



Universally Implantable Regenerative Human Tissue

Alpha Healthcare Acquisition Corp Merger with Humacyte, Inc.



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This Presentation contains certain financial forecast information of the Company. Such financial forecast information constitutes forward-looking information and is for illustrative purposes only and should not be relied upon as necessarily being indicative of future results. The assumptions and estimates underlying such financial forecast information are inherently uncertain and are subject to a wide variety of significant business, economic, competitive and other risks and uncertainties. See "Forward-Looking Statements" above. Actual results may differ materially from the results contemplated by the financial forecast information contained in this Presentation, and the inclusion of such information in this Presentation should not be regarded as a representation by any person that the results reflected in such forecasts will be achieved.

Additional Information. In connection with the proposed Business Combination, Alpha intends to file with the SEC a registration statement on Form S-4 containing a preliminary proxy statement/prospectus of Alpha, and after the registration statement is declared effective, Alpha will mail a definitive proxy statement/prospectus relating to the proposed Business Combination to its shareholders. This Presentation does not contain all the information that should be considered concerning the proposed Business Combination and is not intended to form the basis of any investment decision or any other decision in respect of the Business Combination. Alpha's shareholders and other interested persons are advised to read, when available, the preliminary proxy statement/prospectus and the amendments thereto and the definitive proxy statement/prospectus and other documents filed in connection with the proposed Business Combination, as these materials will contain important information about the Company, Alpha and the Business Combination. When available, the definitive proxy statement/prospectus and other relevant materials for the proposed Business Combination will be mailed to shareholders of Alpha as of a record date to be established for voting on the proposed Business Combination. Shareholders will also be able to obtain copies of the preliminary proxy statement/prospectus, the definitive proxy statement/prospectus and other documents filed with the SEC, without charge, once available, at the SEC's website at www.sec.gov, or by directing a request to: Alpha Healthcare Acquisition Corp, 1177 Avenue of the Americas, 5th Floor New York, New York 10036.

Participants in the Solicitation. Alpha, the Company and their respective directors and executive officers may be deemed participants in the solicitation of proxies from Alpha's shareholders with respect to the proposed Business Combination. A list of the names of Alpha's directors and executive officers and a description of their interests in Alpha is contained in Alpha's final prospectus relating to its initial public offering, dated September 18, 2020, which was filed with the SEC and is available free of charge at the SEC's web site at www.sec.gov, or by directing a request to Alpha Healthcare Acquisition Corp, 1177 Avenue of the Americas, 5th Floor New York, New York 10036. Additional information regarding the interests of the participants in the solicitation of proxies from Alpha's shareholders with respect to the proposed Business Combination will be contained in the proxy statement/prospectus for the proposed Business Combination when available.

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Humacyte Overview

We are a clinical stage platform company capable of manufacturing universally implantable bioengineered human tissues at commercial scale



HUMACYTE HIGHLIGHTS



- Category-defining innovation allows the human body to grow its own living replacement parts
 - Universally implantable/no immunosuppression required, regenerative/self-healing, off-the-shelf
- Deep product pipeline in massive markets estimated to exceed \$150 billion:
 - Dialysis, peripheral artery disease, trauma, diabetes, coronary bypass
- Extensive clinical data demonstrating efficacy and safety:
 - 60 sites across 6 countries; 430+ patients treated to date; 800+ patient-years of clinical data
- First company to receive RMAT designation. FDA Fast Track
- In-house manufacturing capacity for 40,000 HAVs annually with room for modular expansion
- 87 issued patents (+ 21 pending) plus trade secrets, manufacturing know-how: strong IP protection
- Fresenius Medical Care partnership de-risks commercial roll-out
 - Industry leader in dialysis and surgical centers
- \$480M+ raised including \$150M equity investment from Fresenius

A Long Road of Publications



Functional Arteries Grown in Vitro

L. E. Niklason,^{1*} J. Gao,² W. M. Abbott,³ K. K. Hirschi,⁵ S. Houser,⁴ R. Marini,⁶ R. Langer⁷



Prospects for Organ and Tissue Replacement

Laura E. Niklason, MD, PhD
Robert Langer, ScD

Damage or loss of a tissue or organ is common, costly, and tragic. Advances in mechanical artificial organs and organ transplantation have improved the



Decellularized tissue-engineered blood vessel as an arterial conduit

Clay Quint⁸, Yuka Kondo⁹, Roberto J. Manson⁶, Jeffrey H. Lawson⁶, Alan Dardik⁸, and Laura E. Niklason^{6,d,1}



NEPHROLOGY

Challenges and novel therapies for vascular access in haemodialysis

Jeffrey H. Lawson^{1,2,8,9}, Laura E. Niklason^{2,5} and Prabir Roy-Chaudhury^{4,5}



Tissue-Engineered Lungs for in Vivo Implantation

Thomas H. Petersen,^{1,2} Elizabeth A. Calle,¹ Liping Zhao,³ Eun Jung Lee,³ Liqiong Gui,³ MichaSam B. Raredon,¹ Kseniya Gavrilov,⁴ Tai Yi,⁵ Zhen W. Zhuang,⁶ Christopher Breuer,⁵ Erica Herzog,⁵ Laura E. Niklason^{1,3,*}



Readily Available Tissue-Engineered Vascular Grafts

Shannon L. M. Dahl^{1,*}, Alan P. Kypson², Jeffrey H. Lawson^{3,4}, Juliana L. Blum¹, Justin T. Strader¹, Yuling Li¹, Roberto J. Manson³, William E. Tente¹, Louis DiBernardo⁴, M. Taylor Hensley¹, Riley Carter¹, Tiare P. Williams¹, Heather L. Prichard¹, Margaret S. Dey¹, Keith G. Begelman⁵ and Laura E. Niklason⁶



Bioengineered human acellular vessels for dialysis access in patients with end-stage renal disease: two phase 2 single-arm trials

Jeffrey H. Lawson, Marc H. Glickman, Marek Ilzecki, Tomasz Jakimowicz, Andrzej Jaroszynski, Eric K. Peden, Alison J. Pilgrim, Heather L. Prichard, Malgorzata Guzewicz, Stanislaw Przywara, Jacek Szmied, Jakub Turek, Wojciech Witkiewicz, Norbert Zapotoczny, Tomasz Zubilewicz, Laura E. Niklason



Bioengineered human acellular vessels recellularize and evolve into living blood vessels after human implantation

Robert D. Kirkton¹, Maribel Santiago-Maysonet¹, Jeffrey H. Lawson^{1,2}, William E. Tente¹, Shannon L. M. Dahl¹, Laura E. Niklason^{1,3}, Heather L. Prichard^{1*}



