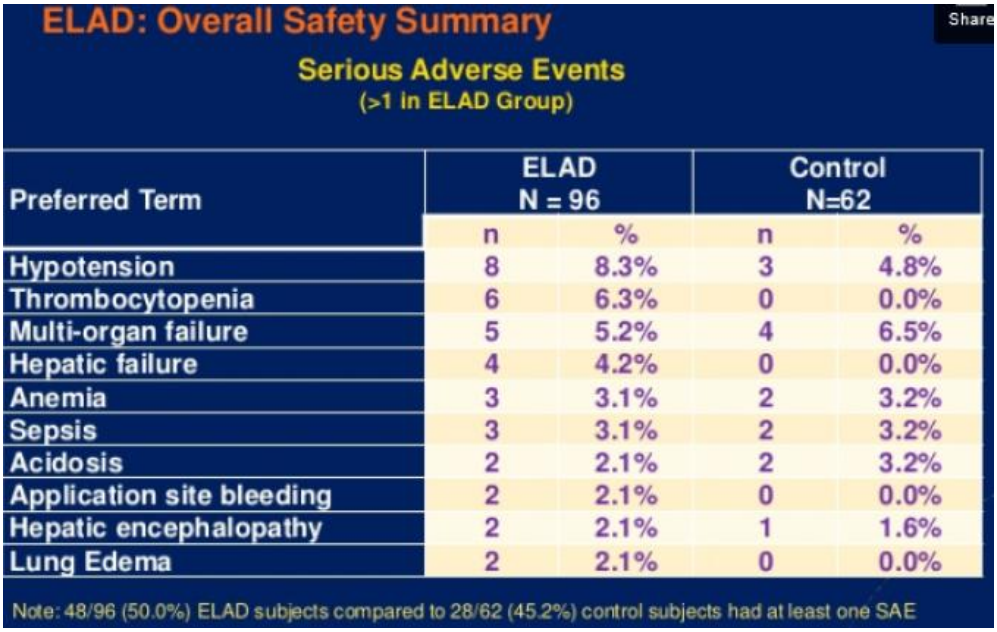
ELAD: Overall Safety Summary

Overall Incidence of Adverse Events
(>10% in ELAD Group)

Preferred Term	N=96	N=62
	ELAD (%)	Control (%)
Thrombocytopenia	32.3	9.7
Anemia	27.1	8.1
Hypotension	25.0	22.6
Coagulopathy	22.9	6.5
Pyrexia	21.9	12.9
Hypokalemia	17.7	16.1
Hyperglycemia	15.6	1.6
Ecchymosis	12.5	4.8
Peripheral Edema	11.5	3.2
Acidosis	10.4	4.8
Hypomagnesemia	10.4	6.5
Hypothermia	10.4	4.8

Source: Company presentations

Figure 12: Overall safety summary



ELAD: Overall Safety Summary

Serious Adverse Events
(>1 in ELAD Group)

Preferred Term	ELAD N = 96		Control N=62	
	n	%	n	%
Hypotension	8	8.3%	3	4.8%
Thrombocytopenia	6	6.3%	0	0.0%
Multi-organ failure	5	5.2%	4	6.5%
Hepatic failure	4	4.2%	0	0.0%
Anemia	3	3.1%	2	3.2%
Sepsis	3	3.1%	2	3.2%
Acidosis	2	2.1%	2	3.2%
Application site bleeding	2	2.1%	0	0.0%
Hepatic encephalopathy	2	2.1%	1	1.6%
Lung Edema	2	2.1%	0	0.0%

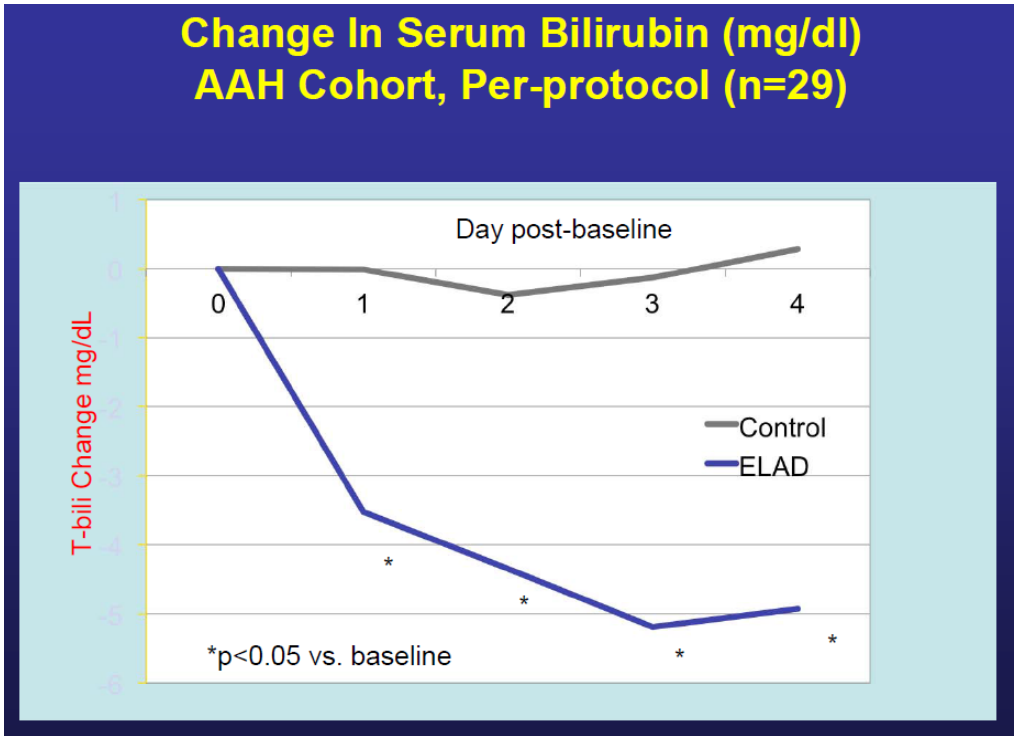
Note: 48/96 (50.0%) ELAD subjects compared to 28/62 (45.2%) control subjects had at least one SAE

