Cellastra

ENCODING SCAR-LESS HEALING

Targeting Unmet Needs in Surgery,

Burns & Respiratory Injuries

www.cellastra.com

The Cellastra Opportunity

- Proven Executives
- Proprietary Gene Vectors
- Proof of Concept Anti-scarring peptide in Humans
- Proven safety of Lactoferrin Peptides
- Prominent Gene Expression >77days
- Profoundly unmet medical needs
- Good Prospects for Successful Exit Year 1-5

PHARMACIA

NOVARTIS

BIOTECanada

astellas
Leading Light for Life

UNIVERSITY of GUELPH

UCSF
University of California San Francisco

MAYO CLINIC

KAROLINSKA INSTITUTET ANNO 1810
Karolinska Institutet

New Intellectual Property

A) US patent 10,806,802B2

- Granted October 30, 2020
- License from U. of Guelph

- Sarah Wootton PhD
- Assoc. Prof., University of Guelph
- Chair Cellastra SAB

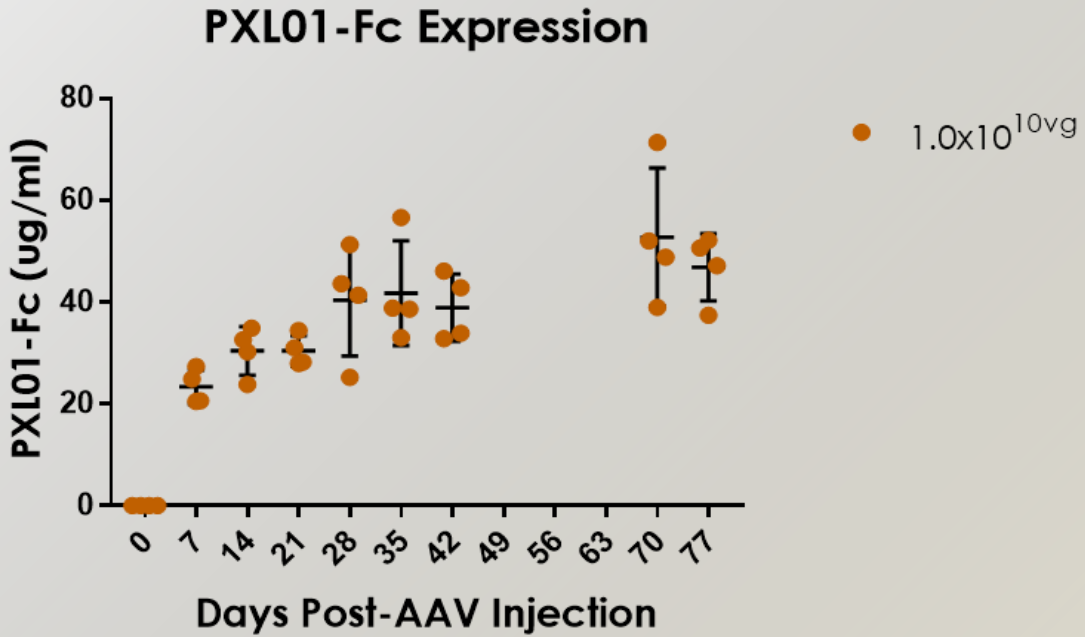
B) USPTO filing July 2018, CIP 5/2021

A+B Combined covers:

- Triple mutant & recombinant vectors
- Expressing e.g. ensereptide
- Multiple uses & routes of admin.

- Brad Thompson, PhD
- Frm. Chair BIOTECanada
- CEO Wyvern Pharma
- Chair, CTO Cellastra Inc

Expression of Anti–Scar Peptide In Mice >77 Days



Data from CIP
USPTO Filing 5/14/21

- **PXL01 = Anti-scarring Peptide / FC tagged Serum Conc. (after intramuscular admin)**

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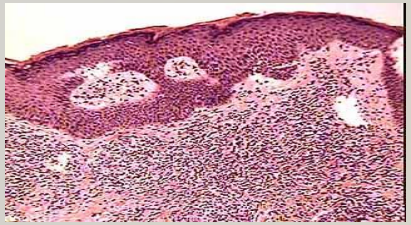
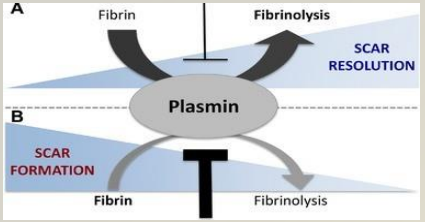
Anti-scarring Mechanisms of Ensereptide

Ensereptide
(=PXL-01)

Mitigates cytokine storm = anti-inflammation



Mitigates excessive fibrin formation



Broadly Anti-microbial

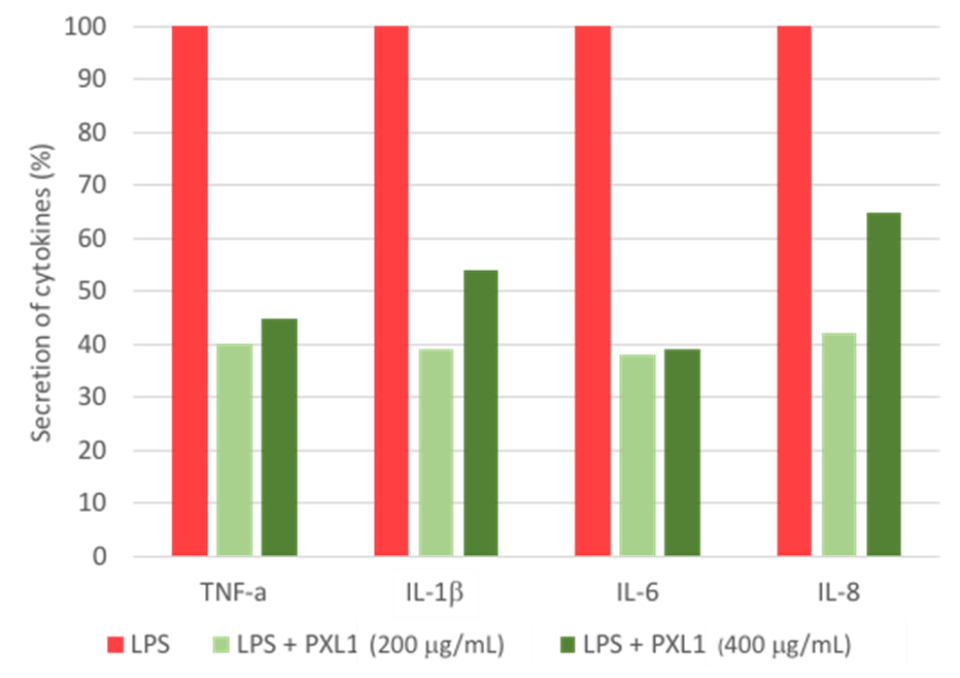
Nilsson E et al, Ann Surg. 2009,250(6):1021-8 – observations in human cell lines and in vivo in rats

Ensereptide Mitigates Inflammation in vitro

Ensereptide

(= PXL01)

40-60% reduction of cytokines



Nilsson E et al, Ann Surg. 2009,250(6):1021-8.

