

Working for a Biotech SME



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My Experience



- B.Sc. Microbiology (Nottingham), 1989
- Ph.D. Biochemical Engineering (UMIST, Manchester), 1989-93
- Post Doc: Rice University Houston, US (Biochemistry), 1993-96
- Research Associate, Gothenburg, Sweden, 1996-98
- **R&D Manager Agrol Ltd. UK, 1998-2003**
- Founded Green Biologics, 2004
- Chief Executive of GB: 2004-08, CTO: 2008-10, CSO: 2010-14, Advisor
- Founded CHAIN Biotech (Nov 2014)
- Chief Executive of CHAIN

Specific Technical Experience

SME Experience

Founder Experience

Serial Entrepreneur

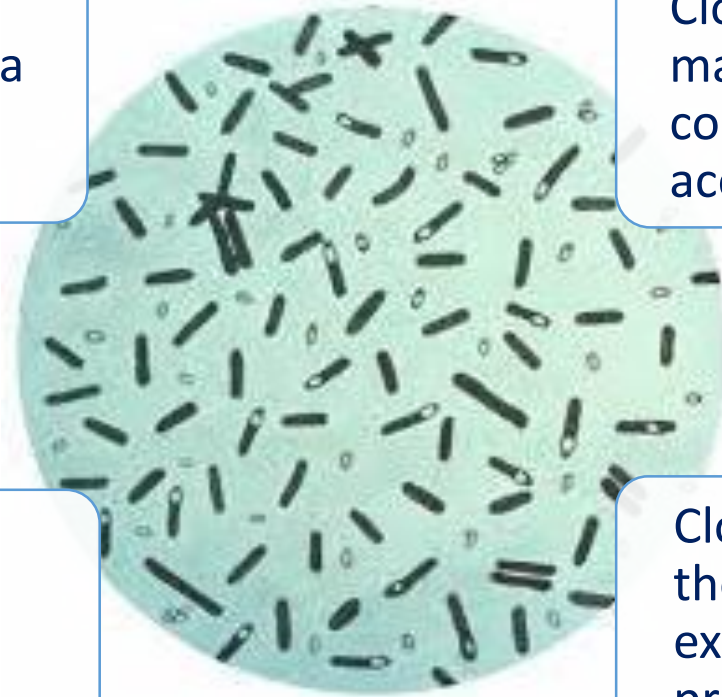
Clostridium Bacteria

Unique fermentative biochemistry i.e. broad substrate range & produce a range of metabolites incl. short chain fatty acids.

Industrial fermentation with Clostridia has been used for many decades to produce commodity chemicals; acetone and butanol.

Cells grow rapidly under anaerobic conditions & sporulate. This provides process advantages for both manufacture and drug delivery.

Clostridia are prevalent in the human gut. Used extensively as probiotics providing nutrition and health benefits.



Building a Renewable Chemical Business



- Started in 2004 (self-funded)
- Leveraged core technical expertise
- Developed lab space in Oxfordshire (incubator/Milton Park)
- Built technology assets (patents, know-how, strains etc.)
- Acquired US company (pilot/demo facilities)
- Licenced & validated technology at commercial scale in China
- Traded biobutanol as drop-in chemical (customers)
- Raised >\$100M investment & \$10M grants
- Experienced/highly qualified team (>120)
- Purchased & converted a commercial ethanol plant to produce acetone and butanol (2015)