Source: Company presentations

ELAD improves liver function via bilirubin changes

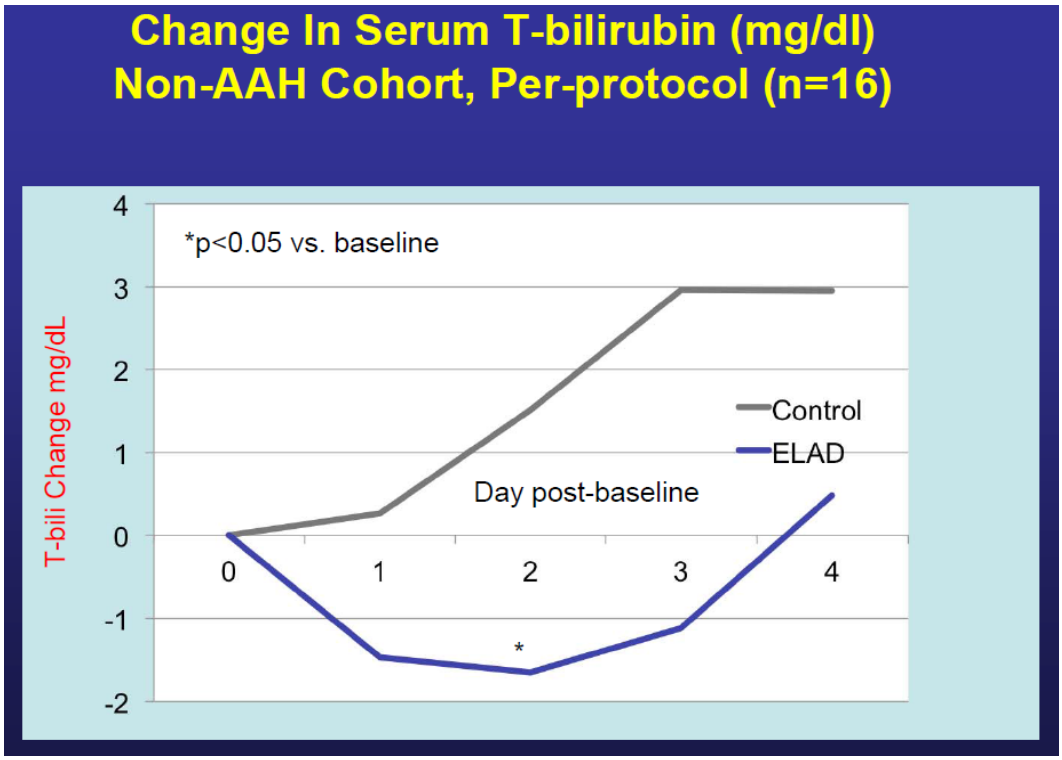
ELAD lowered serum T-bilirubin for all patients in the Phase 2b study versus control, an important indicator of activity. Increased liver enzymes such as bilirubin are common when the liver is damaged. The fact that ELAD was able to lower the bilirubin levels suggests strong evidence of activity, in our view. Results were encouraging in both groups, with the AAH cohort showing the largest decline, measured as early as one day post-treatment (Figure 13). Interestingly, the non-AAH cohort also showed beneficial bilirubin lowering even though an opposite trend was seen in terms of survival. Serum bilirubin levels in the non-AAH control group began to climb immediately post-baseline, while they decreased until day 2 in the ELAD group, when they then began to rise (Figure 14).

Figure 13: Change in serum bilirubin



Source: Company presentations

Figure 14: Change in serum T-bilirubin in non-AAH cohort



Source: Company presentations

Phase 3 design for AILD increases chances of success

Vital's Phase 3 study for ELAD in AILD and AAH should increase the chances of success versus Phase 2b by excluding extremely sick patients. The Phase 3 study will seek to exclude patients who: (1) have a high mortality rate, (2) have regenerable livers, and (3) are not expected to die imminently (within 3-5 days of enrollment). The Phase 3 VTI-208 study includes a Maddrey Discrimination Function > 32 as an inclusion criterion, which is a calculation for patients with alcoholic hepatitis that stratifies them for risk of mortality and the use of steroids. A score >32 indicates severe alcoholic hepatitis. The Phase 3 study also includes a MELD score of 18-35, which is a scoring system for assessing the severity of chronic liver disease. A score between 30-39 indicates a ~53% 3-month mortality.

The VIT-208 Phase 3 study is also incorporating new exclusion criteria and modifying existing criteria, moves designed to improve chances of a positive outcome. Patients will be excluded: if their liver is less than 10cm in size, if they have an improvement in bilirubin levels of 20% or more in the past 72 hours, or if their AST is greater than 500 IU/L. Exclusion criteria modified from Phase 2b include: systolic blood pressure < 90 mm Hg, or mean arterial pressure <60 mm Hg, and hemorrhage requiring 2 units of packed red blood cells. These new exclusion criteria should exclude patients likely to die within days of potential enrollment and therefore increase chances of success.

Figure 15: VTI-208 inclusion/exclusion criteria

	VTI 208 Inclusion Criteria	VTI 208 Exclusion Criteria
General Design Characteristics	• Designed to select AAH/AILD patients with a high 90-day mortality rate	• Designed to avoid non-regenerable livers • Designed to avoid patients who are spontaneously getting better • Designed to avoid patients who are deteriorating too quickly
New criteria vs. VTI-206	• Maddrey Discrimination Function > 32[1]	• Liver size less than 10cm or 750cc • Improvement in bilirubin levels of 20% or more in past 72 hours • AST greater than 500 IU/L
Modified criteria vs. VTI-206	• NA	• Systolic blood pressure<90 mm Hg or mean arterial pressure<60 mm Hg — Modified from VTI-206 to provide lower barrier to exclusion • Hemorrhage requiring 2 units of packed red blood cells — Modified from VTI-206 to provide lower barrier to exclusion
Retained criteria from VTI-206	• MELD Score 18-35[2]	• NA

Source: Company presentations

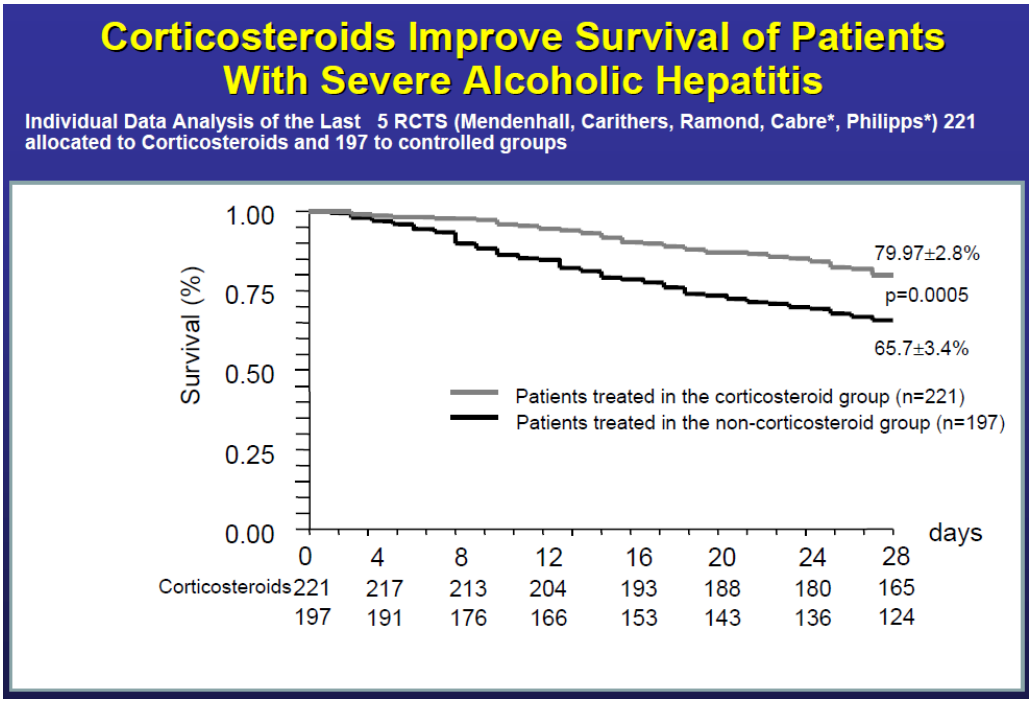
EU development for ELAD in AAH focuses on steroid failures

Vital is also planning to initiate a Phase 3 study in the EU for ELAD in AAH patients failing seven days of steroid therapy, which could function as a supporting trial in the US. The study is enrolling patients who have failed steroid therapy after 7-9 days under the "lille" criteria and requires a clinical diagnosis of acute alcoholic hepatitis, confirmed by liver biopsy. The primary endpoint is overall survival at day 91. The study is 90% powered for $p \leq 0.01$, and 95% powered for $p \leq 0.05$. The design of the study has been agreed upon by EMA and will be sufficient for MAA submission assuming success. Approximately 25 sites are involved, mostly in the EU (UK, Spain, Germany), with some potential focus in the US and Australia.