BIOTECHNOLOGY

Bioengineered human blood vessels

Laura E. Niklason* and Jeffrey H. Lawson*

LIVING HUMAN REPLACEMENT TISSUE



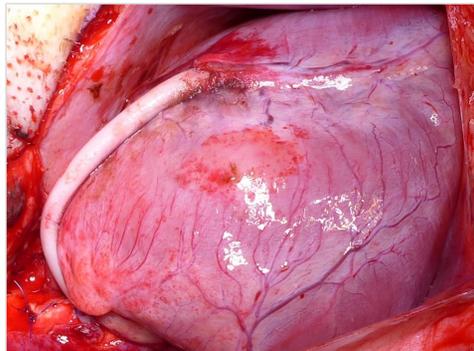
*Bioengineered
Blood Vessel*



*Bioengineered
Pancreas*



*Bioengineered Human
Coronary Artery*



*Bioengineered
Human Lung*



WE AIM TO TRANSFORM MEDICAL PARADIGMS



No waiting for organ donors



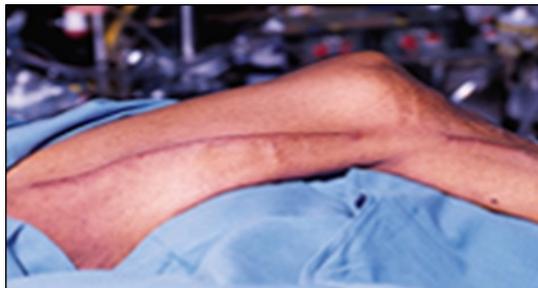
No amputations due to vascular blockages



No life sentence of immunosuppression



No "cutting your left leg" to save "your right leg"



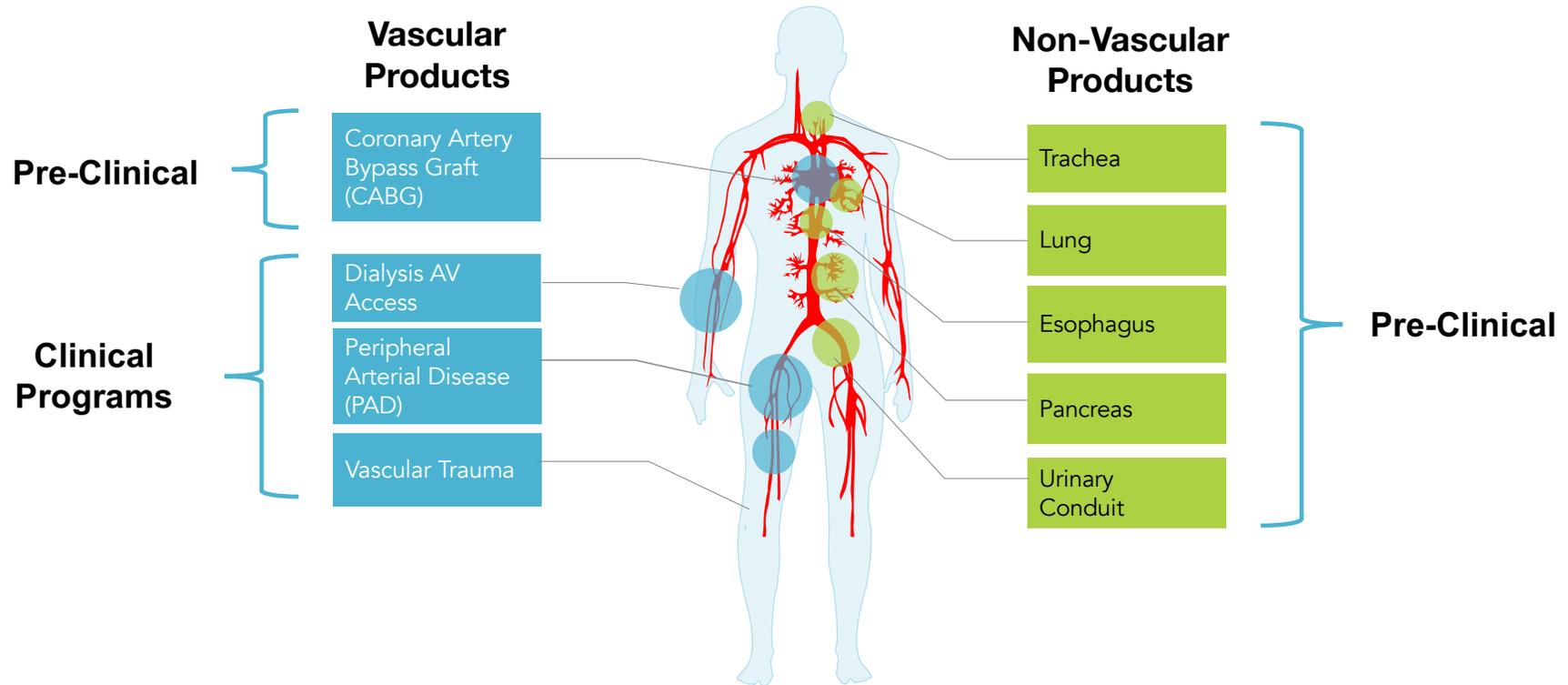
No plastic body parts that become infected



No being hooked up to cumbersome machines



HUMACYTE'S TECHNOLOGY PLATFORM HAS BROAD APPLICABILITY



STRATEGY FOR LAUNCH OF CLINICAL-STAGE PRODUCTS

First Product Launch: Vascular Trauma

- Restoring circulation quickly is key to good outcomes in acute trauma
- HAVs are designed to be off-the-shelf and universally implantable
- Phase 3 trial underway, single-arm study
- 73,000 cases per year estimated U.S. total addressable market.

Expected US Launch: 2023

Second Product Launch: Arteriovenous Access

- “Gold standard” autogenous fistulas fail 40% of the time
- But fistulas are utilized for ~67% of U.S. patients, due to infections in ePTFE and catheters
- Humacyte aims to displace fistula in the AV access market, based on infection resistance and early useability for dialysis.
- > 100,000 access cases/yr U.S.

Expected US Launch: 2023

Follow-on Product Launch: Peripheral Arterial Disease

- Vein grafts not always available; ePTFE fails easily
- HAVs have 74% function at 2years (Phase 2), and ~60% function at 5 years
- Phase 3 trial is being designed currently.
- > 100,000 peripheral arterial disease operations per year in the U.S.