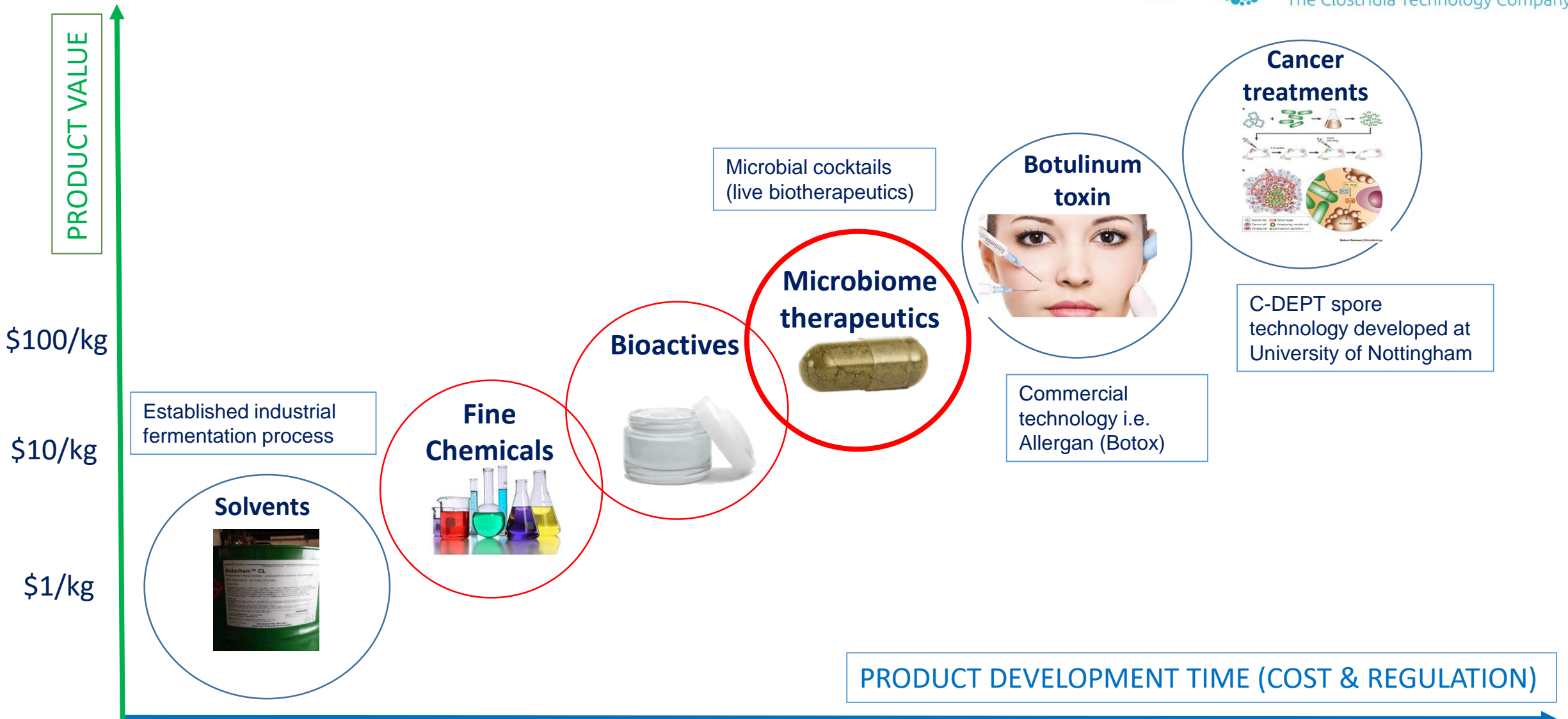
Building a Renewable Chemical Business



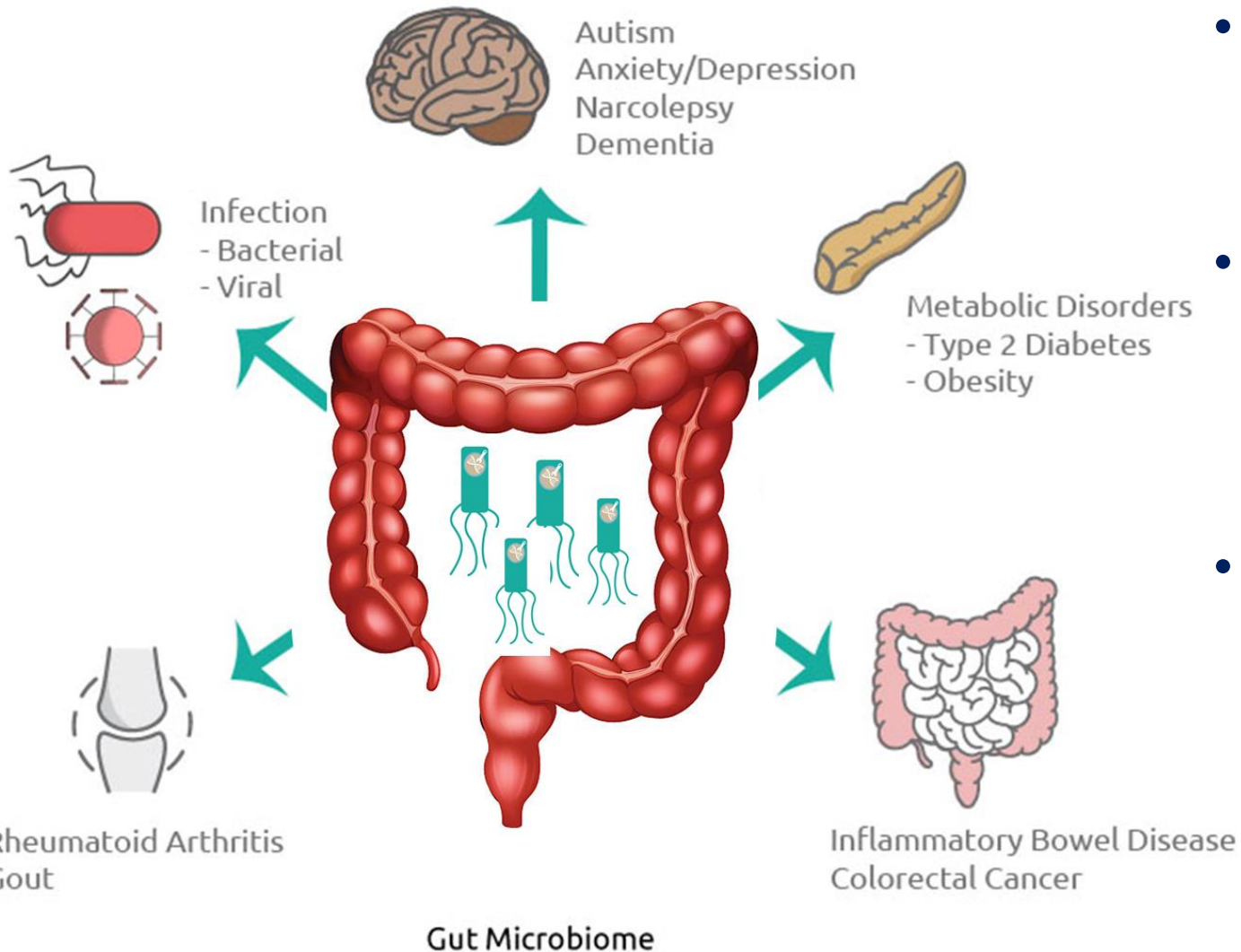
- Retrofitted a 21MGPY corn ethanol plant in Little Falls, Minnesota
- Commenced solvent production in 2017



Market Opportunities for *Clostridium*



Building a World Class Microbiome Company



- The gut microbiome offers novel insights & treatments for multiple diseases.
- Microbiome therapeutics sales forecast to reach \$9.3B by 2024 & microbiome companies attracted investments of approx. \$1B over the last 5 yrs.
- CHAIN's vision is to build novel and disruptive biotherapeutics, based on Clostridia, targeting a broad range of diseases:

- **Inflammation**
- **Infection**
- **Cancer**

About CHAIN

Est. Nov 2014

Funds raised to date: £1.8M

Premises: Marlow (HQ) & University of Nottingham (R&D)

Team: 9 fte's

Expertise: Unique expertise in the microbiology, synthetic biology and fermentation with anaerobic bacteria

