

Membio

Fueling Life With Blood

Investment Presentation
NON CONFIDENTIAL

Kitchener, May 2019



Who we are



Membio is a start-up company based out of the University of Waterloo linked incubator Velocity Garage.

Mission



Ensure the world has a sufficient supply of safe blood.

Technology



By manufacturing blood we can address the acute worldwide blood shortage. We are developing proprietary technology to do that at 1/10th the cost of current methods.

Funded by



A Broken System

A reliable blood supply is an essential part of any healthcare system. Despite the ubiquity of this critical resource, there has never been enough supply to meet the ever-increasing demand.

Supply Shortage

Supply Meets Under
40% of Demand

Safety Concerns

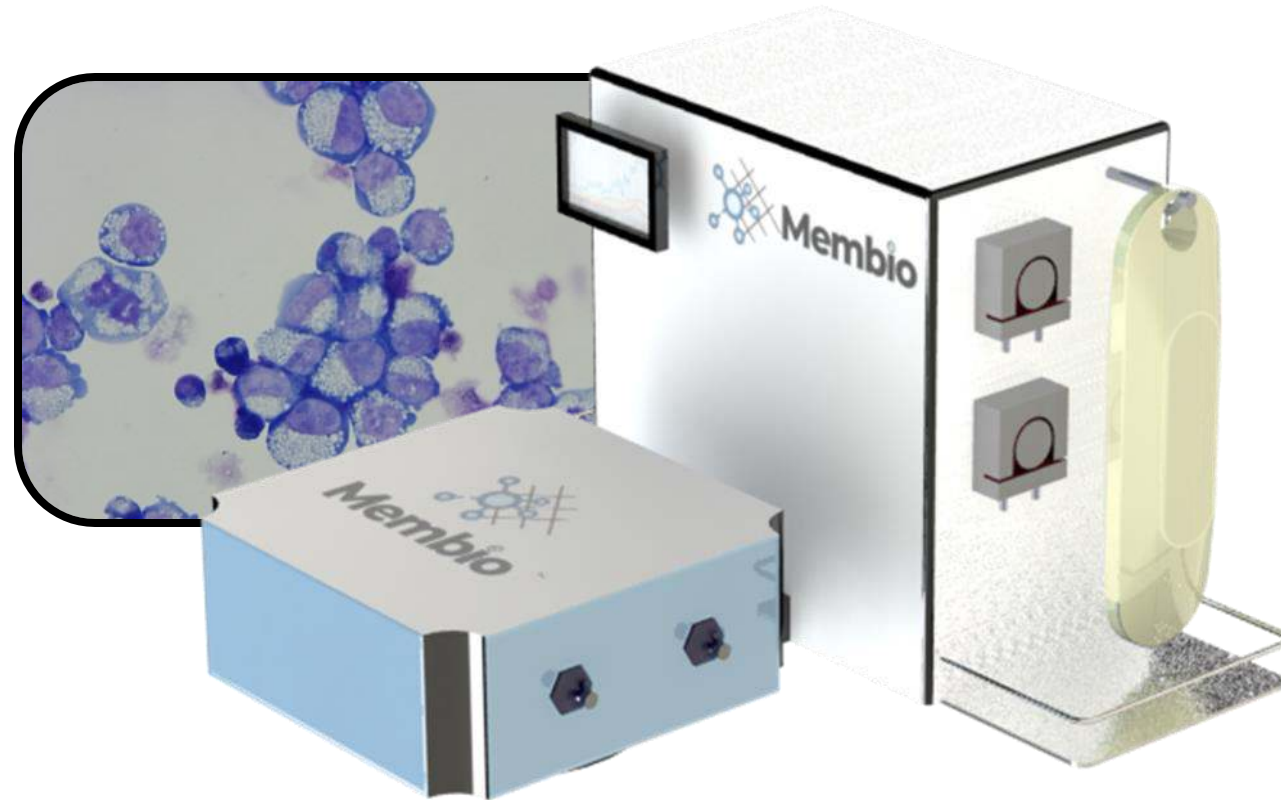
Every Donation Must Be
Screened

Unprofitable

90% of Blood Centers in
USA Lose Money

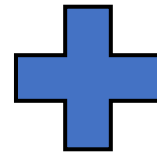
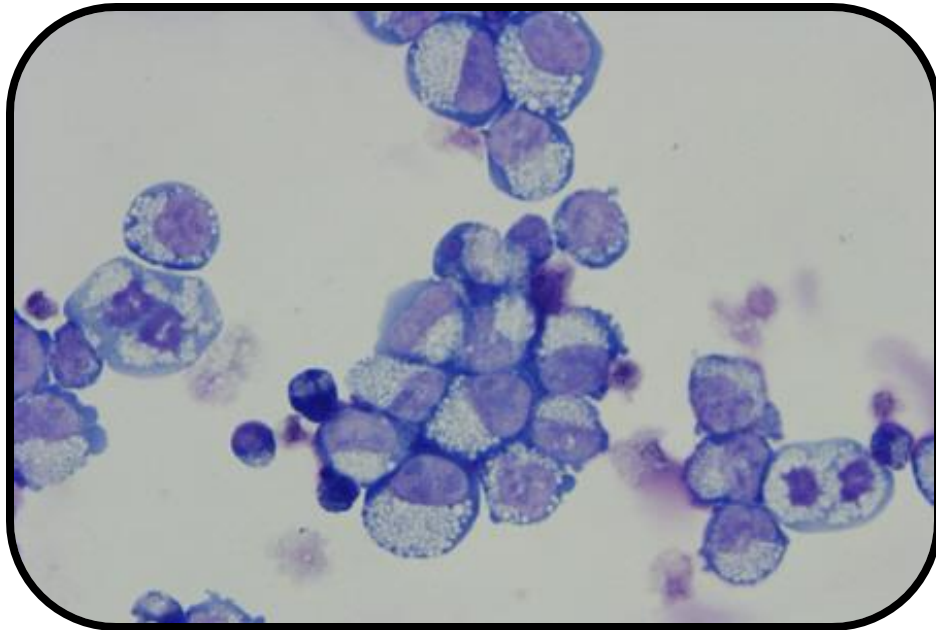


We Cost-Effectively Manufacture Blood Outside the Body.