Current treatments for AAH limited

Few beneficial therapeutic options exist for AAH, mainly confined to (1) corticosteroids, (2) pentoxifylline, and (3) nutrition. Corticosteroids have been shown to improve survival in patients with AAH at 28 days based on a meta analysis of the past five randomized controlled studies as of 2010. Approximately 80% of patients on corticosteroids were alive at day 28 vs. ~66% for control. Corticosteroids are generally used in all AAH patients and do seem to improve survival in severe acute alcoholic acute hepatitis patients but may not be applicable in all patients. We estimate that as many as 40-50% of patients may not respond to steroids over a seven- to nine-day period. Most physicians agree that if corticosteroids are used, they should be reserved for patients with severe liver disease and possibly those with hepatic encephalopathy.

Figure 16: Corticosteroids improve survival



Source: Company presentations

Pentoxyfilline (PTX) has also been shown to have an effect on the overall survival in patients with AAH in a small randomized, double blind study. Pentoxyfilline is a xanthine derivative approved for intermittent claudication resulting from peripheral artery disease. PTX acts as a competitive nonselective phosphodiesterase inhibitor. At 4 weeks, survival for PTX was ~75.5% vs. ~54% for placebo. Importantly, the Phase 2b and Phase 3 studies for ELAD allow for usage of standard of care, suggesting that ELAD can have an effect on top of PTX and steroids.

Alcohol-induced liver disease – an issue with fatal consequences

Alcohol-induced liver disease occurs in ~20,000 patients in the US annually and can be fatal. The disease encompasses three conditions: fatty liver, alcoholic hepatitis, and cirrhosis. Fatty liver is most common and involved excessive accumulation of fat inside the liver cells. Alcoholic hepatitis involves inflammation and more severe injury of the liver, in which the body's immune system responds to and causes liver damage. Finally, cirrhosis of the liver involves normal liver cells being replaced by scar tissue, resulting in the liver being unable to perform many of its normal functions. Interestingly, cirrhosis and alcoholic hepatitis often coexist and cause substantial morbidity and mortality.

Alcohol-induced liver disease is diagnosed based on a history of habitual alcohol intake of a certain duration and quantity combined with physical signs and laboratory evidence of liver disease. Importantly, ten to twenty percent of patients with alcoholic hepatitis develop cirrhosis, which results in much poorer outcomes. Laboratory tests are also needed to accurately diagnose alcohol-induced liver disease. Nearly all patients will have elevated

liver enzymes, with the level of the enzyme aspartate amino-transferase (AST) exceeding alanine aminotransferase (ALT). However, both will be below 300 IU/mL. When the ratio of AST/ALT >2, patients most likely have alcohol-induced liver disease. High blood levels of the liver enzyme gamma glutamyltransferase (GGT) also suggest very heavy alcohol use and liver injury. However, the test has greater ability to correctly test positive, but lower ability to test negative versus AST and ALT tests.

Chronic alcohol consumption may also be associated with high triglyceride levels, high levels of uric acid in the blood, and low amounts of potassium and magnesium, as well as an elevated index of red blood cell size. An elevated index of red blood cell size is often found in persons consuming more than 50 grams of alcohol per day. Finally, indications of severe alcoholic hepatitis or cirrhosis include elevated levels of bilirubin, more time required for a blood sample to clot, and a low level of albumin in the bloodstream, which is synthesized by the liver. The Maddrey Discriminant Function is often used as a prognostic index for alcoholic hepatitis, calculated as [PT(patient) – PT(control)] + total bilirubin (mg/dl). Values above 32 suggest a mortality rate over 50% during a current hospitalization.

$158M peak sales potential in fulminant hepatic failure + surgery induced liver failure

We model ~$158M peak sales in 2021 for surgery-induced liver failure and ~$64M peak sales in 2021 for fulminant hepatic failure based on a patient market build for each indication. We estimate ~2,200 patients experience fulminant hepatic failure in 2021 and model a market share of ~24%, for 530 patients. For surgery-induced liver failure we estimate 5,414 patients in 2021 with a ~24% market share or 1,229 patients receiving treatment. We assume a cost per treatment of $100,000 at launch, increasing 5% per annum to ~$122,000 in 2021. Our cost estimate is based on the cost of liver transplant which can reach $500,000.

Fulminant hepatic failure is a rare condition that is defined by rapid deterioration of the liver. Most frequently, toxin-induced liver injury, autoimmune disease, hapoperfusion, or viral hepatitis is the cause, requiring transplantation. However, patients often don't survive long enough to receive their liver transplant, in which case the ELAD system may be used as a bridge-to-transplant or treatment option.

Figure 17: US SILF market build

	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Patient Population	5,152	5,203	5,255	5,308	5,361	5,414	5,468	5,523	5,578	5,634	5,690	5,747	5,805	5,863	5,922
Market Share		5%	17%	20%	22%	24%	26%	27%	28%	29%	30%	15%	4%	3%	2%
Total Patients	-	260	893	1,062	1,179	1,299	1,394	1,464	1,534	1,606	1,679	848	257	201	144
Cost of Treatment		$100,000	$105,000	$110,250	$115,763	$121,551	$127,628	$134,010	$140,710	$147,746	$155,133	$162,889	$171,034	$179,586	$188,565
Total Revenues (000's)	-	26,015	93,803	117,033	136,524	157,946	177,971	196,140	215,855	237,239	260,420	138,087	43,933	36,062	27,077

Source: Canaccord Genuity estimates

Figure 18: US FHF market build

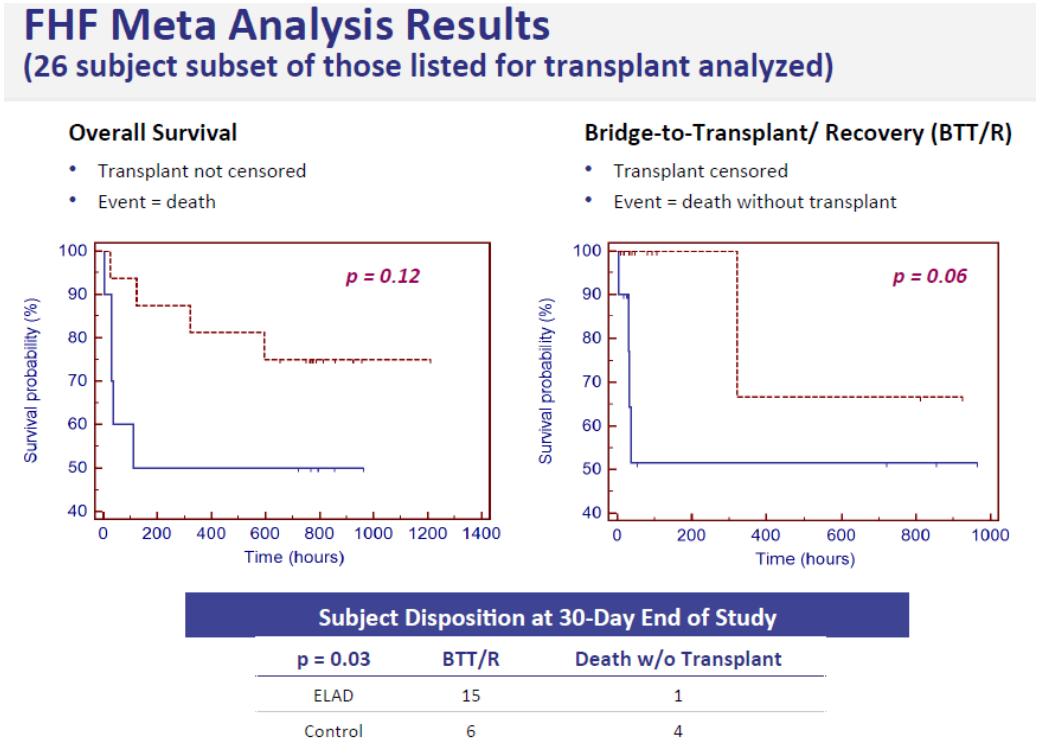
	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Patient Population	2,101	2,122	2,144	2,165	2,187	2,209	2,231	2,253	2,276	2,298	2,321	2,344	2,368	2,392	2,416
Market Share		5%	17%	20%	22%	24%	26%	27%	28%	29%	30%	15%	4%	3%	2%
Total Patients	-	106	364	433	481	530	569	597	626	655	685	346	105	82	59
Cost of Treatment		$100,000	$105,000	$110,250	$115,763	$121,551	$127,628	$134,010	$140,710	$147,746	$155,133	$162,889	$171,034	$179,586	$188,565
Total Revenues (000's)	-	10,612	38,264	47,740	55,691	64,430	72,598	80,009	88,052	96,775	106,231	56,329	17,921	14,710	11,045