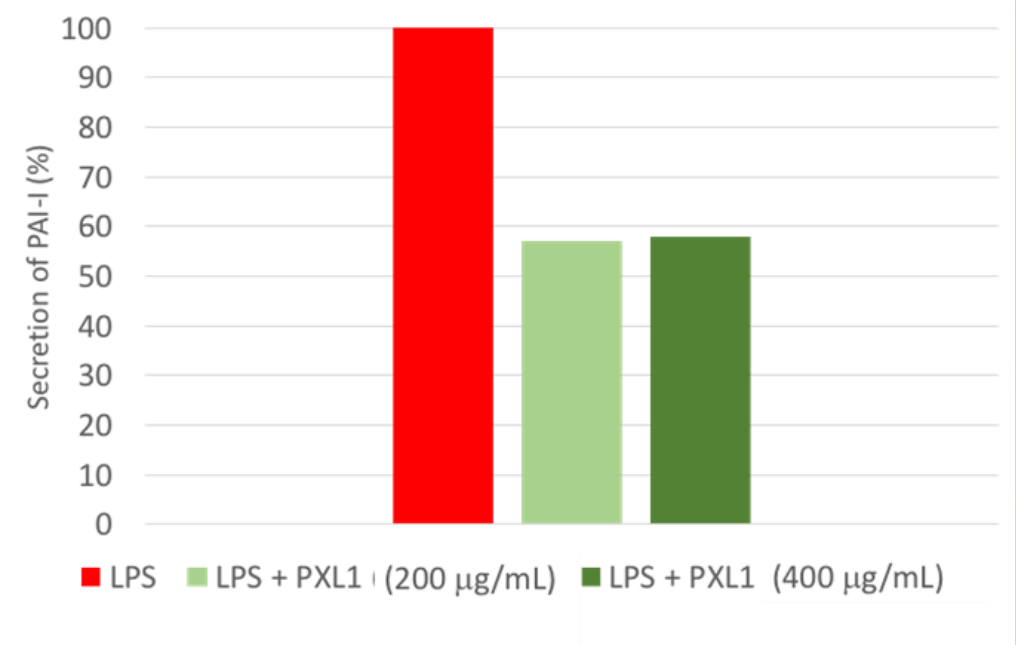
Ensereptide Mitigates Fibrin Formation in vitro

Ensereptide

(=PXL01)

>40% reduction of PAI

(=Plasminogen Activator Inhibitor)



Nilsson E et al, Ann Surg. 2009,250(6):1021-8.

Enseretpde Antimicrobial Effects in vitro

Ensereptide (=PXL01) is 40-80 X more potent than Lactoferrin

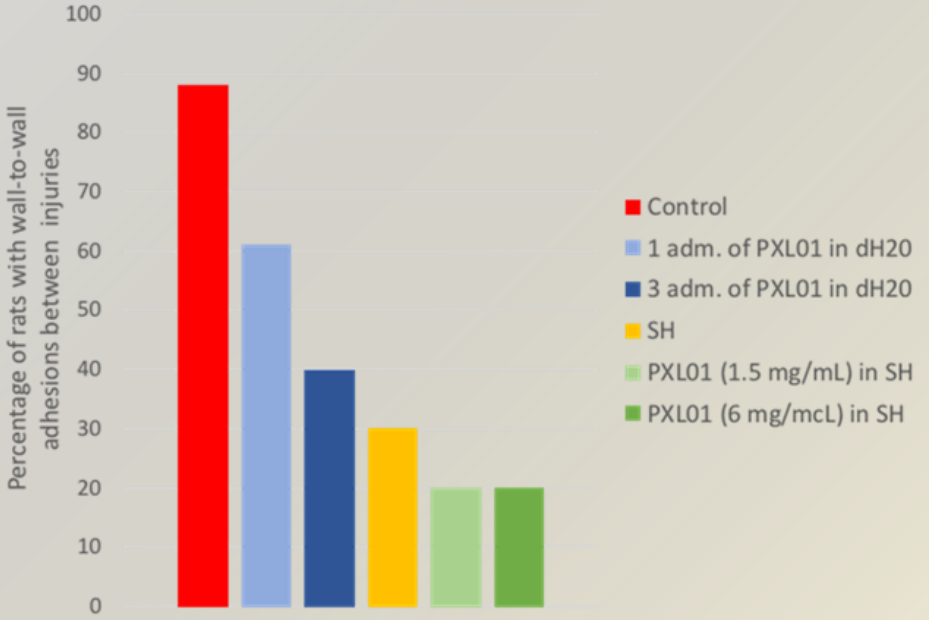
	Escherichia coli MMC 99%; µg/mL	Staphylococcus aureus MMC 99%; µg/mL	Pseudomonas aeruginosa MMC 99%; µg/mL
PXL01	12.5	12.5	25
Lactoferrin	>1000	>1000	>1000

Nilsson E et al, Ann Surg. 2009,250(6):1021-8.

Ensereptide Anti-Scar/Adhesion Effect (Rat)

- >75% reduction of number with extensive adhesions
- Sustained peptide levels for 48 hrs with SH (= Sodium Hyaluronate formulation)
- No safety concerns

Gold Standard Rat multiple abrasion model
Nilsson Ann Surg. 2009,250(6):1021-8



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Exposure To Treatment At Site Of Injury

Ln vivo synthesis of peptide at site of injury – prolongs exposure

One dose encoded for by an AAV6

Gene vector

Two months or more after i.m. administration in mice

Data from CIP USPTO Filing 5/14/21in mice

One dose ensereptide in a

Hyaluronic Acid formulation

Two Days or Less after i.p. administration in rat model

Nilsson E et al, Ann Surg. 2009,250(6):1021-8.

