

Corporate presentation

DECEMBER, 2024

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This presentation contains certain forward-looking statements, including those within the meaning of the Private Securities Litigation Reform Act of 1995 with respect to GENFIT, including, but not limited to statements about GENFIT's corporate strategy and objectives, the potential of elafibranor to receive marketing authorization in the United States, Europe and United Kingdom for PBC, expected milestone and royalty payments for elafibranor in PBC, Ipsen's expectations regarding global peak sales for elafibranor in PBC, Ipsen's ability to effectively maximize commercialization of elafibranor, the potential scope and size of the market for ACLF, commercial certainty within that market, development plans for our pipeline programs and expected timing for potential regulatory approvals and clinical milestones for our drug candidates, as well as projections regarding our cash runway and sources of funding of our research and development. The use of certain words, including "believe, "potential," "expect" and "will" and similar expressions, is intended to identify forward-looking statements. Although the Company's believes its expectations are based on the current expectations and reasonable assumptions of the Company's management, these forward-looking statements are subject to numerous known and unknown risks and uncertainties, which could cause actual results to differ materially from those expressed in, or implied or projected by, the forward-looking statements. These risks and uncertainties include, among other things, the uncertainties inherent in research and development, including in relation to safety of drug candidates, cost of, progression of, and results from, our ongoing and planned clinical trials, review and approvals by regulatory authorities in the United States, Europe and worldwide, of our drug and diagnostic candidates, potential commercial success of elafibranor if approved, exchange rate fluctuations, our continued ability to raise capital to fund our development, as well as those risks and unc

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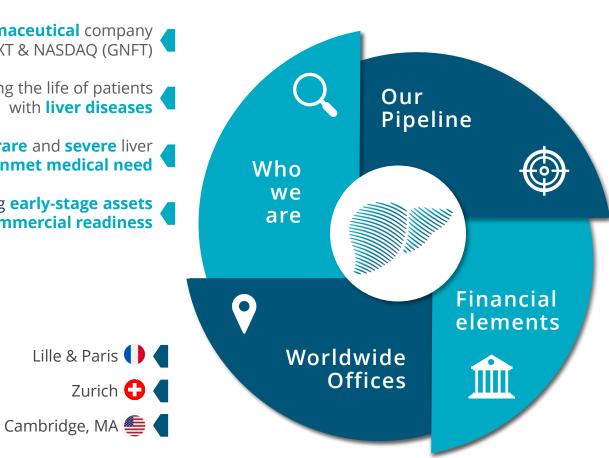
GENFIT Highlights

French **biopharmaceutical** company Dual-listed on EURONEXT & NASDAO (GNFT)

> Improving the life of patients with liver diseases

Specific focus on rare and severe liver diseases with high unmet medical need

Expertise bringing early-stage assets to commercial readiness



5 assets in ACLF & its complications

VS-01 (UNVEIL-IT® - Phase 2)

VS-01 (Proof of Concept) **NTZ** (*Proof of Concept*)

SRT-015 (First-in-Human Study*)

CLM-022 (preclinical)

VS-02-HE (preclinical)

Other conditions

GNS561 CCA (Phase 2)

VS-01-HAC UCD/OA (preclinical)

Diagnostic programs

NIS2+® ('at risk' MASH) TS-01 (ammonia)

Iqirvo® (elafibranor) in PBC

Approval U.S. FDA, EMA, UCHMRA UK

Cash position: €96M as of Sept 30, 2024 Cash runway: ~4025**

From IPSEN:

€48.7M in milestone payment (June 2024) and €0.9M in royalty revenue from U.S. sales of Igirvo®/elafibranor from IPSEN













Towards a new GENFIT



Inception & early years



Clinical development in chronic liver diseases

Strategic Shift



Focus on rare and life-threatening liver diseases with high unmet needs

1999

Development of Research

& Development know-how
via collaborations with
Big Pharma



In-house discovery of elafibranor (GFT505)

Development of **elafibranor in MASH**up to Phase 3 included

Positive 52-week ELATIVE Phase 3 trial evaluating **elafibranor in PBC**

Know-how and experience in liver diseases

- Research (collaborations with academia, liver disease models, spheroids, etc.)
- Clinical (large international trials, KOL networks, patient engagement, etc.)
- Regulatory (FDA/EMA interactions, etc.)

2024

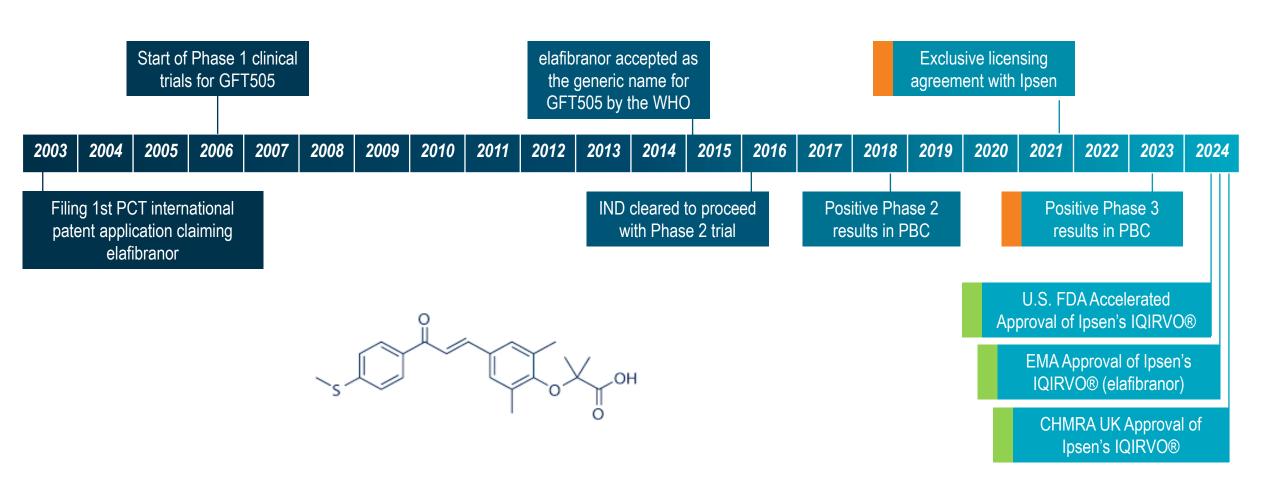
A diversified pipeline in ACLF (6 programs) and other life-threatening diseases (2 programs)

- Acute-on-Chronic Liver Failure (ACLF)
- VS-01 (Phase 2 initiated)
- SRT-015 (First-in-Human Study¹)
- VS-01 (Proof of Concept)
- CLM-O22 (preclinical)
- NTZ (Proof of Concept)
- VS-02-HE (preclinical)
- Other life-threatening liver diseases
- GNS561 (Phase 2 initiated)
- VS-01-HAC (preclinical)

Potential future milestone payments and royalties from PBC² to partially fund pipeline development



The elafibranor story in PBC





Pipeline

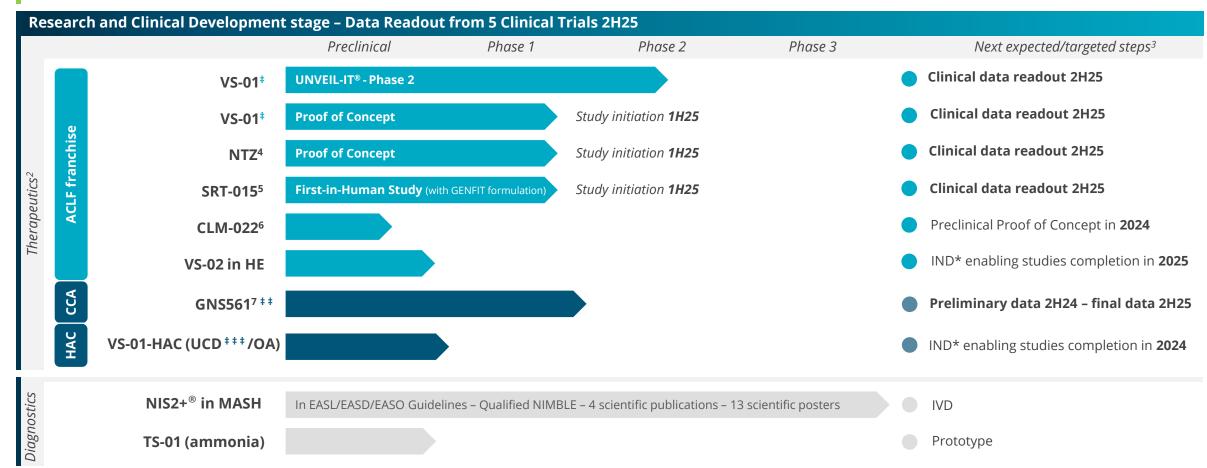
Commercial stage



Igirvo® (elafibranor^{1,8}) in **PBC**

- Approval U.S. FDA June 10, 2024
- Approval EMA September 19, 2024
- Approval CHMRA UK October 8, 2024







‡ Orphan Drug Designation for ACLF (US) & ALF (EU) ‡ ‡ Orphan Drug Designation (ODD) FDA

* IND = Investigational New Drug

- 1. Out-licensed to Terns Pharmaceuticals and Ipsen | US-FDA-accelerated-approval | UE-EMA-approval 2. All drugs under development are investigational compounds that have not been reviewed nor been approved by a regulatory authority in targeted indications ‡‡‡Rare Pediatric Disease Designation FDA; ODD FDA
 - 3. Reflects management's anticipated timelines, which are subject to change | based on industry benchmark/average
- 4. Repurposed molecule (Nitazoxanide)
- 5. In-licensed from Seal Rock Therapeutics
- 6. In-licensed from Celloram
- 7. In-licensed from **Genoscience Pharma** 8. Potentially eligible for priority review voucher upon approval by the FDA



Professeur Richard Moreau, Founding Member of EF-CLIF and Worldwide Leader in ACLF

RICHARD MOREAU

Senior Scientist, Directeur de Recherche de Classe Exceptionnelle (DRCE) à l'INSERM (French NIH)

FRANCE

City: Paris

Institution: UMR_S 1149, Centre de Recherche sur l'Inflammation CRI

Contact: richard.moreau@inserm.fr



BIOGRAPHY OF RICHARD MOREAU

Dr. Richard Moreau, Senior Scientist, Vice-Chairman of the Center for Research on Inflammation, INSERM, Paris Diderot University and Cnrs, Paris, France Dr. Richard Moreau is: 1) Senior Scientist (Outstanding Grade) at the French NIH (INSERM); 2) Vice-Chairman of the Centre of Research on Inflammation (CRI, Paris, France), endorsed by the French NIH (INSERM), Paris Diderot University, and Cnrs; 3) Consultant in Hepatology at the Liver Unit at Beaujon Hospital, Assistance Publique Hôpitaux de Paris, Clichy, France; 4) Adjunct Professor at the Institute of Liver and Biliary Sciences (ILBS), New Delhi, India; 5) Advisor for Hepatology at the INSERM' Institute "Pathophysiology, Metabolism, Nutrition"; 6) Deputy Director of the Grifols Chair for Translational Research at the European Foundation for the Study of Chronic Liver Failure (EF Clif), Barcelona, Spain.

His main research interest is pathophysiology and treatment of complications of cirrhosis, in particular acute-on-chronic liver failure (ACLF). He was responsible for the fact that France was the first country in the world to approve terlipressin as a first-line treatment for hepatorenal syndrome. Because of his interest for end-stage liver disease. In 2009, he was among founding members of the EASL-Chronic Liver Failure (CLIF) Consortium which includes now 90 European Centers and is dedicated to develop research on cirrhosis. He was PI of the first study (called CANONIC study) performed under the umbrella of the EASL-CLIF Consortium; this study was the first to provide an evidence-based definition for ACLF.

He is now Senior Editor of Journal of Hepatology (2015-19). He has been Associate Editor for Journal of Hepatology (2010-14) and Liver International (2007-9). His scientific production consists of 318 Peer-Reviewed publications (PubMed, November 2017), of which 222 Original Articles, 96 Review Articles or Editorials; his h-index is of 63; his SIGAPS score (French score) is 4497.

He was Editor of 1 book and 34 book chapters

He gave 242 Invited lectures (70% outside France), 300 communications in International meetings.



ACLF Day December 12, 2023

Acute-on-Chronic Liver Failure (ACLF)

Richard Moreau, MD, FAASLD,^{1,2,3}
¹European Foundation for the Study of Chronic Liver Failure (EF CLIF),
Barcelona, Spain;

²Centre de Recherche sur l'Inflammation (CRI), INSERM, Université Paris Cité, CNRS, Paris, France; ³Service d'hépatologie, Hôpital Beaujon, APHP, Cichy, France.

Outline

- Cirrhosis & ACLF
- Defining ACLF
- Pathophysiology
- Medical management
- Liver transplantation
- Unmet needs

Cirrhosis

- 11th most common cause of death
 - 2 million deaths worldwide/year (~4% of deaths worldwide)
- 2 billion consume alcohol
 - At risk for alcohol-associated cirrhosis

- 2 billion overweight/obese
 - At risk for metabolic-associated cirrhosis

Characteristics of Cirrhosis

- Chronic liver disease
- Compensated for years
- Decompensated: ascites, gastrointestinal hemorrhage, hepatic encephalopathy
 - Recent onset defines acute decompensation
- Acute decompensation: often leads to nonelective hospital admission
- ACLF: cause of death in acute decompensation.

