Company Overview

October 2020

NASDAQ: ATHX
www.Athersys.com

Forward Looking Statements

This presentation has been prepared solely for informational purposes. This presentation includes, and our responses to various questions may include, “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act, which are subject to the “safe harbor” created by those sections. These forward-looking statements relate to, among other things, the expected timetable for development of our product candidates, our growth strategy and our future financial performance, including our operations, economic performance, financial condition, prospects and other future events. We have attempted to identify forward-looking statements by using such words as “anticipates,” “believes,” “can,” “continue,” “could,” “estimates,” “expects,” “forecasts,” “intends,” “may,” “plans,” “potential,” “should,” “suggest,” “will” or other similar expressions. The forward-looking statements are not historical facts, and are based upon the Company’s current expectations, beliefs, estimates, and projections, and various assumptions, many of which, by their nature, are inherently uncertain and beyond the Company’s control. The Company’s expectations, beliefs and projections are expressed in good faith and the Company believes there is a reasonable basis for them. However, there can be no assurance that management’s expectations, beliefs, estimates, and projections will result or be achieved, and actual results may vary materially from what is expressed in or indicated by the forward-looking statements. Forward-looking statements are subject to risks and uncertainties that could cause actual performance or results to differ materially from those expressed in the forward-looking statements. The Company assumes no obligation to update forward-looking statements to reflect actual results, subsequent events or circumstances or other changes affecting forward-looking information except to the extent required by applicable securities laws.

Information contained in this presentation has been compiled from sources believed to be credible and reliable. However, we cannot guarantee such credibility and reliability. The forecasts and projections of events contained herein are based upon subjective valuations, analyses and personal opinions.

Athersys Company Snapshot (NASDAQ: ATHX)

- Established international leader in the development of innovative cell therapy and regenerative medicine
- Robust pipeline of clinical programs – **emphasis on critical care indications** with substantial unmet need, high cost of care and quality-of-life burden & economic impact
  - Initiated Pivotal Phase 2/3 clinical trial in patients with COVID-19 induced acute respiratory distress syndrome (ARDS)
  - MultiStem is the **only cell therapy treatment for ARDS granted Fast Track and RMAT designation by FDA**
- Lead program: Phase 3 trial (MASTERS-2) for Ischemic Stroke enrolling (with Fast Track and RMAT designations) and being conducted under Special Protocol Assessment (SPA) from FDA – accelerated approval pathway in U.S. and Europe
- Partnered with HEALIOS K.K. in Japan, enrolling in TREASURE registrational trial for stroke and ONE-BRIDGE trial for ARDS, has received notification of Orphan designation from the PMDA – both leveraging accelerated regulatory pathway in Japan; enrollment expected to complete in 2020 for both trials.
- Solid financial position ($80.7 million as of June 30, 2020)… Healios exercised purchase of 4 million shares in early April ($7 million) and successful financing in mid-April ($57.5 million)

Summary Financial Data (Q2, 2020)

Market Cap (as of June 30, 2020)	$544M
Shares Outstanding	197.0M
$ Thousands	Six Months ended June 30, 2020
Revenues	$84
Net loss	$(34,016)
Net cash used in operating activities	$(24,847)
Net cash provided by financing activities	$71,064
Cash and cash equivalents	**$80.7M**

Our Focus: Development of best in class regenerative medicine therapies for areas of substantial unmet medical need

Neurological, Inflammatory & Immune, Cardiovascular, and Other Indications with an <u>Emphasis in the Critical Care Segment</u>

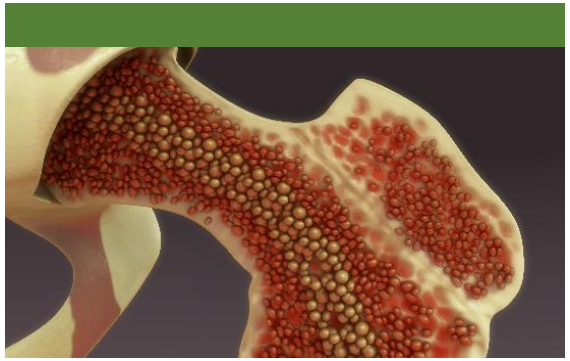
ATHX Regenerative Medicine Pipeline

Experienced Executive Leadership

Name	Title	Prior Experience
Gil Van Bokkelen, PhD	Chairman & CEO	ALLIANCE for Regenerative Medicine; Bio; Stanford MEDICINE; NATIONAL CENTER FOR REGENERATIVE MEDICINE
William BJ Lehmann, JD	President & COO	McKinsey&Company; Stanford LawSchool; CHICAGO BOOTH The University of Chicago Booth School of Business; WSGR
Ivor Macleod, MBA, CPA	Chief Financial Officer	Eisai; MERCK; Roche; mannheim boehringer
John Harrington, PhD	CSO Exec. VP, Board member	AMGEN; Scripps; Stanford MEDICINE
Manal Morsy, MD, PhD	Senior VP Global Regulatory Affairs	EVMS Eastern Virginia Medical School; MERCK; Johnson & Johnson; PTC THERAPEUTICS
Greg Liposky, MBA	Senior VP Manufacturing	Mallinckrodt; MedImmune; GTC Biotherapeutics; QUESTCOR PHARMACEUTICALS, INC.
Maia Hansen, MBA	Senior VP Operations and Supply Chain	McKinsey&Company; MIT MANAGEMENT SLOAN SCHOOL

Overview: MultiStem® Cell Therapy

Technology & Product Summary:

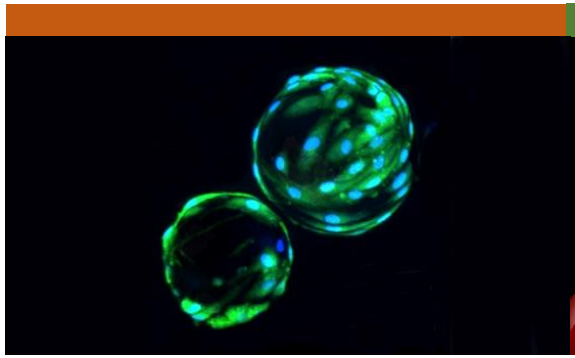


No Ethical Concerns

MultiStem is derived from the bone marrow of healthy, consenting adult donors

Highly Scalable

Millions of doses may be produced from a single donor bank



Based on Proprietary MAPC Technology

Broad IP estate covering core technology, methods of production & areas of use

Promotes Healing and Tissue Repair

Works through multiple mechanisms of action

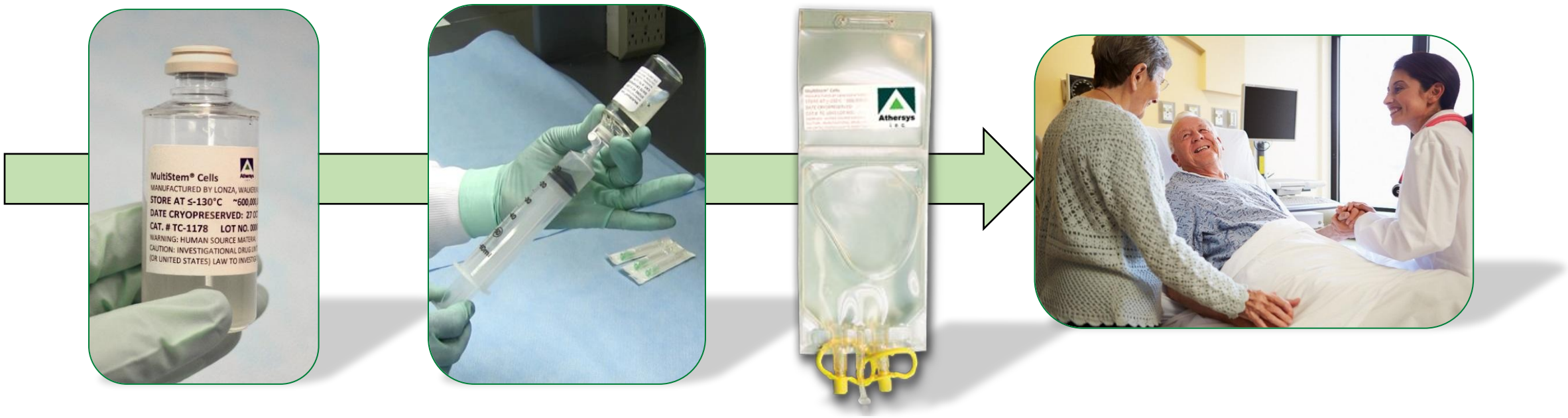
Administered Systemically or Locally

Off the shelf administration with no tissue matching or immune suppression required