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Ensereptide Anti - Scar/Adhesion Effect (Humans)

- Randomized, double-blind, Phase 2 study (n=138 Patients) in surgical repair of ruptured hand flexor tendon
- One dose ensereptide in Hyaluronic acid: Significant clinical benefit in 4 of 5 endpoints (PPAS) vs. Placebo - Excellent safety profile

Endpoints, results at 6 months*	PXL-01 (n=68)	Placebo (n=71)	P-Value
Total active motion of the distal finger joint	60 degrees	41 degrees	*p = 0.016*
Proportion w/good or excellent finger mobility	61%	38%	*p = 0.0499*
Tip-to-crease distance	5.0 mm	15.5 mm	*p = 0.048*
Maintained/recovered Sensory function using thinnest monofilaments	74%	35%	*p = 0.016*
At 12 Months			
Candidate for tenolysis, re-surgery	12%	30%	*p = 0.086*

Wiig et al PLoS One 2014 , 9,(10) e10735

The Gene Therapy Race

- 2017 First gene therapy approved by FDA: Luxterna from Spark Bio -
- 2019-20: Gene therapy companies raised > $9B/yr.333
- 2018-21: several companies acquired for 800M – 7B USD
- 2019-20: FDA announced 50 new hires to expedite review and released new guidelines

Cellastra Strategic Gene Therapy Report

6/2021

WWW.Cellastra.com

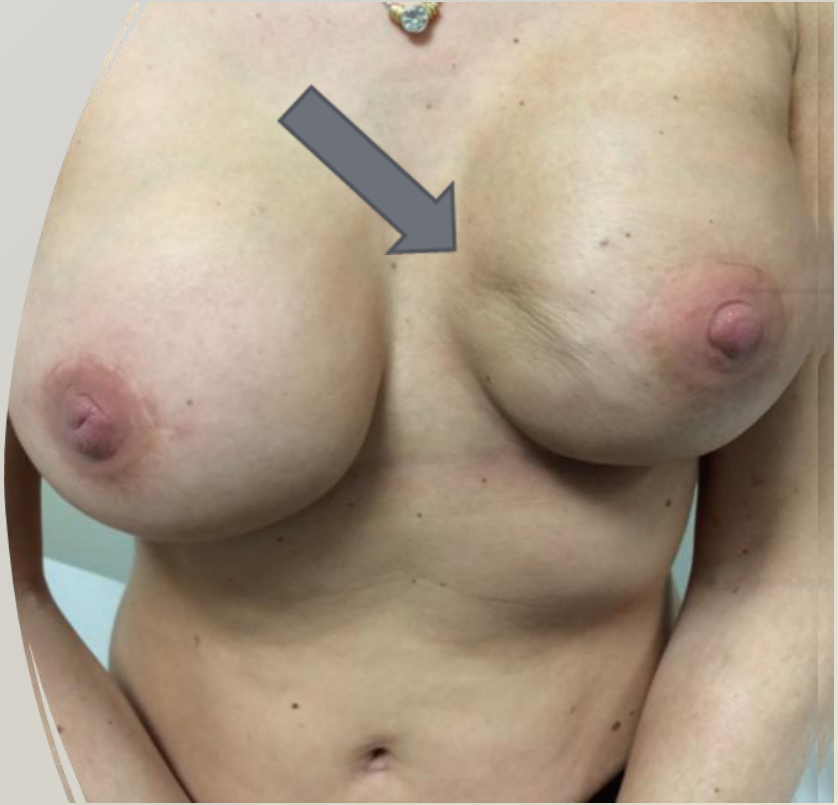
Scarring - Global Unmet Needs

- COVID-19: multi-organ inflammation leading to scarring/fibrosis in lungs, heart, kidneys, and liver
- Breast Implant: Capsule contracture in up to 15%-45% (re-operation often required); external hypertrophic scarring of surgical site
- Surgeries & burn injuries: Excessive scarring in up to 35%-70%

NO EFFECTIVE THERAPY / PREVENTION ON THE MARKET

Breast Implant

- Globally 1.9 million /yr.
- US about 290,000/yr.
- US, Brazil and China the three biggest markets
- Silicone dominates but saline increasing



15-45% develop Internal capsule
May need new surgery

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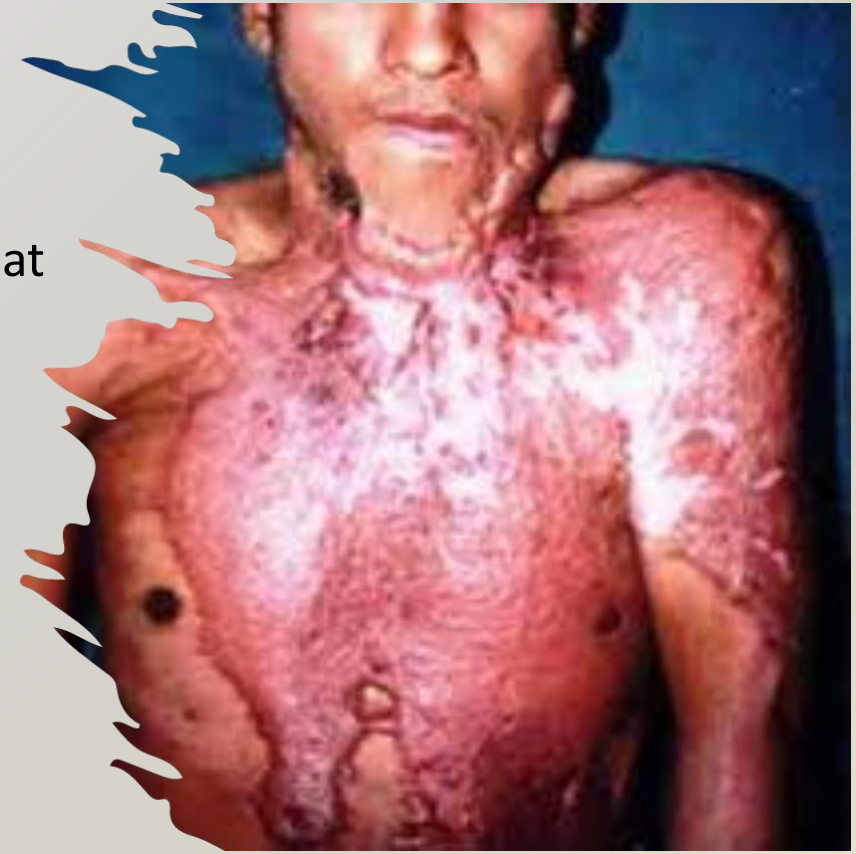
Caesarian (C-Section)

- Globally 30 million/yr. 100% increase in 15 yrs.
- China 6 million /yr.
- US 1.2 million /yr.
- Hypertrophic scarring in up to 60% in China
- May cause internal scars, sterility, obstructed bowels

