CERC-002: Double-blind, Placebo-controlled Phase 2 Trial in Patients with COVID-19 Mild to Moderate ARDS – Final Data Analysis

March 2, 2021

CERECOR

Forward-Looking Statements

This presentation may include forward-looking statements made pursuant to the Private Securities Litigation Reform Act of 1995. Forward-looking statements are statements that are not historical facts. Such forward-looking statements are subject to significant risks and uncertainties that are subject to change based on various factors (many of which are beyond Cerecor, Inc. ("Cerecor") control, which could cause actual results to differ from the forward-looking statements. Such statements may include, without limitation, statements with respect to Cerecor's plans, objectives, projections, expectations and intentions and other statements identified by words such as "projects," "may," "might," "will," "could," "would," "should," "continue," "seeks," "aims," "predicts," "believes," "expects," "anticipates," "estimates," "intends," "plans," "potential," or similar expressions (including their use in the negative), or by discussions of future matters such as: its 2021 outlook; the development of product candidates or products; potential attributes and benefits of product candidates; strategic alternatives for neurological assets and Millipred; and other statements that are not historical.

These statements are based upon the current beliefs and expectations of Cerecor's management but are subject to significant risks and uncertainties, including: reliance on and integration of key personnel; drug development costs, timing and other risks, including reliance on investigators and enrollment of patients in clinical trials, which might be slowed by the COVID-19 pandemic; regulatory risks; Cerecor's cash position and the need for it to raise additional capital; risks related to potential strategic alternatives for its neurology assets and Millipred; general economic and market risks and uncertainties, including those caused by the COVID-19 pandemic and those other risks detailed in Cerecor's filings with the Securities and Exchange Commission. Actual results may differ from those set forth in the forward-looking statements. Except as required by applicable law, Cerecor expressly disclaims any obligations or undertaking to release publicly any updates or revisions to any forward-looking statements contained herein to reflect any change in Cerecor's expectations with respect thereto or any change in events, conditions or circumstances on which any statement is based.

Executive Summary – Final Data Analysis

Phase 2 Clinical Trial Met Primary Endpoint in Patients Hospitalized with COVID-19 ARDS

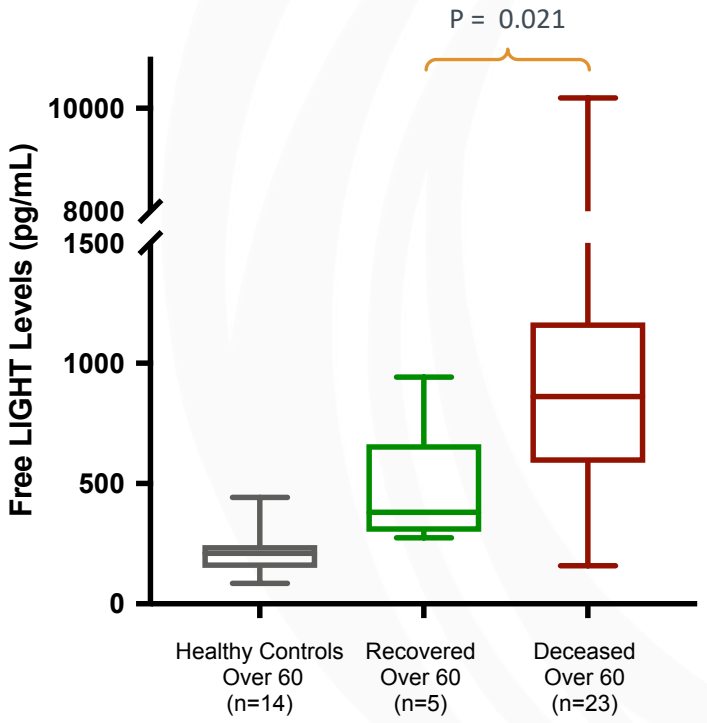
- CERC-002 significantly reduced respiratory failure and mortality in Phase 2 clinical trial in patients hospitalized with COVID-19 ARDS
  - This analysis updates the preliminary topline data reported on January 5, 2021, and is inclusive of 60-day safety data
  - Hospitalized COVID-19 patients treated with a single dose of CERC-002 demonstrated statistically significant improvement in the primary endpoint (proportion of patients alive and free of respiratory failure over the 28-day study period) compared to placebo (n=62, p=0.044)
  - Efficacy was highest in a prespecified subpopulation of patients over the age of 60 (n=34, p=0.042), the population most vulnerable to severe complications and death with COVID-19 infection
  - At both the 28-day and the 60-day final timepoints, an approximately 50% trend in mortality reduction (22.5% vs 10.8%) was observed
  - CERC-002 showed statistically significant efficacy on top of corticosteroids and standard of care in COVID-19 ARDS (>90% of patients in the trial received corticosteroids and >65% received remdesivir)
- CERC-002 was well tolerated with no appreciable differences in immunosuppression or other SAE between CERC-002 and placebo
- CERC-002 dramatically and rapidly reduced serum free-LIGHT levels
  - ~85% reduction in free LIGHT achieved in 1 day
- Cerecor has applied for Breakthrough Therapy and Fast Track Designations, and plans to meet with FDA to discuss potential path to Emergency Use Authorization
- Additionally, the company is exploring the applicability of CERC-002 in non-COVID-19 ARDS