Well Characterized Product with Long Shelf Life

Consistent safety & tolerability profile, with > 8 years of stability data on cryogenically stored product

Practical: Simple to Prepare & Easy to Administer



Hospital Pharmacy to Patient in < 1 hour

Enabling Efficient Storage, Access, Product Prep & Inventory Monitoring/Management in the Hospital Environment

SIFU™ Technology

- Proprietary cryogenic storage system
- Simplifies product preparation to a single step after order entry (and capable of processing multiple doses simultaneously)
- Secure access – inventory is protected at all times
- Real time informatics on product inventory, storage, system access & usage
- Enables full “track and trace”… from end to end
- No special facilities or extensive training required

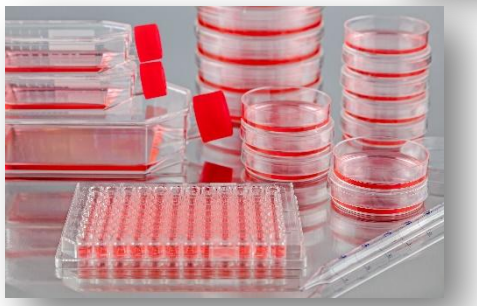
Scalable Manufacturing: Key Competitive Advantage

Distinctive and Robust Expansion Profile + Integration with Advanced Bioreactor Technology Enables Unprecedented Commercial Scale

Commercial Manufacturing

Commercial Scale Bioreactors

3D Small Scale Bioreactors



Traditional 2D Cell Culture

Multimodal Biologic Product

MultiStem® expresses a combination of therapeutic proteins & factors to enhance healing and tissue repair in multiple ways

INFLAMMATION REDUCTION

IMMUNOMODULATION (reparative mechanisms)

NEUROPROTECTION CYTOPROTECTION

ANGIO / VASCULOGENESIS

CELLULAR REGENERATION REPLACEMENT

MultiStem Therapy for ARDS

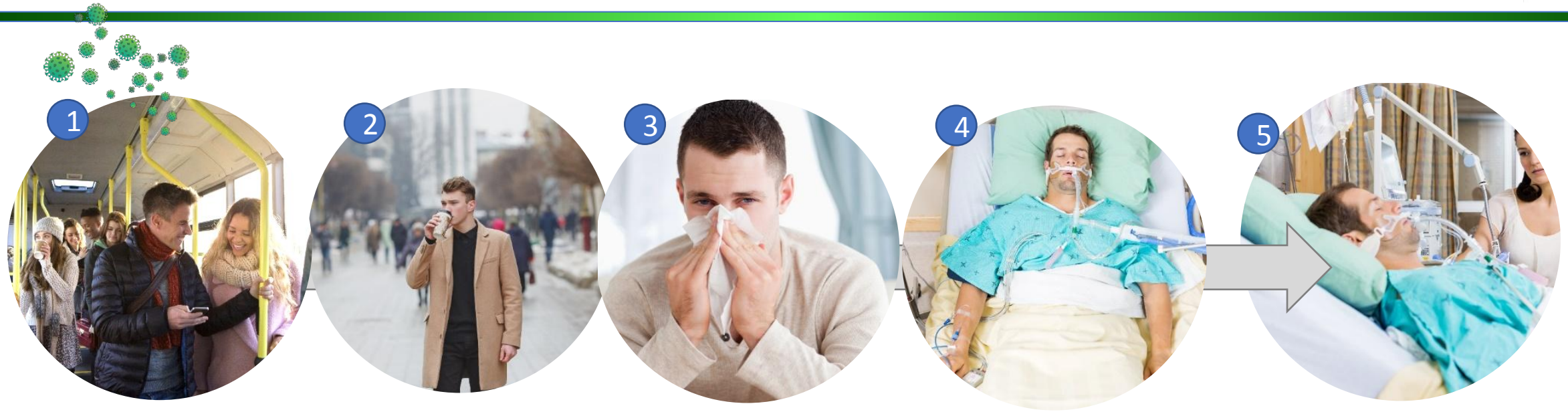
PRIORITY PROGRAM:
Treating Acute Respiratory Distress Syndrome (ARDS)

- **Acute Respiratory Distress Syndrome** (ARDS) afflicts approximately 500,000 patients in the United States, Europe and Japan combined annually
  - Multiple triggers for ARDS including viral pathogens, trauma, aspiration or other causes
  - Note: An outbreak of highly infectious pathogens (e.g., Coronavirus, Influenza) that result in severe acute pulmonary disease could cause a surge in ARDS incidence
  - No approved pharmaceutical or biologic treatments for ARDS currently available

- ARDS represents a major area of unmet medical need, with high mortality and morbidity, and typically requires extended intensive care hospitalization (e.g., ICU) and high intensity intervention (e.g., ventilation)
  - Very high cost of care and quality of life (QOL) impact
  - Heterogenous causes that make it difficult to study and treat
  - Extensive literature illustrates potential for marrow stromal cells to treat ARDS
  - Represents a multibillion $ market opportunity

- According to a recent World Health Organization analysis and other clinical and epidemiological data, ARDS is the leading cause of death among COVID-19 infected patients.

How COVID-19 and other Emergent Viral Outbreaks can cause Acute Respiratory Distress Syndrome (ARDS)



Normal healthy subject is exposed to virus

Subject is infected but is asymptomatic

Subject becomes symptomatic and immune response is induced

Pulmonary hyperinflammatory response can occur, leading to severe pulmonary dysfunction & hospitalization

No current treatment for ARDS, only ventilator support

- Many patients infected with COVID-19, experience only mild to moderate symptoms, but a meaningful number have become seriously or critically ill and develop ARDS (which is the leading cause of death)
- A range of viruses can cause ARDS (e.g., SARS, MERS, H1N1 and COVID-19) by inducing a “cytokine storm”
- The Biomedical Advanced Research and Development Authority (BARDA) and the CoronaWatch Task Force has recognized the broad potential relevance of our technology, resulting in the “Highly Relevant” designation.

Traditional Countermeasures are Very Important But May Not Be Sufficient to Meet the Challenges

VACCINES

- Must wait until the virus has been identified and characterized prior to development and testing
- Even with accelerated development vaccine testing and validation is expected to take approximately 12 – 18 months (and typically will not provide protection for all)
- A fast spreading outbreak can infect millions of people in that

ANTI-VIRALS

- May slow progression, but might not be curative or could have limited effectiveness for some patients
- May require characterization of specific anti-viral target to be effective – but also be specific to only one type of virus or strain
- Potential for side effects

Acute Respiratory Distress Syndrome (ARDS)

- ARDS represents a major area of unmet medical need, with high mortality and morbidity, and typically requires extended intensive care hospitalization (e.g., ICU) and high intensity intervention (e.g., ventilation)
- Many ARDS patients will need to be placed into a medically induced coma while on a ventilator

30 - 50% Typical mortality rate among patients with ARDS [1] **(Note: Mortality rate for patients with COVID-19 induced ARDS appears to be ~50 - 75%)**

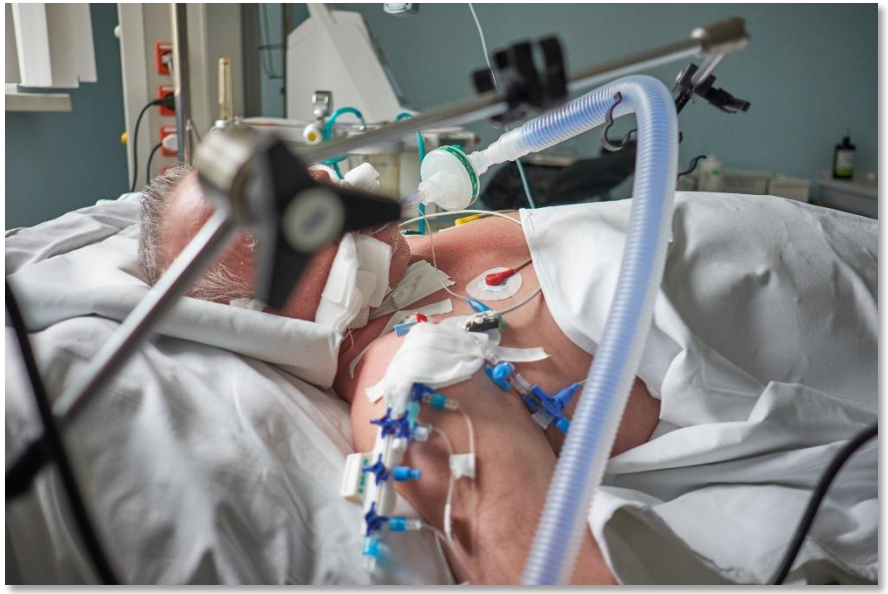
25 days Median time an ARDS patient spends in the ICU [2]

Currently there is no FDA approved drug treatment for patients with acute respiratory distress syndrome (ARDS)

1 Bellani G, Laffey JG, Pham T, et al. Epidemiology, Patterns of Care and Mortality for Patients with Acute Respiratory Distress Syndrome in Intensive Care Units in 50 Countries. JAMA. 2016 Feb 23; 315(8) 788-800.
2 Herridge MS, Tansey CM, Matté A et al. Functional disability 5 years after acute respiratory distress syndrome. NEJM 2011 Apr7; 364(14):1293-304.