Burn Injuries



Worse global epidemic than polio at peak

In US 400,000 ER visits/yr. and 28 specialized burn centers

Annual cost in US >$10B

American Burn Association 2021

Cellastra to join Vinnova funded burn study

San Francisco, CA, June 22, 2021. Cellastra announces joining Centre for Advanced Medical Products (CAMP) to explore Cellexa gene vector in burn injuries

- Consortium funded with a 48M SEK grant from Swedish Government Innovation Agency Vinnova
- Cellastra to retain proprietary and commercialization rights

- Professor Folke Sjoberg, U. Linkoping
- Founder of CAMP
- Member of Cellastra SAB
- Program chair (International Society (world association) for Burn Injuries

Respiratory Syncytial Virus (RSV)

- Globally 30 M cases/yr. - 60,000 deaths/yr.
- In US 2.1 million outpatient visits/yr. and 58,000 hospitalizations children <5 yrs Bronchiolitis / pneumonia
- In elderly > Age 65 yrs 177,000 hospitalizations and affects 10% of nursing home residents
- 50% incidence in immune-compromised patients
- No vaccine approved
- Ribavirin approved for children only

Single stranded RNA Virus

White Syncytia form when infected cells fuse

Nature Review Microbiology 17 (4) 233, 2019

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COVID-19 WHO Statistics June 2021

- Globally 182 million total Cases and 3.9 million deaths – increasing, <21% vaccinated globally
- US 34.5 million cases and 619,700 deaths, >55% vaccinated (decreasing)
- Europe 47.9 million cases, 1.1 million deaths, vaccinations lagging
- S. America 32.7 million cases, 515,900 deaths, vaccinations lagging
- China 91,771 cases, 4,636 deaths, 1.2 B doses vaccine given
- India 30 million cases, 398,000 deaths, < 5% vaccinated, new delta variant increasing and becoming a new global threat
- Africa < 5 % vaccinated, no wide testing

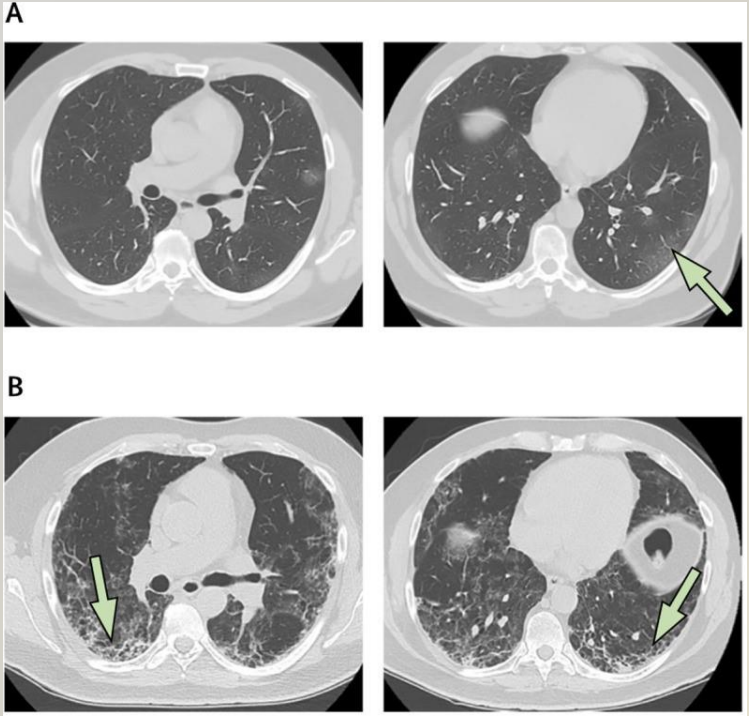
WILL COVID-19 BECOME SEASONAL "FLU" TO VACCINATE AGAINST?

Pulmonary Fibrosis in COVID-19 - “Call to ARMS”

Lancet 8 August 2020

138 patients in Wuhan, China with bilateral pneumonia:

- 26% required Intensive Care
- 16% had Acute Respiratory Distress Syndrome (ARDS) –high risk of long-term fibrosis



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”Long-Covid” Syndrome

6 mos. F/U of COVID pts from Yin -Tan Hospital, Wuhan:

- 53% fatigue 26% sleep problems
- 23% depression
- 22% reduced diffusion on CT of lung

Huang Z et al Lancet 397,

Jan 16, 2021

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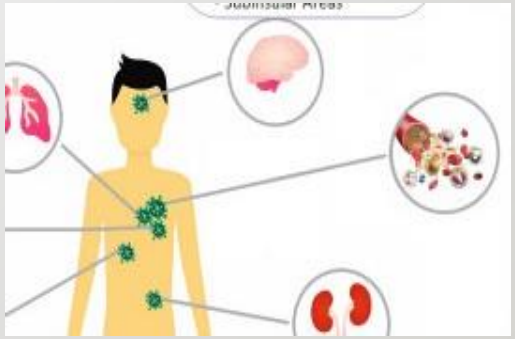
Anti-Scarring Products / Indications

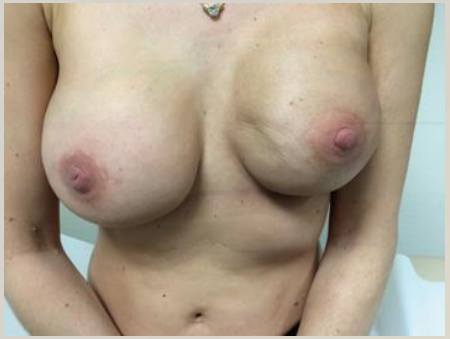
VIREXA



Gene Vector
Inhaled (± intramuscular)
Prevent lung &
Multi-organ Fibrosis
RSV/ COVID-19

CELLEXA

Gene Vector
Subdermal Gel
Prevent Dermal scar
C-Section



Gene Vector
Subdermal Gel /spray
Prevent Dermal Scar or
Capsule Contracture
Breast Implants

Cellastra Pipeline

- **VIREXA:** Inhaled Gene Vector – Production of peptide (ensereptide) in lung epithelium – RSV, COVID-19

- **CELLEXA:** Topical Gene Vector – Production of peptide (ensereptide) in skin cells – Breast Implant – C-Section

Cellastra Pipeline

Tech-nology	Product	Indica-tion	Preclinical	Phase 1-2	Phase 3	Comment
Inhaled AAV Vector	CLX-01 **Virexa**	RSV 0r COVID 7 Lung Multi-organ scar				**BLA Q2, 2024**
Topical AAV Vector	CLX-02 **Cellexa**	Dermal scar Breast Implant				**BLA Q4, 2024**
Topical AAV Vector	CLX-02 **Cellexa**	Dermal Scar C-Section*				**BLA Q4, 20024**