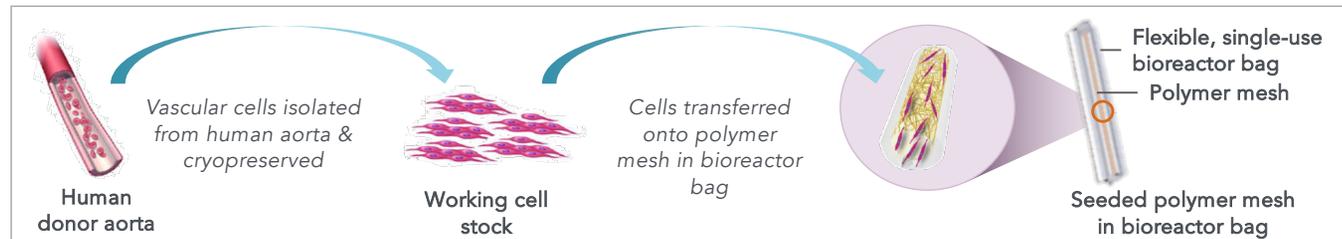
Expected Launch: 2025

Note: HAV data based on clinical trials to date
Source: Humacyte

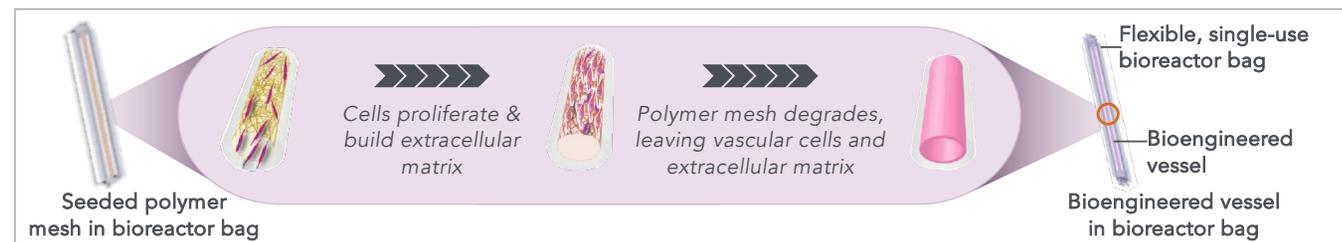
HUMAN ACELLULAR VESSELS (HAVs)



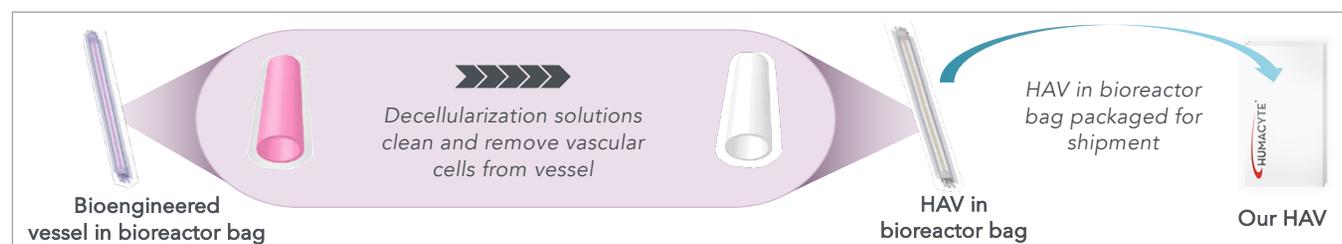
1
Cell seeding



2
Tissue formation



3
Cell removal and packaging



KEY FEATURES OF HUMACYTE TECHNOLOGY



Off-the-shelf

- Remove from packaging, cut and implant, current 18-month shelf-life

No Donor Site Harvesting

- Doesn't require recovery from a second surgery

No Evidence of Immunogenicity

- 430+ patients treated, 800+ patient-years of exposure: no clinical rejections

Highly Resistant to Infection

- ZERO infections thus far in PAD and Trauma

Transforms Into Patient's Own Tissue

- Extensive supporting clinical evidence, 5-10 year follow-up clinical data

Leading Durability

- 5-year function is 2x that reported for fistulas and ePTFE grafts in dialysis

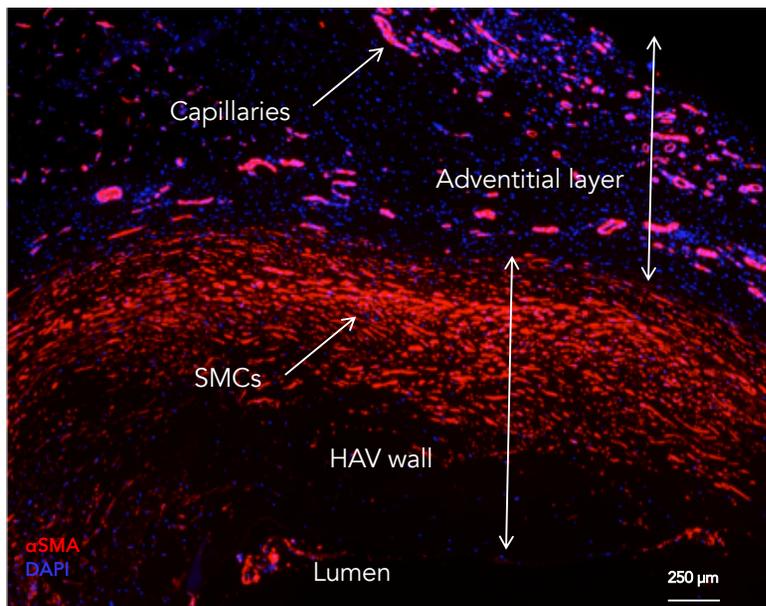


Source: Humacyte

CLINICAL DATA SHOWS THAT HAV BECOMES LIVING BLOOD VESSEL

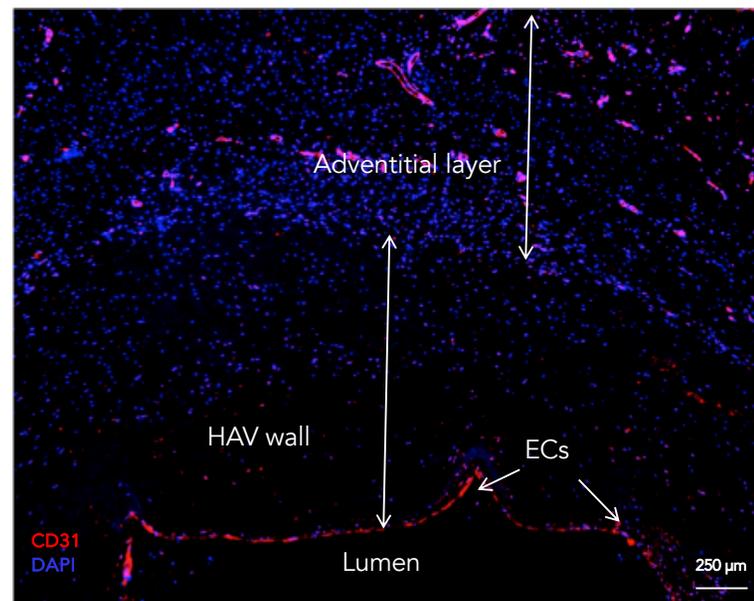


Smooth Muscle Cells (Red) Prominent in HAV Wall, Adventitial Layer with Capillaries³



At 44 weeks

Endothelial Cells (Red) Line the HAV Lumen³



HAV repopulates with the patient's own cells, angiogenesis enables self-maintenance, self-heals in response to injury