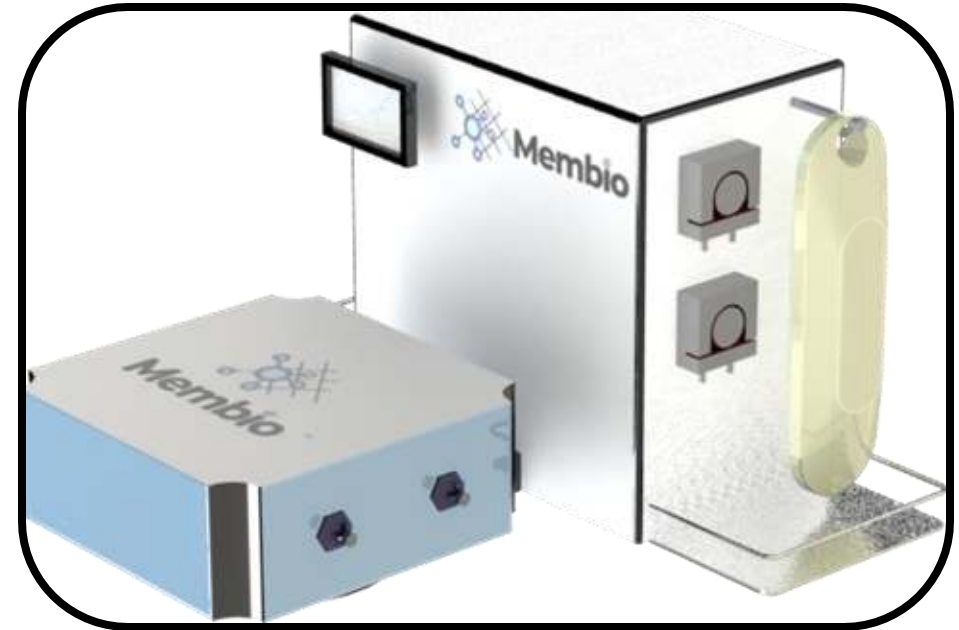
Immortalized Cells

Committed to Erythropoiesis Pathway



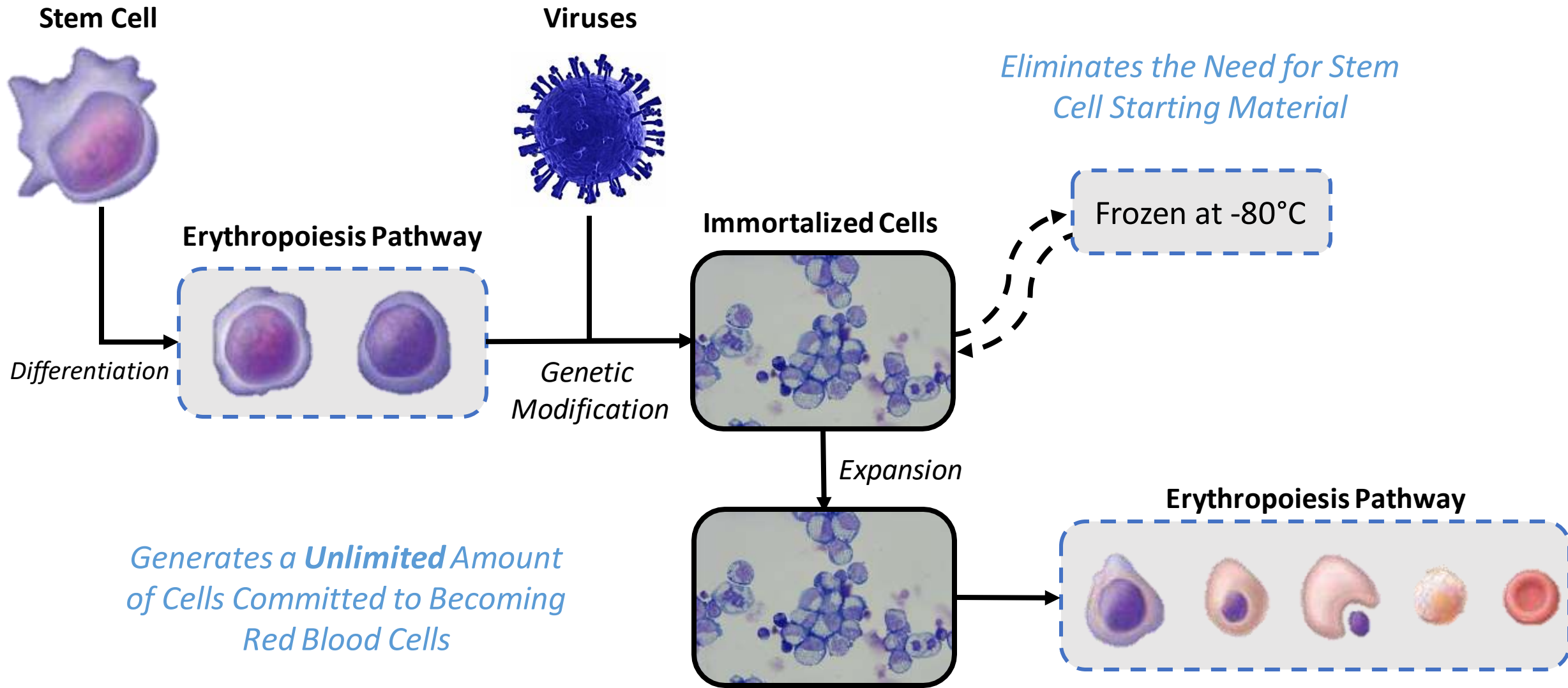
Proprietary Technology

Significantly Cheaper Manufacturing



Unlimited Supply of O⁻ Blood

Immortalized Cells



Our Advantage

Single-Use Bioreactors

Perfusion System **Patent Pending*

Unlocks unprecedented cell densities by delivering all essential nutrients to every cell regardless of volume.

Polymer Coating **Patent Pending*

Modifies the microenvironment to promote cell growth and product harvest.