Source: Canaccord Genuity estimates

Prior fulminant hepatic failure data for ELAD positive

ELAD data from two studies in fulminant hepatic failure (FHF) has shown encouraging results, suggesting that the planned upcoming study should have a reasonable chance of success. ELAD was tested in a Phase 1 trial for FHF involving n=25 subjects at n=6 centers across the US and UK. The inclusion criteria for the study was defined to select for high mortality, with a primary endpoint of 30-day overall survival. The outcome of the study was confounded by a high and rapid rate of transplant and unexpected post-transplant mortality, with a time to transplant <5 days. However a subgroup analysis on bridge-to-transplant/recovery was positive (Figure 19).

Figure 19: FHF meta analysis results



Source: Company presentations

A Phase 2 trial was also conducted involving n=19 patients enrolled at n=8 centers in the US, with inclusion criteria relaxed to accept less sick patients with fewer deaths. The primary endpoint was overall survival, but similar to the Phase 1 study, the overall outcome was confounded by a high rate of transplant and lack of mortality.

Phase 2/3 fulminant hepatic failure/surgery-induced liver failure study single arm

Vital's planned Phase 2/2 study for ELAD in fulminant hepatic failure and surgery induced liver failure will be a single arm trial with primary endpoint of overall survival at 28-days. The study will enroll n=30 patients and will also include primary graft non-function and failed cancer resection, which is believed to behave similarly to FHF. Results will be compared to historical or matched controls. This study may be used as a back-up study in the US for VTI-208 in alcohol-induced liver decompensation, with potential label expansion if VTI-208 is successful, or design of a separate Phase 3 study.

Current therapy for fulminant hepatic failure and surgery-induced liver failure limited

Fulminant Hepatic Failure (FHF) is currently treated specific to the cause, if known, but liver transplant remains the most efficacious option, a resource in limited supply. Patients with acetaminophen intoxication can be treated with N-acetylcysteine, and hepatitis B patients may benefit from Epivir, Hepsera, Entecavir, or Viread. Acyclovir may also be used to improve prognosis in patients with herpes virus infection and FHF. Likewise, therapy for liver failure induced by surgery is also limited. Treatments are similar to those for FHF, and death is usually imminent unless a transplant is available. Common surgeries resulting in loss of liver function are: liver transplant, small for size and split liver transplant, and caner resection.

FHF results from severe liver injury

FHF is described as development of severe liver injury with impaired capacity to produce liver proteins, and encephalopathy in patients with previously normal liver or well controlled liver disease. FHF failure can result from a variety of causes, including drug poisoning, viral hepatitis, vascular origin, Wilson's disease, acute fatty liver of pregnancy, Reye's syndrome, autoimmune hepatitis, sepsis, and malignant infiltration of the liver (Figure 20).

Figure 20: Known causes for fulminant hepatic failure

Viral	**Hepatitis A,B,C,D,E**, CMV HSV, EBV, VZV, HHV 6, Parvo-virus B19, Parainfluenza, Yellow Fever, and others
Idiosyncratic	Halogenated hydrocarbons, **Coumarins**, Methyldopa, Phenytoin, **Carbamazepin, Valproic acid**, Rifampicin, Penicillin, Sulfonamides, **Chinolones**, etc.
Toxic Dose-dependent	**Acetaminophen (Paracetamol)**, Isoniazid, Tetracycline, Methotrexat, Carbon tetrachloride, Amphetamins, **Amanita phalloides-Toxin**
Toxic synergistic	Ethanol + Acetaminophen, Barbiturate + Acetaminophen, Isoniazid + Rifampicin
Metabolic	**M. Wilson**, alpha-1-AT-deficiency, Galactosemia, Tyrosinemia, Reye-Syndrome, NASH
Associated with pregnancy	Acute fatty liver of pregnancy, HELLP-Syndrome
Vascular	**Budd-Chiari-Syndrome**, veno-occlusive disease, shock, heart failure
Miscellaneous	**Autoimmune-hepatitis**, malignant infiltration, hyperthermia, sepsis

Source: Company presentations

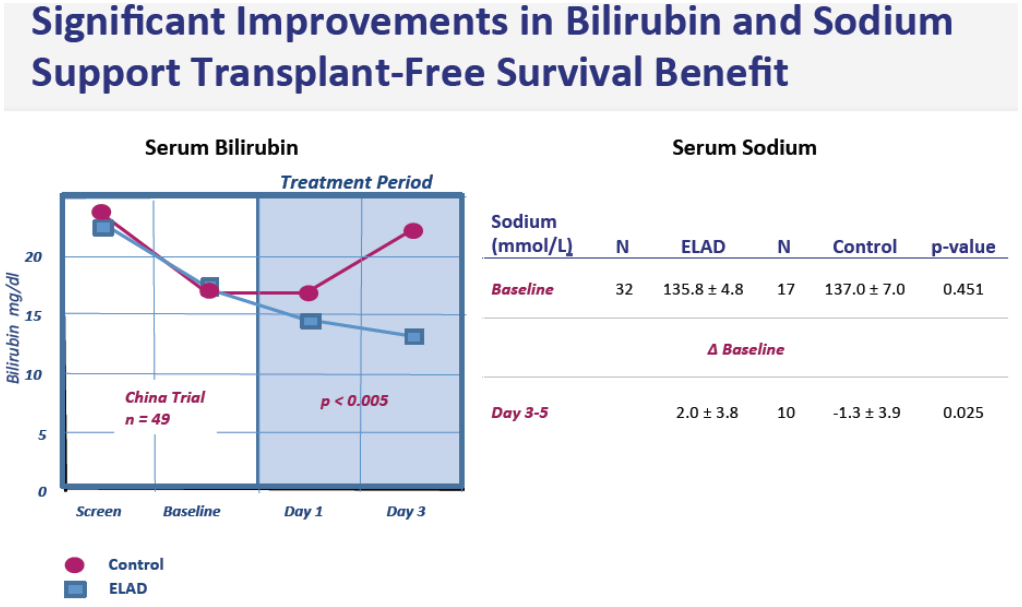
FHF is usually defined by lowered production of liver proteins, including International Normalized Ratio (INR) ≥ 1.5, and reduced detoxification resulting in any degree of encephalopathy. Pre-existing cirrhosis and liver disease less than 26 weeks are excluded in order to confirm the diagnosis.

Acute flare viral hepatitis data from China suggestive

ELAD has also been tested in hepatitis B patients with acute flares, showing positive results by delaying time transplant versus control. Vital was invited to China in October 2004 to run a study in acute flares in hepatitis B patients (VTI-301). The company initiated a study in March 2006 at n=2 Beijing hospitals, targeting n=120 patient enrollment. The study was randomized, controlled, and open label, with continuous treatment for three days or until recovery. Approximately 83.7% of patients were infected with viral hepatitis B. Interestingly, the trial was halted early in June 2007 by the hospital efficacy committee due to evidence of efficacy. Forty-nine of 69 patients were assessed on an intent to treat analysis, with no unexpected safety issues.