1. Samples were assessed at 16, 18, 22, 27, 37, 44, 55, 97, 100, 121, and 200 weeks.
 2. No evidence of chronic inflammation.
 3. Explant from 01-001-V003, 44 weeks after implantation.
 Source: Humacyte

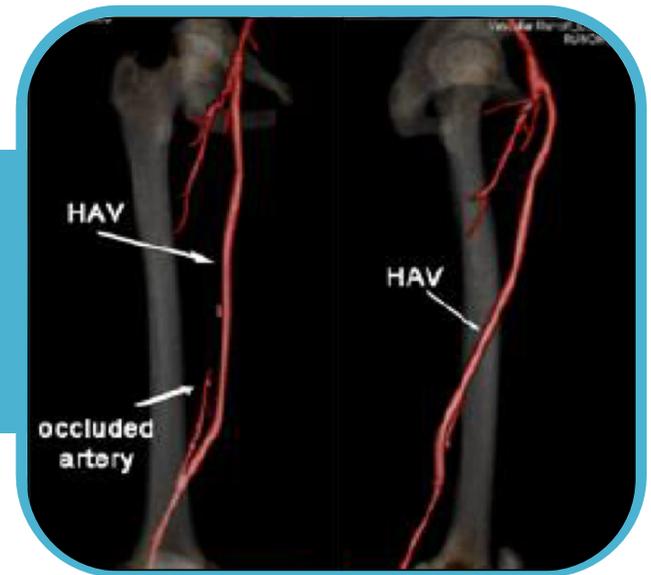


ACCELERATED U.S. REGULATORY PATHWAY

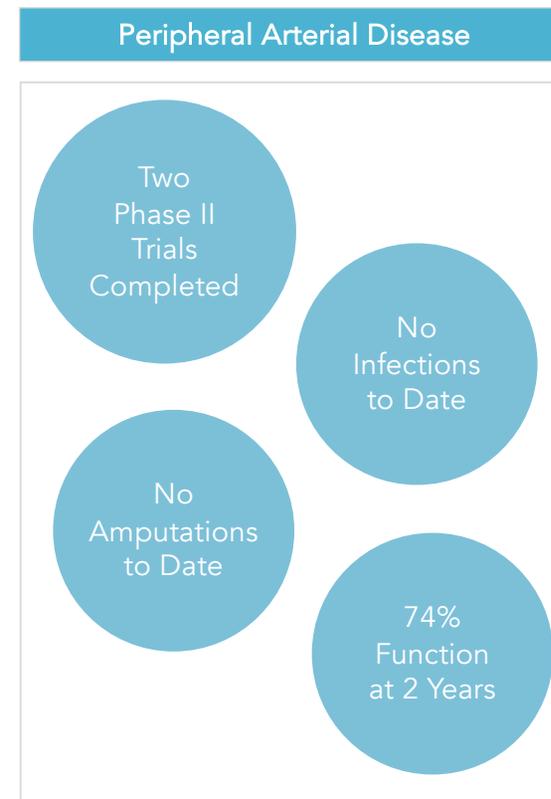
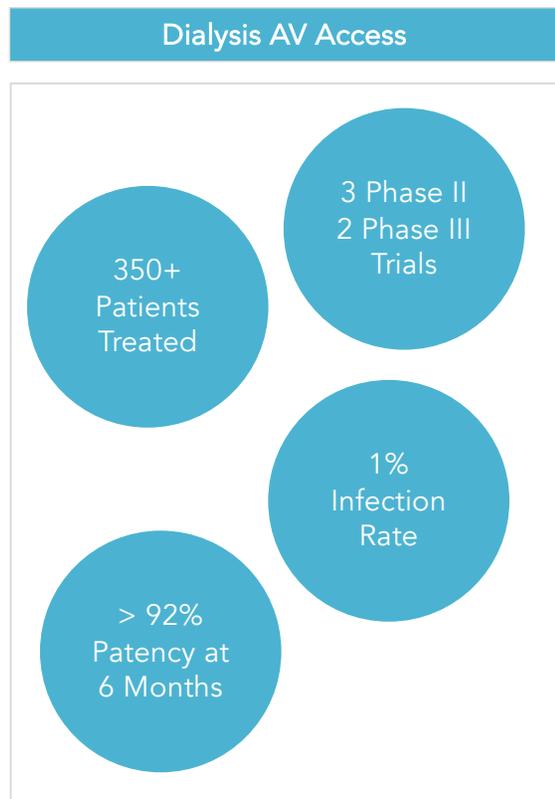


- FDA Fast Track designation
- First product to receive FDA's RMAT expedited review designation
 - Benefits of Fast Track plus intensive FDA guidance on product development
- Priority designation for vascular trauma by Secretary of Defense
- Ongoing discussions with regulatory agencies in the EU and Japan
- 87 patents issued + 21 patent applications pending
- Patent coverage to 2032, pending applications will extend coverage period

Humacyte's Clinical Programs



LATE-STAGE CLINICAL DEVELOPMENT: 800+ PATIENT YEARS OF DATA



1. For 27 evaluable patients
Source: Humacyte



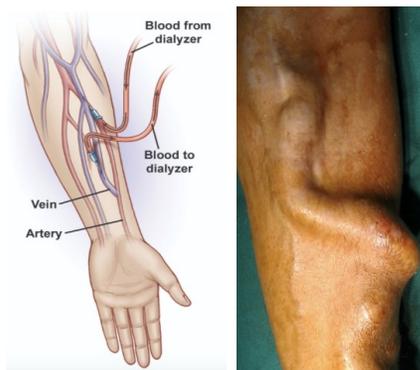
DIALYSIS: ADDRESSING RECURRENT INFECTIONS AND FISTULA FAILURE



Market Share

AV Fistula

65%



Standard of Care

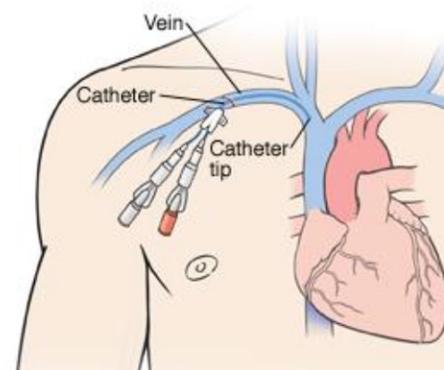
- Major risks associated with catheter during wait for fistula maturation
- ~40% of fistulas fail

Humacyte HAV

- HAV usable within 1 month vs 3-6 months for fistulas
- Decreased catheter contact time in patients awaiting fistula maturation