Life After ARDS – For many, the struggles continue

- For the patients that survive ARDS, many have trouble getting back to functional independence, self care and the quality of life they once enjoyed
- Prolonged ventilation can cause pulmonary fibrosis/scarring, resulting in longer term health challenges
- Patients that survive ARDS frequently describe it as "being trapped in your own body"



26-33%	Suffer from depression[1]
38-44%	Suffer from anxiety[1]
22-24%	Suffer from post-traumatic stress syndrome[1]

[1] Source: Bein T, Weber-Carstens S, Apfelbacher C. Long-term outcome after the acute respiratory distress syndrome: different from general critical illness. Current Opinions in Critical Care. 2018 Feb; 24(1): 35–40.doi: 10.1097/MCC.0000000000000476

MultiStem Reduces Inflammation in Human Donor Lungs with Ischemic Reperfusion Injury

Assessment of human lungs isolated from organ donors that exhibit significant inflammation prior to use in transplantation, perfused with MultiStem or vehicle (saline).

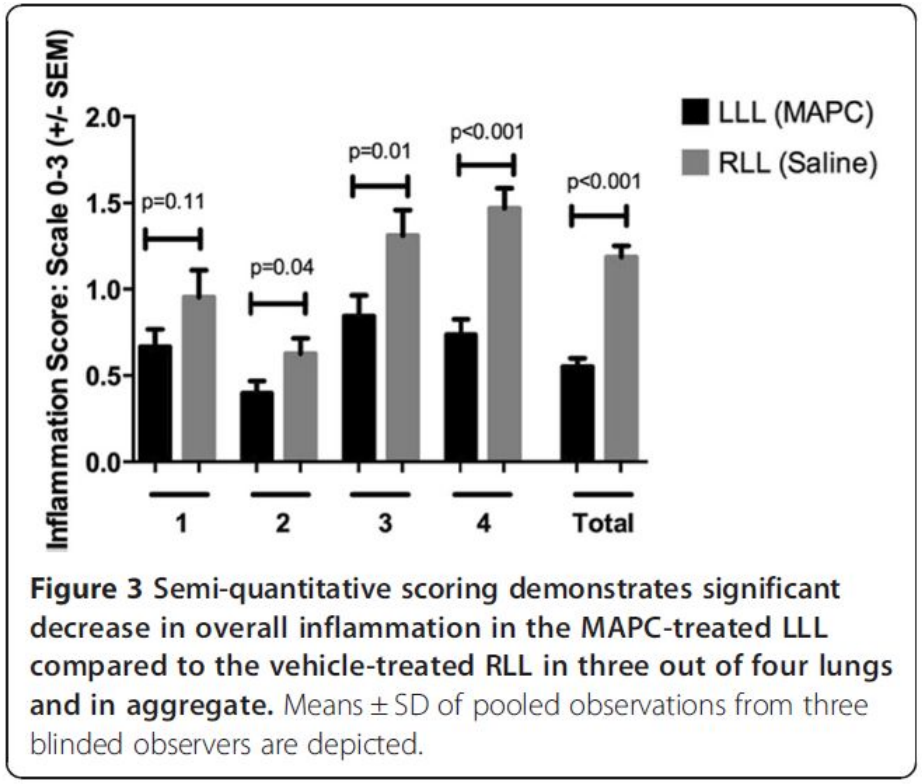


Figure 3 Semi-quantitative scoring demonstrates significant decrease in overall inflammation in the MAPC-treated LLL compared to the vehicle-treated RLL in three out of four lungs and in aggregate. Means ± SD of pooled observations from three blinded observers are depicted.

Note: Organ donor lungs originally designated for use in transplantation, but were disqualified due to pulmonary inflammation that occurs after harvest, resulting in poor pulmonary function.

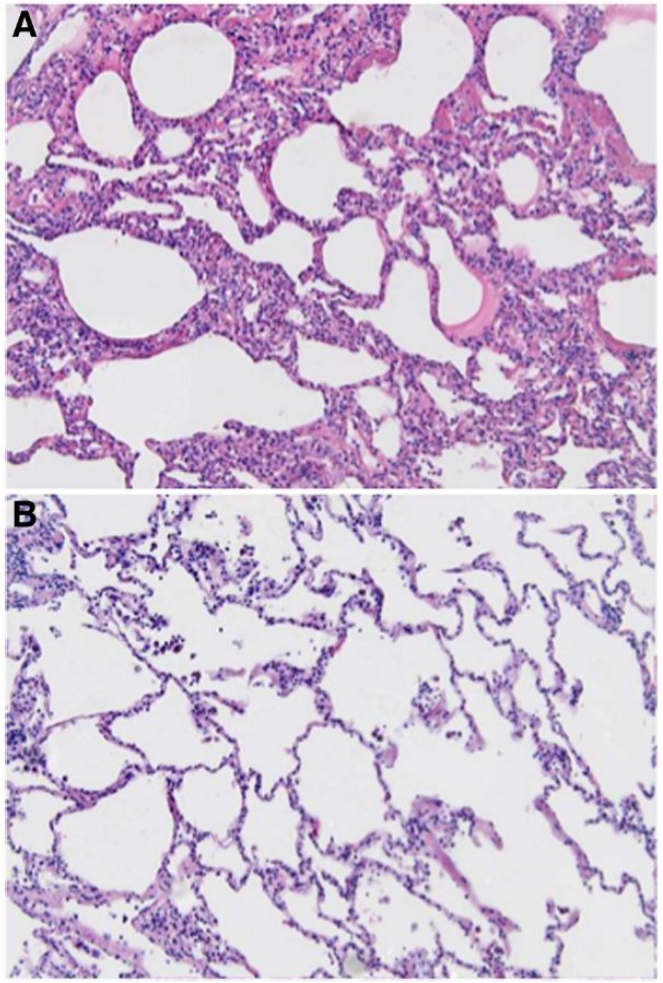


Figure 4 Representative photomicrographs from lung 1 demonstrate (A) alveolar septal thickening, edema, and perivascular and peri-bronchial inflammatory cell infiltrates in the control-treated RLL vs (B) minimal to no significant inflammation in MAPC-treated LLL. Original Mag 200×.

MUST-ARDS Trial – Primary Results

Exploratory Ph. 2 MUST-ARDS Trial: Randomized, double-blind, placebo-controlled trial evaluating patients through 28-day clinical assessment (standard) with one year follow up.

Primary Endpoints:

- Safety and tolerability within 4 hours of MultiStem therapy administration; and
- Suspected Unexpected Serious Adverse Reactions (SUSARs) within 24 hours of MultiStem therapy administration.

Conclusion: The primary endpoints were met

These primary endpoints were assessed by the following procedures:

- Subjects were monitored post-administration for infusion-related reactions. Vital signs including blood pressure, pulse, respiration, pulse oximetry and temperature were collected.
- We evaluated for all adverse events, paying special attention to the following:
  - Sustained hypoxemia, of more than 30 minutes, related to the infusion of the investigational product
  - Sustained hypotension, of more than 30 minutes, related to the infusion of the investigational product
  - New cardiac arrhythmia related to the infusion of the investigational product requiring cardioversion
  - New ventricular tachycardia, ventricular fibrillation or asystole related to the infusion of the investigational product.

Conclusion: The primary endpoints were met; MultiStem was well tolerated throughout the 4-hour observation period described above and no adverse events of special interest occurred. There were no SAEs throughout the 1-year study causally related to MultiStem investigational therapy.