* May include other surgical indications if Agencies agree

BLA = Biological License App

Product Development

- Gene vector 1.6 MUSD in 12 months
- FDA (“Pre-IND”) meeting
- Define Preclinical, Clinical studies, and Manufacturing
- Formulations for Inhalation, topical use

Henrik (Hank) Kulmala, PhD
Sr VP, Regulatory, Product Development

>35 yrs experience
Prev. Fujisawa /Astellas

- Advanced >75 molecules to Clinic or market

,

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Clinical Studies

- Inhalation of gene vector Day 1 - Potential i.m. booster Day 30
- After surgery or other injury: Apply immediately as solution or gel under skin in wound area before wound closure
- Phase 1 proof of concept: Dose-ranging (n = up to 30 pts per Indication)
- Randomized, blinded, placebo-controlled, phase 2-3 study (n = 80-180 per indication)

Vinod Kumar, MD
CMO, Sr VP
- **Prev. Section Head,**

Global Medical Director, Novartis

- Randomized, blinded, placebo-controlled, phase 3 study (n = 180 or more per indication)

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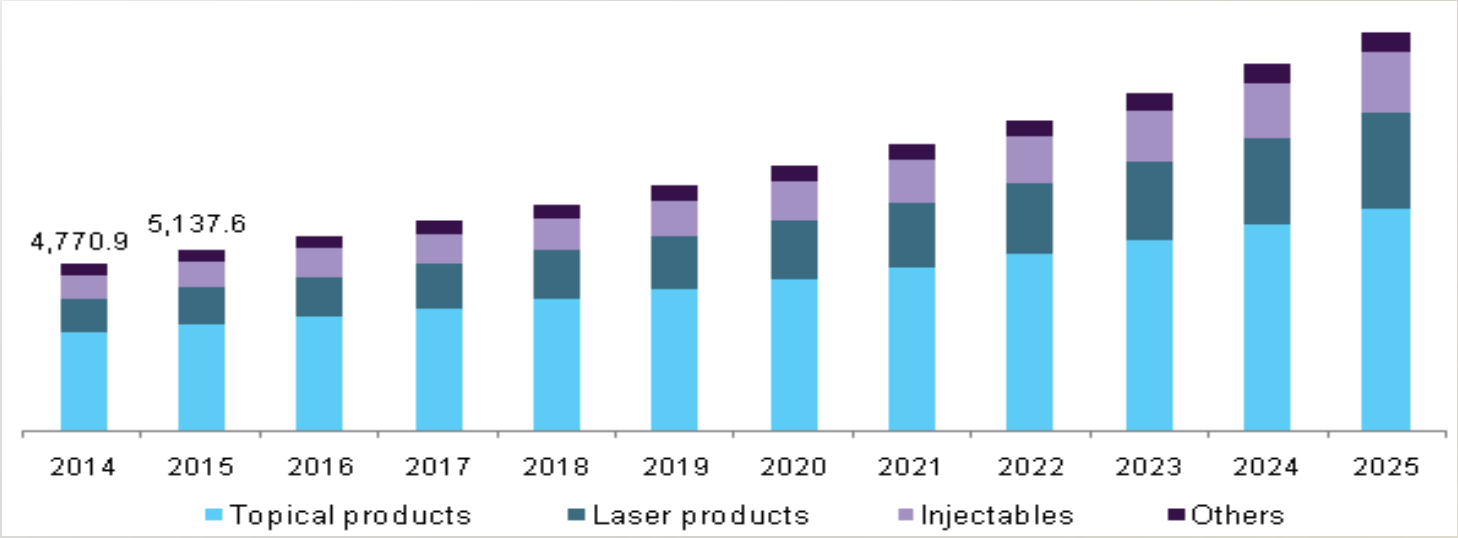
CELLASTRA Preliminary Budget ($1,000)

Product	Year 1	Year 2	Year 3	Year 4	Total
Virexa	4,984	10,787	4,700	1,200	21,671
Cellexa	3,900	5,500	9,900	18,700	38,000
Operations	2,132	3,911	3,604	4,776	14,323
Total Cost	**11,016**	**20,208**	**18,104**	**24,776**	**73,994**
Rev Virexa*	Low est.	100,000 pts		80,000	80,000
Rev Virexa	High est.	400,000 pts		320,000	320,000
Total Rev					**80,000-320,000**

*Assuming price tag of USD 800 for the one-time treatment. Low estimate 2 million pts in Q4 Year 4, 20% severe, 25% capture rate, High estimate 4 x higher

Global Dermal Scarring Market

Dermal scarring market 2015-2025 (from $13.8B to $34.5B)



- **Large unmet need – mainly topical OTC products with low level of demonstrated benefit in meta-analysis of 1,703 pts in 39 studies**

Sidgwek et al., Arch Dermatology Res. 2015, 307:461-477)

Cellastra Value Proposition

- Proven management team
- First-in-class proprietary gene vectors
  - Enable durable production of Anti-scarring Peptides at injury sites
- Ensereptide: Excellent safety / potent anti-scarring effects demonstrated
  - Preclinical and clinical proof of concept studies
- GENE VECTORS: New treatment paradigm - encodes scarless healing
  - CELLEXA applied under the skin after surgery
  - VIREXA inhaled into the lungs after respiratory infections
- Attractive early exit opportunity and valuation in Year 1-4
  - Dermal scar market projected to reach 34.5 B USD by 2025.

Offer

- Series A
  - $20M in year 1 (Ongoing)
  - Manufacturing, Formulation, Preclinical Studies
- Series B
  - $25 M in year 2
  - Phase 1-2 clinical trials, Manufacturing
- Series C
  - $29M in year 3
  - Phase 3 clinical trials, Manufacturing

Forward Looking Statement

- Certain information set forth in this presentation contains "forward-looking information", including "future oriented financial information" and "financial outlook", under applicable securities laws (collectively referred to herein as forward-looking statements). Except for statements of historical fact, information contained herein constitutes forward-looking statements and includes, but is not limited to, the (I) projected financial performance of the Company; (ii) completion of, and the use of proceeds from, the sale of the shares being offered hereunder; (iii) the expected development of the Company's business, projects and joint ventures; (iv) execution of the Company's vision and growth strategy, including with respect to future M&A activity and global growth; (v) sources and availability of third-party financing for the Company's projects; (vi) completion of the Company's projects that are currently underway, in development or otherwise under consideration; (vi) renewal of the Company's current customer, supplier and other material agreements; and (vii) future liquidity, working capital, and capital requirements. Forward-looking statements are provided to allow potential investors the opportunity to understand management's beliefs and opinions in respect of the future so that they may use such beliefs and opinions as one factor in evaluating an investment.
- These statements are not guarantees of future performance and undue reliance should not be placed on them. Such forward-looking statements necessarily involve known and unknown risks and uncertainties, which may cause actual performance and financial results in future periods to differ materially from any projections of future performance or result expressed or implied by such forward-looking statements.
- Although forward-looking statements contained in this presentation are based upon what management of the Company believes are reasonable assumptions, there can be no assurance that forward-looking statements will prove to be accurate, as actual results and future events could differ materially from those anticipated in such statements. The Company undertakes no obligation to update forward-looking statements if circumstances or management's estimates or opinions should change except as required by applicable securities laws. The reader is cautioned not to place undue reliance on forward-looking statements.