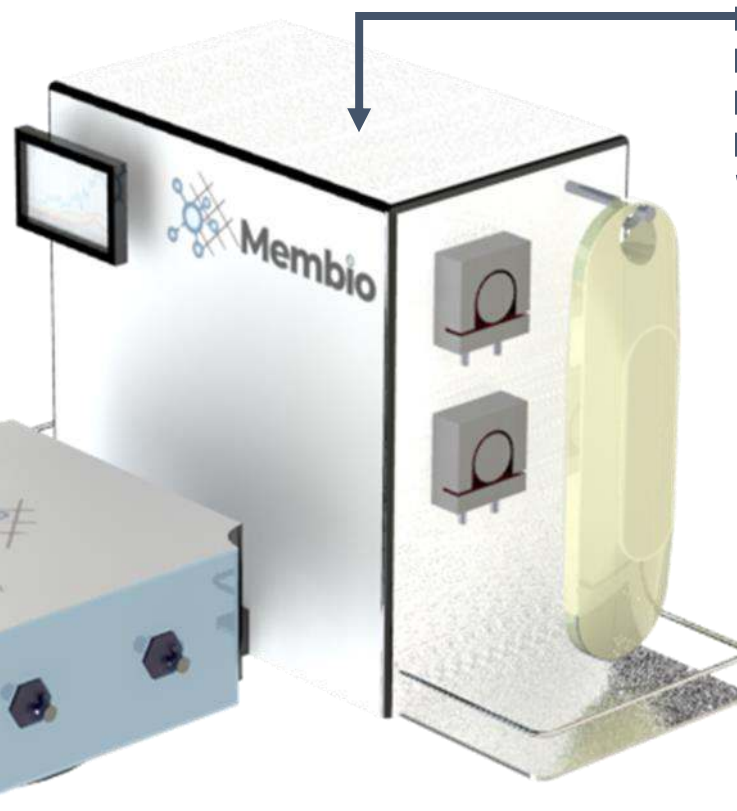
Control System

Digital Twin

Creates a real-time 3-D rendering of the bioreactor environment.

AI Control System

Automatically modifies the process to guarantee optimal conditions.



Allows for **Cost-Effective**
Manufacturing on an
Industrial Scale



Complete Disruption

Our innovative approach of manufacturing blood will eliminate blood supply shortages and unsafe transfusions while effectively disrupting a fundamental element of every healthcare system.

Supply Shortage

Collected: 112.5
Manufactured: 190
Required: 300+
Shortage: 0



**Supply Shortage
Eliminated**

Safety Concerns

HIV/AIDS
Hepatitis B & C
Syphilis
Bacteria
Emerging Pathogens



**Manufactured Blood is
100% Safe**

Complexity

Manufacturing



Hospital



Patient



**Increased Efficiency and
Profitability**





Military



Healthcare



International Aid

Blood has Over 600 Markers Belonging to 30+ Groups

Normal Blood Types

Blood Group	
<i>ABO</i>	<i>Rhesus</i>
AB	-
	+
A	-
	+
B	-
	+
O	-
	+

Rare Blood Types

< 1% of Population
can be Donors



Extremely Limited Supply



Greater Need and Price



Red Blood Cells

Average Price: \$334 USD/Unit
Global Demand: 300,000,000 Units
Market Size: \$100 Billion