CERECOR

LIGHT is a Central Driver of COVID-19 Related Cytokine Storm

Clinical Trial Initiated After Compelling Biomarker Study Completed June 2020

Association Between Elevated LIGHT and Mortality Strongest in Patients Over 60



Key Implications

- In patients over 60, LIGHT levels were significantly higher in those that eventually died than in those patients that recovered (p=0.021)
- Observed mortality rate was higher for patients over 60 of age (82%) compared to patients <60 years (32%)

Elevated LIGHT levels in hospitalized COVID-19 patients were most strongly associated with mortality in patients over 60

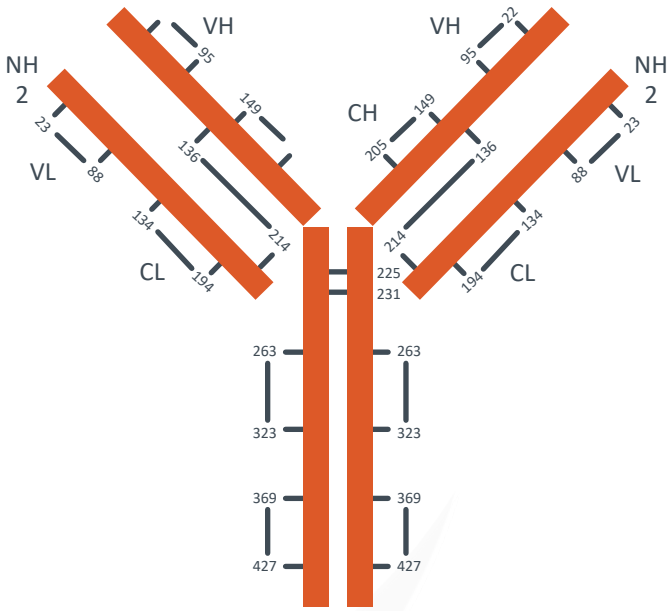
1. Perlin et al. (2020) *mSphere*. 5(4):e00699-20.
2. Arunachalam *et al.* (2020) *Science*. 369(6508):1210-1220

CERECOR

CERC-002: A Novel First-in-Class Anti-LIGHT (TNFSF14) mAb

The Only Known Clinical Stage Anti-LIGHT Antibody

- In-licensed from Kyowa Kirin Co.
- Positive toxicology profile
  - 8-week monkey toxicology study was well tolerated up to 100 mg/kg per week with NOAEL at 60 mg/kg
- Phase I trial previously completed
  - Up to 1200 mg SQ in healthy volunteers (n=48) without significant toxicity
- Proprietary free LIGHT assay developed in collaboration with Myriad RBM enables a biomarker-based development approach