Cellastra Presentation

Back Up slides

Cellastra Executive Team

- **Karl Mettinger, MD, PhD**, President & CEO, 35+ yrs, incl. Karolinska Institute, Kabi/Pharmacia, Supergen, Oncolytics, Pharmacyclics
- **Vinod Kumar, MD**, CMO, SVP, 30 years exp from U. Illinois, U Miami, Lilly, and Novartis (section Head/Global Program Medical Director)
- **Henrik (Hank) Kulmala, PhD**, Sr VP Product Development /Regulatory, 35+ years prev. exp incl Marion Merrell Dow, Fujisawa, Genix, 75 drugs (INDs, NDAs, BLAs)
- **Brad Thompson, PhD,** Chair, CTO, 35+ years , incl BIOTECanada, CEO Oncolytics, Avomed, Kickshaw Ventures, Inventor of several gene therapy patents
- **Daniel Quintero, Esq,** General Counsel, Secretary, 20+ years, incl Founding Partner Prometheus Partners LLP, Sony Optiarch / Electronics
- **Bruce Phillips, CPA**, SFO, 30+years exp incl Arthur Young, HPC, Xero, Aprio
- **Kent Persson, PhD**, Cofounder, 20+ years, incl UCSF, Bio-Rad, Octapharma

Board & Scientific Advisory Board

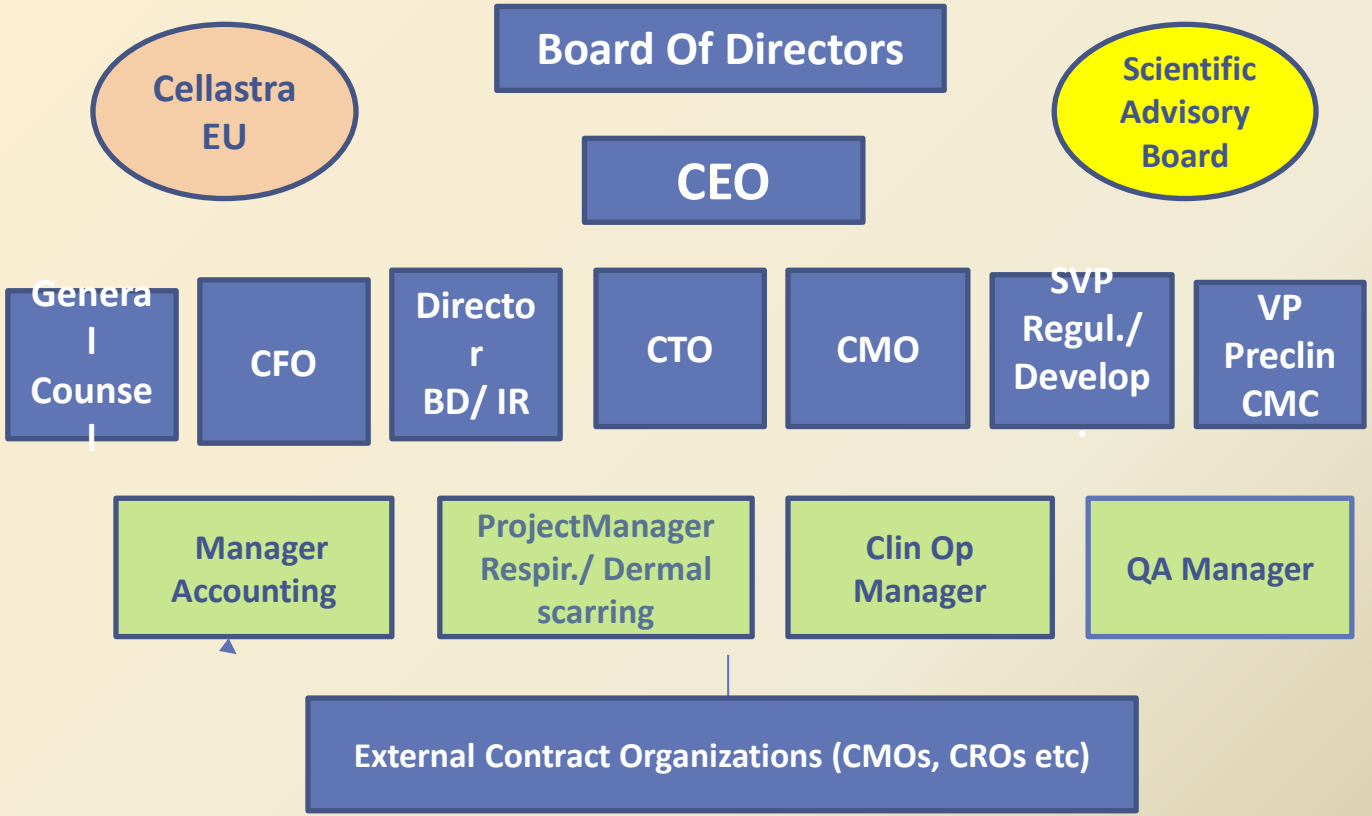
Board of Directors

- **Brad Thompson, PhD**, Cnair, CTO 35+ yrs. exp, incl BIOTECanada, Oncolytics, Avomed
- **Sven Andreasson, Vice-Chair, 35+ yrs,** Kabi, Pharmacia, Active Biotech, NovaVax
- **Karl Mettinger MD, PhD,** 30+ yrs exp., President & CEO of Cellastra
- **Dan Quintero., Esq,** 20+ yrs
- **Kent Persson, PhD**, 20+ yrs. exp
- **Bruce Phillips, CPA**, CFO

Scientific Advisory Board (SAB)

- **Sarah Wootton, PhD**, Associate Professor, Dept. Pathophysiology, Ontario Veterinary College and University of Guelph, Ontario
- **Folke Sjoberg, MD, PhD,** Professor Burn Center LIU, Sweden, International KoL
- **Christopher Evans, PhD,** Professor Harvard, Mayo Clinic
- **Magda Forsberg, PhD,** Karolinska Institute, CEO Device company DVL-Op

“Cellastra International”



New Intellectual Property

Enables addressing:

- Large indications with unmet needs such as COVID-19, respiratory infections, dermal scarring, burn injuries.