MUST-ARDS Trial – Primary Results

Presented at American Thoracic Society (ATS) Annual Meeting - May 20, 2019

Athersys inc.

Exploratory Ph. 2 MUST-ARDS Trial: Randomized, double-blind, placebo-controlled trial evaluating patients through 28-day clinical assessment (standard) with one year follow up.

All Subjects	MultiStem	Placebo
Number	20	10
Ventilator-free days (mean)	12.9	9.2
(median)	**18.5**	**6.5**
ICU-free days (mean)	10.3	8.1
(median)	**12.5**	**4.5**
Mortality (d28)	25%	40%

Patients with more severe ARDS (Prospectively Defined Analysis)

Patients w/ Low pulmonary function: PaO2/FiO2 < 150 mm at baseline	MultiStem	Placebo
Number	8	8
Ventilator-free days (mean)	14.6	8.0
(median)	**18.5**	**3.5**
ICU-free days (mean)	11.4	5.9
(median)	**12.5**	**1**
Mortality (d28)	25%	50%

PRIMARY ENDPOINTS WERE MET:

- Safety and tolerability within 4 hours of MultiStem therapy administration
- No Suspected Unexpected Serious Adverse Reactions (SUSARs) within 24 hours of MultiStem therapy administration.

The Healios ONE-BRIDGE study in Japan is evaluating impact on pneumonia-induced ARDS

Post-hoc analysis of Pneumonia-Induced ARDS (from MUST-ARDS)

(Severe cases – PaO_2/FiO_2 Ratios at Day 0, Pre-infusion < 150)

	MultiStem	Placebo
Day-28 Mortality	20%	50%
Ventilator-free days (mean)	14.8	7.5
Ventilator-free days (median)	**18.0**	**3.5**
ICU-free days (mean)	12.0	5.0
ICU-free days (median)	**15.0**	**1.0**

Data for severe cases of pneumonia-induced ARDS shows an even greater difference in mortality rate, Vent-free and ICU-free days between the subjects treated with MultiStem and the patients in the placebo-controlled group.

Other Key Findings from MUST-ARDS Trial

Among MultiStem treated patients (1 dose – administered IV within 4 days of being diagnosed with ARDS and placed on ventilator):

- Rapid improvement observed among MultiStem treated subjects
  - Meaningfully higher probability of achieving ventilator independence by day 7 relative to placebo patients (i.e., **45% of MultiStem treated patients off ventilator at study day 7 vs 20% for placebo**)
- Marked reductions in inflammatory biomarkers
  - Direct mechanistic support (and consistent with extensive studies in other indications)
- Substantially improved quality of life over 1 year follow up
  - 80% of surviving patients in MultiStem group achieved complete independence in self care vs. only 40% in placebo group
  - Substantial differences in patient QOL assessments (MultiStem vs placebo)

Why MultiStem Cell Therapy is uniquely suited for Emergent Viral Outbreaks w/ Potential to Cause ARDS

A range of recent outbreaks involving viral pathogens have shown the potential to induce ARDS (including SARS, MERS, H1N1 and COVID-19)

- **MultiStem is not pathogen specific or dependent** – it is believed to have broad therapeutic relevance for a range of pathogens that have the potential to induce ARDS
- **MultiStem acts through multimodal mechanisms of action** which have the potential to provide therapeutic benefit in multiple ways (e.g., down-regulation of the cascade of hyperinflammatory activity, up-regulation of key reparative mechanisms)
- **MultiStem has shown the potential to meaningfully shorten time on ventilator for patients with ARDS** (very important to patient recovery and also enables more patients to access ventilators when they are in limited supply)
- **MultiStem is easy to administer**, has a long shelf life, and excellent tolerability (requires no tissue matching or immune suppression)

Pivotal Study Evaluating MultiStem Administration to treat COVID-19 Induced ARDS

*(Authorized by FDA w/ **Fast Track** and **RMAT** designation)*

MACoVIA a COVID-19 Research Study

Phase 2/3 Trial Overview – Randomized, Double-Blind, Placebo-Controlled Trial Focused on Pulmonary Critical Care Sites in the United States

- Intravenous administration of investigational product (MultiStem cell therapy or placebo) following onset of COVID-19 induced ARDS requiring ventilation
- Note: MultiStem administered on top of standard of care for eligible patients
  - Trial designed to enroll approximately **400 subjects (robustly powered); announced first patients enrolled on May 4, 2020.**
  - **Double Blind, randomized, placebo-controlled study** randomized 1:1 (MultiStem:Placebo)
  - **28-day primary clinical assessment**, with 12-month follow-up (e.g. secondary endpoints) maintaining double blind throughout
- **Primary efficacy endpoint** = Ventilator Free Days (VFD) during standard 28-day clinical assessment period
- **Key secondary efficacy** variables include differences between MultiStem and placebo treatments with respect to the following:
  - Mortality
  - ICU-free days
  - Proportion of subjects achieving ventilator independence at Day 7
  - Biomarker analysis
- One year follow up
  - Evaluation of functional independence / self care and Quality of Life Assessment using EQ-5D and other metrics