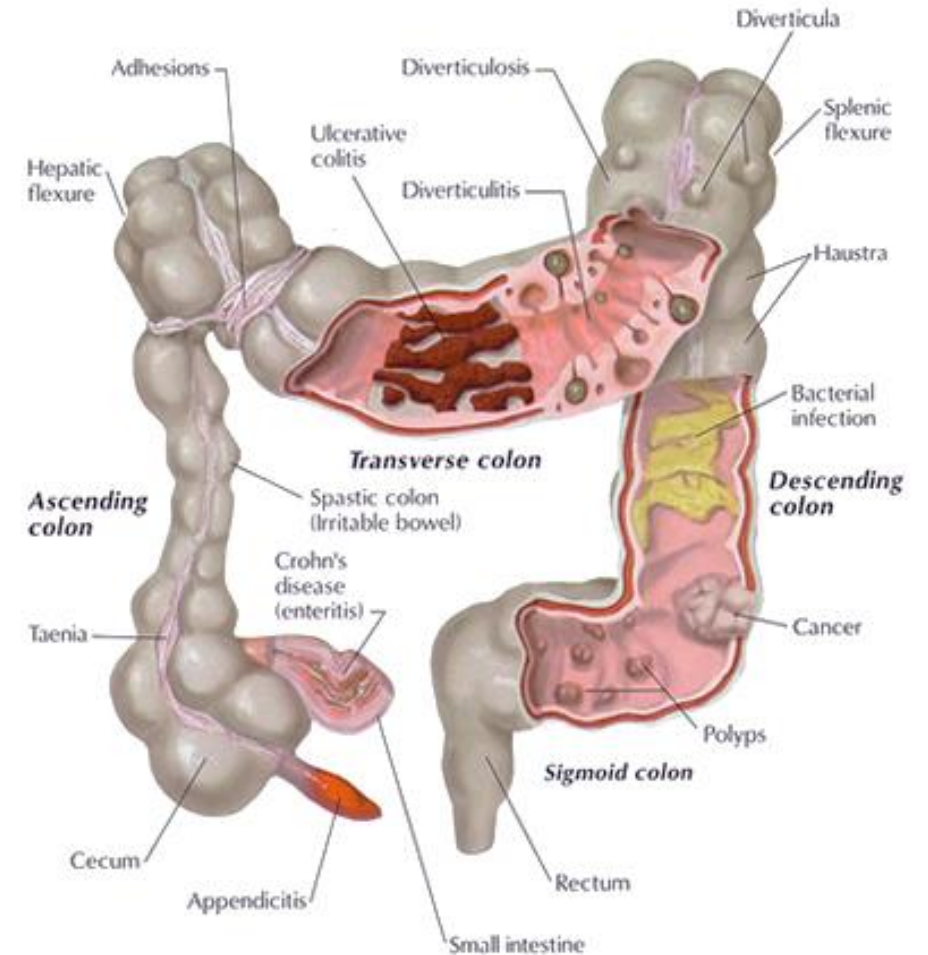
Technology: Novel & highly differentiated platform for the delivery and production of therapeutics in the gut

Ambition: Build a therapeutic product pipeline targeting gut related diseases



Gut-Related Diseases

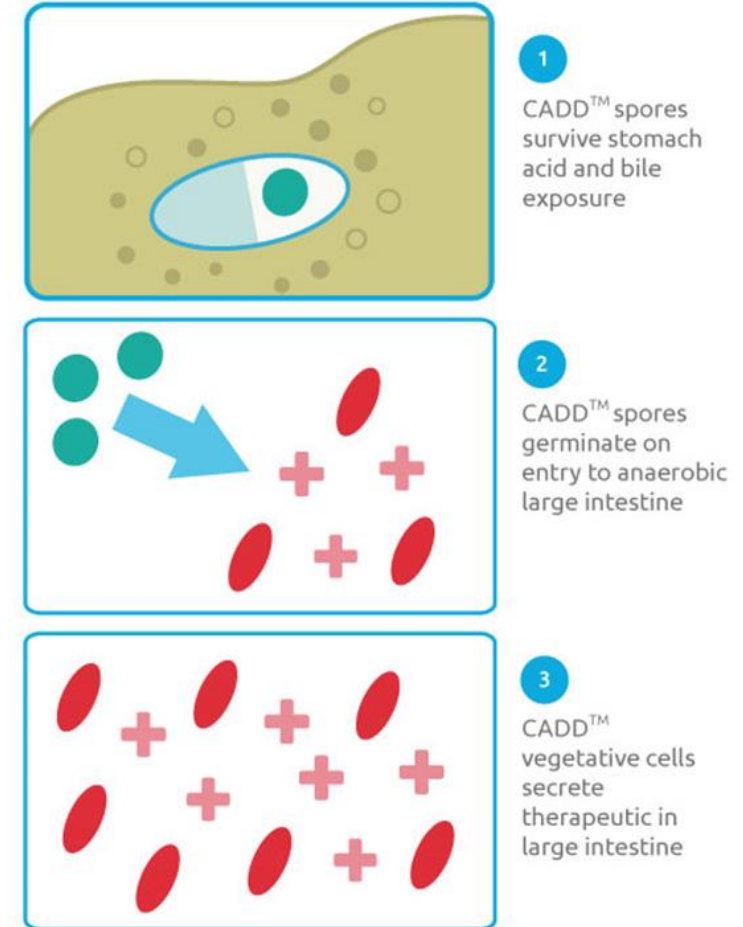
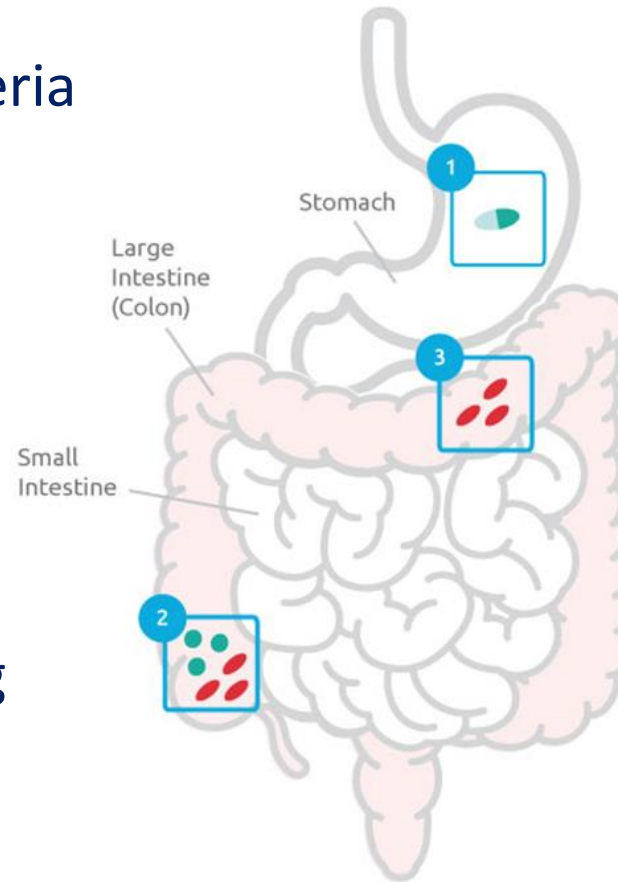
- Large unmet medical needs for chronic and debilitating gut diseases
- Colon-targeted drug delivery via ingestion is problematical due to breakdown in the stomach (low pH) and absorption in the upper GI tract
- Live biotherapeutics can overcome the delivery challenge but these novel treatments lack specificity and MoA are largely unknown