Characteristics of ACLF

- Men ~55 yr
- Seen among patients nonelectively admitted for acutely decompensated cirrhosis
- Defined by impaired function of major organ systems & intense systemic inflammation
- Associated with high short-term mortality (by 28 & 90 days)
- Engages health-care system resources (ICU, liver transplantation)

ACLF Burden in Europe

 Under evaluation (commissioned by Journal of Hepatology)

 Currently estimated to ~150,000 cases/yr (projection from German data).

Evidence-Based Knowledge Produced by EF CLIF

- Studies in patients nonelectively admitted for acute decompensation:
 - o CANONIC: 1343 European patients
 - o PREDICT: 1273 European patients
 - ACLARA: 1274 LATAM patients

Moreau et al. Gastroenterology 2013;144:1426-37. Trebicka et al. J Hepatol 2020;73:842-54. Farias, Curto Vilalta, et al. Gastroenterology 2023;165:696-16.

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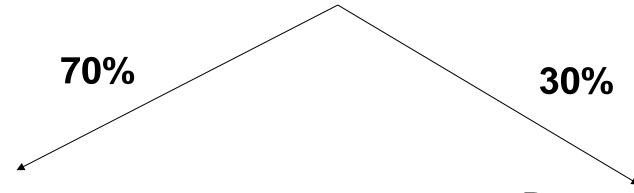
Diagnostic Criteria & Prevalence of Organ System Failures (CANONIC Study)

		Prevalence
Organ system	Diagnostic criteria*	(%)
Liver	Bilirubin ≥12 mg/dL	15.4
Kidney	Creatinine ≥2 mg/dL or	12.6
	RRT	
Coagulation	INR ≥2.5	7.8
Brain	Grade 3 or 4 HE	7.4
Circulation	Use of vasopressor	4.8
Respiration	SpO2/FiO2 ≤214	2.4

^{*}According to CLIF-C OF score. Moreau et al. Gastroenterology 2013;144:1426-37.

The CANONIC Study Defined ACLF

1343 patients nonelectively admitted for acutely decompensated cirrhosis (new ascites, encephalopathy, infection, GI hemorrhage)



Absence of ACLF

- Low-grade systemic inflammation
 - No organ failure
 - Low 28-day mortality

Presence of ACLF

• High-grade systemic inflammation

• Organ failures

(ACLF-1, ACLF-2, ACLF-3)

• High 28-day mortality

(ACLF-3>ACLF-2>ACLF-1)

Triggers of Inflammation & ACLF (PREDICT Study)

Trigger	Prevalence
Type:	
Bacterial infection	44%
Alcohol-related hepatitis	44%
GI hemorrhage with shock	6%
Toxic encephalopathy	6%
Number:	
1	46%
≥ 2	25%
0	29%

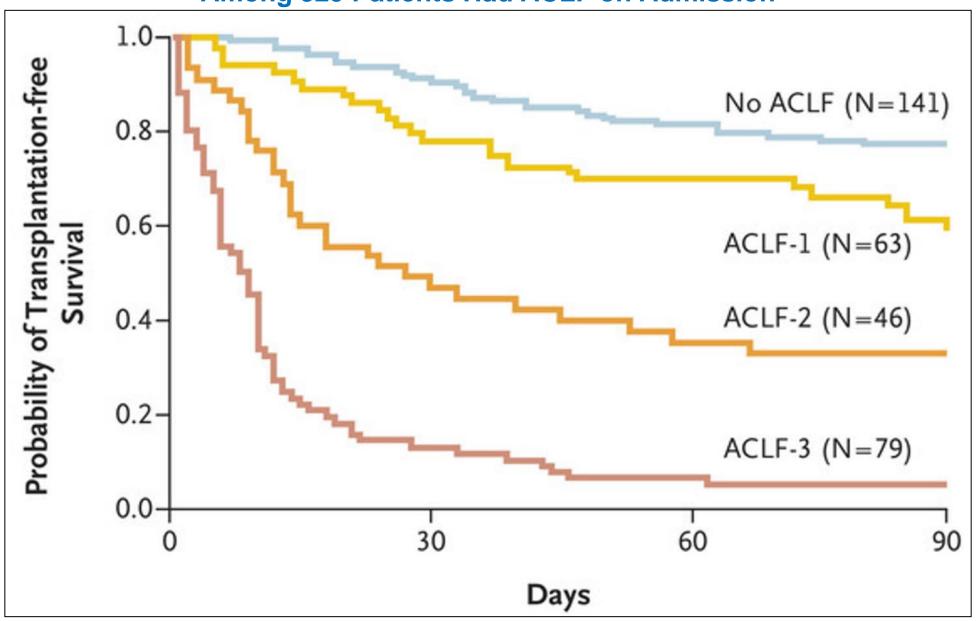
Trebicka, Fernandez, et al. J Hepatol 2021:74;1097-108.

Clinical Course of ACLF Within the 1st Week

	ACLF Grade at Day 7				
Initial Grade	0	1	2	3	
	% patients				
ACLF-1	55	24	8	12	
ACLF-2	35	15	25	25	
ACLF-3	16	4	12	68	

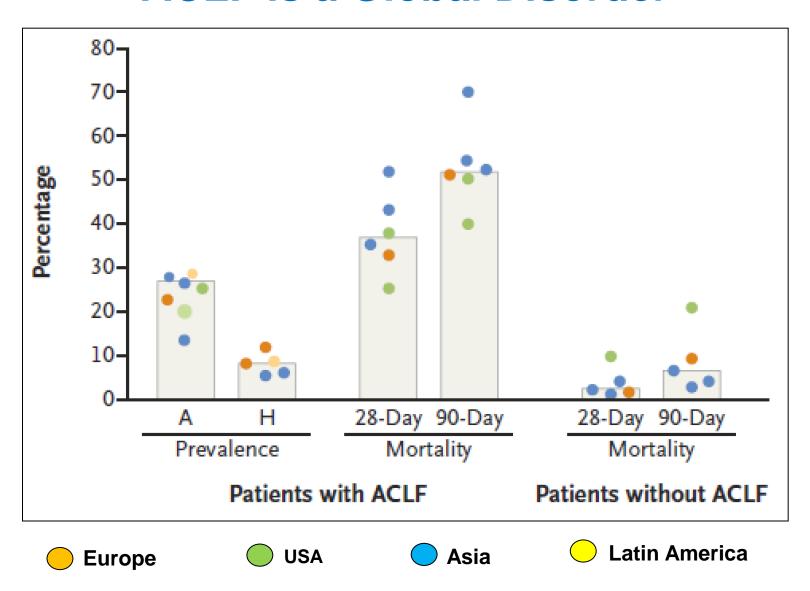
Gustot, Fernandez, et al. Hepatology 2015;62:243-52.

90-Day Transplantation-Free Survival According to Status at Day 7 Among 329 Patients Had ACLF on Admission



Arroyo, Moreau, Jalan. N Engl J Med 2020;382:2137-45.

ACLF is a Global Disorder



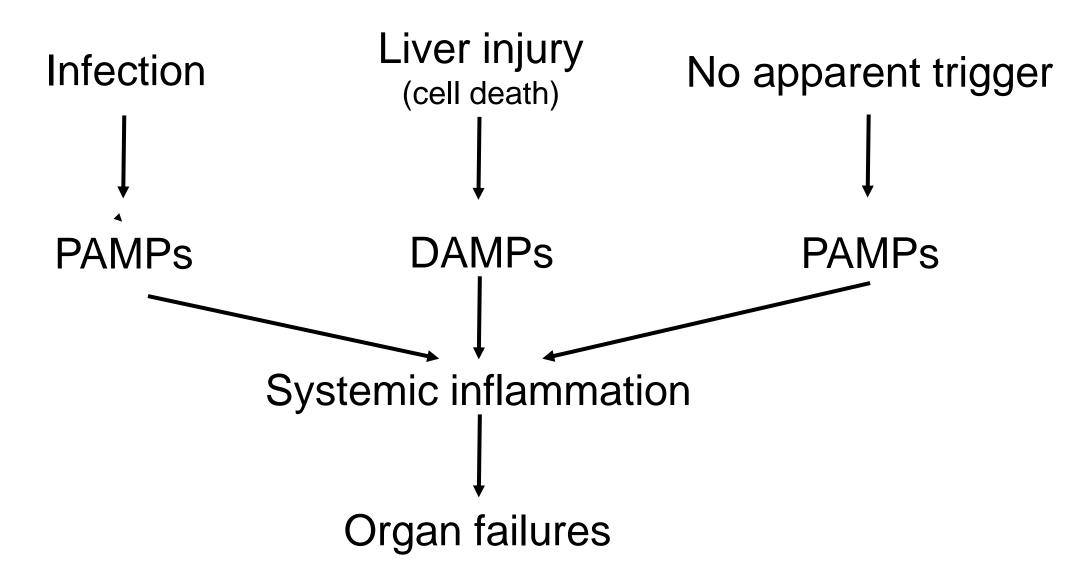
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Inducers of Inflammation

- Pathogen-associated molecular patterns (PAMPs) = bacterial byproducts immediately recognized by immune system; induce inflammation
- Damage-associated molecular patterns
 (DAMPs) = intracellular molecules released by dying cells; immediately recognized by immune system; induce inflammation

Inducers of Inflammation According to Triggers



Impaired Gut Barrier in Decompensated Cirrhosis

- Changes in gut microbiome (↑ pathobionts = "bad" bacteria)
- † Intestinal permeability to bacteria and/or bacterial PAMPs
- Translocation of bacteria and/or bacterial PAMPs to blood flowing to the liver
- ↓ Function of the "hepatic filter"; bacteria and/or bacterial PAMPs reach systemic circulation
- Bacteria can cause infection & inflammation; isolated bacterial PAMPs can cause inflammation.

Outline

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Key Points

- Main principle: Diagnose acute precipitants & treat them urgently
- Provide supportive therapy in ICU
- Objective: Bridge to early liver transplantation
- No "pathophysiology-based" therapy available.

Supportive Therapy

Cardiovascular: vasoconstrictors.

Respiratory: mechanical ventilation.

 Brain: protective intubation if necessary; lactulose; albumin dialysis (MARS) if lactulose failure.

Liver: 2 negative RCTs of extracorporeal MARS.

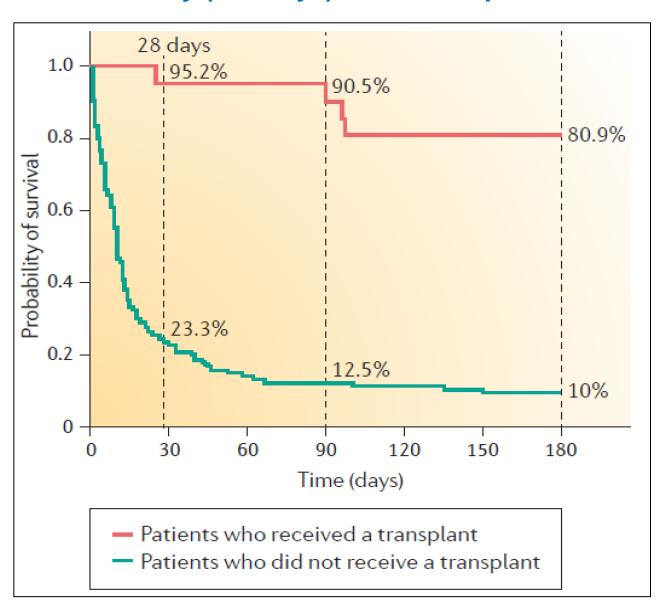
Other Interventions

- Granulocyte colony-stimulating factor
 - No efficacy
- Plasma exchange
 - Trial recruiting
- Cell therapy
 - Under evaluation

Outline

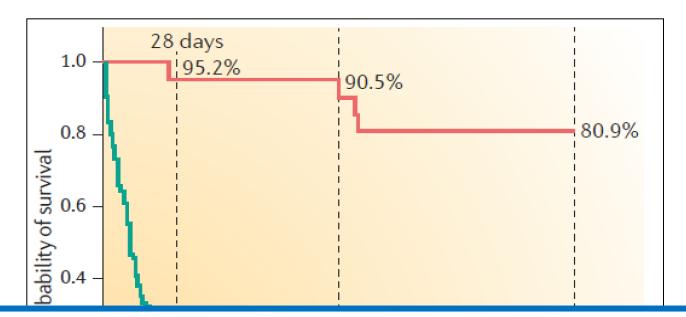
- Cirrhosis & ACLF
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Survival Among Patients with ACLF-2, -3 who Did or Did not Receive Early (<28 days) Liver Transplant



Gustot, Fernandez, et al. Hepatology 2015;62:243-52.