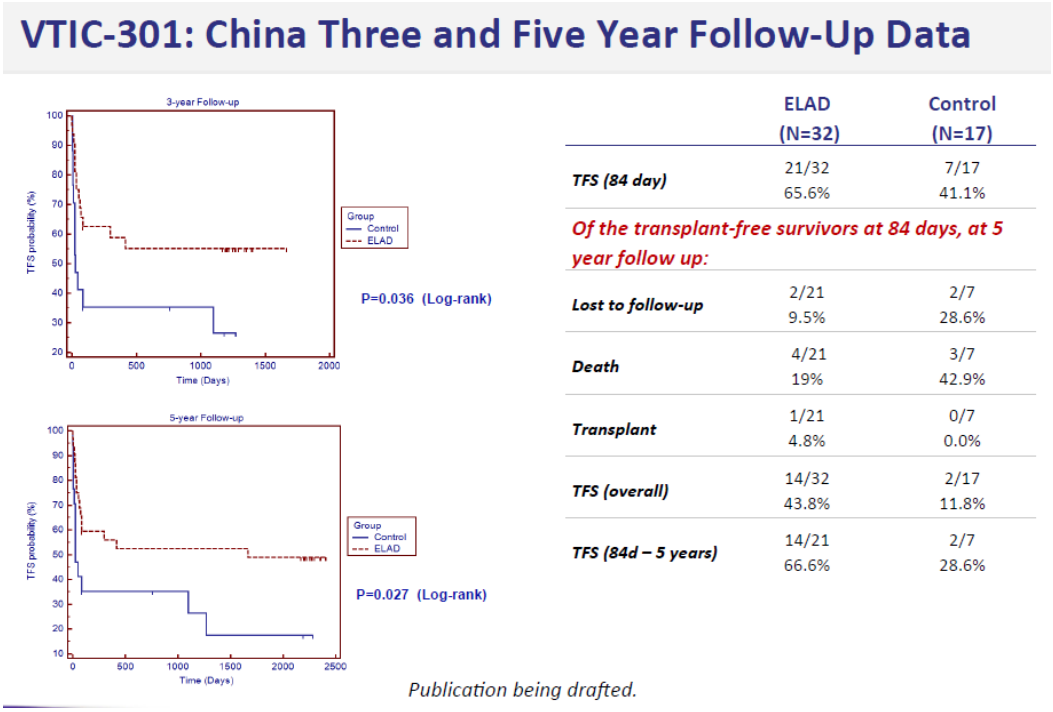
ELAD patients showed improvement in both bilirubin and sodium support transplant-free survival (Figure 21). ELAD also increased transplant-free survival at both three and five years. 43% (3/7) of control patients died versus only 9.5% (2/21) of ELAD patients, although n=21 ELAD patients were lost to follow-up, making interpretation difficult. Overall transplant free survival was 44% for ELAD patients vs. 12% for control. Differences in transplant free survival were statistically significant at both three and five years (p=0.036, p=0.027) (Figure 22).

Figure 21: Significant improvement in bilirubin and sodium



Source: Company presentations

Figure 22: VTIC-301 follow-up data

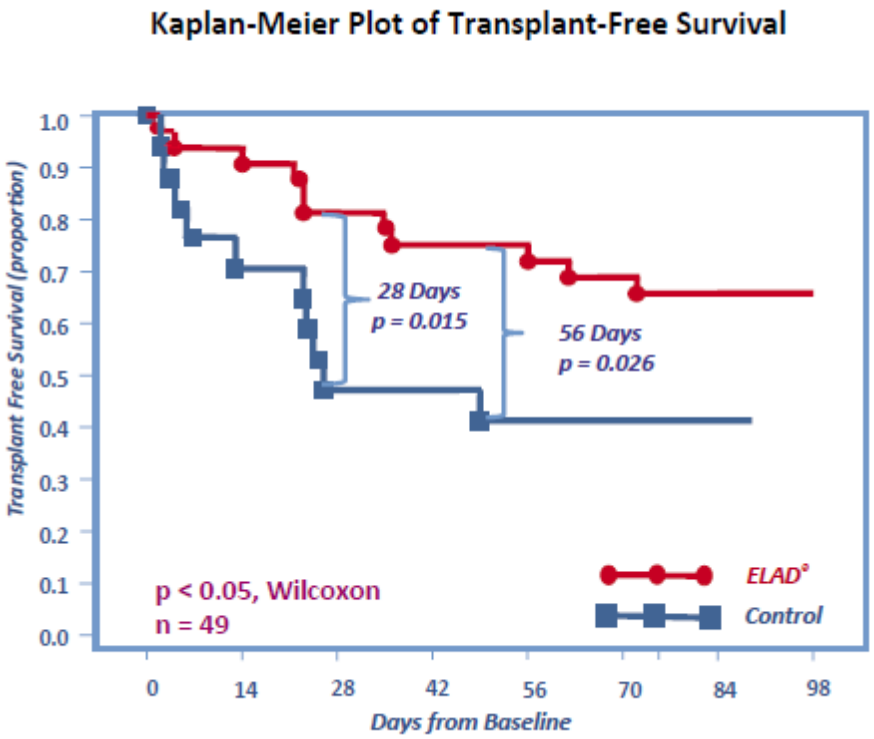


	ELAD (N=32)	Control (N=17)
TFS (84 day)	21/32 65.6%	7/17 41.1%
Of the transplant-free survivors at 84 days, at 5 year follow up:		
Lost to follow-up	2/21 9.5%	2/7 28.6%
Death	4/21 19%	3/7 42.9%
Transplant	1/21 4.8%	0/7 0.0%
TFS (overall)	14/32 43.8%	2/17 11.8%
TFS (84d – 5 years)	14/21 66.6%	2/7 28.6%

Source: Company presentations

In June 2007 the trial was halted due to evidence of efficacy and the ethicality of continuing to enroll control patients. We view the acute flare hepatitis B market around the world as a potentially lucrative prospect, comprising over 1,000,000 patients per year. We expect Vital Therapies to pursue this opportunity after commercial launch in the US and EU of the ELAD system for AILD.

Figure 23: Acute flare viral hepatitis



Source: Company Presentation

ELAD description

The ELAD system is an "out of body" artificial liver consisting of a bedside unit with four disposable cartridges that harbor Vital Therapies' C3A cells. The system is based on a cardio-pulmonary bypass machine to move patients' blood plasma into the cartridges where it is treated before returning to the patient. VTL C3A cells are derived from human liver cells and mimic their function, displaying similar metabolic processes and hepatocyte function. Importantly, they simulate an active P450 toxin-processing enzyme system and produce liver-specific proteins such as albumin, alpha-1-antichymotrypsin, alpha-1-antitrypsin, alpha-fetoprotein, anti-thrombin III, C3 complement, Factov V, and transferrin.

