AsparaGlue™

A novel technology platform for the
$8B WW surgical sealants, adhesives and hemostasis market

WELCOME BERKELEY SKYDECK

December 7, 2023

AGENDA

01 Large Market, High Growth

02 Broad Unmet Needs

03 Novel Technology Platform

04 Product Applications

05 IP & Licensing

06 Use of Seed Funds

07 Team & Advisors

01 LARGE MARKET, HIGH GROWTH

Surgical Sealants, Adhesives and Hemostats

WW Market Size 2023	$8.1B[1,2]
CAGR	8.9%[1,2]
Largest Segment	Topical Hemostats 67%[1]
Largest Players	

1. Grand View Research, https://www.grandviewresearch.com/industry-analysis/hemostasis-tissue-sealing-agents-market
2. Strategic Market Research, https://www.strategicmarketresearch.com/market-report/hemostats-and-tissue-sealants-market

02 BROAD UNMET NEEDS

Surgical Sealants, Adhesives and Hemostasis

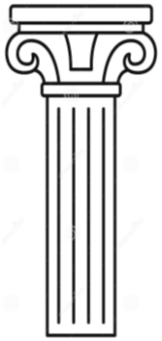
- **Biologically[1] derived products are suboptimal and have demanding procedural requirements**
  - Desired biological performance often means compromised mechanical performance
  - Difficult and expensive to produce; high costs transferred to hospitals and insurance
  - Require special storage, operative setup, and delivery
- **Broad range of other products with inherent trade-offs[2]**
  - High adhesion strength[3] often means poor flexibility, elasticity, biocompatibility, & nonresorbable
  - Synthetic products may require photopolymerization for added strength
- **The market is seeking lower-cost products with improved mechanical and biological properties**

1. Risk of disease transmission or hypersensitivity reactions
2. Patches more difficult to use than sprays for laparoscopic and robotic-assisted procedures
2. Cyanoacrylates have unique mechanical and biologic challenges compared with human and animal-derived products

03 NOVEL TECHNOLOGY PLATFORM

Promising Performance - with Ease and Low Cost

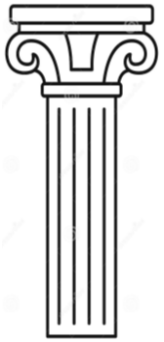
PERFORMANCE



- <u>Superior Mechanical Properties</u>
  Adhesive & Cohesive Strength
  Flexibility & Elasticity
  Minimal Swelling
- Biocompatible[1] & Bioresorbable

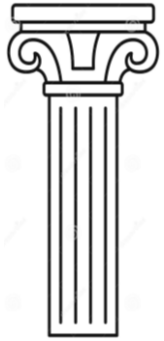
1. Naturally derived

EASE OF USE



- <u>Simple</u>
  Deliver as Powder, Spray, Gel or Patch; Fast Acting
  No Special Storage
  Minimal Operative Setup
  Range of Applications

COST



- <u>Low COGS</u>
  Production & Storage
  Synthetic Materials
  (No Human/Animal Derived Products)