Disruptive technology overcomes many of the problems associated with treating gut diseases

CHAIN's Solution

- Use anaerobic, spore forming bacteria (*Clostridium* genus)
- Clostridia play an important role in gut health
- Engineered to produce a specific therapeutic payload
- Drug is only produced *in situ* during bacterial cell growth (in the colon)



CHAIN's CADD™ platform provides superior & targeted drug delivery

Why Work for An SME



Cons	Pros
Job Security	Ask about funding/sustainability Also you have an opportunity to reduce this risk
Salary	Starting salaries typically low but opportunities to increase rapidly based on performance/contribution (typically no formal pay scales) Key mechanism for remuneration is share options (discounted & tax efficient)
Work unsociable hours/long days	Flexible work hours/travel opportunities
Limited formal training opportunities	“On the job” training and exposure to many different facets of the business i.e. financial & commercial
Resource limited	Need to focus on what is needed/not “nice to have” Creative in terms of working i.e. leveraging collaboration & partnership
Early career responsibility	Every person makes an important contribution towards company success. Ultimately a team effort but every individual should add value
Change Direction/Strategy	Decision making is quick/easy access to Chief Exec/Board

Staff Responses



- Responsibility - everybody makes an important contribution
- Skill development outside the lab - grant writing, project planning, communication,
- Learn new lab skills – fermentation analytics etc.
- Unique exposure & networking opportunities - investors, BD, consultants etc
- Self-driven/motivated - ambition is a must, great opportunity to develop rapidly as a worker
- Rewarding - with the right company and people, you feel like you are making a positive difference

- You voice can be heard
- Good/early opportunities to take leadership roles
- New ideas can be implemented much quicker than at a larger organisation
- Flexible working
- Job can be more varied – get good exposure to more areas of a business than you would perhaps in a larger company (not always the case)
- Great team environment – everyone knows each other.

Main concerns are job security & benefits

Typical Roles (& Progression)

- Specific Technical Role i.e. Molecular Biologist, Analyst etc.
- Project/Programme Management (multi-disciplinary/multi-partner)
- Team Manager
- Non-Specific Technical Role

- Grant writing
- Patent writing/IP Management
- Promotional Activities (website, social media, presentations)
- Support funding/commercial operations (technology lead)
- Management Role i.e. CTO

Joining an SME

- Sell yourself (both specific but complimentary skills)
- Due your due diligence/ask about viability of Company
- Need to “buy in” to company vision/objectives & values
- Self-motivated
- Retain flexibility
- Great experience (especially if you want to start your own Company)



Risky option but rewarding i.e. you can make a difference, add significant value and help de-risk the business