



Jellyfish Collagen Biomaterials  
Next generation collagen for cell culture and  
med-tech products

Overview Presentation  
11<sup>th</sup> February 2016

non-mammalian collagen

## Jellagen Pty Ltd

### Overview

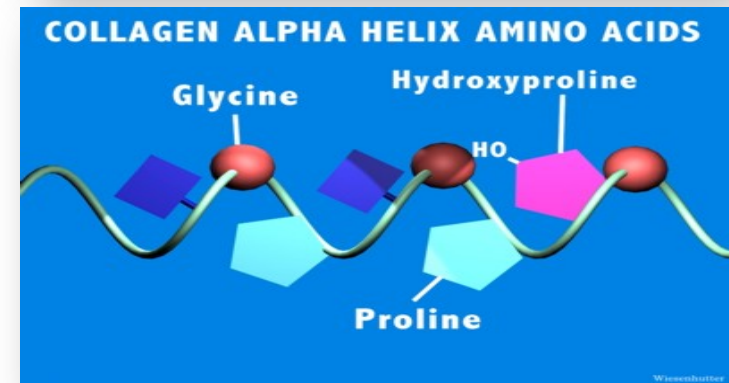
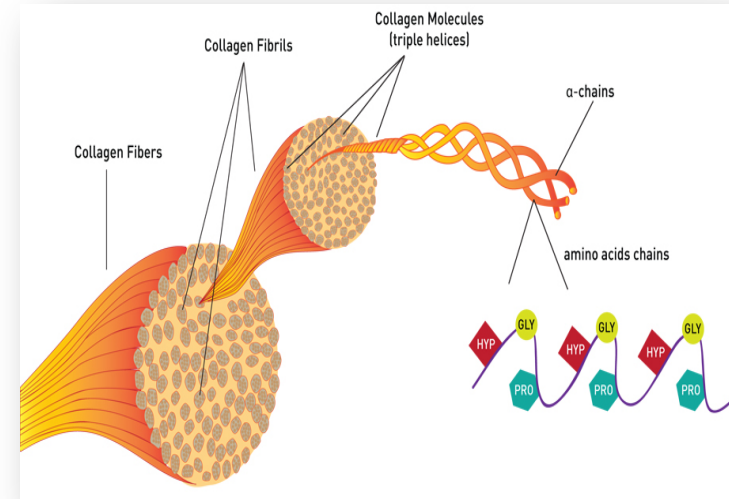
- Jellagen is a next generation collagen biomaterials company
- To be the leading producer in the global supply of high quality medical grade jellyfish collagen products to the cell culture reagent and med device markets
- Market looking for alternative to bovine/porcine in some applications
- A de-risked business model: Collagen used in FDA/EU approved med-device products
- JPL's products on market and generating early revenues in cell culture market
- Successfully secured private and public sources of finance to enable collaborations with industry and academia to de-risk product development.



# Collagen

## A Natural Biomaterial Polymer

- A key protein component of the Extra Cellular Matrix (ECM)
- Highly conserved across a wide variety of species
- Triple helical scaffold
- The triple helix may confer stability (strength & elasticity)
- Predominant market sources from bovine & porcine
- Used in a wide range of med-device & tissue engineering applications
- Jellyfish serve as an ideal source of collagen



## Market Need

A trend towards safer alternate sources & types

### Key Benefits

- Next generation collagen
- Non mammalian & Disease free (BSE)
- Low immune response – equivalent to bovine collagen
- Material allows for efficient nutrient uptake and oxygen supply to cells
- Conserved structural protein with decades of precedence of medical use
- Naturally sourced product

**Target jellyfish species rich in collagen – *Barrel Jellyfish***



## Company Overview

At a glance



Operational since August 2013 – 5 FTEs

Headquartered in Pembrokeshire, Wales

Offers next generation of collagen

- **Focus:** Sourcing and provision of **functional** jellyfish collagen biomaterial
- **Products:** Cell culture (2D & 3D), regen med/tissue engineering and medical devices
- **Markets:** Multi-billion dollar growth markets
- **Key USPs:** Next Generation, non-mammalian, non disease & technical advantages



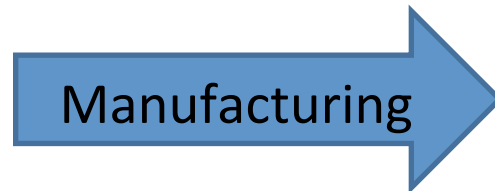
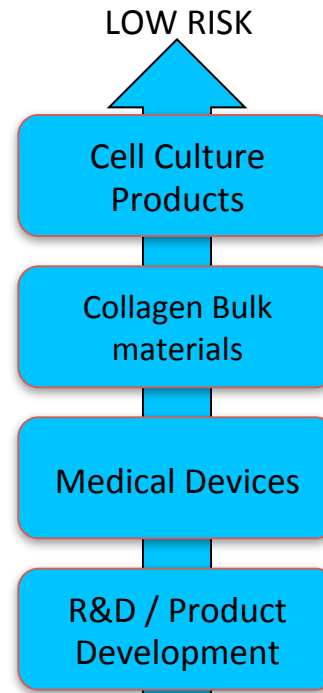
## Business Model