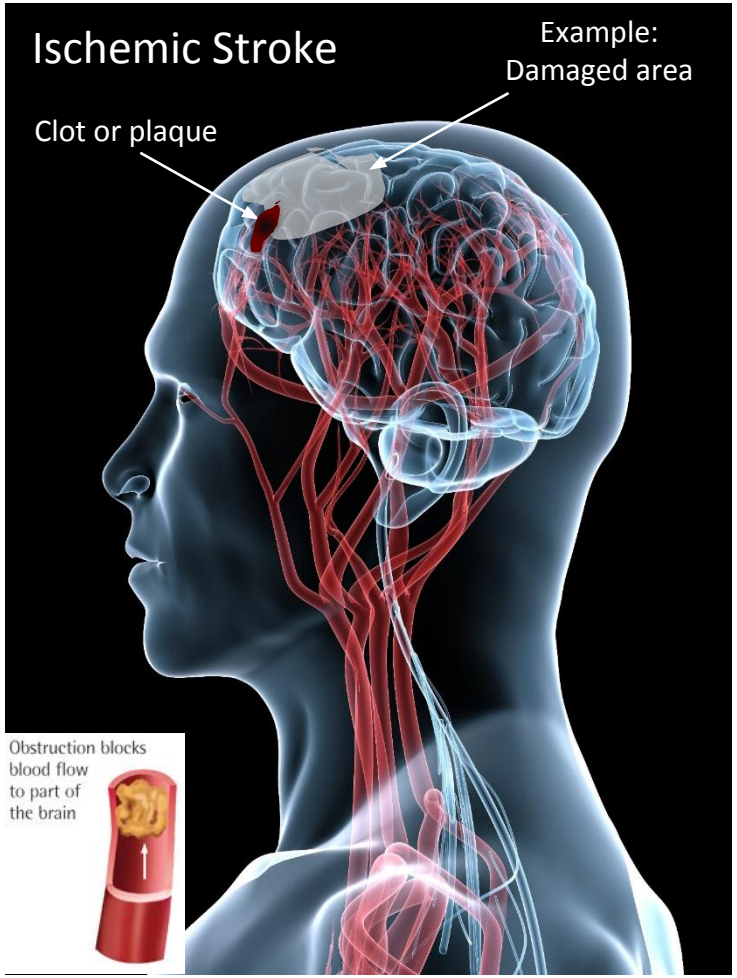
MultiStem Therapy for Ischemic Stroke

Potential for Cell Therapy in Ischemic Stroke

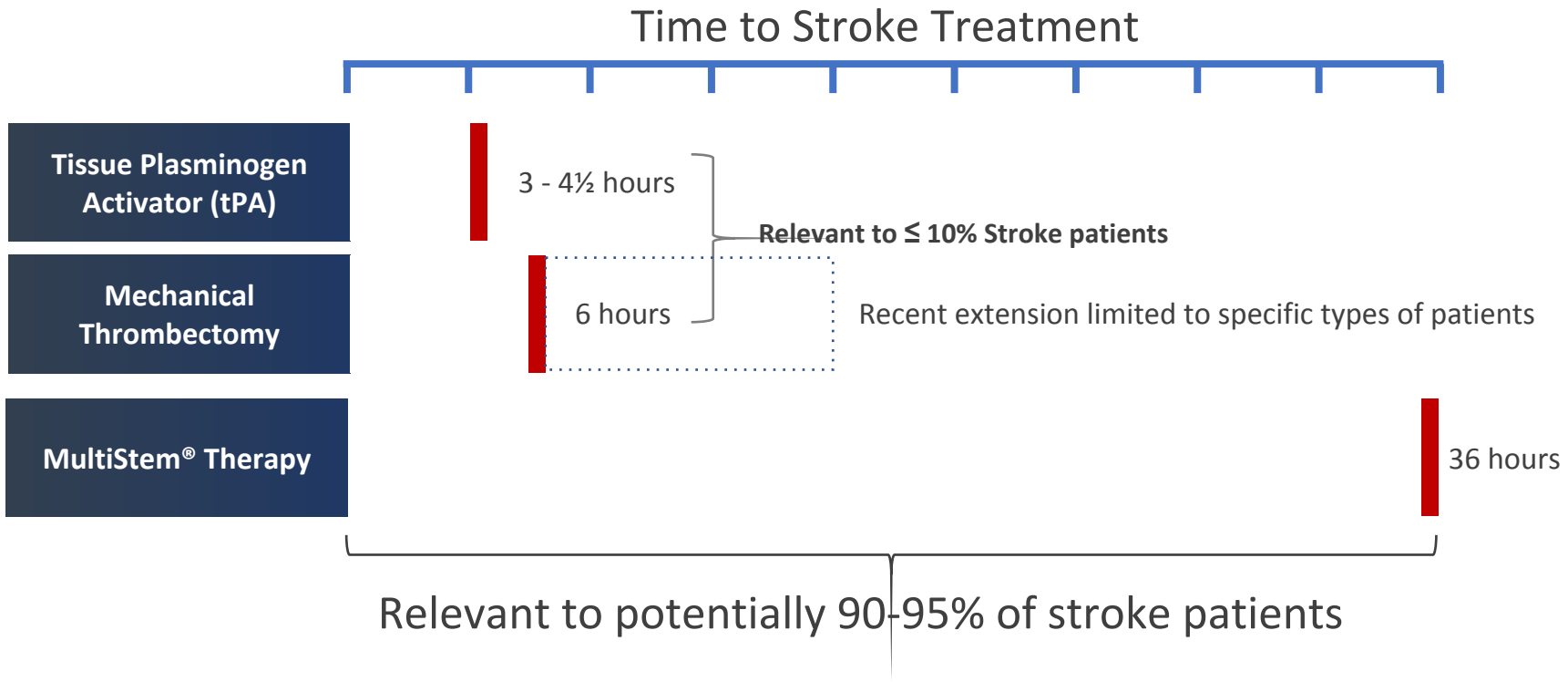
- **Leading cause of serious disability** and third leading cause of mortality globally
- **Annually ~17 Million** globally - including **~800,000** stroke victims in U.S., **~2.2 Million** across U.S. + EU + Japan combined

Note: >3.4 Million strokes annually in China (including 2.35 Million first time ischemic strokes)

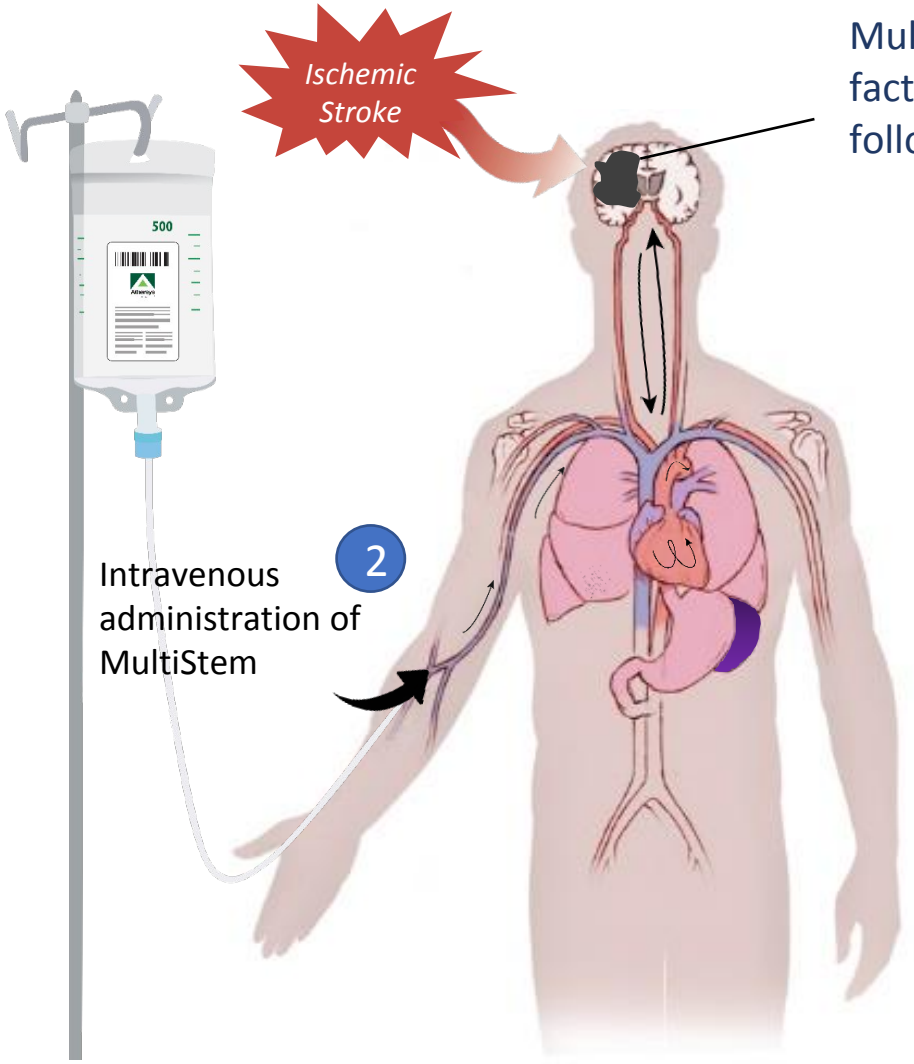
- **Tremendous unmet need**: tPA must be administered within 3 - 4½ hours of ischemic stroke & MR within 6 – 16 hours
- With an expanding aging population globally (and increasing rates of obesity and diabetes in U.S.), the **clinical need and commercial opportunity are expected to increase dramatically in years ahead**



MultiStem Therapy Could Meaningfully Extend the Treatment Window for Stroke Patients



Deep Understanding of Therapeutic MOA's of IV Administration of MultiStem for Stroke



MultiStem works through regulation of multiple factors and pathways important to brain recovery following a stroke.

1. Inflammation after stroke leads to greater tissue loss and scarring in the brain. Immune cells coming from the spleen play a major role this response.

3. MultiStem cells migrate to the spleen and peripheral immune system and affect key pathways in the brain.

4. Simultaneous downregulation of pro-inflammatory processes and upregulation of reparative immune responses promotes recovery.