Discovered at La Jolla Allergy Institute and Licensed by Cerecor in 2016

SQ: Subcutaneous; NOAEL: No observed adverse effect level

CERECOR

CERC-002 Treatment of Cytokine Storm-Induced COVID-19 ARDS

Primary Endpoint: Respiratory Failure and Mortality Over 28 Days

Proof-of-Concept Trial Design

Randomized, Double-blind, Placebo-controlled, Multi-Center, Proof-of-Concept Clinical Trial of CERC-002 in Adults with COVID-19 ARDS

Inclusion Criteria

Hospitalized Patients with Documented COVID-19 Infection and Clinical Evidence of Pneumonia with Mild to Moderate ARDS

Enrollment (N=83)

1:1 Randomization

- **CERC-002 (16 mg/kg [maximum 1200 mg]) on Day 1 by SQ injection + Standard of Care at the site**
- **Placebo-matched SQ injection + Standard of Care at the site**

Primary Endpoint

- The proportion of patients treated with CERC-002 compared with placebo in addition to standard of care at site, alive and free of respiratory failure over 28 days
- 80% power to show an absolute difference of 25% between cohorts

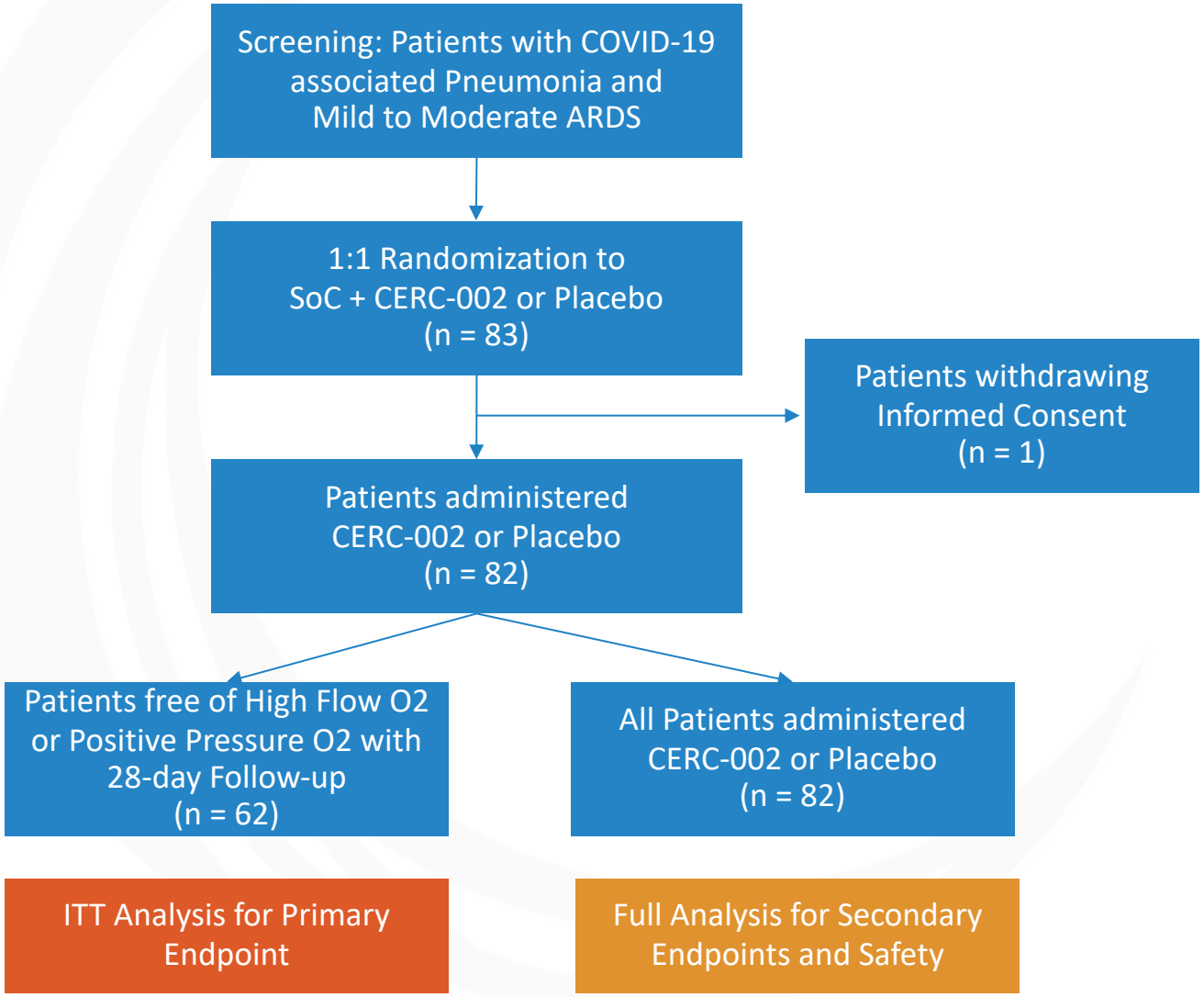
Key Secondary / Exploratory Endpoints

- 1-month mortality
- Change in Pa02/Fi02 ratio
- Time to and duration of invasive ventilation
- LIGHT levels and other biomarkers of inflammation
- Viral load

PaO2 - Partial Pressure of Oxygen, FiO2 - Fraction of Inspired Oxygen

CERECOR

Patient Disposition Chart



Data on file

Patient Demographics

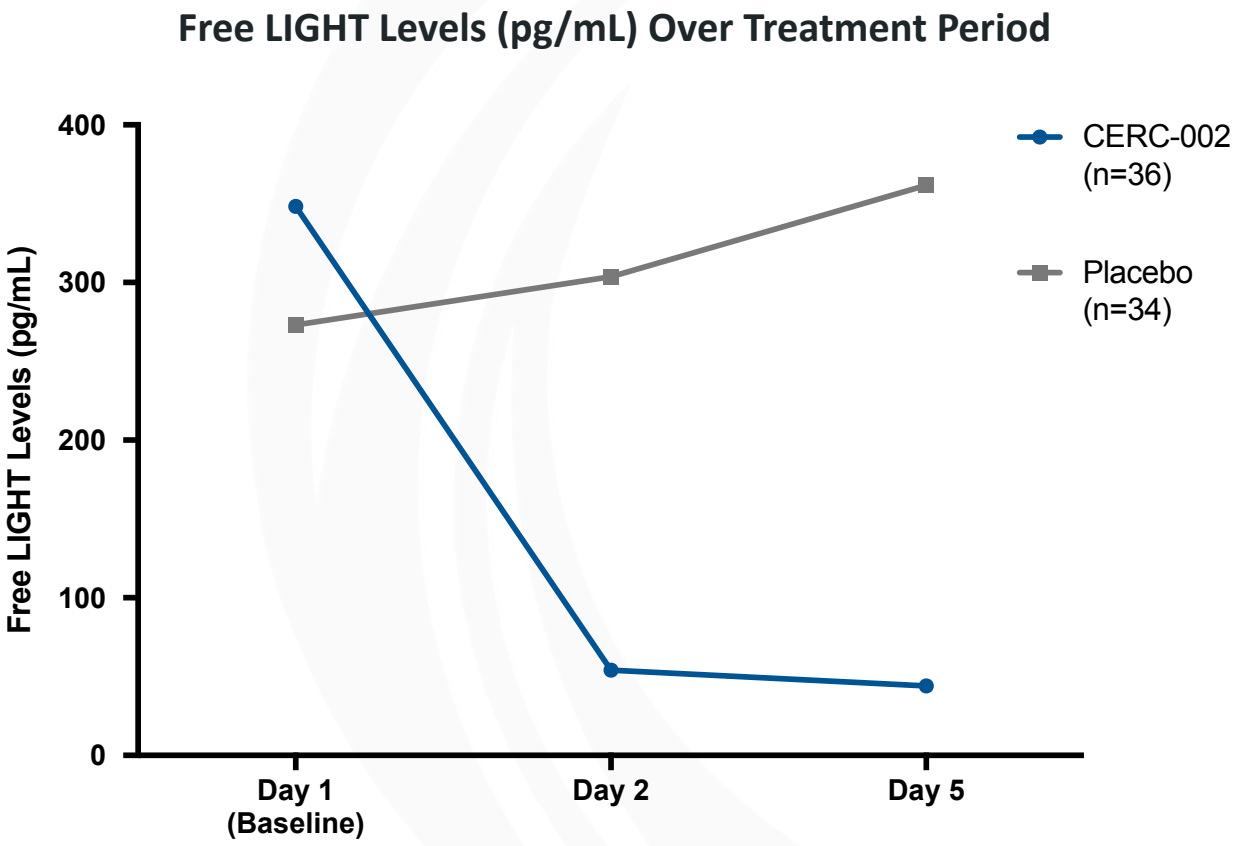
Characteristic	CERC-002 (n=41)	Placebo (n=42)
Age, years		
Mean (SD)	59.2 (14.5)	58.1 (14.2)
Age Group		
<60 years (n, %)	20 (48.8%)	21 (50.0%)
≥60 years (n, %)	21 (51.2%)	21 (50.0%)
Gender		
Male	25 (61%)	32 (76.2%)
Female	16 (39%)	10 (23.8%)
Race		
White	31 (75.1%)	37 (88.1%)
Black or African American	7 (17.1%)	3 (7.1%)
Asian	2 (4.9%)	0 (0%)
Other	1 (2.4%)	2 (4.8%)
Free LIGHT Level at Baseline		
Mean (range) pg/mL	348 (63 - 1050)	273 (37 - 843)
Concomitant Medication Use at Baseline*		
Systemic corticosteroids	38 (95.0%)	37 (88.1%)
Remdesivir	26 (65.0%)	28 (66.7%)