Berkeley Life Sciences Entrepreneurship Center

Venture Grant Award

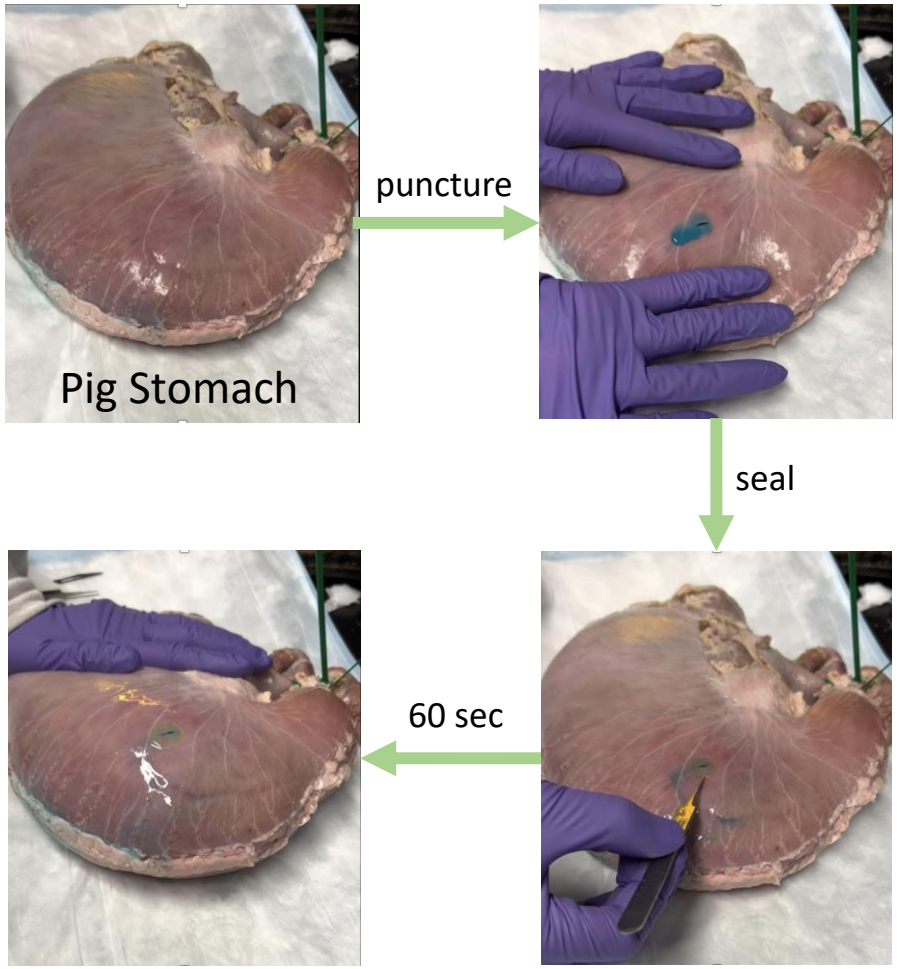
AsparaGlue™

Initial Seed for promising technology

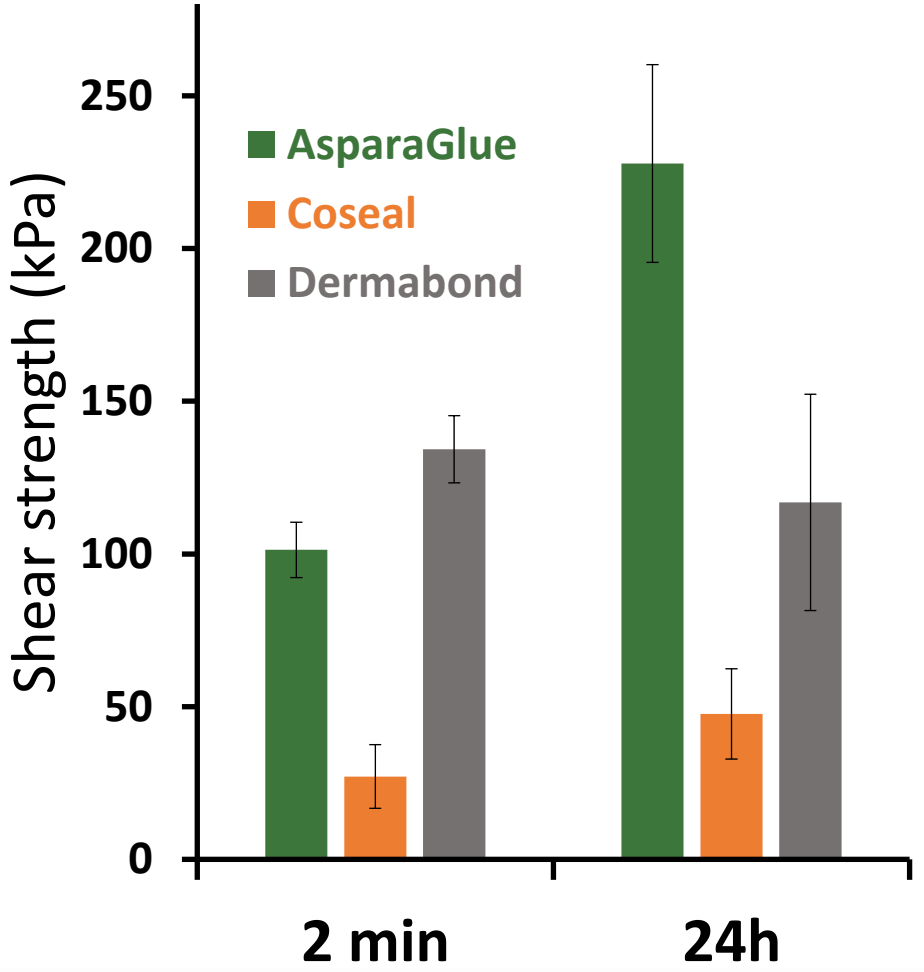
Berkeley SKYDECK

03 NOVEL TECHNOLOGY PLATFORM - MECHANICAL PERFORMANCE

Adheres Rapidly like Cyanoacrylates



Stronger than Cyanoacrylates

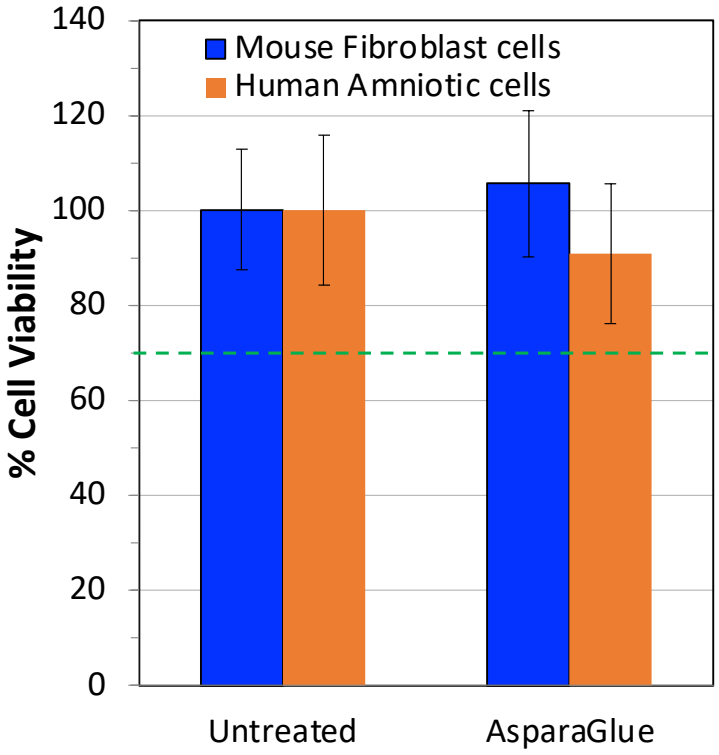


Note: Internal ex-vivo data

AsparaGlue™