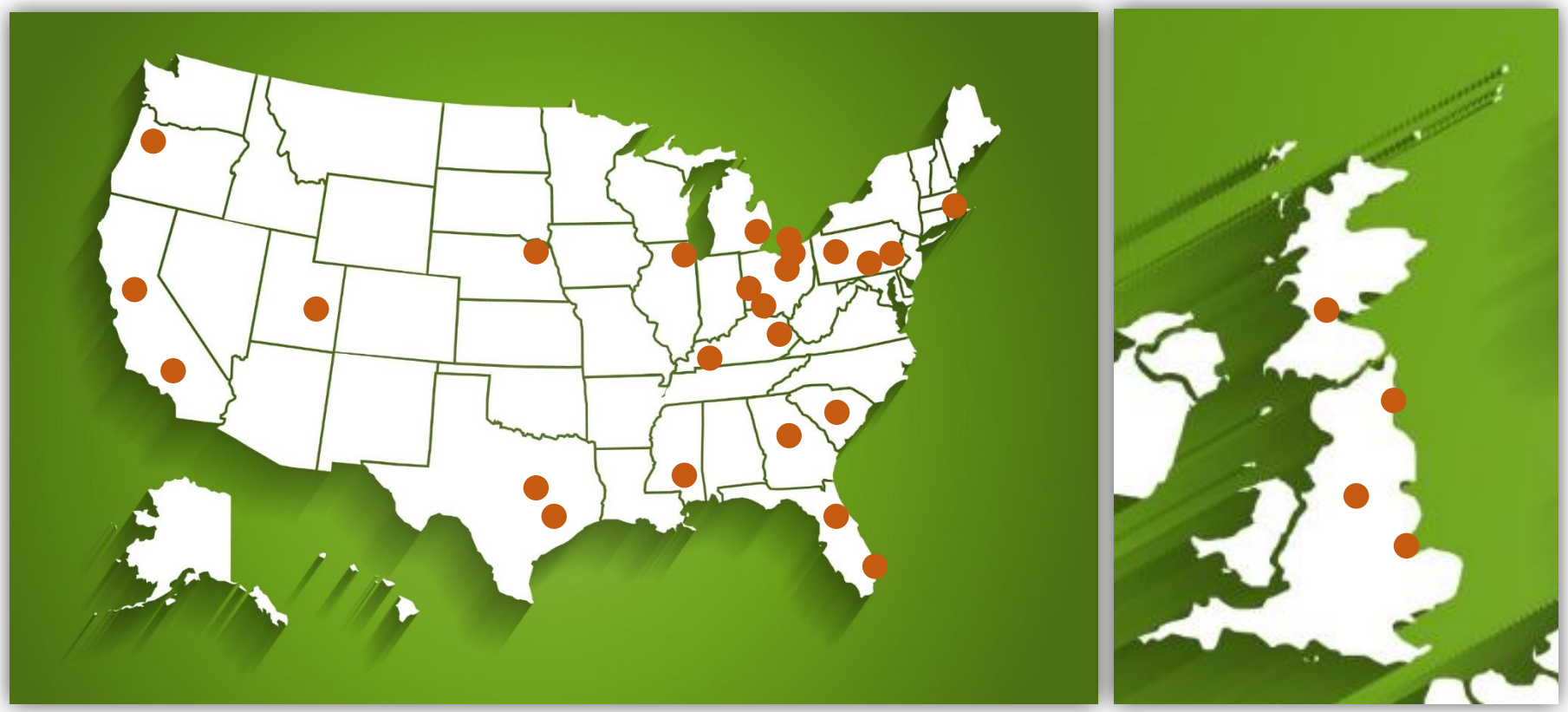
Representative Publication in *Stem Cells (2017)*: MAPC's Enhance Recovery After Stroke by Modulating the Immune Response from the Spleen

MultiStem Stroke Clinical Trial

Results from MASTERS-1 (Phase 2)

***M**ultiStem **A**dministration for **S**troke **T**reatment and **E**nhanced **R**ecovery **S**tudy*

Clinical Sites Participating in MASTERS-1 Trial



Double-blind, randomized, placebo-controlled Phase 2 study conducted at 33 leading international stroke centers across the U.S. and the U.K.

MultiStem Clinical Study in Ischemic Stroke: MASTERS-1 (B01-02)

Trial Design Overview

- **IV Administration of MultiStem or placebo following ischemic stroke**
  - Cortical cerebral ischemic strokes with substantial, persistent deficits
  - Randomized, double-blind, placebo-controlled
  - Dose escalation phase, followed by efficacy phase
  - Administered IV dose of 1.2 billion cells (efficacy phase)
  - Clinical assessments conducted at day 7, 30, 90 and one year (with 90-day primary – and full blinding maintained through 1-year final assessment)
- **Safety evaluated**
  - Adverse events, infusion reactions, infections, mortality
- **Multiple clinical scales used to evaluate efficacy**
  - Modified Rankin Scale (**mRS**) = Global disability
  - NIH Stroke Scale (**NIHSS**) = Neurological and motor skill deficits
  - Barthel Index (**BI**) = Ability to conduct activities of daily living (e.g. walking, dressing, feeding, toiletry, bathing, etc.)
- **Exploratory endpoints evaluating MOA and clinical impact**
  - Biomarkers (circulating immune cells and serum cytokine levels)

Key Eligibility Criteria – Original Design

Cortical Stroke

NIHSS 8-20 at baseline (24 hours), stable deficit

Administration within **24-36 hours**

tPA or device patients eligible if other criteria met

Key Changes to Accelerate Enrollment

Cortical Stroke

Administration window extended from 36 to 48 hours

- Earlier treatment better. However, local cell processing center limitations (e.g., HSC cell transplant units open limited hours Monday through Friday, need to work around their schedule) constrained enrollment rates

Included patients receiving <u>both</u> tPA-MR

- Background rates/expectations for this group not well known
- However, several of our sites were treating patients receiving both tPA and mechanical reperfusion (MR), and such patients seemed to meet trial criteria

Summary MASTERS-1 Baseline Demographics Information

Patient sample	MultiStem n=65	Placebo n=61
Age, mean, range	61.8 41-83	62.6 37-80
Sex, male	53.8%	54.1%
NIHSS, mean, median	13.4 13.0	13.3 13.0
MRI DWI Lesion size, mL, mean, median	51.6 42.3	54.8 41.1
Administered iv tPA iv tPA+device	 44.6% 12.3%	 47.5% 14.8%

Final Trial Results: Treatment w/ MultiStem Shows **Significant Benefit** at One Year

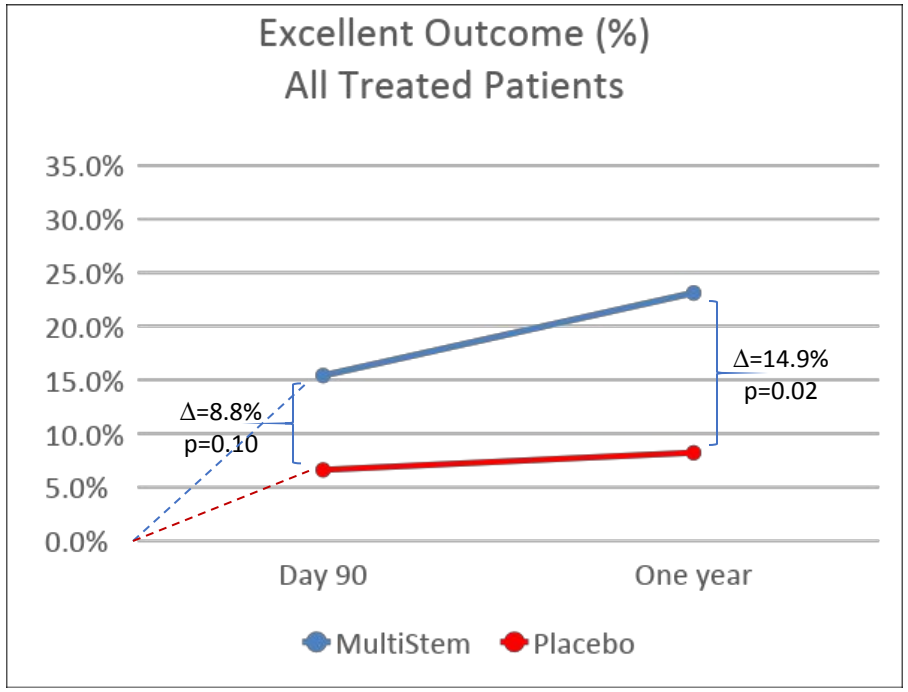
Proportion of Subjects Achieving Excellent Outcome Increases Over Time
(Patients Achieving NIHSS 0 or 1 and mRS 0 or 1, and Barthel Index ≥95)