Survival Among Patients with ACLF-2, -3 who Did or Did not Receive Early (<28 days) Liver Transplant

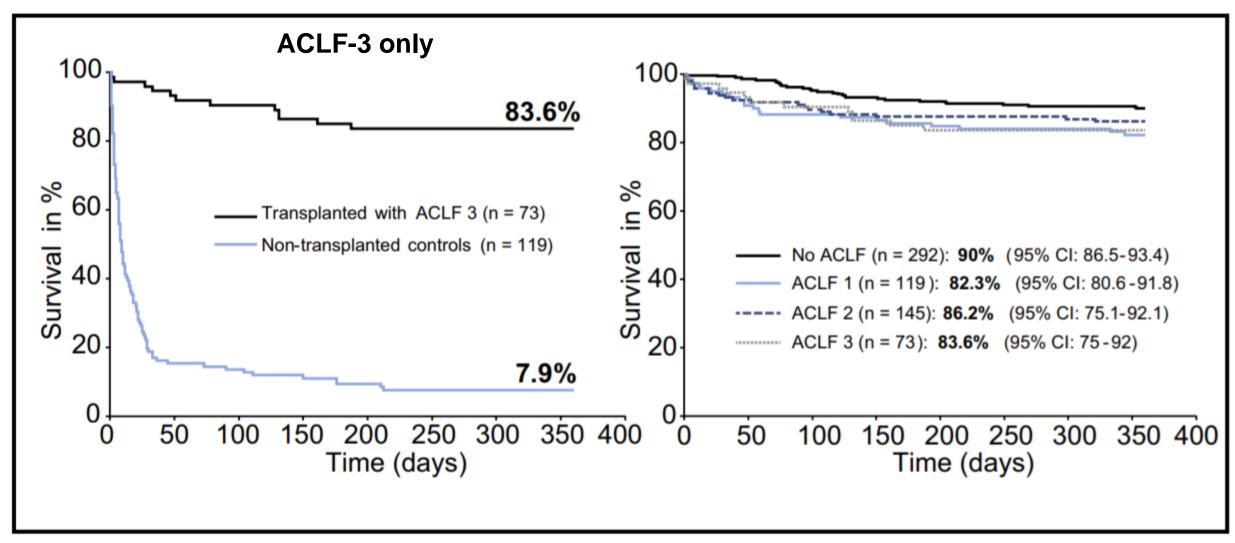


Narrow window for liver transplantation

- Patients who received a transplant
- Patients who did not receive a transplant

Gustot, Fernandez, et al. Hepatology 2015;62:243-52.

Liver Transplantation in Patients with ACLF



Artru et al. J Hepatol 2017; 67:708-15.

Outline

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Targeting Bacterial/PAMP Translocation

- Current approaches are based on antibiotics
- Restricted to few patients

- Major issues with antibiotic use (emergence of multidrug-resistant bacteria)
- Alternative approaches: unmet need.

Conclusions

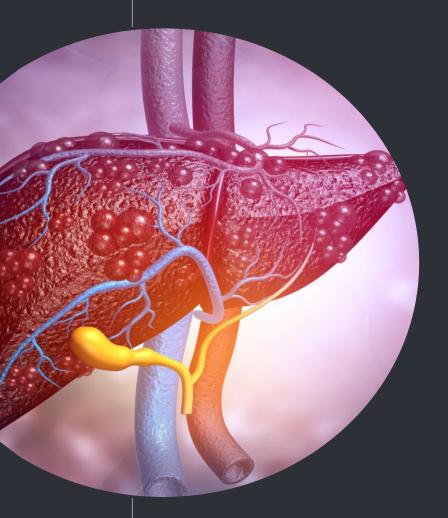
- ACLF is the most severe form of acutely decompensated cirrhosis
- Bacterial/PAMP translocation & systemic inflammation are key pathogenic mechanisms
- There is no "pathophysiology-based" therapy currently available
- Liver transplantation is effective but limited due to narrow time, organ shortage, poor access in high-level care.



Acute-on-Chronic Liver Failure (ACLF)

Jennifer C. Lai, MD, MBA
Transplant Hepatologist
Endowed Professor of Liver Health & Transplantation
University of California, San Francisco (UCSF)

Acute-on-Chronic Liver Failure: Defined



...a potentially reversible condition in patients with chronic liver disease with or without cirrhosis that is associated with potential for multiple organ failure and high mortality within 3 months in the absence of treatment...



There is no direct therapeutic for ACLF.



SCOPE OF THE UNDERLYING PROBLEM:

Chronic liver disease & cirrhosis

Chronic Liver Disease & Cirrhosis

11th most common cause of death

2 million deaths worldwide (~4% of deaths worldwide)

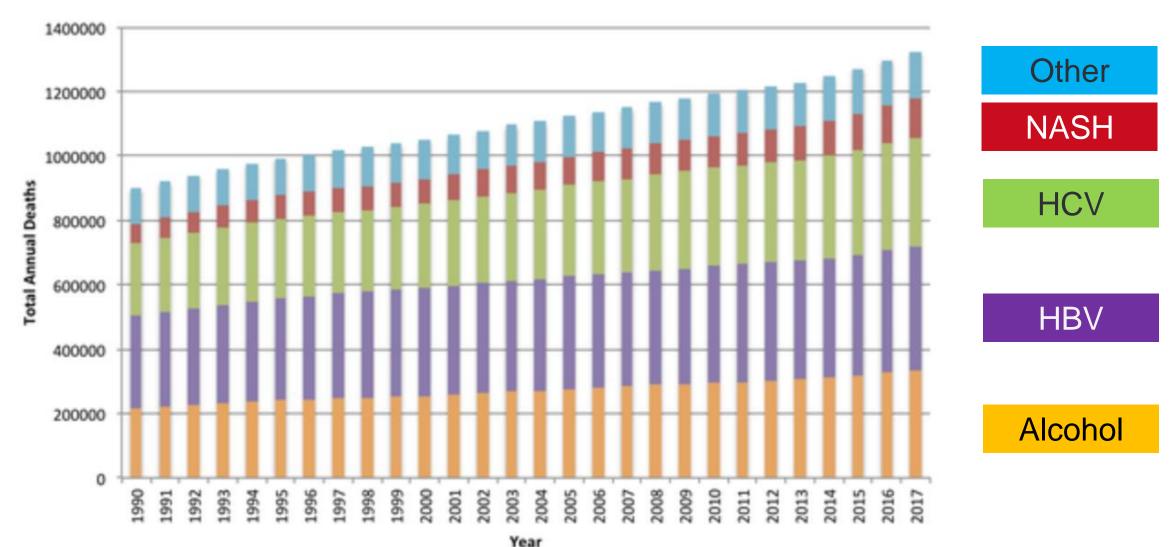
2 billion consume alcohol

At risk for alcohol-associated liver disease / cirrhosis

2 billion overweight/obese

At risk for non-alcoholic fatty liver disease / cirrhosis

Deaths by liver disease etiology: RISING



Cheemerla S, et al. Clin Liv Dis 2021. https://vizhub.healthdata.org/gbd-results/

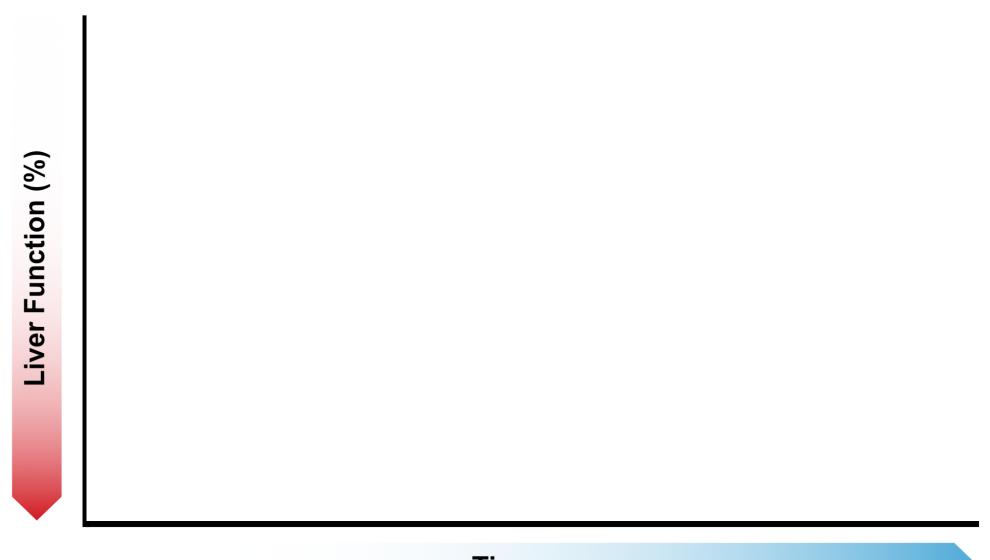
Economic burden of chronic conditions in the U.S.: Cirrhosis and ACLF much higher!

Chronic disease	Length of hospital stay	Inpatient mortality	Mean cost per hospitalization
Pneumonia	5 days	3.3%	\$7,581
Congestive heart failure	5 days	3.0%	\$8,315
Cerebrovascular disease	6 days	4.7%	\$8,117

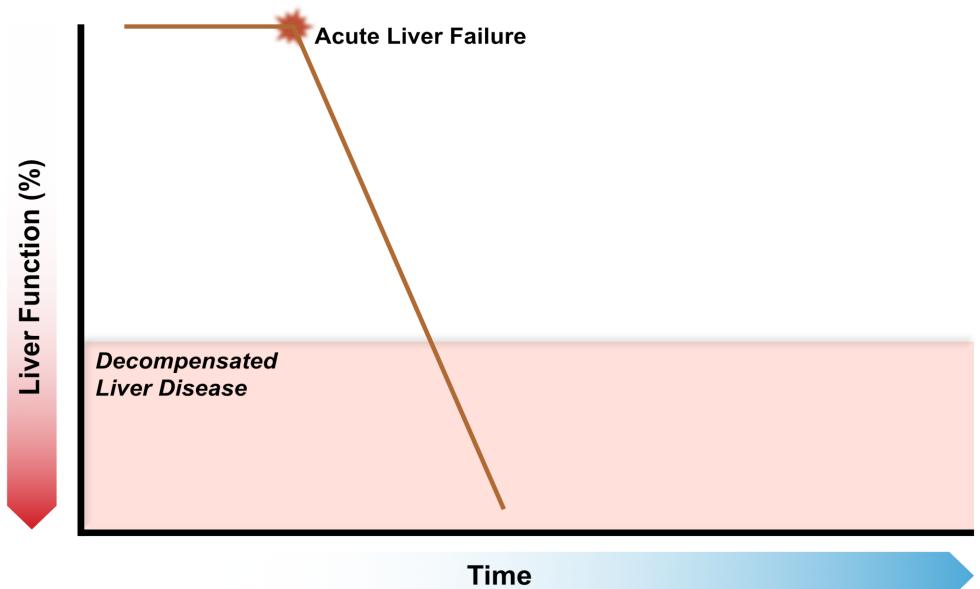


THE PATIENT:

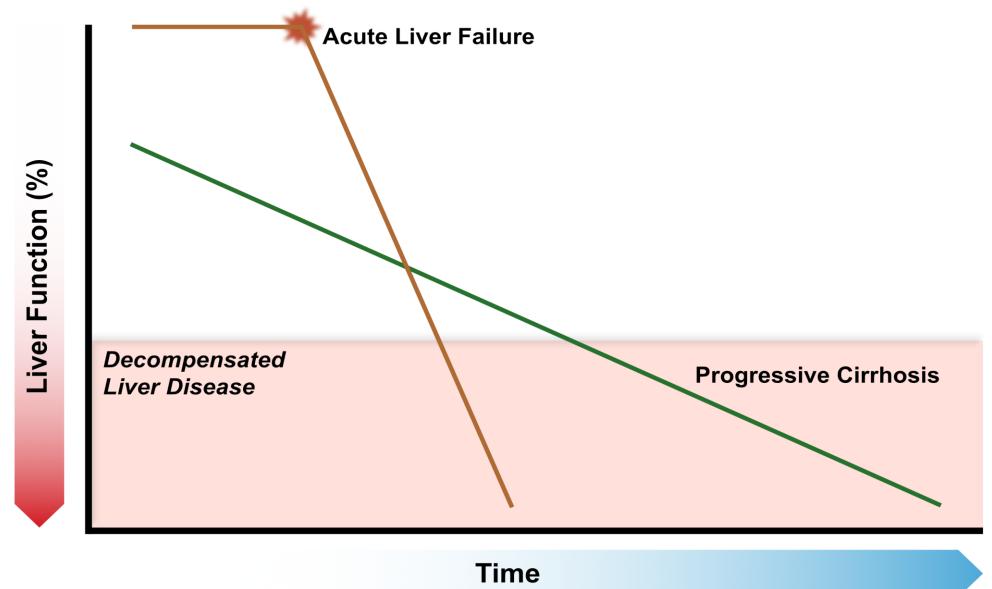
Clinical Course & Features



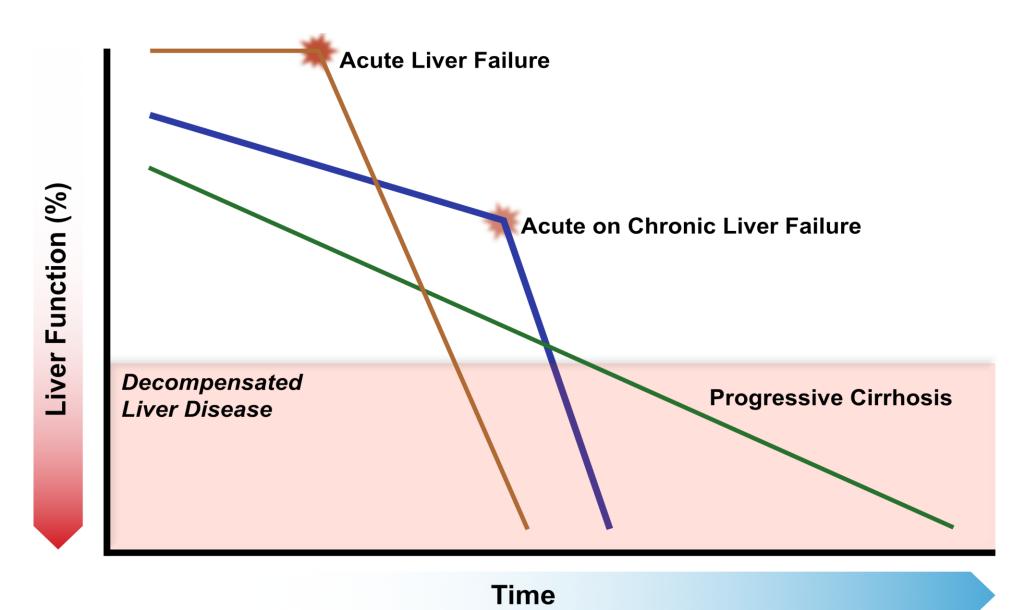
Time



Mahmud N, et al. Curr Hep Reports 2020.