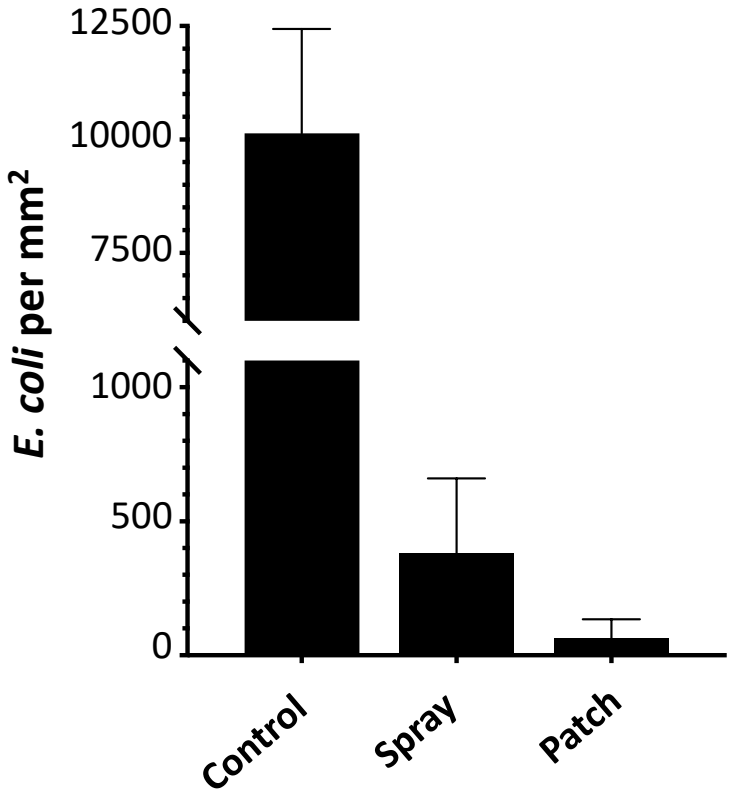
03 NOVEL TECHNOLOGY PLATFORM - BIOLOGICAL PERFORMANCE

Noncytotoxic



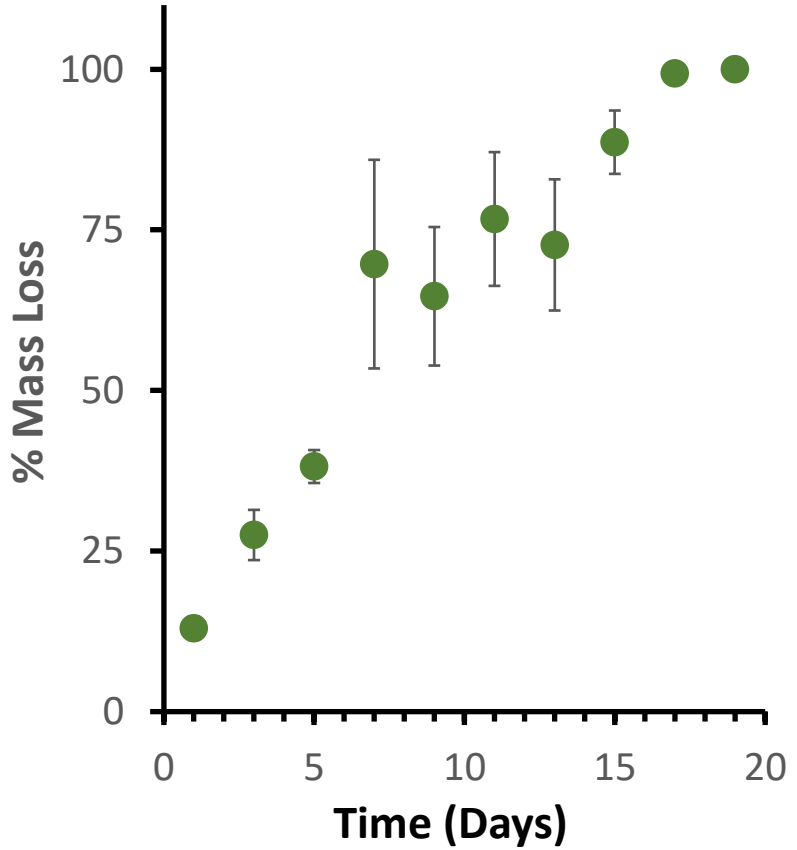
* (dashed line: passing score of ISO 10-993 standard)

Bacterial Barrier



Note: Internal in-vitro data

Biodegradable



Note: Internal in-vitro data

AsparaGlue™

04 PRODUCT APPLICATIONS (#1)

Lung Sealant

- **Today's lung sealants are suboptimal**
  - Post-operative air leaks (POAL) remain problematic[1]
  - BD's Progel™ [2] is only sealant FDA approved to treat pleural air leaks
    - Time-consuming operative setup[3]
  - Genzyme's FocalSeal, FDA approval 2000, taken off the market
- **AsparaGlue™ is an excellent potential fit, especially spray version**
  - Superior adhesion strength, flexibility & elasticity; no setup & low COGs
  - 223K lung cancer surgeries in the US in 2010[4]