Catheter

19%



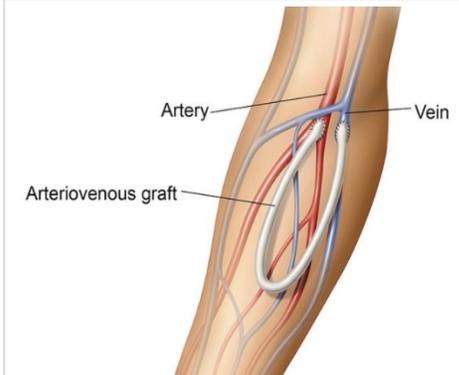
- High blood stream infection rates (up to 200% per patient-year)

Infection rate for:

- Catheters: up to 200% per patient year¹
- HAV: 1% per patient year²

Synthetic Graft

17%



- 10-15% annual infection rate: sepsis, hospitalization, death
- Not durable: ~50% fail in 2 years¹

- 10-15x lower rate of infection versus ePTFE
- Excellent Durability: used for dialysis for ~7 years

1. Lawson, J.H, et al, The Lancet 2016; 387: 2026-2034.
 2. Halbert, R.J., et al, Kidney360 2020; doi: 10.34067/KID.003502020.
 Source: Humacyte



HUMAN ACELLULAR VESSEL (HAV) IN HEMODIALYSIS ACCESS



Objective: HAV being developed for dialysis access as an alternative to autologous arteriovenous fistula (AVF).

Potential benefits of HAV evaluated in completed and ongoing clinical trials include:

- Off-the-shelf
- Usable within one month after implantation
- Potential for decreased catheter contact time as compared to patients awaiting fistula maturation
- HAV appears to be highly resistant to infection
- HAV has no evidence of immunogenicity
- Host cells repopulate the HAV
- Long-term durability in ongoing studies.



HAV IN HEMODIALYSIS ACCESS: PHASE 2 STUDY THROUGH 12 MONTHS



- **Methods:** Six centers in the US and Poland, HAV implanted in patients who were in need of dialysis access and who were suitable for arteriovenous grafting ¹.
- **Subjects:** 60 patients, mean follow-up 16 months
 - Age = 59 ± 10y;
 - 77% Caucasian;
 - 90% with hypertension;
 - 43% diabetic;
 - Prior AV accesses: 3.6 ± 2.1.
- **Safety Outcomes:**
 - No aneurysmal degeneration;
 - No clinical rejection;
 - Multiple subjects subsequently received successful kidney transplants.
- **Results:**
 - 12 month HAV outcomes published in *The Lancet* ¹

Phase 2 HAV Results vs. Historical Fistula & ePTFE Data

Conduit	6-month Secondary Patency	12-month Secondary Patency	Infection Rate per patient-year
HAV Phase 2	97% (85-98%)	89% (74-93%)	1.3%
HISTORICAL publications, Fistula ^{2,3,4}	61% ³ (useable for dialysis)	59.5% ⁴	4.0% ⁵
HISTORICAL publications, ePTFE ⁵	80% (75-84%)	70%(64-75%)	9.0%

¹ Lawson, J.H. et al. *The Lancet* 2016; 387: 2026-2034.

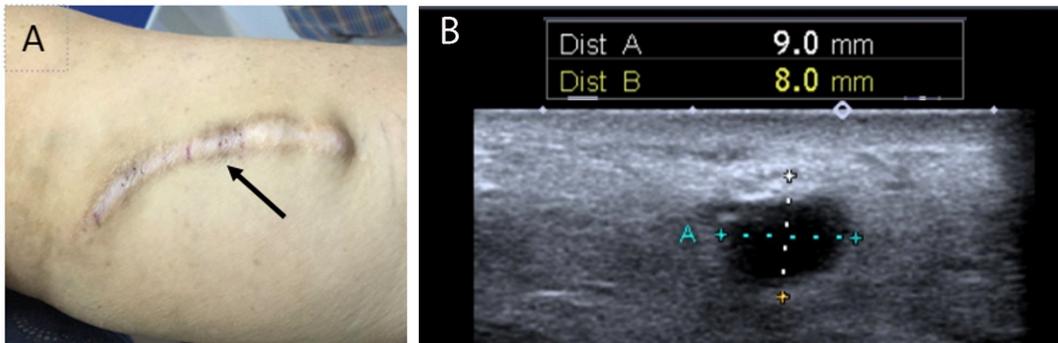
² Halbert, R.J. et al. *Kidney360* December 2020, 1 : 1437-1446

³ Allon, M., et al. *American J Kidney Disease* 2018; 71: 677-689.

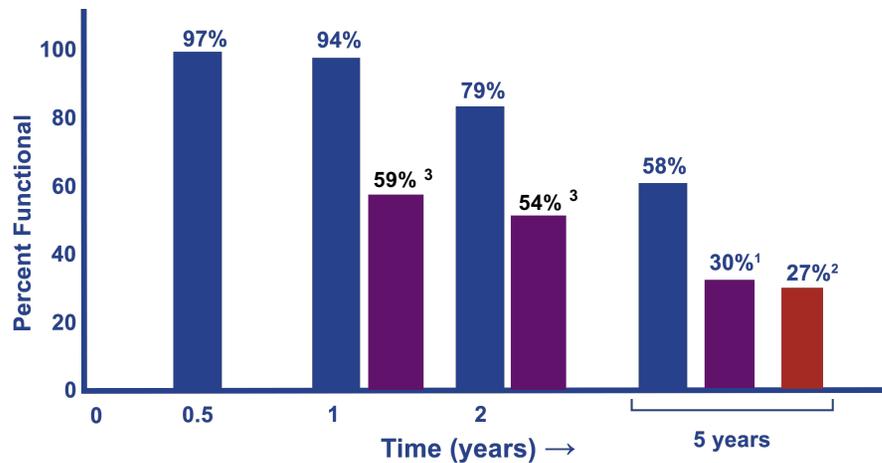
⁴ Arhuidese, I.J., et al. *Journal Vascular Surgery* 2018; 68: 1166-1174

⁵ Al-Jaishi, A.A., et al. *JASN* 2017; 28: 1839-1850.

HAV IN HEMODIALYSIS ACCESS: PHASE 2 STUDY ≥ 5 YEARS, LONG TERM DURABILITY



- A) Patient with access site utilized for 6 years (arrow).
- B) Ultrasound of HAV from same patient.



■ HAV ■ Fistula ■ ePTFE

58% secondary patency at 5 years compares well to **historical** ePTFE and arteriovenous fistulas.

¹ Lok, et al; 2013 CJASN
² Kakisis et al; 2017, JVS
³ Arhuidese, et al, 2018; JVS.