Mahmud N, et al. Curr Hep Reports 2020.



Mahmud N, et al. Curr Hep Reports 2020.

Clinical characteristics (U.S. cohort)

	n=1,031		
Age (years)	57 (11)		
Men	66%		
Liver disease etiology			
Alcohol only	31%		
HCV only	21%		
Alcohol + HCV	15%		
NASH	17%		
Other	15%		

Reason for admission	n=1,031
Bacterial infection	25%
GI bleed	16%
Hepatic enceph.	17%
Renal dysfxn	12%
Alcohol related	4%
Electrolytes abnl	3%
Other	23%

Role of prior hepatic decompensation

	n=417
No prior event	26%
<3 months prior	16%
3-12 prior	17%
>12 months prior	41%

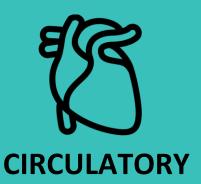
Percent with extra-hepatic organ failure on admission

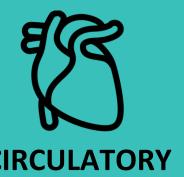






22%





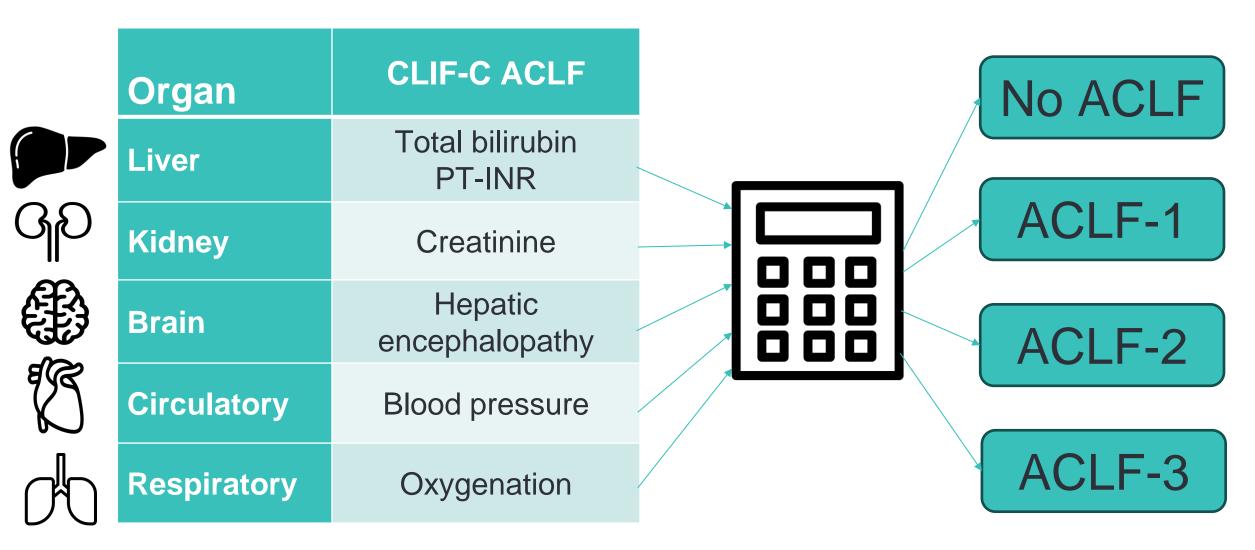
23%



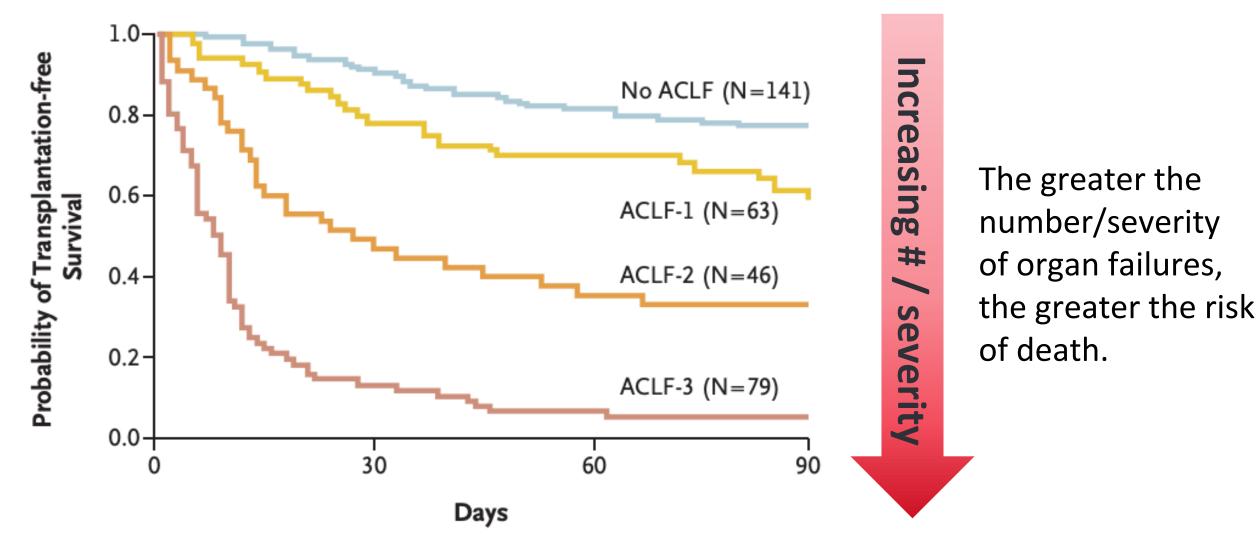
13%

ACLF Scoring System

Chronic Liver Failure Consortium (CLIF-C) ACLF



Probability of survival by ACLF severity



Gustot T, et al. Hepatol 2015. Arroyo V, et al. NEJM 2020.

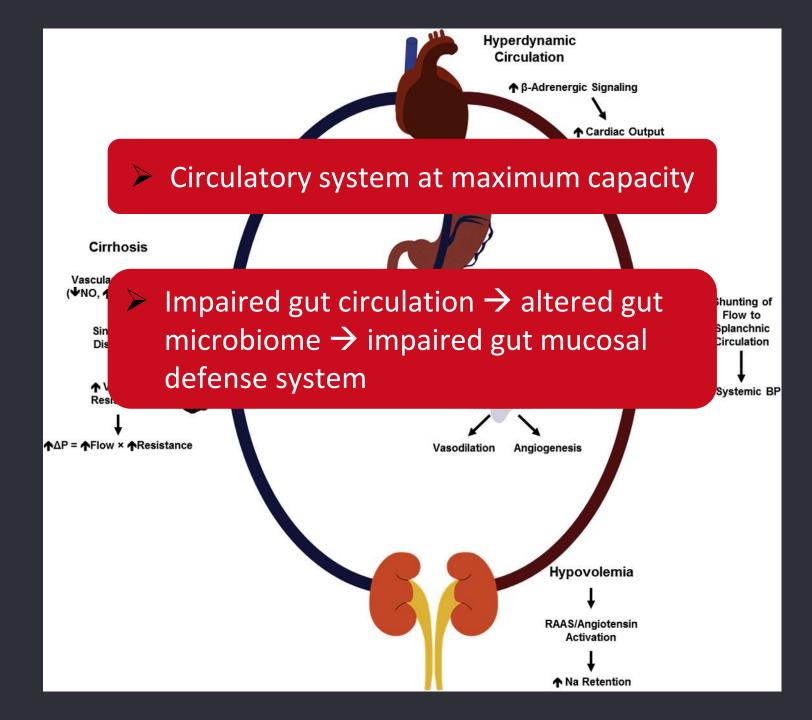


PATHOGENESIS:

Leading hypotheses and supporting data

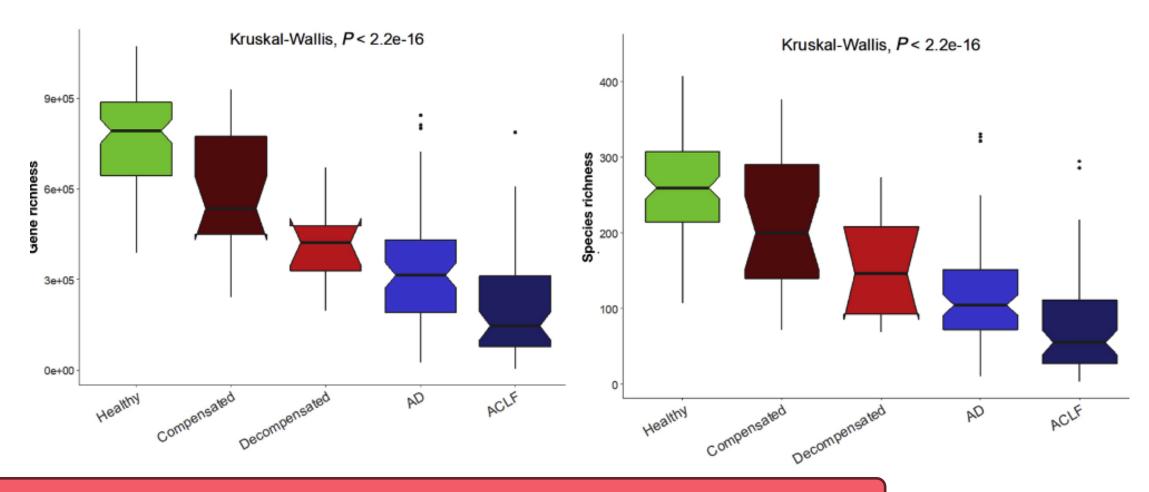
The underlying condition

Portal hypertension 101



Simonetto DA, *et al.* Mayo Clinic Proc 2019.

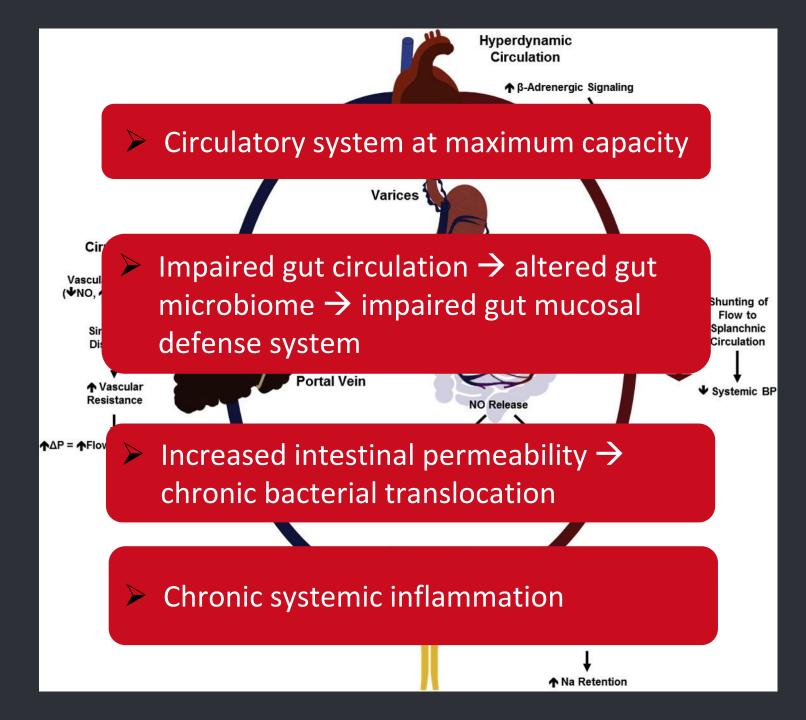
Greater severity of liver disease is associated with less diverse microbiome



Is there a role for gut microbiota manipulation to improve ACLF outcomes?

The underlying condition

Portal hypertension 101



Simonetto DA, *et al*. Mayo Clinic Proc 2019.

The acute insult

Exacerbation of portal hypertension

Systemic inflammation hypothesis of ACLF

Acute precipitant

Excessive inflammatory reaction

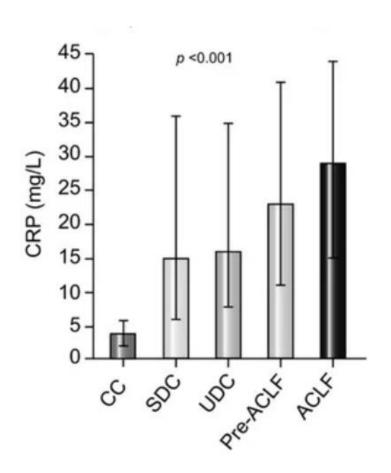
Severe acute systemic inflammation and oxidative stress

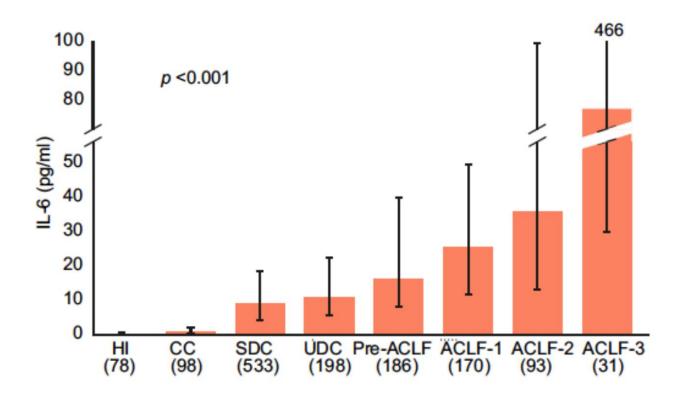
Acute on chronic systemic inflammation

Arroyo V, *et al*. J Hep 2021. Fig adapted from Arroyo V, *et al*. J Hepatol 2014.