Lung with incision

Lung with sealant

Internal ex-vivo data

1. A similar metric is Prolonged Air Leak (PAL), w/ 2018 study, "Feedback on the use of three surgical sealants for preventing prolonged air leak after robot-assisted anatomical lung resection", Journal of Thoracic Disease, H. Gondé et. al, "We were not able to demonstrate any benefit of using a surgical sealant for preventing PAL"
2. 2011 FDA approval by Neomend, POAL improved over control, and in 2012, acquired for $165M by CR Bard (now BD)
3. Video shows operative setup: https://www.youtube.com/watch?v=5sv64SbqhDU
4. From JTCVS, 2018, https://www.jtcvs.org/article/S0022-5223(17)32387-5/fulltext

04 PRODUCT APPLICATIONS (#2)

Adjunctive Hemostat

- **Today's hemostats are dominated by expensive biologically-derived products**
- BD's Arista[1] is a popular, non-biologic powder hemostat derived from plant starch
  - Moderately priced, has much lower COGS than biologic competitors
- **AsparaGlue™ [2] is an excellent potential fit for similar hemostatic applications**
  - Powder hemostat has similar low COGS to Arista
  - "Sealant" capabilities - a big advantage over Arista & other pure hemostats
- **Rich history of positive deals in the hemostatic space**[3]

Powder Hemostat Delivered with "Bellow" Applicator

1. BD acquired Medafor's Arista for $280M in 2013
2. Internal performance data pending, option of a flowable (gel or spray) hemostat, besides powder
3. Profibrix for $240M in 2013, Omrix Biopharm for $438M in 2008

AsparaGlue™

05 INTELLECTUAL PROPERTY & LICENSING

- 1st Provisional Patent Application - April 2023
    - Nonprovisional Patent Application Filing - March 2024
    - New filing enables patent protection until 2044, with opportunity to extend date[1]
- 2nd Provisional Patent Application to be filed in Q2 2024, with additional patent applications anticipated
- Patent Portfolio Plan - Q2 2024
- Worldwide Licensing Agreement with UC Berkeley Q1-Q2 2024

1. Life of patent important to company acquirer, and extensions possible due to patent office delays and certain delays related to the FDA regulatory process (where PMA clinical studies expected)

06 USE OF SEED FUNDS

Seed Round of $1.5-2M, Close Q2 2024

- **Complete Technology Platform Development**
  - Formulations for all form factors (liquid, gel, powder, patch)
  - Bench, mechanical and pre-clinical to fully characterize platform
  - Confirm application #1
- **Prepare for Product Development of Application #1**
  - Expand team incl. hire of R&D leader; engage range of consultants
  - Create target product profile for application #1
  - Select Clinical Research Organization(s) (CROs)
  - Create detailed budget, timeline and plan
    - Product development (formulation, applicator, sterilization)
    - Clinical studies and PMA regulatory pathway
  - Initiate *in vitro/ex vivo/in vivo* testing for long lead-time items
- **Initiate and Manage Fundraising for Series A**
  - Also explore non-dilutive funding (e.g. Phase I NIH-SBIR, DOD)

07 TEAM AND ADVISORS

Paul Birkmeyer
CEO

Entrepreneur and executive in medical device industry for 30 years, including innovative surgical, interventional, and diagnostic technologies. Included Tyco Healthcare, with leadership roles with RF therapy devices for liver cancer and pain management. At J&J/DePuy Spine, developed and launched company's first minimally-invasive products, two of which reached market leading positions ($4B segment today). Also assumed corporate leadership role in market development and new technologies. As President and Board Director at Ouroboros Medical, pivoted startup after implant study failure, then raised funding for company and drove two new product programs to early commercialization and a successful exit (J&J, Accelus). Afterwards, consulting incl. two commercial-stage device companies and a development-stage breast cancer screening company. As CEO of Trod Medical NV, restarted company and developed a second gen. prostate cancer focal therapy, with 2022 exit. Recent consulting incl. advising company with novel antibody test panel diagnostic, and company with autologous orthobiologics / regenerative medicine products. Board Director Accelus 2016-2022. BSEE Univ. of Connecticut and MEM Dartmouth College