Unmet Market Size
\$62.5 Billion

Rare Blood Types

Average Price: \$750 USD/Unit
Demand: 900,000 Units

Market Size
\$675 Million

Revenue Streams

Primary

Recurring Sales of
O⁻ Blood Units

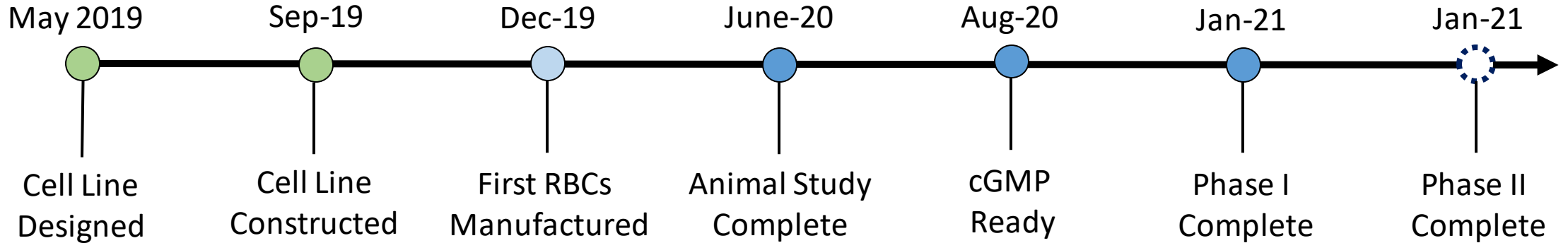
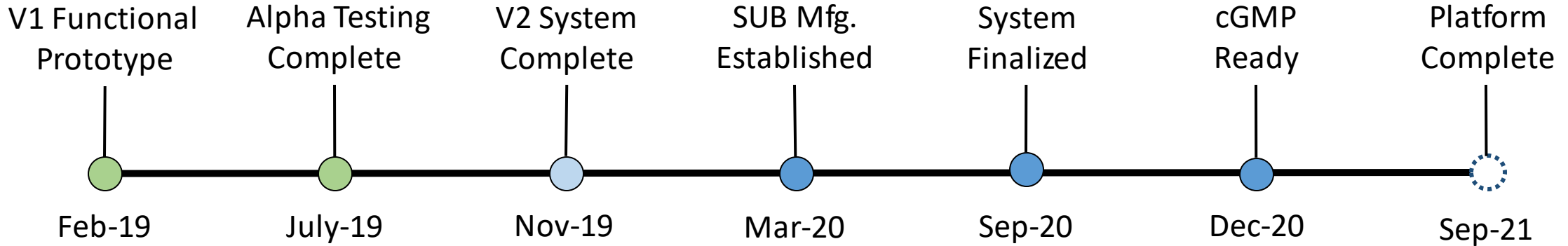
Secondary

Sales and Licensing of
Manufacturing Platform



Development Timeline

Manufacturing Technology



Cell Line and Blood Product



Our Team



Krzysztof Szablewski

Cell Culture Scientist

MSc. Medical Science

BSc. Biology

Shane Kilpatrick

Founder & CEO

Master's of Business (MBET)

MASc. Chem Eng

BSc. Biology



Moin Ahmed

Polymer Engineer

MASc. Chem Eng

BASc. Nano Eng

Murtaza Bahrainwala

Lead Hardware Engineer

BSc. Bio Eng (Mechatronics)



Advisors



Scott Pundsack
Senior Counsel at BLG
IP and Manufacturing



David Simakov PhD
Assistant Professor at UW
Modeling and Process Control



Adrien Côté PhD
Science Lead at Velocity
Chemistry and Polymers



Jay Shah
Director of Velocity
Finance and Strategy



Regulatory Compliance



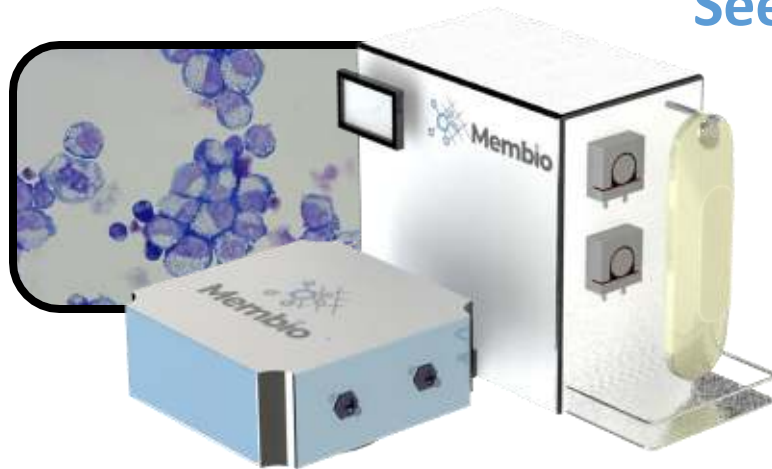
Hematology



Why Membio?

Functional Prototype
Defined Development Plan
Significant Unmet Market Need

Seeking 300K in Pre-Seed Investment



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