HAV REPOPULATES WITH CELLS FROM THE PATIENT OVER TIME ¹

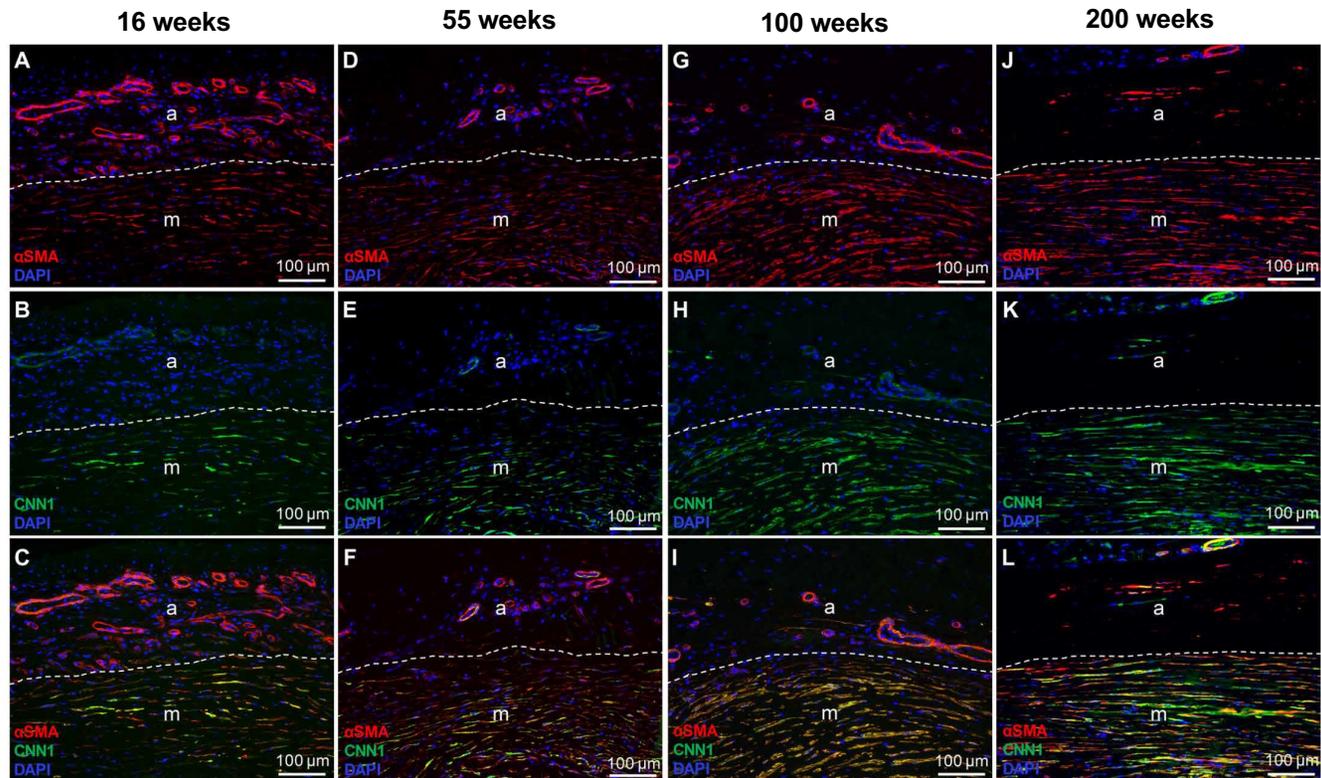


Fig. 4. Infiltration and maturation of α SMA⁺ host cells within the implanted HAV. Immunofluorescence staining of explanted HAV sections for α SMA (red) and CNN1 (green), a contractile marker of mature SMCs. Developmental maturation indicated by coexpression of CNN1 and α SMA. HAV sections explanted at 16 (A to C), 55 (D to F), 100 (G to I), and 200 (J to L) weeks after implantation. a, neoadventitia; m, medial layer. The boundary between the neoadventitia and medial layers is delineated by a white dashed line. Nuclei (blue) were counterstained with DAPI.

¹ Kirkton, R.D. et al, Sci Trans Med 2019; 11:eau6934.

NEXT STEPS FOR CLINICAL EVALUATION OF THE HAV

Phase 2 long-term follow-up results submitted for publication:

Five-year outcomes in patients with end-stage renal disease who received the bioengineered human acellular vessel for Dialysis Access

Tomasz Jakimowicz MD PhD^a; Stanislaw Przywara MD, PhD^b; Jakub Turek MD^c; Malgorzata Guziewicz MD PhD^c; Marek Ilzecki MD, PhD^b; Michał Macech MD^a; Wojciech Witkiewicz MD PhD^c; Norbert Zapotoczny MD^c; Tomasz Zubilewicz MD PhD^b; Robert Kirkton PhD^d; Alison J Pilgrim MD^e; Heather L Prichard PhD^d; William Tente MS^d; Jeffrey H Lawson MD PhD^{d,f}; Laura E Niklason MD PhD^{d,g}

Phase 3 studies ongoing:

NCT02644941 (HUMANITY): An Assessment of Humacyte's Human Acellular Vessel in Patients Needing Renal Replacement Therapy: A Comparison with **ePTFE Grafts** as Conduits for Hemodialysis (**24-month follow-up anticipated soon**)

- 37 centers in the US, German, UK, Poland, Portugal, and Israel; 355 total subjects;
- 1:1 Prospective randomization HAV (6mm x 42cm) vs. ePTFE grafts.

NCT03183245: Compare the Efficacy and Safety of Humacyte's Human Acellular Vessel with that of an **Autologous Arteriovenous Fistula** in Subjects with End-Stage Renal Disease (**currently enrolling**)

- 30 centers in the US; target 240 total subjects (over 180 subjects enrolled currently).

VASCULAR TRAUMA: SAVING LIVES AND LIMBS



Saphenous Vein Grafts



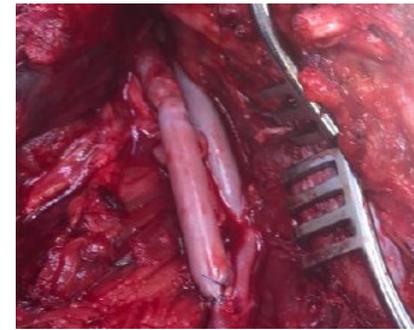
- Harvesting vein adds an hour or more of operative time¹
- Delayed revascularization significantly increases amputation risk
- Amputation in lower-limb trauma ranges from 5-15%^{1,2}

ePTFE Grafts



- >50% infection rate³
- Amputation rate is 8-25%⁴
- Mortality rate when ePTFE is infected: 8-30%⁴
- Median length of stay 11 days if re-admitted for graft infection

Humacyte HAV



- Off the shelf; no need to harvest vein
- Outstanding primary patency: 100% at 30 days (existing data)
- Data suggest meaningful reduction in rate of infection compared to ePTFE
- Expected clinical improvement in limb salvage leading to significantly lower rate of amputation