Data on file

* Calculated from patients dosed (n=40 for CERC-002, n=42 for placebo)

CERECOR

A Single Dose of CERC-002 Reduced Free LIGHT Levels Dramatically and Rapidly



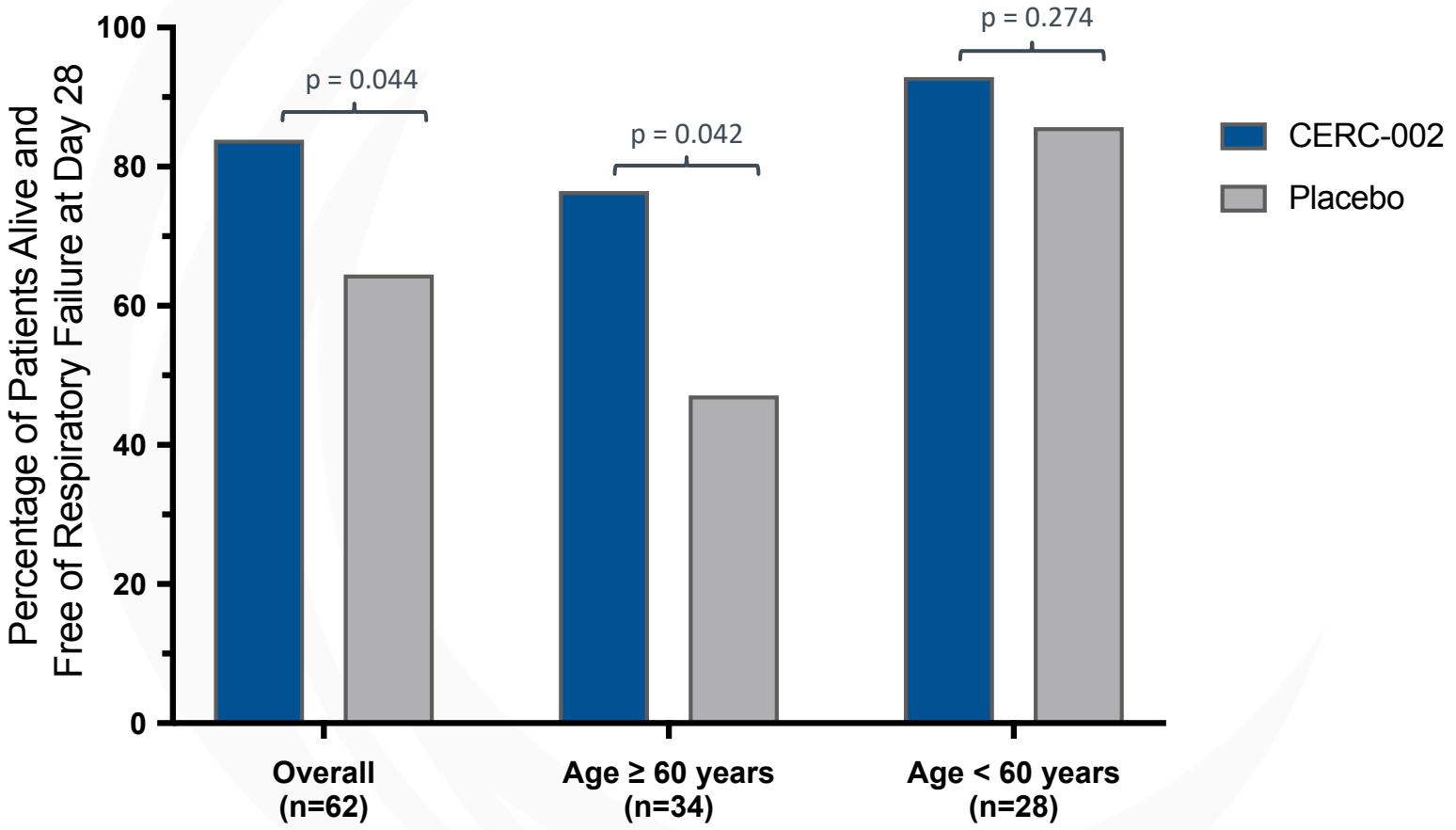
- Mean free LIGHT levels were comparable at baseline across cohorts
- Mean free LIGHT levels were about 100 pg/mL higher in the patients ≥ 60 years-old
- Free LIGHT levels reduced quickly in the active cohort and increased in the placebo cohort
- The pharmacodynamic effect was on top of standard of care where approximately 90% of patients received systemic corticosteroids