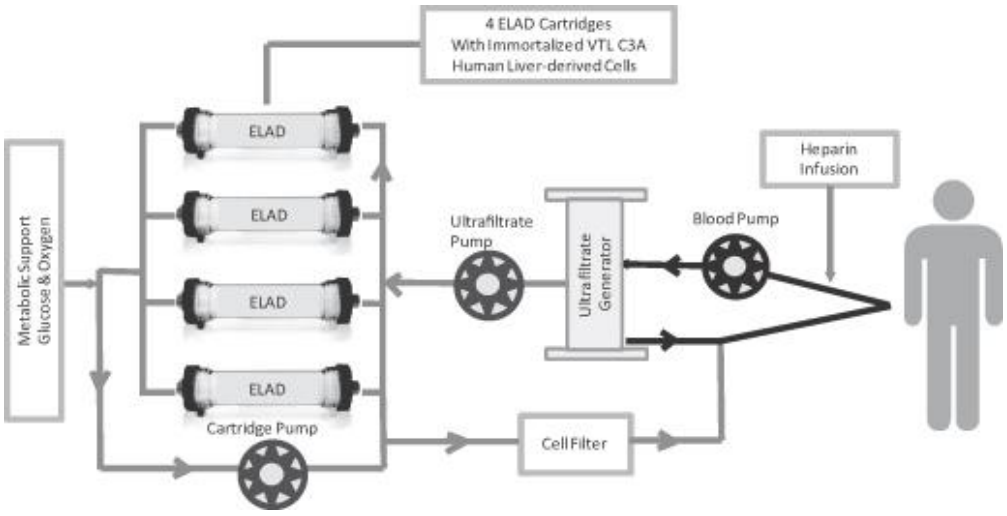
Vital is not the first company to attempt to produce a liver-assist product based on human hepatocytes, although they have the potential to be the first to succeed. Previous attempts have failed because hepatocyte function rapidly diminished and/or the hepatocyte based cells could not be produced in scalable quantities. Using allogeneic cellular therapy and their patented C3A cell process, Vital can produce an almost unlimited quantity of C3A cells that can be stored in centralized locations and shipped to patients on demand.

ELAD cartridges can survive in a dormant state for up to 60 hours, allowing for shipment around the world. C3A cells will be stored in three locations around the world, with a production facility in San Diego, California. Because C3A cells are immortal, the cartridges will not lose a substantial amount of potency sitting in cell banks. Vital Therapies intends

to have ELAD specialists onsite to assist with the unpackaging and setup of the ELAD system.

Importantly, ELAD has been designated an orphan product by the FDA and EMA, guaranteeing seven years of market exclusivity in the US with ten years of exclusivity in the EU.

Figure 24: ELAD system



Source: Company presentations

Figure 25: ELAD system

Source: Company presentations

PRIOR FAILURES NON-BIOLOGIC, NOT INDICATIVE OF ELAD

Prior artificial liver therapy failures mostly mechanically based; biologics show signal

Prior attempts to develop artificial liver treatment have failed to show a survival benefit, with mechanical approaches faring most poorly, but biological approaches show a trend towards improved survival. Importantly, Vital Therapies is developing the only approach which uses active human liver cells to treat liver failure, whereas other companies developing biological approaches have utilized mainly porcine hepatic cells.

Four mechanical approaches have been studied: Selective Plasma Filtration Technology (SEPET, Arbios Medical), Molecular Absorbent Recirculating System (MARS, Gambro), Single Pass Albumin Dialysis (SPAD), and fractionated plasma separation and absorption system (Prometheus, Fresenius). Four biological approaches have been tested besides ELAD: HepatAssist (Arbios Medical), modular extracorporeal liver system (Charite Virchow clinic, Berlin Germany), and bio-artificial liver support system (Excorp Medical), and Academic medical center Bio-Artificial liver (Academic Medical center, Amsterdam).

PREVIOUS MECHANICAL APPROACHES

SEPET limited to animal data

Arbios Medical's SEPET system has produced data in animals suggesting improved survival and hepatic regeneration, but no data are available in humans to date. The device works by passing a patient's blood through a hollow fibre plasma filter with a molecular

weight cut-off of 100 kDa. A plasma fraction which contains accumulated toxins is discarded, with most of the albumin, immunoglobulins, complement factors, clotting factors, and hepatocyte growth factor retained. Also, fluid loss is offset by adding a combination of electrolytes, human serum albumin solution and fresh frozen plasma. No data exist in humans to quantify the effect of this treatment.

MARS system does not improve survival

Prometheus' Molecular Absorbent Recirculating System (MARS) was tested in acute liver failure patients, but did not extend survival. MARS was tested in a n=189 randomized controlled multicenter trial at n=19 hospitals in Europe. Patients were randomized to either MARS or standard therapy. Patients were eligible for up to ten 6-8 hours MARS treatment sessions, with primary endpoint of 28-day survival. 28-day survival was similar between the MARS and control group at 61% and 59%, respectively, based on ITT analysis (Figure 26). Even after adjusting for potential confounders, a significant beneficial effect of MARS on survival was not observed. MARS treatment did seem to improve symptoms of Hepatic Encephalopathy, however, in a non-statistically significant manner.

Figure 26: MARS System survival benefit

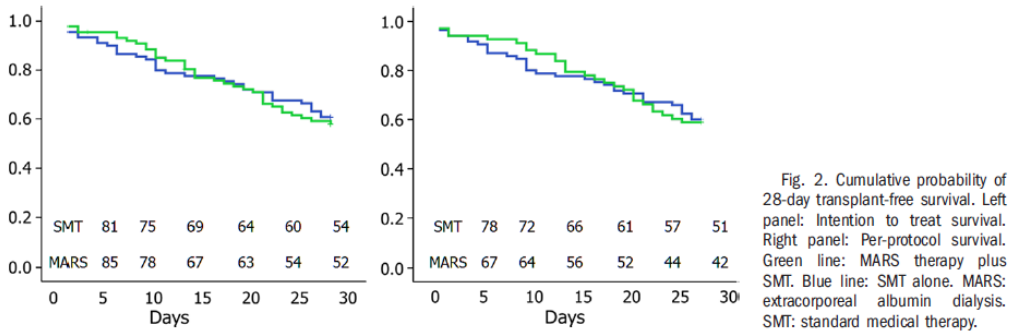


Fig. 2. Cumulative probability of 28-day transplant-free survival. Left panel: Intention to treat survival. Right panel: Per-protocol survival. Green line: MARS therapy plus SMT. Blue line: SMT alone. MARS: extracorporeal albumin dialysis. SMT: standard medical therapy.

Source: Company presentations

Single Pass Albumin Dialysis (SPAD) no better than failed MARS

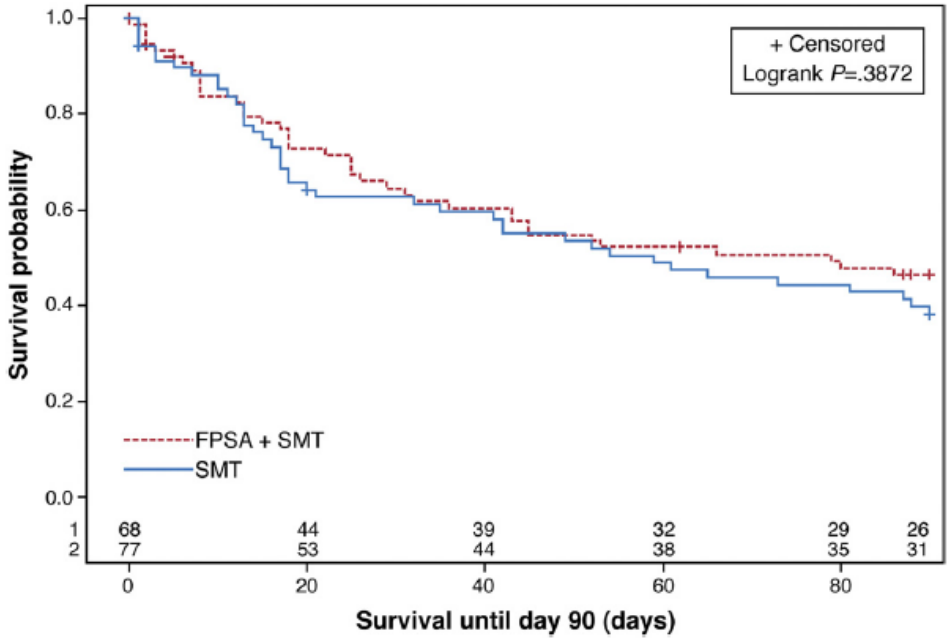
The oldest of the mechanical attempts to replicate liver function is probably Single Pass Albumin Dialysis, but results have been negative, with no survival benefit seen. This method passes a patient's blood through a standard albumin-impassible high-flux dialser and is dialysed against an albumin-containing dialysate, which facilitates removal of protein-bound molecules small enough to pass through membrane pores as well as water-soluble toxins. Results are similar to MARS, with no benefit seen for survival.