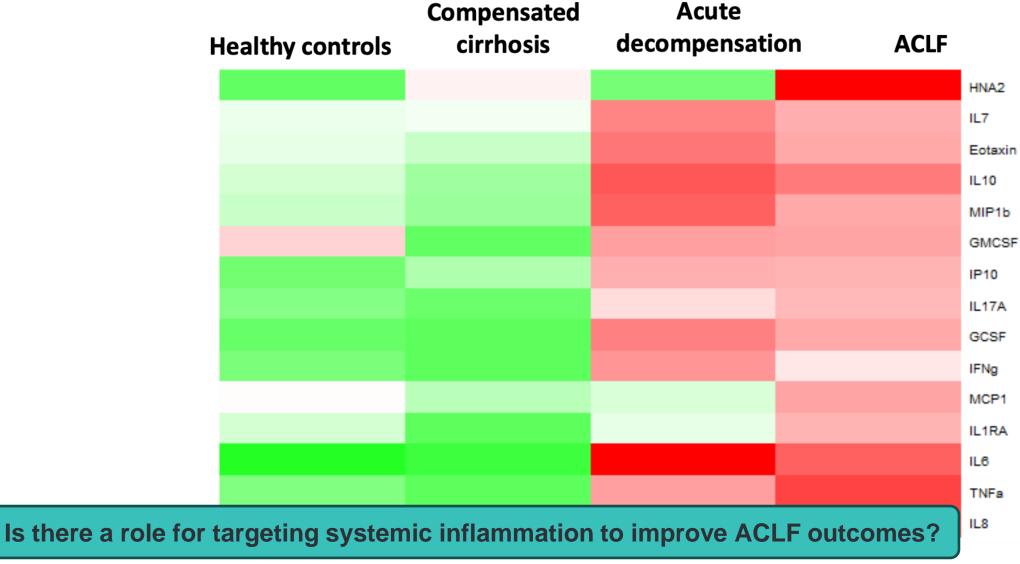
Systemic inflammatory markers and risk of ACLF

Escalating risk as systemic inflammatory markers increase





Systemic inflammatory markers are elevated





AT THE BEDSIDE:

Management



There is no direct therapeutic for ACLF.

Enteral nutrition via nasogastric tube

Monitored circulating volume expansion with intravenous fluids

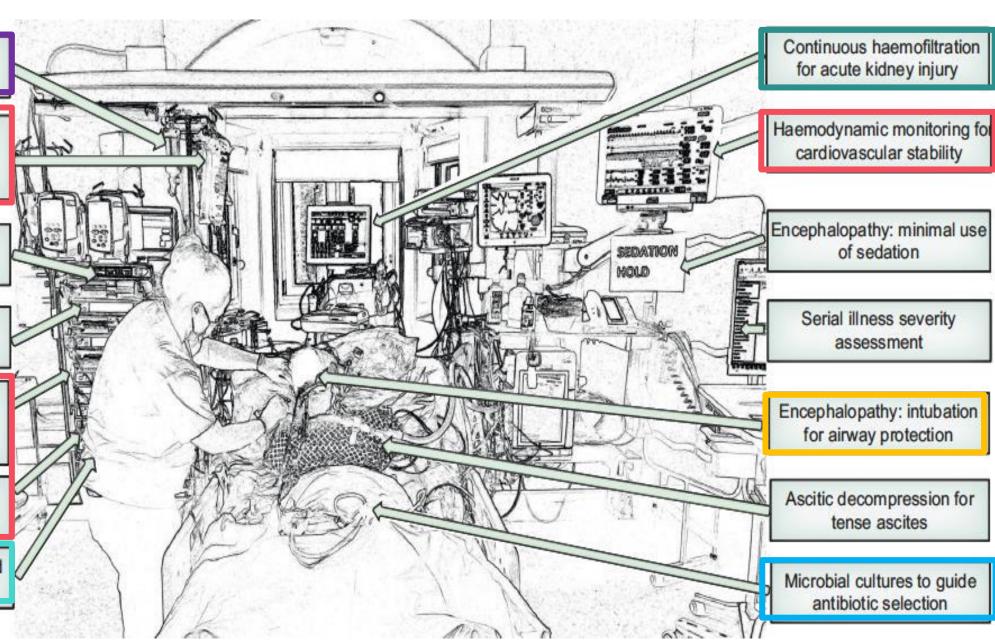
Insulin infusion for glycaemic stability

Electrolyte infusion for metabolic stability

Noradrenalin/ terlipressin for cardiovascular support

Hydrocortisone for adrenal insufficiency

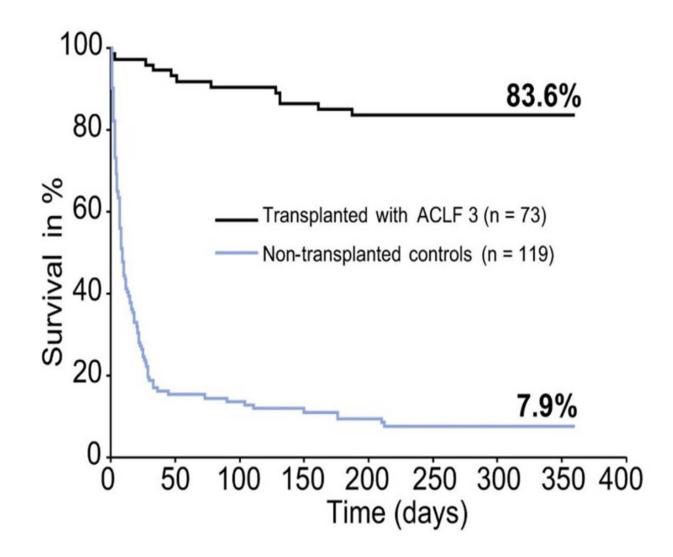
Nursing staff experienced in liver care



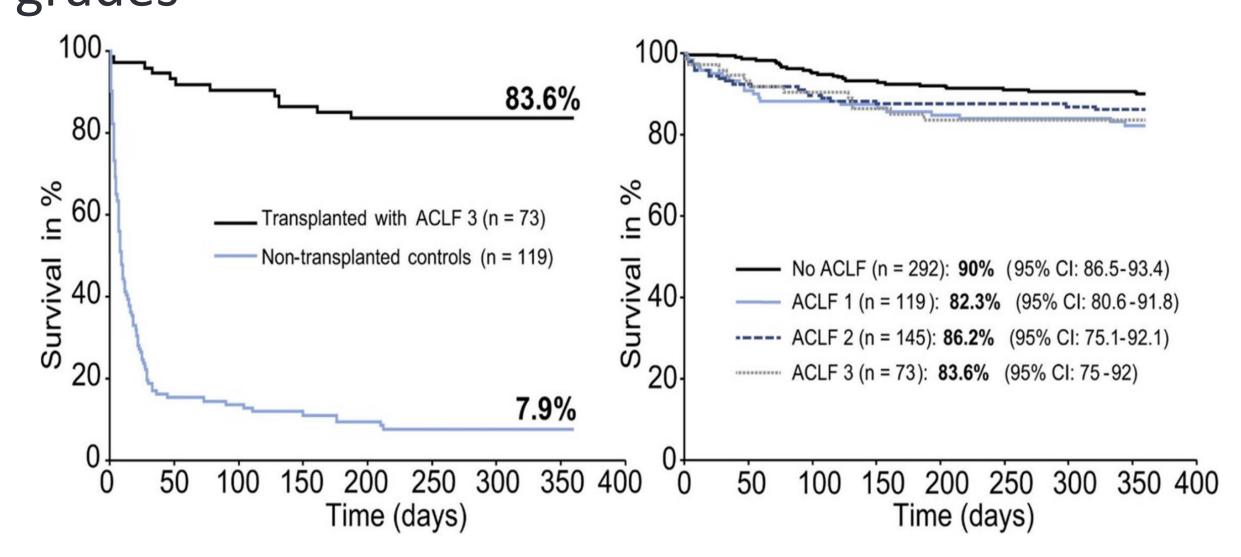
GOAL OF TREATMENT: BUY TIME



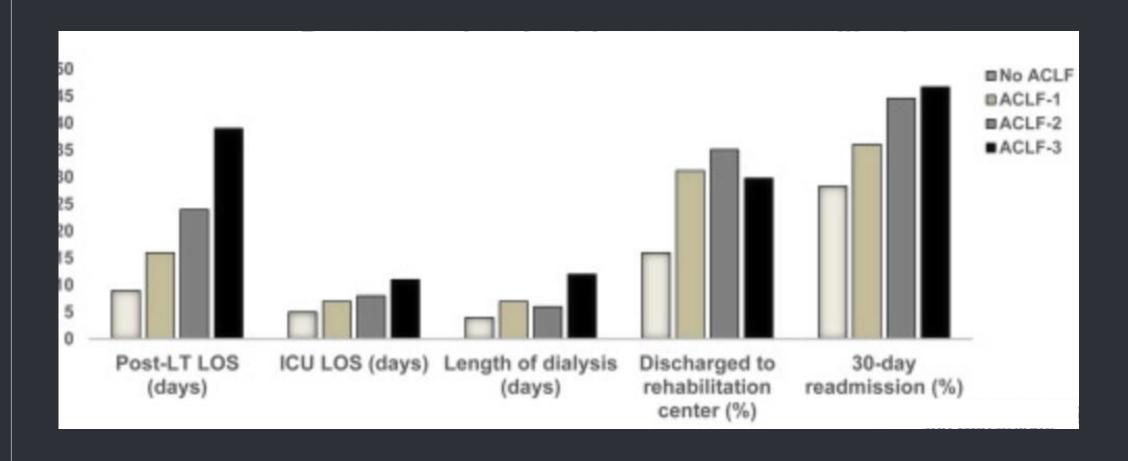
Survival is better with transplant than without



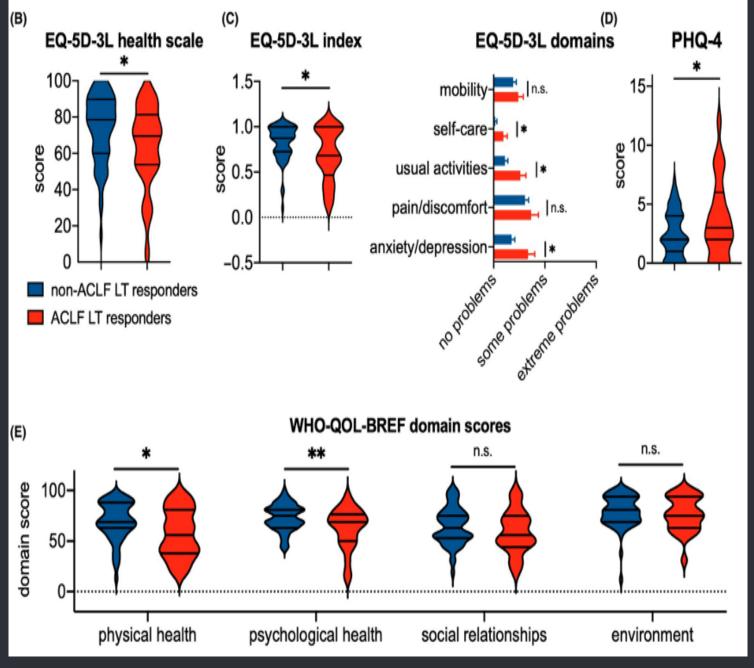
Transplant survival is acceptable in all ACLF grades