Free LIGHT is inhibited by Day 1 and remains low

Data on file

CERC-002 Significantly Reduced Respiratory Failure and Mortality in Phase 2 Clinical Trial in Patients Hospitalized with COVID-19 ARDS

Primary Endpoint: Percentage of Patients Alive and Free of Respiratory Failure at Day 28



Efficacy was highest in patients over the age of 60* (n=34, p=0.042), the population most vulnerable to severe complications and death with COVID-19 infection

Data on file

* Prespecified analysis

CERECOR

A Single Dose of CERC-002 Reduced Mortality by ~50% in this Study

	CERC-002	Placebo
28-day Mortality	7.7%	14.3%
60-day Mortality	10.8%	22.5%

- A trend in ~50% reduction in mortality was observed at both the 28-day and the 60-day timepoints
- Efficacy observed is on top of corticosteroids and standard of care
  - (>90% of patients in the trial received corticosteroids and >65% received remdesivir)

Data on file

CERECOR

Safety and Tolerability

- CERC-002 was well-tolerated at a single dose of 16 mg/kg
- No serious adverse events attributable to CERC-002
- Majority of AEs judged to be mild or moderate
- No evidence of increased infections or adverse events related to immunosuppression

	CERC-002 (n=40)	Placebo (n=42)
Subjects with ≥1 AE (%)	16 (40%)	21 (50%)
Subjects with ≥1 Drug-related AE	8 (20%)	6 (14.3%)
AEs > 5%		
Leukocytosis	6 (15%)	4 (9.5%)
Anemia	4 (10%)	3 (7.1%)
Hepatic enzyme increase	4 (10%)	2 (4.8%)
Acute kidney injury	3 (7.5%)	2 (4.8%)
Respiratory failure	3 (7.5%)	3 (7.1%)