Prometheus' Fractionated Plasma Separation and Adsorption system – no survival benefit

Prometheus tested another mechanical approach for treating acute liver failure called Fractionated Plasma Separation and Adsorption (FPSA) that also did not improve survival in the overall population. The study randomized n=77 patients to standard medical care (SMT) +/- Fractionated Plasma Separation and Adsorption with primary endpoint of survival at day 28 and day 90. The Prometheus liver support system provided 8-11

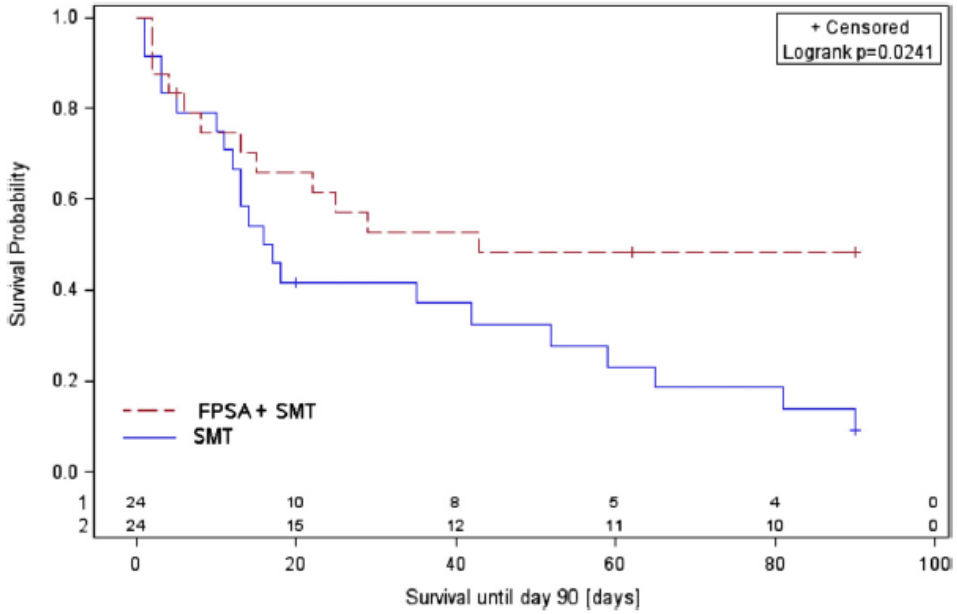
treatments of FPSA (minimum four hours each) for three weeks. The Intent-To-Treat (ITT) analysis revealed 66% and 63% survival at day 28 for FPSA and standard treatment (p=0.70), respectively, and 47% and 38% survival at day 90 for FPSA and standard treatment (p=0.35) (Figure 27). Subset analyses based on MELD scores suggested better survival for patients with MELD scores >30, with hazard ratios of 0.47 (p=0.0241) versus control (Figure 28).

Figure 27: Fractionated Plasma Separation survival benefit



Source: Company presentations

Figure 28: FPSA data subset analysis, MELD730



Supplementary Figure 2. Kaplan–Meier survival curve; patients with MELD score greater than 30.

Source: Company presentations

PRIOR BIOLOGIC APPROACHES INTERESTING

HepatAssist utilizes pig liver cells, promising results

The HepatAssist liver support system has shown a trend towards improved survival at 30 days in Fulminant Hepatic Failure and primary non-function liver transplant patients versus control. This suggests that Vital's human hepatocyte Phase 3 study may succeed, as it is also a biologic therapy. Unlike mechanism methods, a more convincing trend towards improved survival can be seen with the HepatAssist study, which utilizes biologic pig hepatocytes. Approximately 171 patients were randomized 1:1 to Bio-Artificial Liver (BAL) or control. The study showed a 71% survival rate for BAL patients at 30 days vs. 62% for control, in the overall population, which did not reach statistical significance (p=0,26). When primary non-function patients were excluded, however, survival was 73% for BAL patients and 59% for control, coming closer to statistical significance (p=0.12). Also, survival in the fulminant/subfulminant hepatic failure patients was significantly higher than control (risk ratio = 0.56, p=0.048

INTELLECTUAL PROPERTY

Vital Therapies' patent portfolio consists of four US issued patents and twelve foreign issued patents. Of the four issued US patents, one covers method of use, which expires in April 2027, and another covers device configuration and is set to expire in May 2025. Vital Therapies relies extensively on trade secrets, which they attempt to protect through confidentiality agreements and invention assignment agreements.

FINANCIAL OVERVIEW

Vital Therapies had ~$38M cash on hand as of December 31, 2013, not including cash raised through the IPO on April 17, 2014, ~$50M. As a development stage biotechnology company, Vital Therapies is currently cash flow negative, which we expect to continue through their commercial launch, if successful. There was ~3.1M common stock issuable upon the exercise of options as of February 28, 2014, with a weighted average exercise price of $6.53. In addition, Vital Therapies has 250,646 common stock issuable upon the exercise of warrants outstanding as of February 28, 2014, with a weighted-average exercise price of $95.21 per share.

Figure 29: Income statement

Income Statement	2013A	Mar-14E	Jun-14E	Sep-14E	Dec-14E	2014E	1Q15E	2Q15E	3Q15E	4Q15E	2015E	2016E	2017E	2018E	2019E	2020E
Revenue																
Total Revenue	-	-	-	-	-	-	-	-	-	-	-	-	116,218	419,047	612,335	685,841
Cost of Revenue	-	-	-	-	-	-	-	-	-	-	-	-	17,433	62,857	91,850	102,876
Gross Profit	-	-	-	-	-	-	-	-	-	-	-	-	98,785	356,190	520,485	582,965
Operating Expenses																
Stock-based Compensation in SGA	537	202	247	260	273	982	286	301	316	332	1,235	1,482	3,225	3,566	4,078	4,821
Stock-based Compensation in R&D	411	154	247	260	273	934	286	301	316	332	1,235	1,482	1,743	1,928	2,204	2,606
Research & Development	21,376	8,022	8,424	8,845	9,287	34,578	9,751	10,078	10,582	11,111	41,521	37,045	43,582	40,480	38,577	37,790
General & Administrative	9,078	3,418	3,465	3,638	3,820	14,341	4,011	4,362	4,580	4,809	17,762	34,082	38,352	50,118	65,030	84,701
Total Operating Expense	31,402	11,796	12,383	13,003	13,653	50,835	14,335	15,041	15,793	16,583	61,753	74,091	86,902	96,092	109,890	129,919
EBITDA																
Operating Income		(11,796)	(12,383)	(13,003)	(13,653)	(50,835)	(14,335)	(15,041)	(15,793)	(16,583)	(61,753)	(74,091)	11,883	260,098	410,595	453,046
Interest Income	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest Expenses	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other (expense) income, net	(15)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Revaluation of preferred stock warrant l	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Revaluation of future purchase rights li	(1,306)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pretax income	(32,718)	(11,796)	(12,383)	(13,003)	(13,653)	(50,835)	(14,335)	(15,041)	(15,793)	(16,583)	(61,753)	(74,091)	11,883	260,098	410,595	453,046
Provision for Income Taxes	-	-	-	-	-	-	-	-	-	-	-	-	4,397	96,236	151,920	167,627
Tax Rate	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%	37%
Net Income	(32,718)	(11,796)	(12,383)	(13,003)	(13,653)	(50,835)	(14,335)	(15,041)	(15,793)	(16,583)	(61,753)	(74,091)	7,486	163,862	258,675	285,419
Net Income (Non-GAAP)	(39,085)	(11,796)	(12,383)	(13,003)	(13,653)	(50,835)	(14,335)	(15,041)	(15,793)	(16,583)	(61,753)	(74,091)	7,486	163,862	258,675	285,419
GAAP EPS (Diluted)	$ (1.55)	$ (0.48)	$ (0.50)	$ (0.53)	$ (0.55)	$ (2.06)	$ (0.51)	$ (0.53)	$ (0.56)	$ (0.59)	$ (1.94)	$ (2.03)	$ 0.21	$ 4.49	$ 7.09	$ 7.82
Non-GAAP EPS (Diluted)	$ (1.85)	$ (0.48)	$ (0.50)	$ (0.53)	$ (0.55)	$ (2.06)	$ (0.51)	$ (0.53)	$ (0.56)	$ (0.59)	$ (1.94)	$ (2.03)	$ 0.21	$ 4.49	$ 7.09	$ 7.82