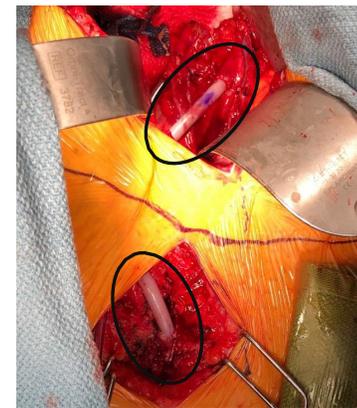
1. Alarhayem, A.Q., et al, Journal of Vascular Surgery 2019; 69: 1519-1523.
2. Kauvar, D.S., et al, Journal of Vascular Surgery 2011; 53: 1598-603.
3. Siracuse, J.J. et al, Journal of Vascular Surgery 2013; 57: 700-705.
4. Andercou, O., et al, Medicine 2018; 97:27(e11350).
Source: Humacyte

ONGOING Phase II/III TRIAL IN VASCULAR TRAUMA REPAIR



- Single-arm, open-label study in \pm 75 patients
 - Vascular injuries below the neck
 - 37 patients enrolled to date
- 12 clinical sites, increasing to 28 in the U.S. and Europe
- 30-day endpoint of primary patency of the HAV
- Unblinded trial with historical data base comparators
- Results to date show outstanding function: 100% patency at 30 days for 27 evaluable subjects
- No HAV infections observed to date
- Accelerated Approval pathway

Trauma Case Study



Iliac Artery Bypass with HAV
(Pelvis and Leg)



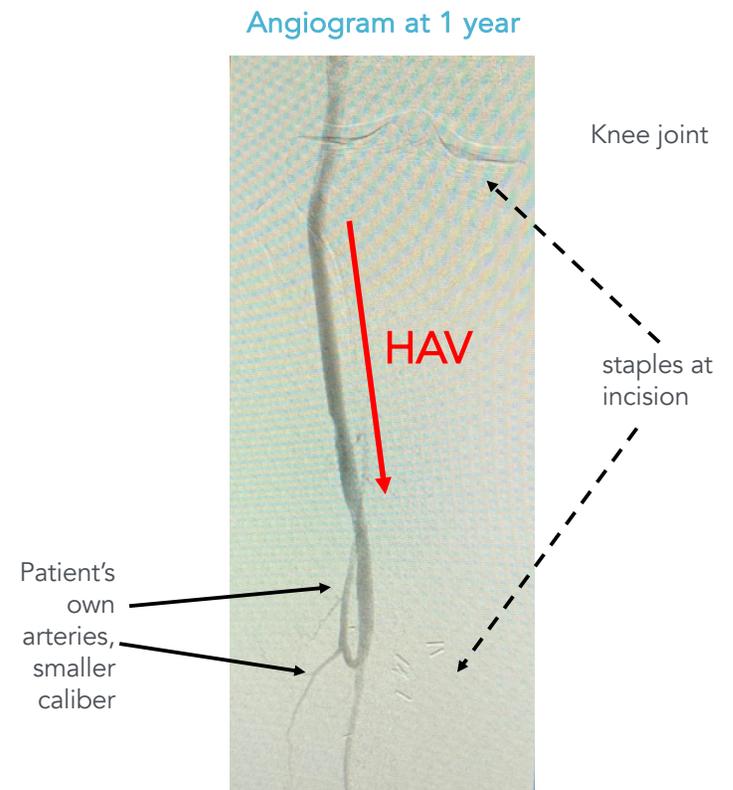
DOD Priority Designation



PERIPHERAL ARTERIAL DISEASE: RESTORING MOBILITY



- Case Study of using the HAV for Compassionate Use in patient with severe vascular disease.
- The patient was a 70-year-old male with critical limb ischemia
 - No vein was available to perform a bypass, as the vein was previously used for a CABG
- A right distal superficial femoral artery-to-peroneal artery bypass was performed using an HAV
 - The patient's postoperative course was unremarkable
- At 1-year follow-up the angiography showed a patent graft without significant stenosis at the distal anastomosis
- **Nearly 2 years after HAV implantation, the patient continues to do well and is walking**



TRANSFORMING CABG CARE: GREATER DURABILITY, LESS MORBIDITY



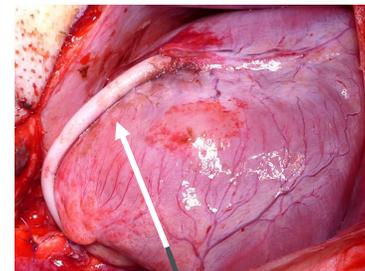
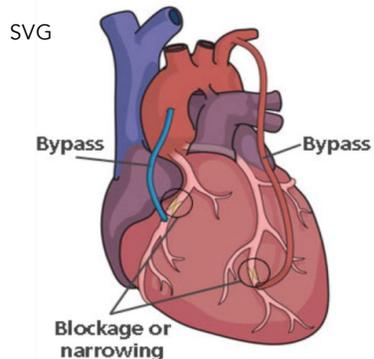
Saphenous Vein Graft (SVG)

- Harvesting SVG from the patient is painful and complicated:
 - 41% have persistent numbness
 - 32% develop infection
 - 23% have persistent swelling; worse in obese and diabetic patients; 2x worse in women
- SVGs do not last long enough: ~33% of patients will require one or more re-grafting procedures during their lifetimes

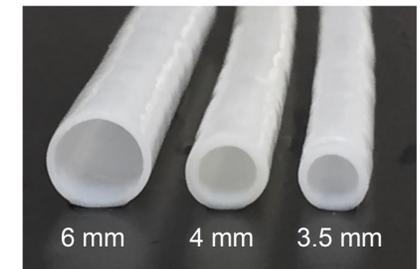
Humacyte's HAV

- Does not require tissue harvest from the patient
- Immediately available and avoids morbidity of vein harvest
- Particularly important to avoid vein harvest in diabetics, women, and the overweight
- Durable and highly uniform in diameter and quality

The surgeon is assured of what they are getting



Humacyte HAV



HAVs of 4.0 - 3.5mm diameter may be suitable for CABG

Source: Humacyte

BIOVASCULAR PANCREAS FOR TYPE 1 DIABETES

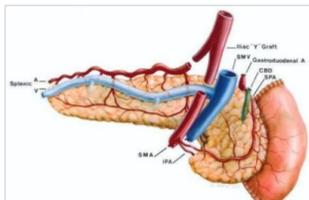


Current Type 1 Diabetes Treatment

- Insulin injections, insulin pumps, finger sticks: \$10k/year
- Constant vigilance for blood sugar control impairs quality of life.
- 1/3rd of patients unable to maintain adequate blood sugar control, leading to kidney failure, blindness, amputation, and heart attacks.
- Pancreas transplants are dangerous and expensive: ~\$280,000