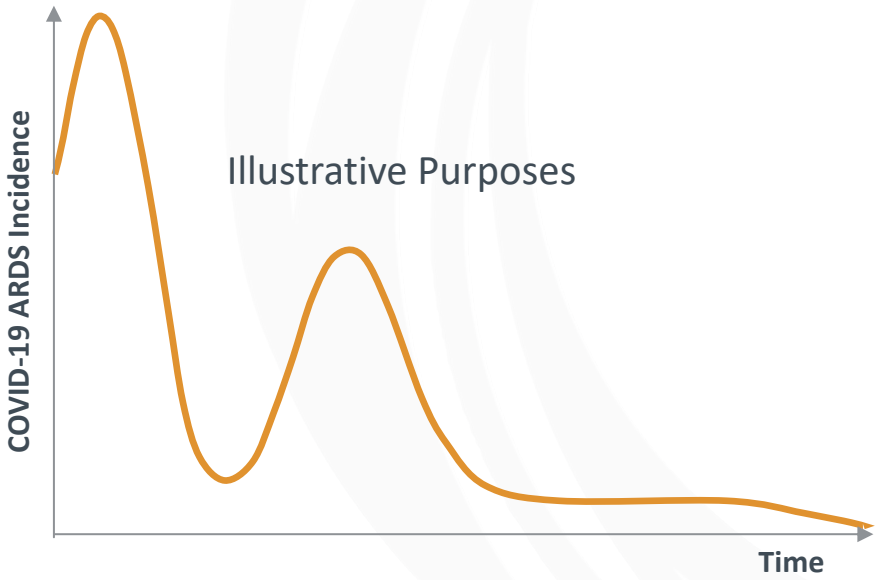
Data on file

CERECOR

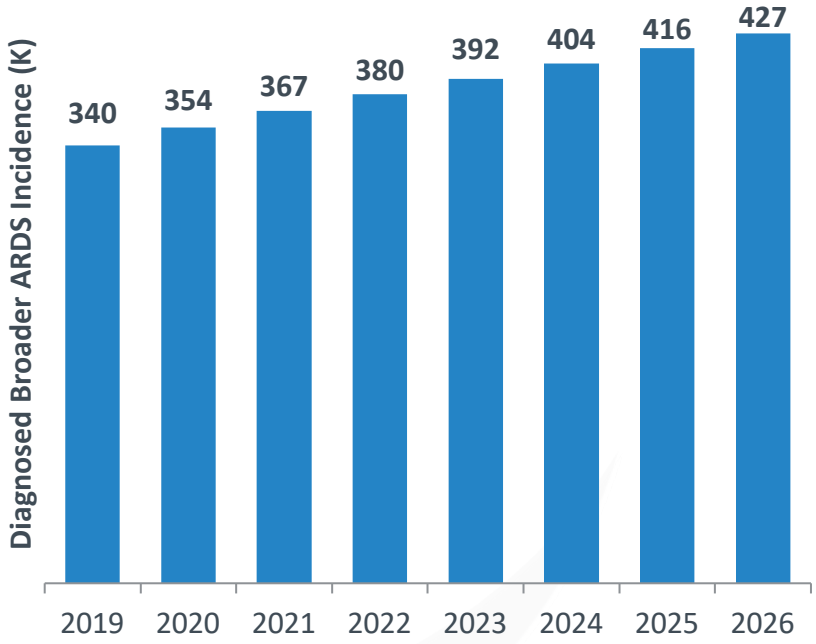
COVID-19 and Broader ARDS Target Populations

COVID-19 ARDS provides a potential path to treat a larger patient population in broader ARDS

U.S. COVID-19 Related ARDS Patients



Estimated U.S. Broader ARDS Patients Excluding COVID-19



There is a large market opportunity and high unmet need for effective therapy in cytokine storm induced ARDS beyond COVID-19

Source: Rubenfeld et al. *N Engl J Med.* 2005, 353(16):1685-93. Kissler et al. *Science.* 2020. UpToDate

CERECOR

Next Steps

- Applied for FDA Breakthrough Therapy and Fast Track Designations
- Plan to meet with FDA to discuss potential path to Emergency Use Authorization
- Manuscript in preparation with plan to present full data at a future scientific meeting
- Currently exploring the applicability of CERC-002 in non-COVID-19 ARDS

NASDAQ:CERC

www.cerecor.com

CERECOR