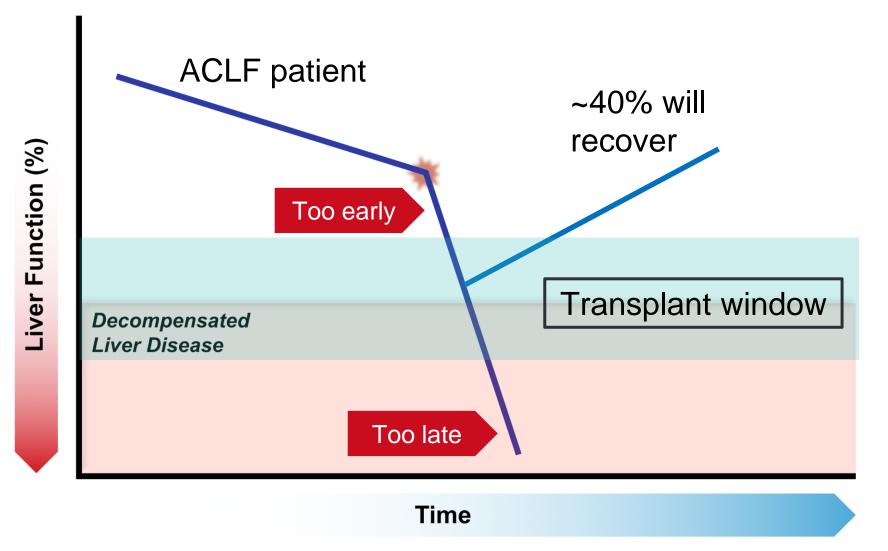


Post-transplant healthcare utilization increases by stage of ACLF



Post-LT quality of life is significantly impaired



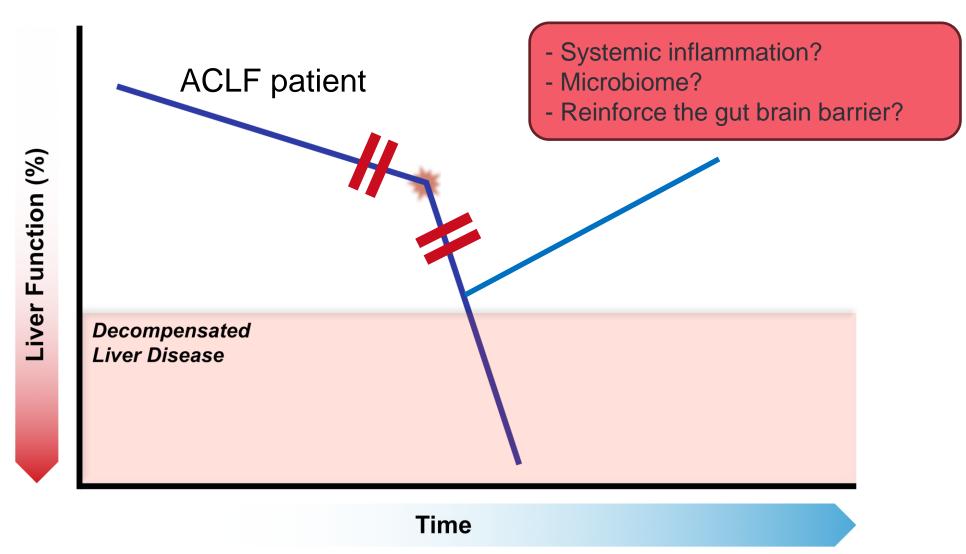


- ~4% of patients with cirrhosis are listed for liver transplant
- ➤ 1 in 4 patients listed for transplant die while waiting

Interventions other than liver transplantation: Statements from the ACG ACLF guidelines

- Artificial liver support systems
 "whether they provide any clinical benefit is unclear"
- Plasma exchange"its effect in ACLF is unknown"
- Granulocyte colony stimulating factor
 "we suggest against the use of G-CSF"
- Stem cell therapy
 "evidence to support its use is currently insufficient"

The Opportunity



Adapted from Mahmud N, et al. Curr Hep Reports 2020 and Gustot T, et al. J Hepatol 2018.



ACLF is a highly lethal, resource-intensive condition that occurs in patients with chronic liver disease.

Portal hypertension, altered microbiome, and systemic inflammation drive ACLF.

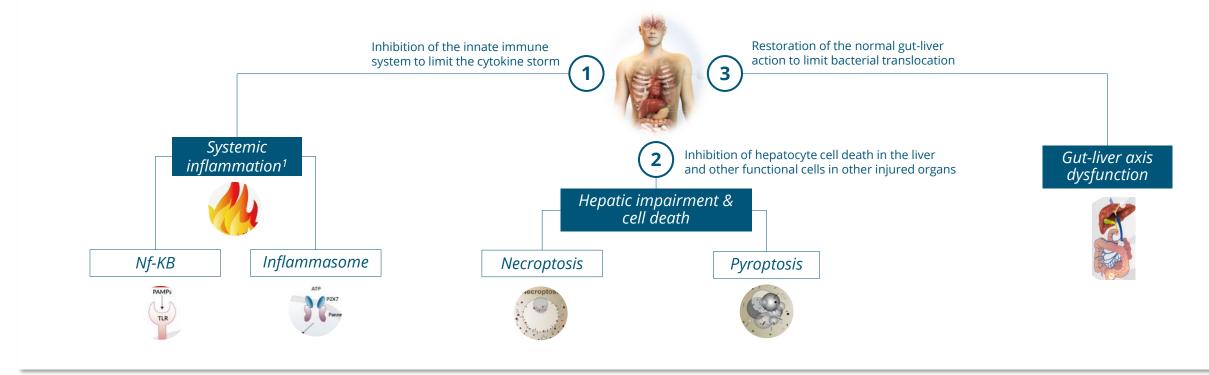
There is no direct therapeutic for ACLF.

- Liver transplantation, while effective, is limited due to narrow timing, low availability of organs, and poor access to high-level care.



Building a targeted portfolio to address the unmet need that exists with current (not approved) Standard of Care in ACLF

Specific selection of strategic assets: based on pathophysiology¹ of ACLF, as defined by liver experts and consortiums such as EF-CLIF (European Foundation for the study of Chronic Liver Failure), to address most relevant pathways



ACLF patient management¹ (no drug approved)

1. Treating acute precipitants

- -Antimicrobial therapy
- -Corticosteroids for alcoholic hepatitis
- -Acute variceal haemorrhage

2. Organ support

- -Intravenous fluids
- -Renal replacement therapy
- -Extracorporeal liver support
- -Liver transplantation

Benefits of a diversified pipeline targeting complementary/relevant pathways

- Explore more options for **patients**
- Provides multiple opportunities for success
- Allows exploration of potential synergies in combinations
- Offers possibility to apply key learnings across all programs, to accelerate execution

5 assets with complementary mechanisms of action targeting key pathways

We are developing a **diversified pipeline** to better address the **complexities of ACLF** and improve **treatment outcomes**



Liposomal-based technology



To drain out

ammonia and ACLF

toxins from the

blood



Anti-inflammatory and anti-bacterial



[New formulation under development for dosing flexibility]

PAMPs release and

bacterial translocation



inhibitor

To inhibit cell death **apoptosis**, **inflammation** (liver-centricity), and

fibrosis



NLRP3 inflammasome inhibitor



To inhibit inflammation (systemic), and cell death (pyroptosis)

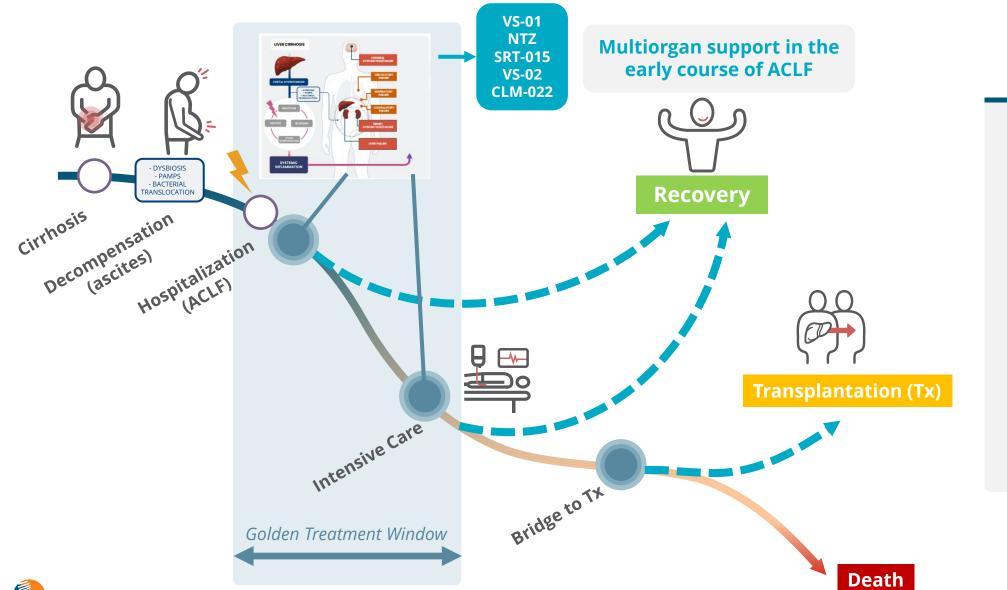


To reduce **hyperammonemia**, stabilize blood ammonia and **prevent HE**

inhibitor



Patient Journey & Window of Opportunity for Treatment



TREATMENT GOALS

- Resolve ACLF
- Improve survival
- Chance of liver transplant increased
- Healthcare costs reduced

VS-01

Clinical Stage Program in ACLF

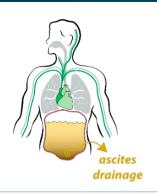




Extraction of Metabolites to Reduce Mortality

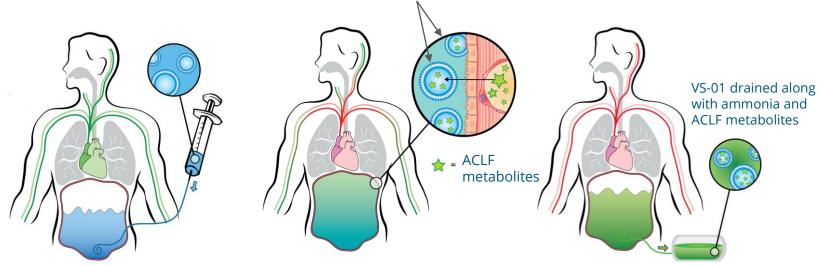
Standard of care

Ascites drainage



VS-01

VS-01 scavenging liposomes



Harnesses the intraperitoneal route of administration following paracentesis

VS-01 in brief

High unmet medical need in ACLF with **no** approved treatment and 112'000 cases¹



Targets **first-line treatment for ACLF** to **reverse** the disease



Delivered via **in-place peritoneal access** catheter



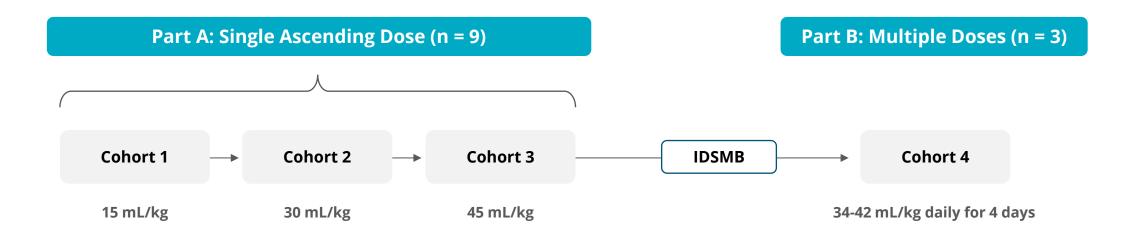
Targets multiorgan support: brain, liver, and kidney

Early ACLF treatment may reduce —

- Length of hospital/ ICU stay
- Re-hospitalization
- Acute need of transplantation
- Healthcare and hospital costs



First in Human Study



DETAILS

- Study population (n=12):
 - Decompensated liver cirrhosis with
 - Ascites
 - Covert hepatic encephalopathy (minimal HE & HE 1)
- Principal investigator: Prof Dr Jonel Trebicka
- Clinical site:

OUTCOME

- ✓ Generally safe and well tolerated
- ✓ Promising preliminary efficacy results
- ✓ Confirmed ease of *i.p.* administration
- ✓ Data selected for Clinical Hepatology Debrief at AASLD 2021

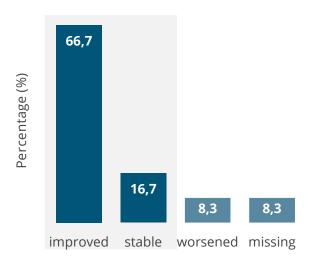


Phase 1b Preliminary Efficacy Results on Liver & Brain Function

IMPACT ON OVERALL LIVER DISEASE SEVERITY

e.g., assessed by Child-Pugh Score (CPS)

Improved or stable disease: 83.4%

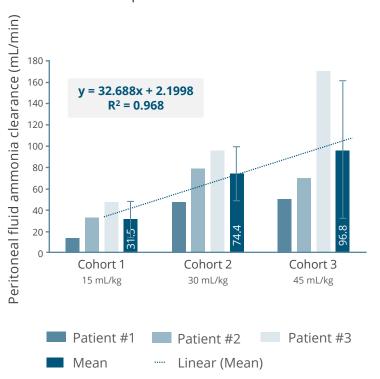


NO PATIENTS PROGRESSED TO ACLF



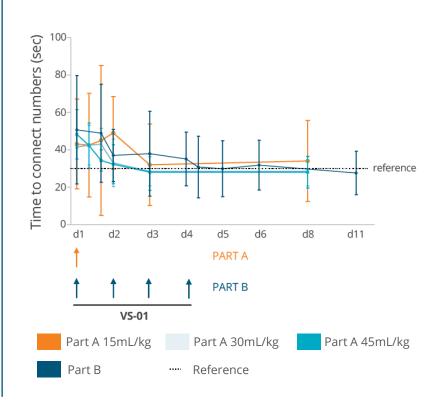
DOSE-DEPENDENT AMMONIA REMOVAL FROM THE BODY

Ammonia clearance increased with VS-01 dosage in peritoneal fluid



IMPROVEMENT IN PSYCHOMETRIC TESTS FOR HE

e.g., number connection test was performed faster





UNVEIL-IT® Phase 2 Proof-of-Concept Trial

Phase 2a Proof Of Concept Study of VS-01 in Patients with Acute-on-Chronic Liver Failure