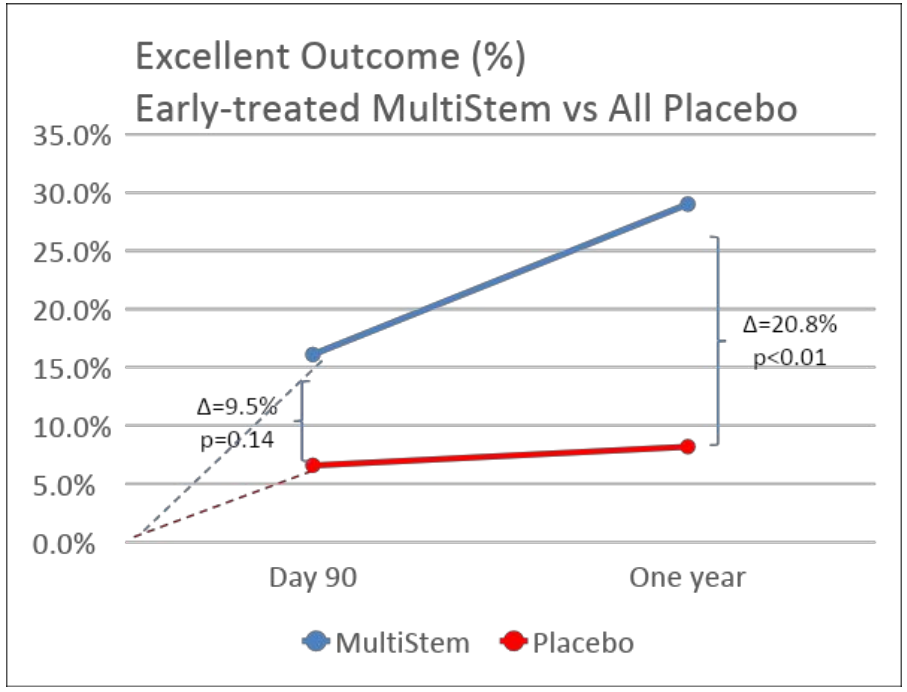
		Day 90	Δ at Day 90	Day 365	Δ at Day 365
ITT (**All Trial Subjects**):	MultiStem (n=65) Placebo (n=61)	15.4% vs. 6.6%	**8.8%**	23.1% vs. 8.2%	**14.9% p = 0.02**
Early MultiStem Treatment (≤36 Hrs) vs All Placebo	MultiStem (n=31) Placebo (n=61)	16.1% vs. 6.6%	**9.5%**	29.0% vs. 8.2%	**20.8% p < 0.01**
Original Trial Protocol: Early MultiStem Treatment (≤36 hrs) vs Placebo*	MultiStem (n=27) Placebo (n=52)	18.5% vs. 3.8%	**14.7%**	29.6% vs. 5.8%	**23.8% p < 0.01**

* *As specified in original trial design, analysis includes patients that received either no reperfusion therapy, non-responder tPA or mechanical reperfusion (MR) patients in addition to investigational product (i.e. excludes a limited number of subjects receiving both tPA and MR)*

Improvement in Excellent Outcome Following Treatment with MultiStem Therapy

In contrast to longstanding clinical experience, MultiStem treated patients exhibit meaningful improvement between the initial 90-day recovery and one-year, compared to placebo period





Excellent Outcome = mRS ≤1, NIHSS ≤1, and BI ≥95
Note: Early-treated means <36-hour administration, representing 31 MultiStem subjects

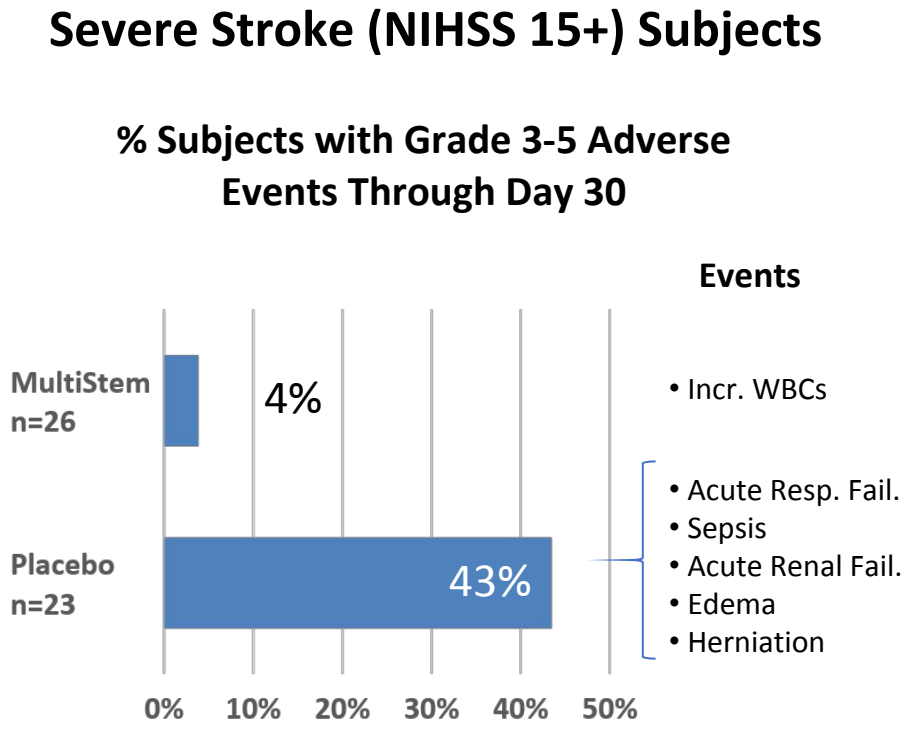
Other Findings from MASTERS-1 Study

- Safety: Intravenous MultiStem well tolerated by Stroke patients
  - No infusional or allergic reactions, and no abnormal patterns in safety labs or vital signs
  - Adverse events consistent with expectations and experience for stroke patients of this type
- Administration of MultiStem within 36 hours associated with meaningfully better outcomes for patients, including:
  - Substantially higher proportion of patients achieving excellent score in Barthel Index (activities of daily living), 67.7% (MultiStem treated) vs 44.3% (Placebo), p = 0.03
  - Meaningful reductions in ICU time and initial hospitalization
- Reduction in serious complications following Stroke
  - Reduction in life threatening AEs and death
  - Reduced incidence of secondary infections
- Benefits observed across treated population, e.g., age, stroke severity, reperfusion vs. no reperfusion therapy

Additional Clinical Observations from the MASTERS-1 Stroke Study

Among the most severely disabled stroke patients, a substantial reduction observed in serious and life-threatening adverse events

In the aftermath of a severe stroke, patients are highly susceptible to a range of severe and potentially life-threatening complications



MASTERS-2: Pivotal Phase 3 Study in Ischemic Stroke

*(Authorized by FDA under **SPA**, w/ **Fast Track** and **RMAT** designations)*

Trial Overview – (focused on North America and Europe – actively enrolling subjects)

- Intravenous administration of investigation product (MultiStem cell therapy or placebo) within **18 - 36** hours post onset of ischemic stroke… Note: may be administered on top of standard of care for eligible patients
  - **300 subjects**
  - Double Blind, randomized, placebo-controlled study
  - 1:1 ratio (MultiStem [n=150] or placebo [n=150])
  - Same dosing profile for MASTERS-1 (1.2 B cells, administered IV)
  - NIHSS 8 – 20 at baseline
  - Cortical cerebral infarct
  - IV tPA, mechanical thrombectomy or both treatments (for limited number of subjects) allowed if patient not showing substantial improvement
  - 90-day primary clinical assessment, 12-month double blind follow-up (e.g. secondary endpoints)
- **Primary efficacy endpoint** = mRS score at Day 90 evaluated by shift analysis
- **Continued evaluation of safety**
  - Mortality, adverse events, infections, infusion reactions
- **Key secondary efficacy** variables include differences between MultiStem and placebo treatments with respect to the following:
  - Proportion of subjects achieving an Excellent Outcome (mRS $\leq$1, NIHSS $\leq$1 and Barthel Index $\geq$95) at day 365
  - Proportion of subjects achieving an Excellent Outcome (mRS $\leq$1, NIHSS $\leq$1 and Barthel Index $\geq$95) at day 90
  - Proportion of subjects with mRS score of $\leq$2 at Day 90

Note: Bolded indicate changes from Phase 2 B01-02 trial design.

Opportunity in Trauma

- Trauma is the leading cause of death and serious disability among individuals age <45 in the U.S.
  - Leading cause of life years lost among individuals up to age 75… and third leading cause of death overall
  - Significant impact on youth, elderly and military personnel (battlefield trauma & VA patients)
  - Huge economic and quality of life impact

- ATHX team and independent collaborators have worked extensively in several areas of trauma (numerous publications)
  - Traumatic Brain Injury (TBI)
  - Spinal Cord injury
  - ARDS (e.g., precipitated by trauma)

  Critical Care Segment

- Mechanistically the hyperinflammatory response following trauma is the same as for stroke, w/ similar effects
  - Emanates from the spleen & peripheral immune system, causing secondary damage
  - Response frequently results in immunodepression – with patients susceptible to a range of complications that inhibit or complicate recovery (e.g., secondary infections)

Trauma Phase 2 Trial Objectives

(MATRICS-1) ➡ **M**ultistem **A**dministration for **T**rauma **R**elated **I**nflammation and **C**omplication**S**