Source: Canaccord Genuity estimates and company reports

Figure 30: Cash flow statement and balance sheet

($000's) [FY-DEC]	2013A	Mar-14E	Jun-14E	Sep-14E	Dec-14E	2014E	2015E	2016E	2017E	2018E	2019E	2020E
Cash Flow Statement												
Net Income	(32718)	(11796)	(12383)	(13,003)	(13,653)	(50,835)	(61,753)	(74,091)	7,486	163,862	258,675	285,419
Depreciation	799	123	136	149	163	571	817	1,167	1,516	1,933	1,800	1,986
Stock-based compensation	948	356	495	520	546	1,916	2,470	2,964	4,968	5,494	6,283	7,428
Noncash interest expense	0											
Other	(1)											
Accounts Payable	(91)	61	64	67	71	264	321	217	182	177	143	126
Prepaid Expenses	(1141)	(60)	(63)	(66)	(69)	(259)	(314)	(213)	(179)	(173)	(140)	(124)
Accrued Expenses	2266	170	178	187	197	732	889	602	506	490	397	351
Cash from Operating Activities	**(28648)**	(11146)	(11573)	(12,145)	(12,746)	(47,610)	(57,570)	(69,354)	14,480	171,782	267,157	295,186
Purchases of short-term investments	(2999)											
Sales of short-term investments	17000	0	0	0	0	0	0	0	0	0	0	0
Proceeds from sale of equipment	0											
Restricted cash	(608)	(48)	(51)	(53)	(56)	(208)	(252)	(171)	(143)	(139)	(113)	(99)
Purchase of Fixed Assets	(1484)	(247)	(265)	(285)	(306)	(571)	(817)	(1,605)	(1,883)	(2,289)	(2,088)	(2,241)
Cash from Investing Activities	**11,909**	**(295)**	**(316)**	**(338)**	**(362)**	**(779)**	**(1,070)**	**(1,775)**	**(2,027)**	**(2,428)**	**(2,201)**	**(2,341)**
Proceeds from issuance of common stock		50,220				50,220	50,000	65,000				
Proceeds from issuance of preferred stoc	53,195											
Deferred financing costs	(3,112)											
Proceeds from exercise of stock options	135											
Proceeds from early exercise of stock op	227											
Cash from Financing Activities	**50,445**	50220	0	0	0	50,220	50,000	65,000	0	0	0	0
Foreign Exchange Effects	3											
Net Change in Cash	**33,709**	38,779	(11,889)	(12,483)	(13,108)	1,299	(8,640)	(6,129)	12,453	169,354	264,956	292,846
Net Cash - Beginning Balance	4,477	38,186	76,965	65,076	52,593	38,186	39,485	30,846	24,716	37,169	206,523	471,480
Net Cash - Ending Balance	38,186	76,965	65,076	52,593	39,485	39,485	30,846	24,716	37,169	206,523	471,480	764,326

Balance Sheet	**2013A**	**Mar-14E**	**Jun-14E**	**Sep-14E**	**Dec-14E**	**2014E**	**2015E**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Vital Therapies Inc												
Assets (000's)												
Cash & Equivalents	38,186	76,965	65,076	52,593	39,485	39,485	30,199	24,716	37,169	206,523	471,480	764,326
Restricted Accounts	963	1,011	1,062	1,115	1,171	1,171	1,423	1,594	1,737	1,876	1,988	2,088
Short Term Investments	0	-	-	-	-	-	-	-	-	-	-	-
Prepaid Expenses and Other Current Asset	1,200	1,260	1,323	1,389	1,459	1,459	1,773	1,986	2,164	2,338	2,478	2,602
Total Current Assets	**43,855**	79,236	67,461	55,097	42,114	42,114	33,395	28,295	41,071	210,737	475,946	769,015
Other Long Term Assets	263	276	290	304	320	320	389	435	474	512	543	570
Property and Equipment, Net	2,467	2,590	2,720	2,856	2,999	2,999	3,645	4,082	4,450	4,806	5,094	5,349
Total Assets	**46,585**	**86,945**	**75,554**	**63,595**	**51,037**	51,037	44,241	**40,443**	**54,312**	**225,037**	**491,104**	**784,931**
Accounts Payable	1,224	1,285	1,349	1,417	1,488	1,488	1,808	2,025	2,208	2,384	2,527	2,654
Accrued Expenses - Balancing value	2,883	3,027	3,179	3,337	3,504	3,504	4,260	4,771	5,200	5,616	5,953	6,251
Accrued other	--	-	-	-	-	-	-	-	-	-	-	-
Accrued clinical costs	--	-	-	-	-	-	-	-	-	-	-	-
Accrued compensation and related taxes	512	538	564	593	622	622	756	847	923	997	1,057	1,110
Accrued Expenses	3,395	3,565	3,743	3,930	4,127	4,127	5,016	5,618	6,123	6,613	7,010	7,361
Stock option repurchase liability	227	238	250	263	276	276	335	376	409	442	469	492
Future purchase rights liabilities	2,600	2,730	2,867	3,010	3,160	3,160	3,841	4,302	4,690	5,065	5,369	5,637
Long-term debt and obligations, current	--					-	-					
Total Current Liabilities	**7,446**	**11,383**	**11,952**	**12,550**	**13,177**	13,177	16,017	**17,939**	**19,554**	**21,118**	**22,385**	**23,504**
Other Liabilities - Non-current	321	337	354	372	390	390	474	531	579	625	663	696
Total Liabilities	**7,767**	**11,720**	**12,306**	**12,921**	**13,567**	13,567	16,491	**18,470**	**20,133**	**21,743**	**23,048**	**24,200**
Total Liabilities & Shareholders' Equity	**46,585**	75,224	63,248	50,674	37,470	37,470	27,750	21,973	34,179	203,294	468,056	760,731

Source: Canaccord Genuity estimates and company reports

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Site Visit: An analyst has not visited Vital Therapies' material operations.

Price Chart:*

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Global Stock Ratings
(as of 31 March 2014)

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Speculative Buy	43	4.4%	55.8%
Hold	317	32.1%	13.2%
Sell	45	4.6%	4.4%
	988*	100.0%	

*Total includes stocks that are Under Review

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Company	Disclosure
Vital Therapies	1A, 2, 3, 5, 7

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