Prof. Phillip Messersmith
Co-Founder

Professor of Bioengineering and Materials Science and Engineering at UC Berkeley. He is currently chair of the Department of Bioengineering. He earned his BS and PhD degrees from the University of Illinois at Urbana. After a postdoctoral fellowship at Cornell University, he was a faculty member at University of Illinois at Chicago and Northwestern University. Dr. Messersmith has published over 220 papers and has 46 US patents awarded. His awards and honors include a MERIT award from the National Institutes of Health, the Langmuir Lecture Award from the American Chemical Society, and the 2013 Clemson Award for Basic Research from the Society for Biomaterials. Dr. Messersmith is a fellow of the Royal Society of Chemistry, the Materials Research Society and the American Institute for Medical and Biological Engineeing. His academic research is focused on bioinspired materials, biointerfacial phenomena, and regenerative medicine. Past founder in two additional companies, including one in the surgical sealant's space with successful exit, and one in the area of regenerative medicine, which is ongoing,

Dr. Subhajit Pal
Co-Founder & CTO

Received bachelor's and master's degree in organic chemistry from the Visva-Bharati University, India. Afterwards, joined Prof. Andreas Kilbinger's group at the University of Fribourg, Switzerland, to pursue a doctoral degree in biomimetic polymer synthesis. There, awarded both the Chorafas best Ph.D. thesis award in natural science in 2021 and nominated by the Swiss Chemical Society to be a Swiss delegate at the 71st Lindau Nobel Laureate meeting. In 2021, joined Prof. Christoph Weder's group at Adolphe Merkle Institute, Switzerland, as postdoctoral researcher to explore supramolecular commodity polymer synthesis. Afterwards, awarded the Swiss National Science Foundation's Postdoc Mobility Fellowship to join Prof. Phillip Messersmith's lab at UC Berkeley in 2022 to design biomaterials for tissue repair and regeneration. In 2023, awarded the UC Berkeley Life Science Entrepreneurship Centre's Venture Grant with Prof. Messersmith and co-founded AsparaGlue. Received the UC Berkeley PostX entrepreneurship grant, and now a post-doctoral fellow in the bioengineering department at UC Berkeley in Prof. Messersmith's group.

07 TEAM AND ADVISORS

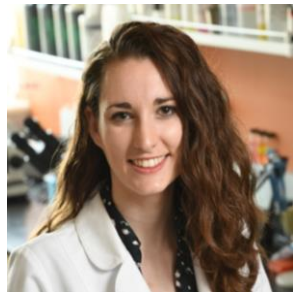
Company Advisors[1]

Dr. Kevin Weadock

- Commercial scientific and engineering expert
- 19 yrs at Ethicon J&J incl. sealants/hemostats

Dr. Jisoo Shin

- Postdoctoral Researcher UC Berkeley
- Bioengineering Expertise incl. translational medicine



Dr. Kelsey DeFrates

- Formerly PhD Student UC Berkeley
- Postdoctoral Researcher UCSF

Berkeley SkyDeck Advisors

Andy Tincu

- VP @ Syneos Health
- formerly Exec Dir of Early Strategic Prod. Dev. @ BioMarin

Cathy Farmer

- 20+yrs as Startup Advisor, Investor, Board Member, Co-Founder

Mark Miller

- 30+ yrs as Biotech and Semiconductor Senior Executive, CoFounder, Investor, and Startup Advisor

1. Two additional advisors expected shortly, including a 20+yrs market expert on sealants/hemostats, and former head of WW regulatory affairs at a leading public medical device company