- Received FDA authorization to begin a Phase 2 trauma trial with UTHealth at a leading Tier 1 Trauma Center in U.S. with funding provided by MTEC (Department of Defense) and the Memorial Hermann Foundation
- Phase 2 Randomized, double-blind, placebo-controlled study (~150 patients) evaluating safety and efficacy
- Compare the incidence, severity and duration of renal complications (AKI) in multiply injured, post-hemorrhage patients administered MultiStem vs. patients administered placebo
- Compare the incidence, severity and duration of inflammatory complications (e.g., SIRS) in multiply injured, post-hemorrhage patients administered MultiStem vs. patients administered placebo
- Compare all-cause mortality at 30 days in multiply injured, post-hemorrhage patients administered MultiStem vs. patients administered placebo
- Determine the inflammatory profiles associated with incidence of AKI, other inflammatory complications and mortality

Development Focus in Japan

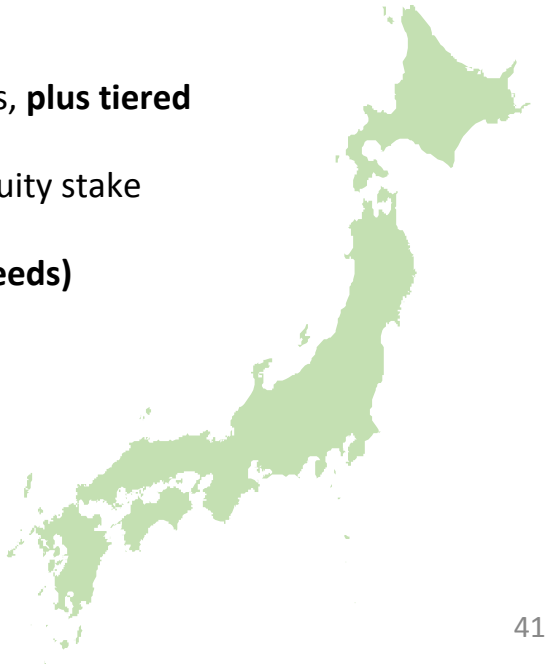
HEALIOS K.K. Partnership Overview

- **Initial partnership established January 2016**
  - Development & commercialization rights for ischemic stroke, which is the most prevalent cardiovascular disease in Japan
  - **$15 million up front payment** with **> $225 million total additional potential payments**, subject to certain credits, **plus tiered double-digit royalties**

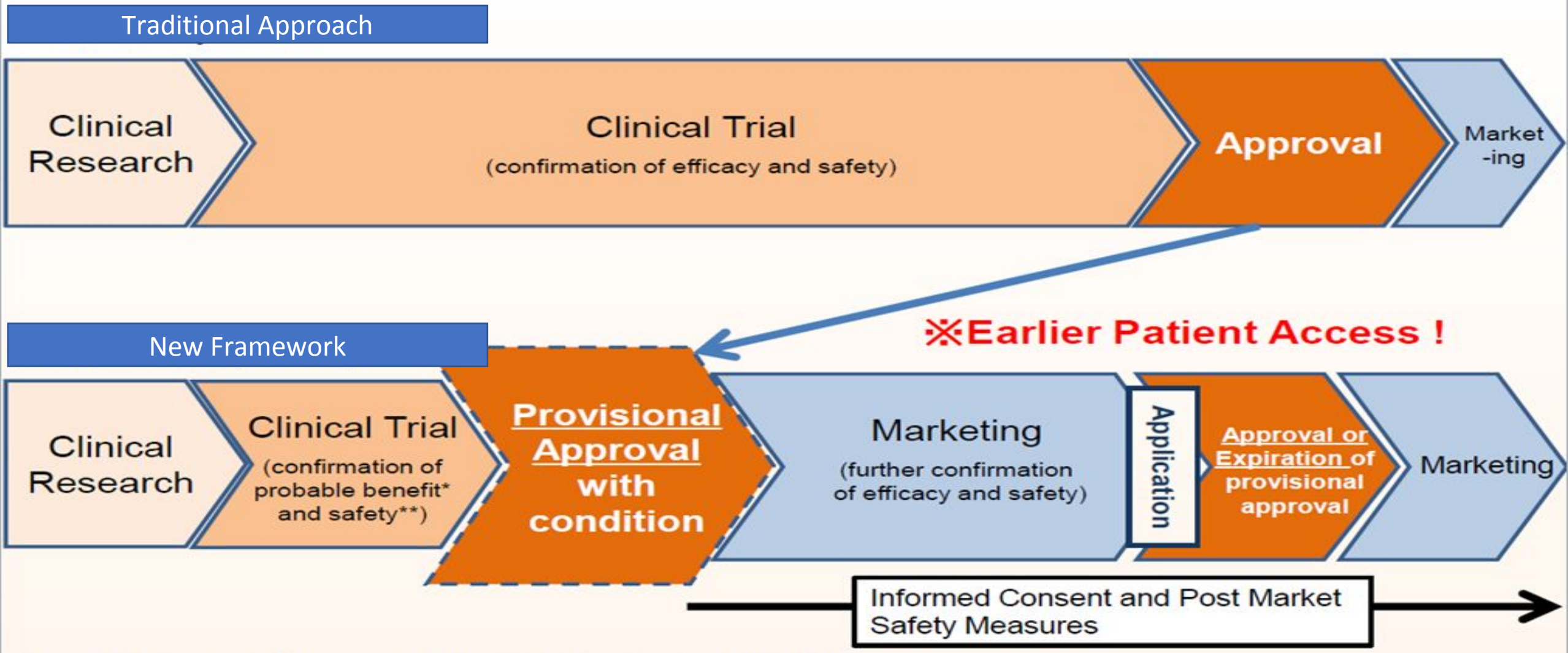
- **Expanded Collaboration announced in June 2018**
  - Development & commercialization rights to include treatment of ARDS and certain transplantation indications in Japan, plus defined Ophthalmological indications and rights to Organ Bud based treatments globally
  - $20 million license fee for license expansion

- **Economic impact for ATHX**
  - **$43.1 million** (plus up to **~$360 million in additional potential milestone payments**, subject to certain credits, **plus tiered double-digit royalties**)
  - **Equity investment of $21.1 million** completed in March 2018 (at premium) in exchange for an initial 8.7% equity stake
  - Healios also obtained ability to acquire up to an additional 4 million shares in ATHX (via warrant)
  - **Additional investment made by Healios via full exercise of warrants in early April, 2020 ($7 million in proceeds)**

- **Well-positioned for accelerated approval under new regulatory framework**
  - Rapid approval possible based on a single trial
  - March 2017 = Priority Review designation granted to Healios under *Sakigake*
  - Healios expects to complete enrollment for both trials in 2020
  - Once approved, clear and efficient reimbursement pathway



Accelerated Approval System for Commercialization of Cell Therapy Products in Japan



* Probable benefit: Confirmation of efficacy with small patient population.
** Safety: Earlier detection and evaluation of adverse events.

Analyst Coverage

Firm	Analyst	Buy/Hold/Sell
Bank of America	Greg Harrison	Buy
SMBC Nikko Securities	David Hoang	Buy
Needham and Co.	Chad Messer	Buy
Dawson James	Jason Kolbert	Buy
WBB Securities	Stephen Brozak	Buy

Summary

- **Multiple important objectives achieved:**
  - Launched the MACOVIA trial for COVID-19 induced ARDS and enrolled first patients
  - FDA authorization to initiate the DOD funded Phase 2 Trauma Trial (MATRICS)
  - Healios advancement of TREASURE trial (w/ *Sakigake* designation)
  - Fast Track and RMAT designations granted by FDA for our Phase 3 Stroke program… Positive Scientific Advice from by EMA
  - Launch of (and continued enrollment in) MASTERS-2 trial
  - Expansion of contract manufacturing capabilities to include CMO sites in Europe and Japan
  - 2018 Expansion of collaboration with Healios
  - Maintained healthy balance sheet; with recent financing of $57.6 million gross
  - Completion of enrollment in MUST-ARDS trial – and successful results
  - Fast Track and RMAT designation for ARDS program
  - Healios' initiation of ONE-BRIDGE study for ARDS and Orphan designation from PMDA
  - BARDA and CoronaWatch Task Force designation for MultiStem as a "Highly Relevant" therapeutic for COVID-19

- **Primary priorities for 2020**
  - Complete enrollment for TREASURE and ONE-BRIDGE studies (Healios trials in Japan)
  - Advancement of MASTERS-2 Phase 3 program
  - Advancement of the Phase 2/3 pivotal MACOVIA trial and negotiate and secure external funding to support the study (e.g., BARDA, NIH, other governmental institutions)
  - Initiate DOD funded Phase 2 Trauma Trial (MATRICS)
  - Complete evaluation / implementation of key partnering initiatives
  - Continued advancement of key process development and manufacturing initiatives, & commercialization prep