BioVascular Pancreas

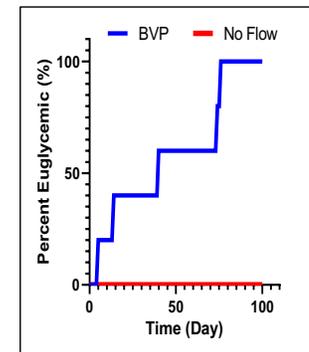
- BioVascular Pancreas uses Humacyte’s HAV to deliver a potentially curative number of insulin-producing pancreatic islets to a patient
- Minimally invasive pancreas transplant: **outpatient** procedure
- Islets sense blood sugar through HAV wall and secrete insulin
- Glucose control restored in 100% of rats in preclinical model



BioVascular Pancreas (BVP)



Islets
Acellular Graft
Hydrogel



Restoring Glucose Control in Rats

Potential to cure Type 1 diabetes

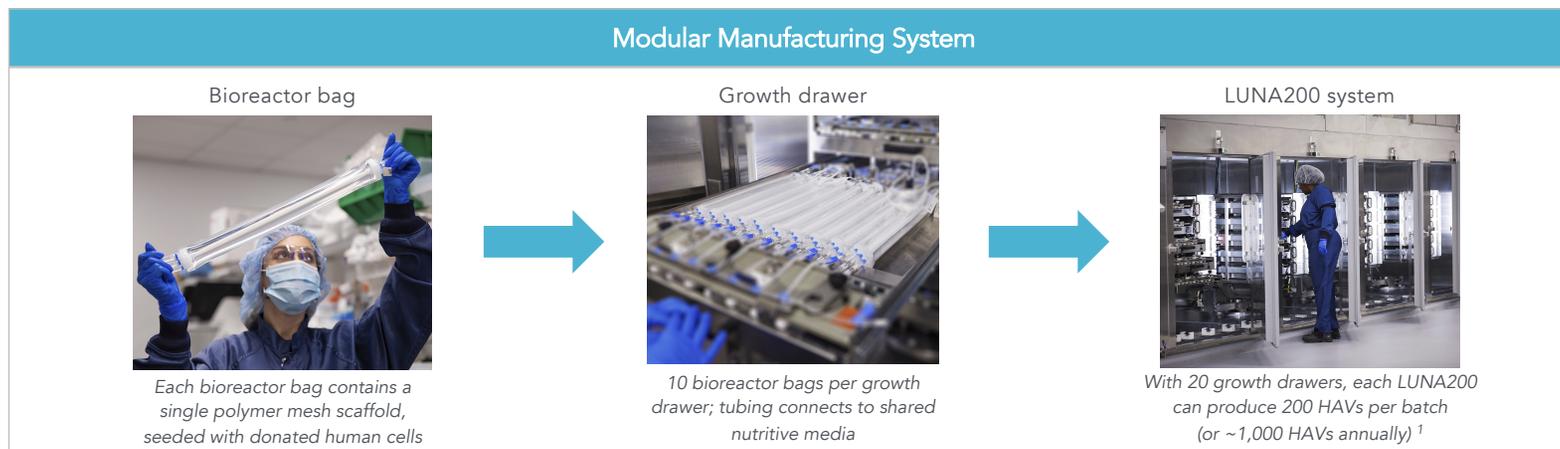




Commercialization Strategy



COMMERCIAL MANUFACTURING SCALE



Commercial 83,000 sq ft Bioprocessing Facility



- Currently operating 8 LUNA200 systems
- Annual Capacity expected to exceed 40,000 HAVs
- Functionally closed system with state-of-the-art process automation

\$1 billion in annual revenue potential from existing facilities with room for modular expansion

COMMERCIALIZATION STRATEGY



Collaboration with



- Global collaboration for Dialysis AV Access and PAD
- 2,500 dialysis centers in the US: largest provider of dialysis services in the U.S.
- Leader in the management of outpatient surgical centers
- Over 60 outpatient centers for vascular procedures

Direct Sales for Vascular Trauma



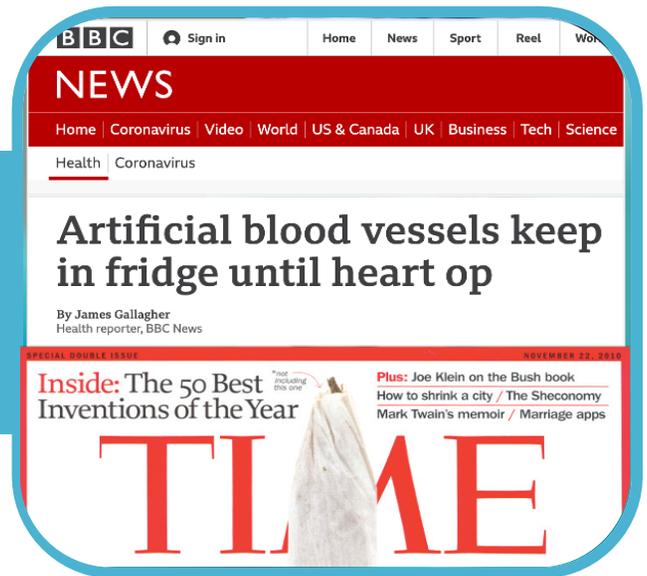
- Department of Defense supply depots
- Vascular Trauma is highly specialized market with 190 Level I Trauma centers
- Launch field sales force of up to 20 representatives
- Dual targeting of surgeons to create pull-through demand and hospital administrators to gain product placement in hospitals

Strategic Partnerships

- Massive market potential of CABG and pancreas products expected to provide additional collaboration opportunities
- We will explore strategic partnerships for future products



Transaction Overview



TRANSACTION SUMMARY



<p>Transaction Structure</p>	<ul style="list-style-type: none"> ▪ Existing Humacyte shareholders to receive the following consideration in AHAC common shares: <ul style="list-style-type: none"> ▪ Base valuation of \$800 million ▪ Plus, stock performance linked incentive when the share price reaches or exceeds the following levels, for at least 20 days over any 30-day period following Transaction Closing: <ul style="list-style-type: none"> ▪ \$15.00: 7.5 million common shares ▪ \$20.00: 7.5 million common shares ▪ Plus, \$100 million in AHAC Trust (assuming no redemptions) ▪ Plus, anticipated \$175 million PIPE at \$10.00 per common share
<p>Capitalization & Use of Proceeds</p>	<ul style="list-style-type: none"> ▪ Net proceeds of \$255M post-closing (assumes no trust redemptions, \$100M PIPE, \$20M in expenses) ▪ Net proceeds to fund clinical trials and product development
<p>Transaction Timeline</p>	<ul style="list-style-type: none"> ▪ Definitive Business Combination and PIPE Subscription Agreements expected to be announced 1Q21 ▪ Transaction expected to close in 2Q21
<p>Post-Closing</p>	<ul style="list-style-type: none"> ▪ Post-closing, the Company to be renamed Humacyte, Inc. (ticker: HUMA) ▪ The Company shall continue to be led by Humacyte CEO, Dr. Laura Niklason ▪ Post-closing Board of Directors to include AHAC Chairman & CEO, Rajiv Shukla