Harvesting  
jellyfish blooms

Processing to GMP/ISO  
Grade collagen  
(9001, 10993, 22442, 13485)

De risked model

Products



**Establish Quality Management systems**



## Product Pipeline

| Jellagen Product Pipeline  | R&D         | Prototype | Development | On Market |
|--|-------------|-----------|-------------|-----------|
| <b>Cell culture reagents</b><br>Soluble & Dried Collagen<br>3D Scaffolds (Hydrogel & Sponges)<br>Bio-mimetic scaffolds | →           | →         | →           | →         |
| <b>GMP Accredited products</b><br>GMP / ISO grade collagen   | →           | →         | →           | →         |
| <b>Medical Devices</b><br>Wound care (chronic ulcer)<br>Haemostasis<br>Cartilage Repair                                | →<br>→<br>→ | →         | →           | →         |

## Current Products

Functional native collagen

### Product Specification

- Research Grade Materials
- Functional native jellyfish collagen
  - Preservation of triple helical structure & function
- Supplied in solution or as dried collagen
- BSE & disease vector free
- Soluble collagen available as >3mg/ml:
- Suitable for:
  - 2D and 3D cell culture
  - Cosmetic ingredient
  - Tissue engineering
  - Electrospinning
  - Regenerative medicine research





## Current Products

Cell culture reagents



Collagen sponges for 3D  
cell culture



Native collagen in solution  
or dried



Collagen biomaterial  
coatings

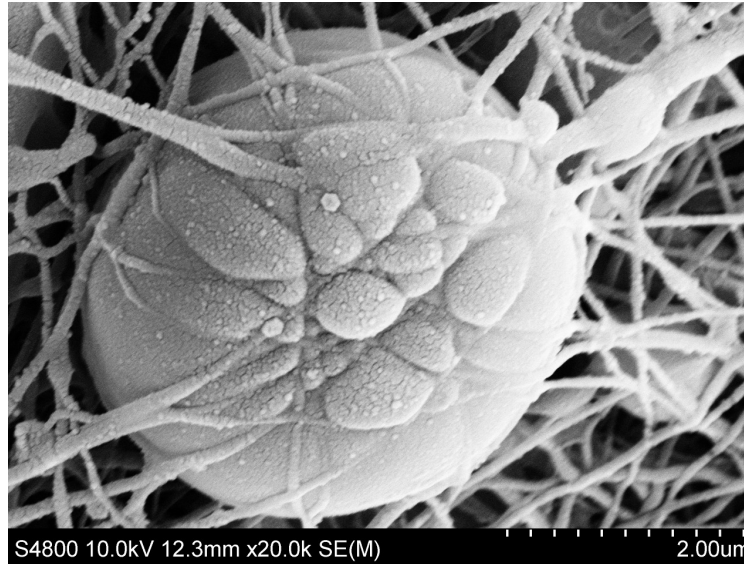
## Medical Device Product Development

Nano-Engineered **biomimetic** medical devices

Use of electrospinning to produce nano-fibre mats using jellyfish collagen



Jellyfish collagen



*Jellyfish collagen electrospun biomimetic mat - Chondrocyte shown embedded 100nm – 200nm fibres*

The scale of the fibres is commensurate with natural ECM so ideal for cell growth.

### Applications

Cell culture

Collagen mats

Tissue engineering

Biomaterial coatings

Wound device

Bone/dental device



Swansea University  
Prifysgol Abertawe



## Intellectual Property

### Wound care & diagnostics

Invention (UK Patent 1506236.7) covers a novel method to functionalise collagen for wound healing development

| Title   | Patent or Know How  | Filed if applicable                             |
|---|---------------------|---|
| MODIFIED COLLAGEN, METHODS OF MANUFACTURE THEREOF | UK Patent 1506236.7 | Filed April 2015                                |
| Collagen extraction                               | Know-How            | Patent Application Due for filing Q1-2016       |
| Collagen 3D Cell Culture                          | Know-how            | Data under review for patent submission Q1-2016 |
| Collagen scaffolds                                | Know-How            | Data under review for patent possibilities      |



## Summary

### Why Jellagen?

- Products on market and generating early revenues
- De-risked and evolving business model with global reach (US, Middle East, EU & Asia)
- Interest from large corporates providing credible routes to global markets
- IP covering collagen chemistry and process manufacturing
  - New IP (and products) in development
- >60yrs combined management experience in sales, manufacturing & commercial exploitation
- Open to collaboration with commercial partners to support new product development



## Acknowledgements



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**Prifysgol Abertawe**



# Thank You



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