- Monogeneic rare diseases as applicable

Target Indications Scar Prevention N . America*

	US	CANADA	TOTAL
C-Section	1,242,000	102,300	**1,344,300**
Hysterectomies	193,440	25,400	**218,840**
Breast Augment.	290,000	No Data	**290,00**
Facelift	131,000	No Data	**131,000**
Abdominoplasty	127,000	128,000	**255,000**
Total	1,983,440	255,700	**2,239,140**

**An est. 20 million surgical procedures in US alone /year*

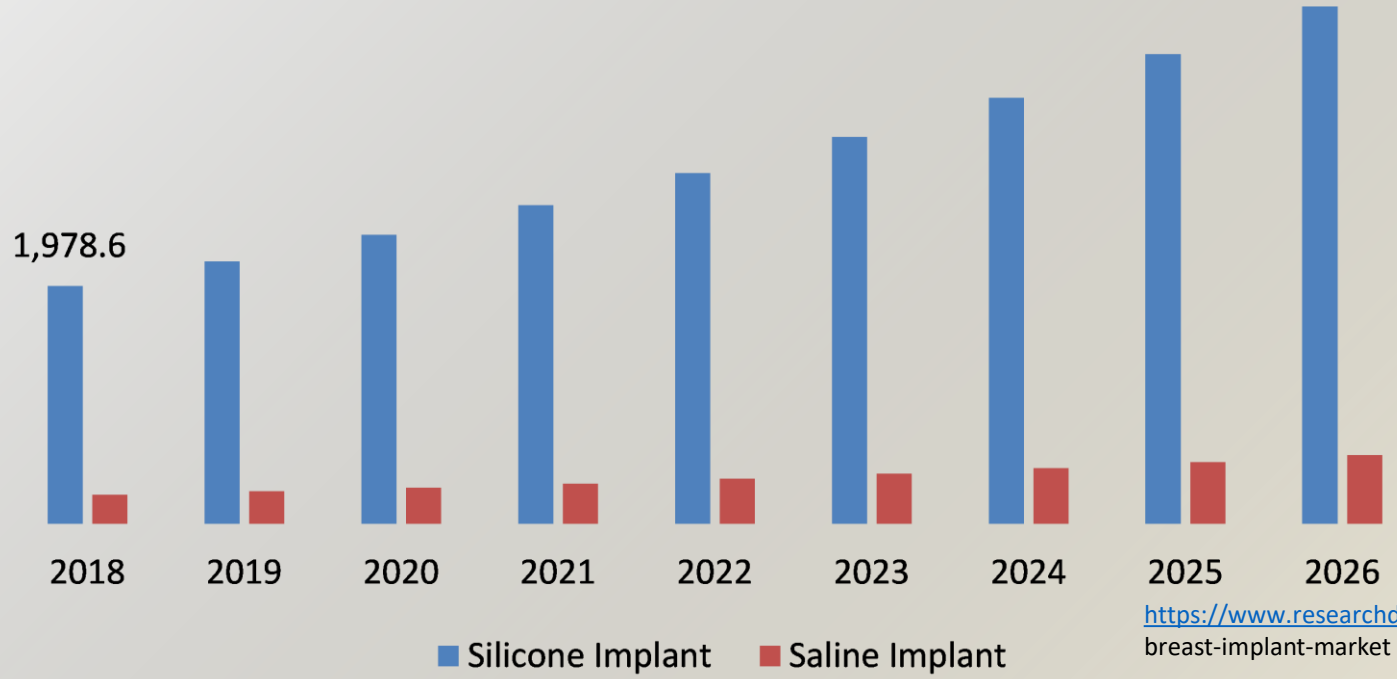
Added Value: Explore CNS for Gene therapy

1. Parkinson's disease
2. Huntington's disease
3. Fragile X syndrome

Strategy:

- ***Leverage unique competence at Cellastra***
- Establish collaboration with preclinical Lab
- Seek NIH and Foundation grants
- Build IP

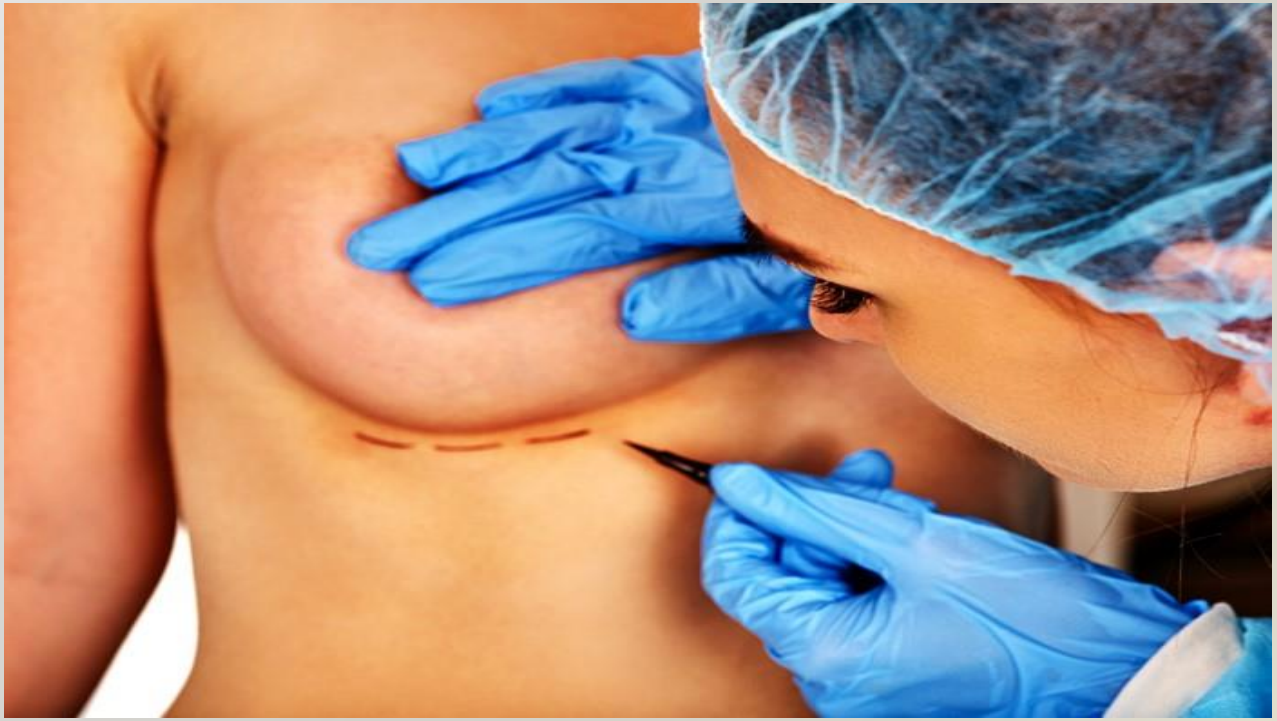
Breast Implant Market to Reach 4.9B 2026