OPEN-LABEL

1:1 RANDOMIZED

CONTROLLED

MULTI-CENTER GLOBAL STUDY

CLINICAL DATA READOUT TARGETED 2H2025

Patient Population

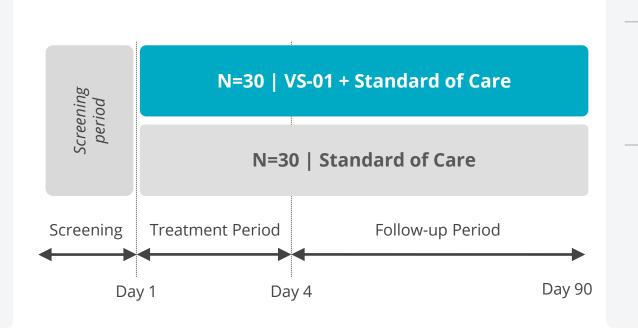
Adult patients with Acute-on-Chronic Liver Failure (ACLF) grade 1 and 2 and ascites

Number of Patients

~60

Number of Sites

50 (EU/US)



Primary Objective

Efficacy measured by CLIF-C ACLF score* at Day 7

Secondary Objectives

90 day - mortality 28 day - mortality Time to death ACLF grade change Transplant-free survival Safety and tolerability



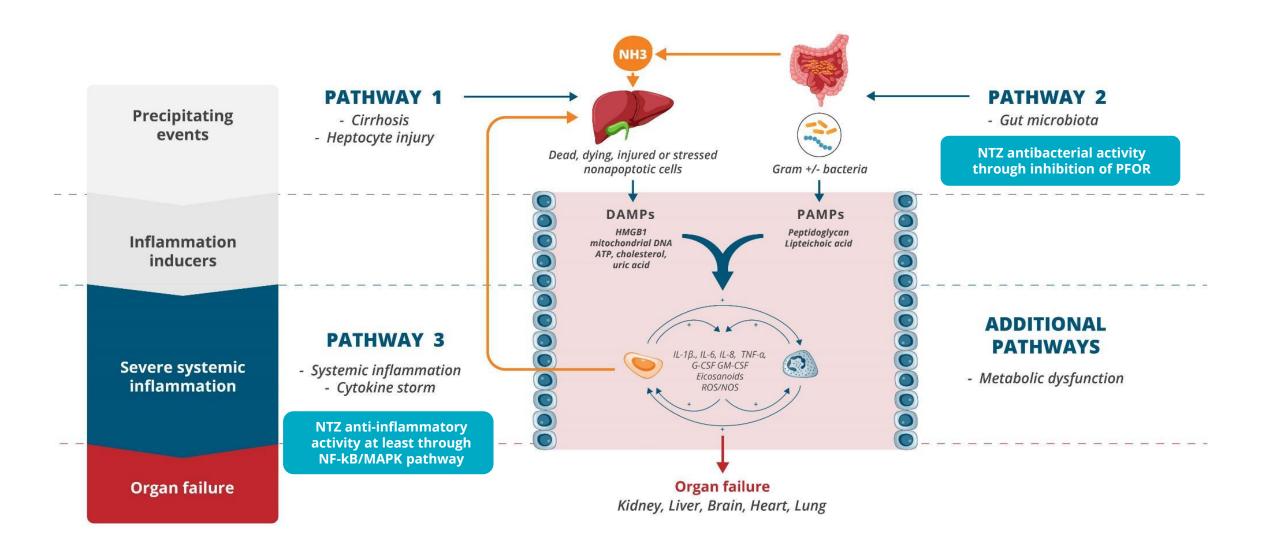
NTZ

Clinical Stage Program in ACLF





NTZ Impacts Multiple Pathways





Activity in Disease Models Support ACLF Clinical Development



Reduces LPS-induced inflammation in healthy rats*



Beneficial effects on liver function markers (bil, alb) in models of cirrhosis*



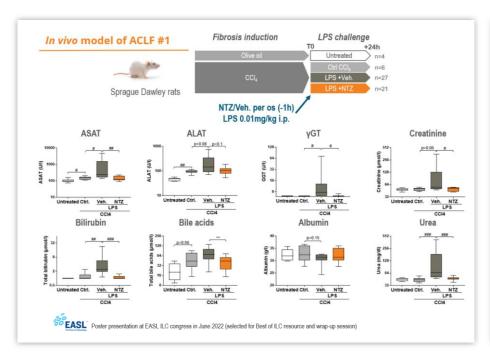
Alleviates liver and renal damages in a model of ACLF (CCL4+LPS)

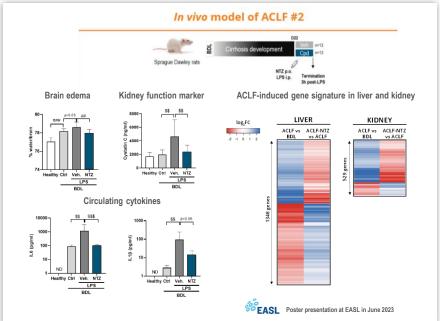


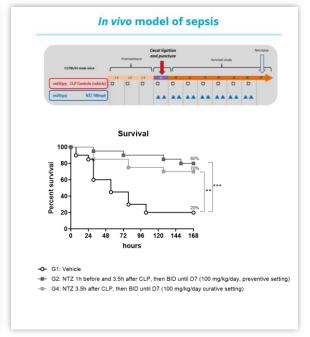
Reduces brain edema, inflammation markers and reverses the ACLF-induced gene signature in a model of ACLF (BDL+LPS)



Improves survival in treatment models of Sepsis (CLP)











Completed Ph1 studies in subjects with hepatic impairment (HI) and renal impairment (RI)

An Open-label, Phase 1, Multiple-dose Study to Evaluate the **Pharmacokinetics and Safety of NTZ 500 mg twice daily for 7 days in Adult Subjects with Moderate & Severe Hepatic Impairment** and Adult Healthy Control Subjects

Design

- Moderate to Severe HI subjects vs healthy subjects
- 6-8 Subjects in each group
- Treatment period 7 days
- PK, safety, pharmacodynamics

Healthy control subjects (n=8)

Moderate hepatic impairment (n=8)

Severe hepatic impairment (n=8)

An Open-label, Phase 1, Multiple-dose Study to Evaluate the **Pharmacokinetics and Safety of NTZ 500 mg twice daily for 7 days in Adult Subjects with Mild, Moderate & Severe Renal Impairment** and Adult Healthy Control Subjects

Design

- Mild, Moderate and Severe RI subjects vs healthy subjects
- 8-10 Subjects in each group
- Treatment period 7 days
- PK and safety

Healthy control subjects (n=7-8)

Mild renal impairment (n=7-8)

Moderate renal impairment (n=7-8)

Severe renal impairment (n=7-8)



Development of a New Formulation, Proof-of-concept, Study initiation targeted for 1H25 and Clinical data readout for 2H25

New formulation under development

To permit **greater dosing flexibility** and ultimately better serve the ACLF patients:

- This population is known to have **impaired/organs failure**, and this new formulation will also permit to optimize safety and drug exposure in this patient population.
- Optimization of the future potential of NTZ, taking into account specific needs of the targeted patients.

Objectives of the POC

Phase 1b

- To evaluate safety and tolerability of NTZ across a range of doses in patients with ACLF
- To evaluate NTZ dose response relationship in patients with ACLF
- To select the optimal NTZ dose for evaluation in Phase 2a

Phase 2a

- To evaluate clinical outcomes in patients with ACLF following administration of NTZ
- To evaluate safety and tolerability of NTZ in patients with ACLF
- To evaluate NTZ PK/PD relationships in patients with ACLF

Patient Population: Patients with ACLF1 or ACLF2



SRT-015

Preclinical stage program in ACLF





An Injectable Formulation of ASK1 Inhibitor

SRT-015 in brief

ASK1 inhibitor

in-licensed from Seal Rock Therapeutics in **acute liver diseases**



Injectable formulation

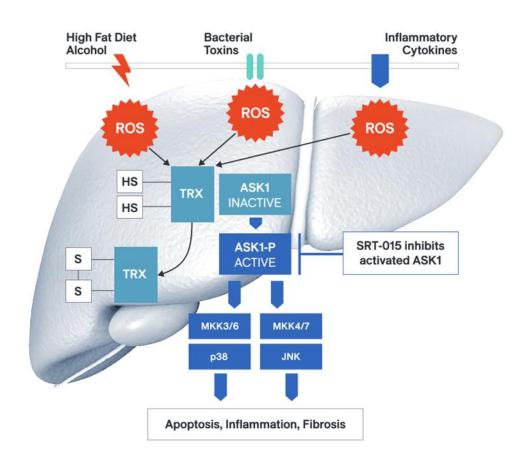


Targets inhibition of **cellular apoptosis**, **inflammation** and **fibrosis**

Scientific rationale

ASK1 inhibition has shown **several potentially beneficial effects** that may be relevant in ACLF

- > **Blocking LPS** (lipopolysaccharide) associated hyperinflammatory response
- > **Reducing the ROS** (Reactive Oxygen Species)-related immune response
- > Reducing apoptosis
- > Reducing release of the proinflammatory cytokines
- Reducing fibrosis
- > Protecting macrophage mitochondrial function

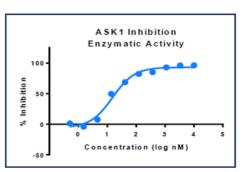


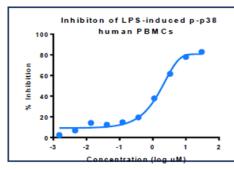


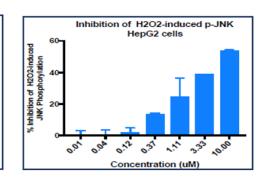
Target Engagement, MoA, Activity and Data Supporting Development in ACLF

Inhibits:

- -ASK-1
- -phosphorylation of p38
- -phosphorylation of JNK

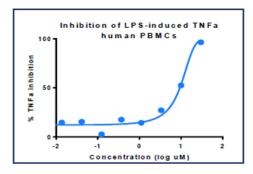


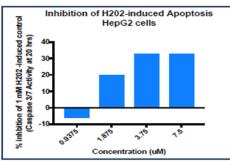


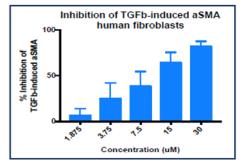


Activity:

- -Anti-inflammatory
- -Anti-apoptotic
- -Anti-fibrotic

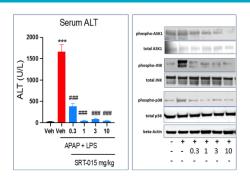




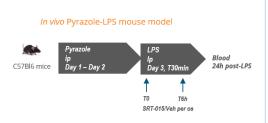


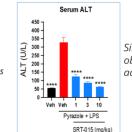
SRT-015 alleviates hepatic injury in a model of drug-induced liver injury, in association with reduction of phosphorylation of both JNK and ASK1

In vivo APAP mouse model Acetaminophen po SRT-015/Veh po Blood and liver T+6h C57BI6 mice TO T60min T+6h



SRT-015 alleviates hepatic injury in a model of alcoholic hepatitis





Similar preliminary data obtained using iv administration of SRT-015



Clinical Data Support Development in Liver Diseases

Multi-organ benefits of ASK1 modulation have been observed in several animal models and clinical trials¹



In kidney diseases

=> limits renal inflammation, apoptosis and fibrosis



In liver diseases

=> prevents hepatocyte death, inflammation and fibrosis



In brain disorders

=> ASK-1 modulation limits neurodegeneration



In inflammatory diseases

=> limits damaging immune responses



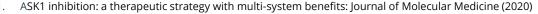
In cardiopulmonary disease

=> slows the onset of heart failure

- SRT-015 has demonstrated efficacy in multiple preclinical models² of acute and chronic liver injury
 - SRT-015 phase 1 FiH trial³
 completed in healthy volunteers, achieving
 therapeutically relevant exposure with safety
 and tolerability profile supportive of ongoing
 clinical investigation

Upcoming milestone

First-in-Human study targeted for 1H25 and Clinical data readout for 2H25



- https://www.sealrocktx.com/science.html
- NCT04887038



CLM-022

Preclinical stage program in ACLF





Supporting Evidence and Next Steps

CLM-022



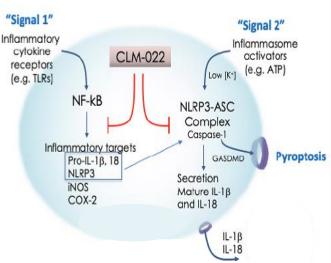
NLRP3 inflammasome inhibitor

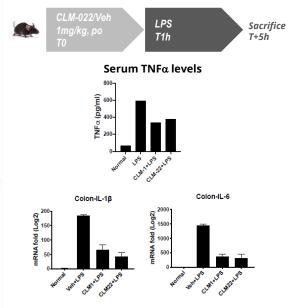
Preclinical

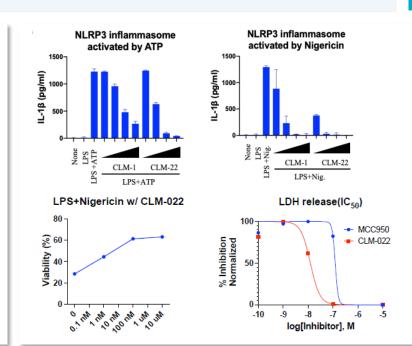
- Blocks NLRP3 inflammasome activated by ATP and Nigericin
- · Blocks the endotoxin-induced production of inflammatory cytokines in an LPS sepsis model
- Blocks ASC speck formation at nanomolar concentrations
- Decreases IL-1β secretion by macrophages stimulated with LPS and nigericin
- Protects against nigericin-induced pyroptosis in LPS-primed macrophages
- Active in-vivo in rodent preclinical models of sepsis and IBD.
- Well tolerated

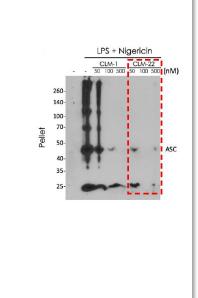
Preclinical
Proof of Concept
in 2024













VS-02-HE

Preclinical program in ACLF and its complications





Supporting Evidence and Next Steps

About HE

- Major complications of advanced liver disease and portal hypertension⁶
- 30-40% of patients with cirrhosis will experience at least 1 episode⁵
- Independent risk factor of mortality in ACLF⁶

VS-02 in ACLF-HE



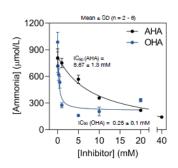
Urease inhibitor

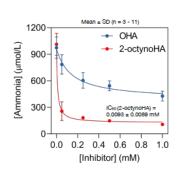
Preclinical data

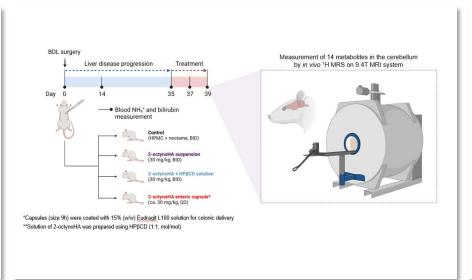
- Superior urease inhibitory activity in vitro
- Cytotoxicity and mutagenicity assessment (Ames test)
- Reduces plasmatic ammonia in a model of acute liver failure in rats
- Reduces plasmatic ammonia and brain glutamine in the bile duct-ligated model in rats

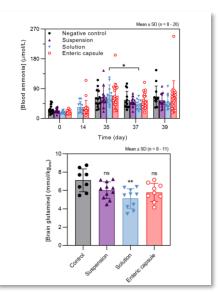
IND enabling studies completion in 2025

Urease inhibitory activity in the caecal content of Wistar rats











- 1. Forster V. et al. Sci Transl Med 2014
- 2. Agostoni V. et al., Adv Funct Mater 2016 3. Giacalone G. et al., J Cont Release 2018
- 4. Matoori S. et al., I Cont Release 2020 5. VS-01 Phase 1b data compared to independent published



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We conducted secondary market research / literature review to assess the commercial opportunity in ACLF















ACLF disease landscape



- Performed a literature review and secondary market research to understand:
 - Demographics and epidemiology / burden of disease with healthcare costs associated
 - Treatment algorithm
 - Competitive landscape
 - Expected future market events



ACLF addressable market estimation



 Overall ACLE market size estimated based on epidemiology and potential price point from secondary market research



No detailed pricing primary market research was conducted. Estimation is not a forecast – calculations represent potential overall market size based on secondary research / literature review.



ACLF is a life-threatening disease involving multiple organs failure and characterized by short term mortality



Acute on chronic liver failure

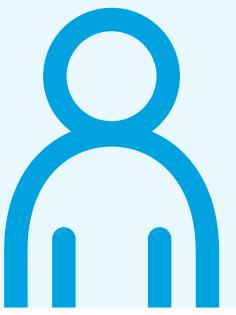
Life-threating disease characterized by **acute decompensation** of chronic **liver** disease associated with multiple **organ failures** and high short-term mortality¹

52-57

average age at diagnosis mostly driven by onset of alcohol related cirrhosis and/or hepatitis B or D^{5,6,7}

30%

Hospital readmission rate after 30 days since discharge¹



40-50%

mortality rate at 90 days for ACLF1 & ACLF2; and up to 79% for ACLF3 ^{2,3}

65% of diagnosed patients are male^{5,6,7}

1) Shah NJ, et al. StatPearls (2022) 2) Moreau R et. al., Gastro, (2013); 3) Hernaez R, et al., Gut (2017); 4) IQVIA Analysis; 5) Kamath 2017; 6) Hernandez et al 2019; 7) Wong F, et al., Liver Transpl 2022; 8) Arroyo v., et al., J. Hepatol (2015)



Management of ACLF results in significant economic burden on healthcare systems, leading to a high need for innovative therapies

The burden of ACLF in numbers



52 000 \$

Average cost per hospitalization per patient in US¹



16 days

Average length of hospital stay¹

(vs 7 days for cirrhotic patients)



6.4 Bn \$

Estimated annual cost burden in US in 2021*

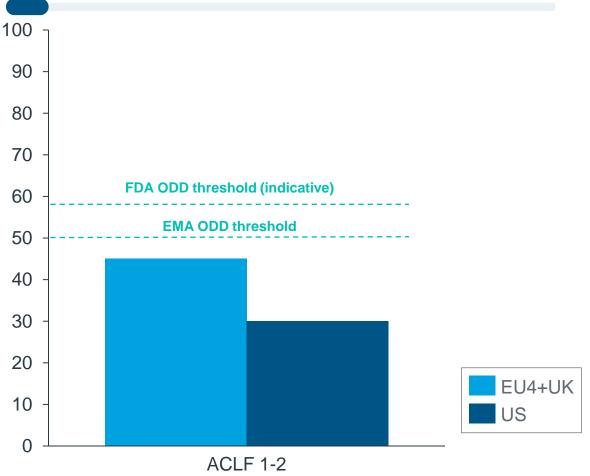
(a nearly 4-fold increase since 2011*)



^{*}Note: Estimates based on triangulation of data from below mentioned publications and PMR interview (Desai et al, Clin Transl Gastroenterol. (2019); Hirode et al JAMA Netw Open. (2020); Hernaez et al, J Hepatol. (2019); Mezzano et al, Gut (2022); Moreau et al, Gastroenterology. (2013))

ACLF has low epidemiology and could be eligible to orphan designation; aging population and launch of targeted Tx can increase diagnosis rate

Estimated current prevalence (1:100,000)



Overview and future outlook

- In 2021, the prevalence of ACLF is estimated to be ~294K across the US, EU4 and UK¹
 - Approx. 45-52% of ACLF patients are grade 1 and 35% are grade 2^{2,3}
 - Total addressable market (for grade 1/2 ACLF patients) is estimated to be ~150K in EU4 & UK and 90K in US
- Therefore, therapies targeting ACLF are eligible for orphan drug designation given low prevalence and lack of therapies

Note: while EMA and FDA ODD thresholds capture number of patients, the estimated ACLF prevalence refers to number of episodes rather than patients, thereby leading to potential overestimation of the disease prevalence

Notes:* Estimates based on triangulation of data from listed sources

Sources: 1. Moreau, R., et al., (2013) Supplemental Table 10; 2. Moreau, R., et al., (2013) CANONIC study Supplemental Table 10; 3. Allen MA et al., Hepatology (2016); 4. Internal Reference (PMR 2021); 5. Desai et al, Clin Transl Gastroenterol. (2019); 6. Hirode et al JAMA Netw Open. (2020); 7. Hernaez et al, J Hepatol. (2019); 8. Mezzano et al, Gastroenterology. (2013);

Abbreviations: ACLF: Acute-on-chronic liver failure

Several analogues were selected to estimate price range of upside potential, including one-off therapies for chronic disease and drugs for acute episodes

Analogues considered

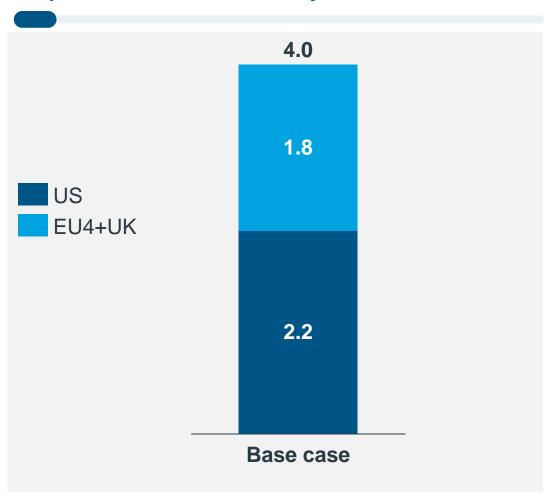
- To identify relevant price range for the ACLF drugs, different analogues were considered
 - Type of rare disease (i.e. life threating vs chronic)
 - Onset of **acute** episodes
 - Setting of treatment (hospitals vs out-patient care)
 - Benefit provided (significant mortality benefit vs slower progression over hard endpoint)
- IQVIA identified a 100-200k\$ in US
 as potential upside range for an
 upcoming ACLF therapy with
 mortality benefit targeting more severe
 patients

Analogue	МоА	Features	List Price (US)
Andexxa	Recombinant modified human factor Xa (FXa) protein	 Adults with life threating bleeds due to use of blood thinner therapies (apixaban and rivaroxaban) IV infusion by HCP Immediate, significant reverse blood thinning 	25-50k\$ per treatment, depending on patient features
Cablivi	Monoclonal antibody	 Treatment of acute episode in life threating disease (i.e. acquired thrombotic thrombocytopenic purpura) Orphan drug Hospital setting Significantly reduced potentially fatal and serious disease related events 	• 270k\$ per year
CAR – T cell	Chimeric Antigen Receptor	 One off cycle for the treatment of acute/ severe conditions patients with blood cancer with limited life expectancy Mortality benefit over a sustained period of time 	371\$k average cost
Bylvay	Reversible inhibitor of ileal bile acid transporter	 The first non-surgical treatment for severe itching (pruritus) in PFIC Orphan drug Highly significant sustained improvements in pruritus Small patient population (adult & pediatric) with high unmet need 	• 385k\$ per year



Overall, grade 1-2 ACLF may represent a potential ~4 bn USD addressable market opportunity in the US and EU4+UK by 2030

Ballpark overall market size by 2030, bn USD¹



Assumptions / considerations

- Prevalence: 150K (EU4 + UK) / 90k (US) for grade 1-2 ACLF patients²
- Drug price could amount to \$30-40k per patient in US and \$10-20k in EU given the economic burden of hospitalizations and duration of treatment; the range was estimated based on:
 - Available robust data on hospitalization costs (i.e. 16 days average stay, 52k\$ average associated costs in US)
 - Likely price range for orphan drugs for life treating disease with uncertain mortality benefit over the target population
- An upside scenario can be achieved assuming the therapy provides significant mortality benefit for a restricted subpopulation (assuming 100-200k in US, 50-80k in EU price based on analogues assessment)
- Potential upside of market opportunity (irrespective of price point): ACLF incidence likely to slightly increase due to higher prevalence of lifestyle diseases, drug-induced liver injuries and raising disease awareness, market opportunity could be higher

Detailed overview of assumptions used to estimate addressable market in 2030 in US & EU4+UK

Assumptions / considerations

Input			Base	Upside
Prevalence				~100K ~190
10151			450/	
ACLF 1 prevalence	9 %		45%	45%
ACLF 2 prevalence		_	35%	3%
Total addressable market	#			~90K
Total additional market	π 	_		~150K
Compliance	%		~75%	~75%
Detential union			~40K	150K (subpop
Potential price			~20K	65K (subpop)
Gross to net	%		90%	90%
2020 Addrescable market (USD)	\$		2.2 Bn	→ >4 Bn
2030 Addressable market (USD)		(a)	1.9 Bn	>2.5 Bn

Rationale / Sources

- US: Hernaez, et al., J of Hepatol (2019)
- EU4+UK: Moreau, R., et al., (2013) Table 10;
- IQVIA Internal reference (PMR 2022);
- Moreau, R., et al., (2013) CANONIC study Supplemental Table 10

- IQVIA expertise
- Base case: Hospitalization costs assessment and price of rare disease drugs without mortality benefit
- **Upside case:** Price of rare disease analogues with mortality benefit for a subpopulation with severe ACLF
- IQVIA expertise



ACLF is an attractive market opportunity with upside potential given significant unmet need for urgent treatment and easier clinical development

ACLF is an attractive opportunity for Biotechs to address an untapped patient population with high unmet need for urgent treatment

Possibility to lead ACLF market growth with therapies being launched at a price fully representing their value

Potential orphan designation leading to easier clinical development

Possibility to consider commercialization on the condition that industry collaborates with the scientific community to increase disease awareness

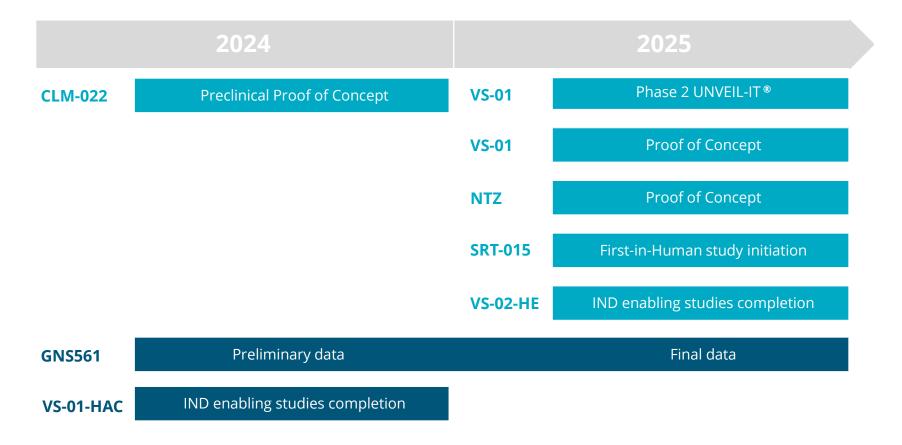


Highlights on newsflow

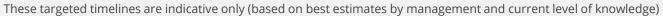
Iqirvo® (Elafibranor¹) **§IPSEN**



Approval U.S. FDA June 10, 2024 Approval EMA September 19, 2024 Approval CHMRA UK October 8, 2024











THANK YOU