https://www.researchdive.com/41/breast-implant-market

Cellexa Applied In Incision Area After Surgery

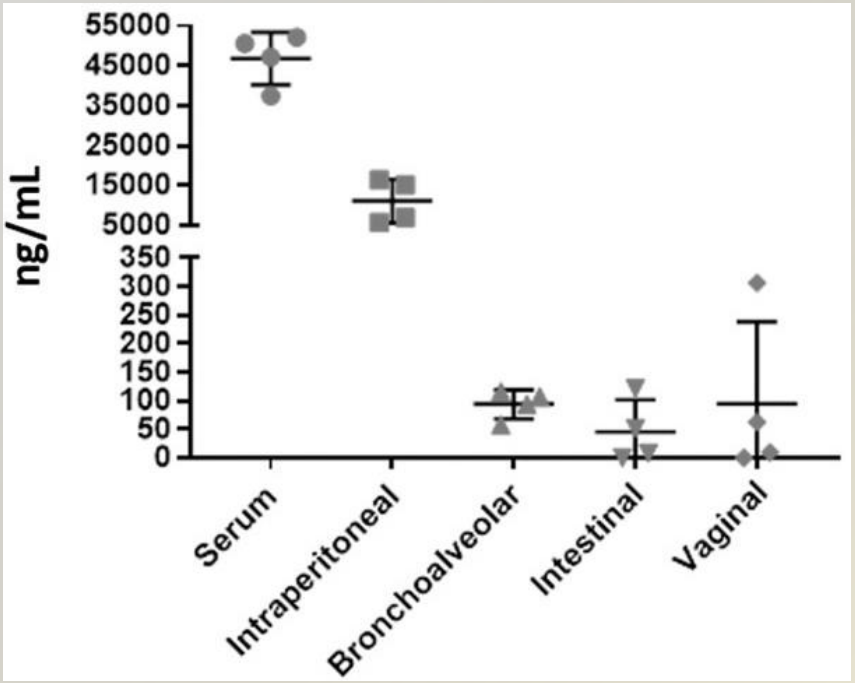
To prevent dermal scar and internal capsule contracture



Shown is one of several methods used in breast augmentation surgery

Final Distribution of FC-tagged PXL01

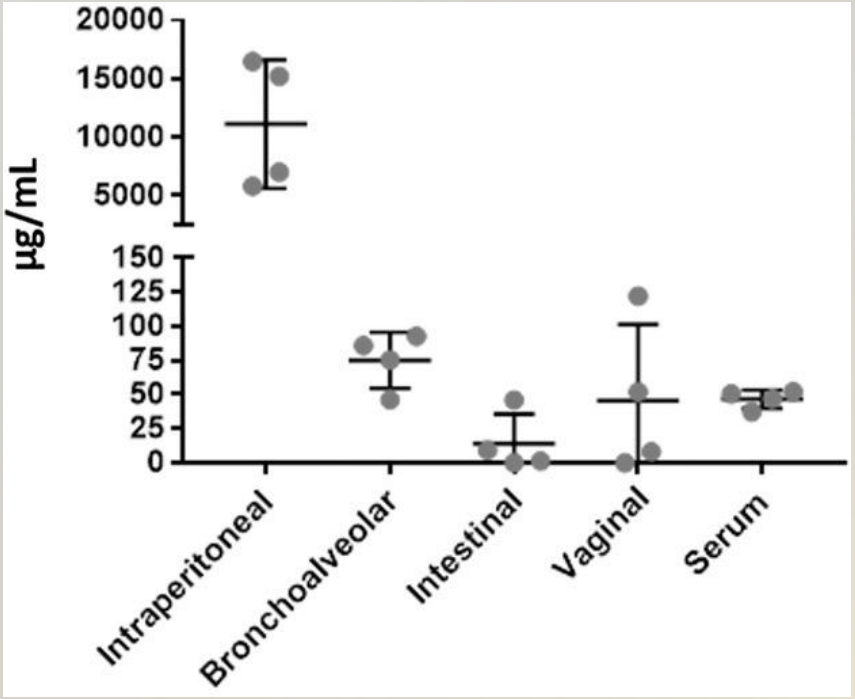
- Scatter plot that shows post mortem lactoferrin-Fc fusion peptide levels at mucosal surfaces (lavage fluid) and in serum at 77 days following administration of the vector
- >35,000 ng/mL in serum 77 days after an i.m. injection may suggest that an i.m. booster dose may have clinical utility



Data from CIP USPTO Fioing 5/14/21

Final Distribution of FC- tagged PXL01

- scatter plot that shows systemic endpoint concentration of lactoferrin-Fc fusion peptide (µg/mL) postmortem on Day 77 following administration of the vector



Data from CIP USPTO Filing 5/14/21

4 Stages of Wound Healing

- Hemostasis
  - platelet plug prevents blood loss and a preliminary fibrin matrix is formed
- Inflammation
  - Neutrophil influx promoted by histamine release from mast cells. Monocytes arrive later and differentiate into tissue macrophages to clear remaining cell debris and neutrophils
- Proliferation
  - Keratinocytes migrate to close the wound gap, blood vessels reform through angiogenesis, and fibroblasts replace the initial fibrin clot with granulation tissue. Macrophages and regulatory T-cells critical players at this stage.
- Remodeling
  - Matrix remodeled by fibroblasts, blood vessels regress, myofibroblasts contract wound

Defective Wound Healing

- Infection leading to increased inflammation and immune response
- Excessive immune system response due to chemokine release
- Excess infiltration by blood cells (macrophage/monocytes, neutrophils, and T-cells)
- Excessive collagen deposition leading to scar formation
- Lack of remodeling of fibrotic tissues
- Continuing inflammation and response to it
- Fibrotic tissues replace functional cells; cells become senescent
- Contracture of fibrotic tissue leads to pain, dysfunction, and unsightly appearance of scar or adhesion (internal scar)