

# Healthier skin through healthier healing

*A safe and effective solution for atopic dermatitis - and to delay skin aging*

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# Atopic dermatitis (eczema) - the problem

- Inflicts 15-20% children and 1-3% of adults worldwide, 10% of US population
- “Mothers hate putting steroids on their child’s face”
- Longer-term and poorly managed atopic dermatitis (AD) can cause premature ageing of the skin
- Current solutions are ineffective or have significant problems, for example:
  - First line – topical ointments and creams – contain no medication
  - Second line – topical steroids – toxic and unsuitable for treatment of longer than 30 days
  - Third line – topical calcineurin inhibitors – “black boxed” in USA
- Over 40 companies trying to find the “new, safe, topical steroid” for mild-moderate AD
- \$21 billion for mild-moderate AD



# Atopic dermatitis (eczema) - current treatments

## Topical Corticosteroids (TCS)

- Range of potencies to cater for different disease severities
- Worries over side effects; 'corticophobia'

## Protopic (tacrolimus)

- A topical calcineurin inhibitor (TCI) available in 0.03% and 0.1% strengths
- Transient site application pain

## Elidel (pimecrolimus)

- A topical calcineurin inhibitor (TCI) for mild-to-moderate patients
- Transient site application pain

## Eucrisa (crisaborole)

- A topical PDE-4 inhibitor for mild-to-moderate patients
- Persistent site application pain, expensive

## Systemic Immunomodulators

- Includes cyclosporine, azathioprine, methotrexate, and mycophenolate mofetil
- Large side effect profiles

## Dupixent (dupilumab)

- Anti-IL4 receptor subcutaneous injection once every two weeks
- Conjunctivitis the most common side effect

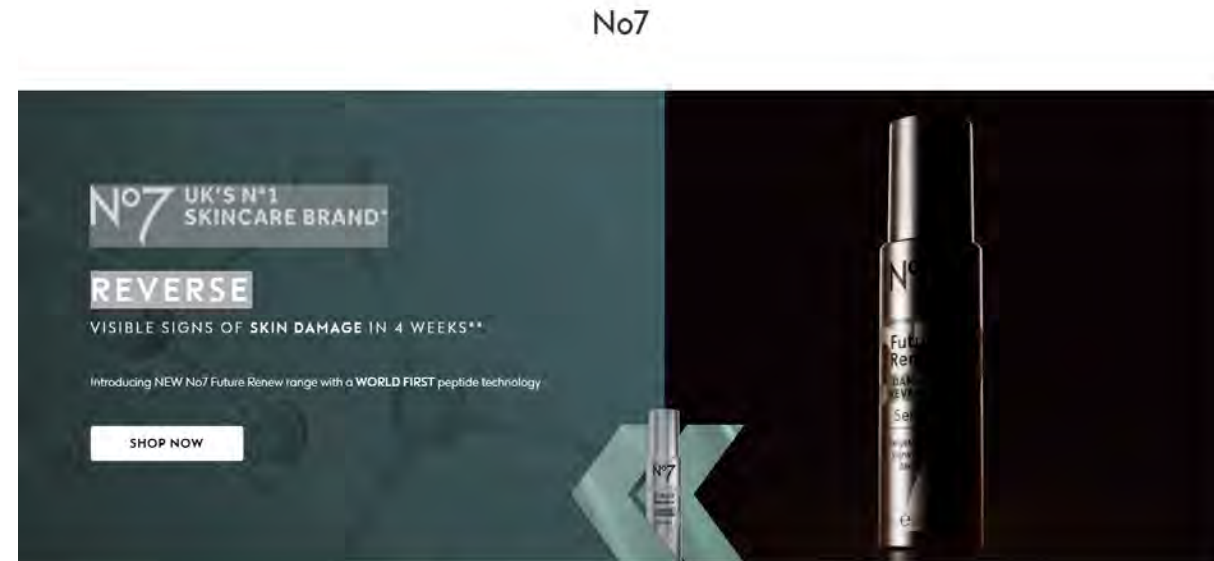
Source: Global Data

# Atopic dermatitis - drugs in development

- Over 560 ongoing clinical trials in AD
- Significant commercial opportunity
- No single safe and effective solution has entered market
- 98% of trials with “small molecule” anti-inflammatory drugs – with side effects
- It is time for a different approach

# Our solution is...

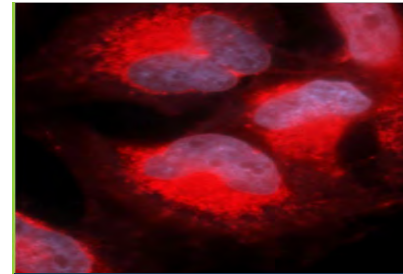
- Topically applied *peptide* inhibitor
- Stops inflammation...
- *Prevents activation of inflammation...*
- ***Delays aging of the skin***
- Safe
  - Broken down rapidly into naturally occurring amino acids
  - Only work at site of application



“No7 reveals its biggest ever scientific innovation with the launch of No7 Future Renew, proven to reverse multiple visible signs of skin damage Created following 15 years of research into skin ageing and repair with the University of Manchester, No7 Future Renew contains a world-first super-peptide blend and supports the skin’s natural repair process”

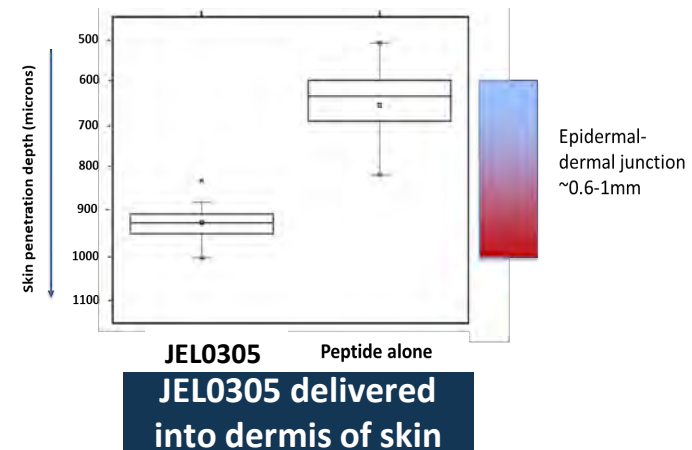
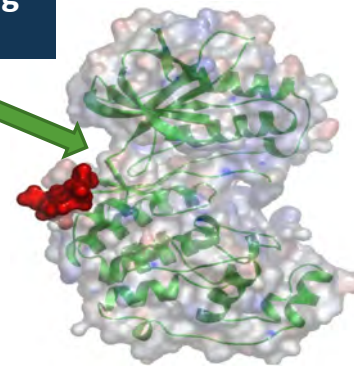
# Product development challenges to date - solved

- Founded Oct 2017
- Innovate UK grant - \$500,000
- Seed funding - \$750,000
- Founder investment - \$625,000
- Novel modulation vs traditional small molecule p38 $\alpha$  inhibitors



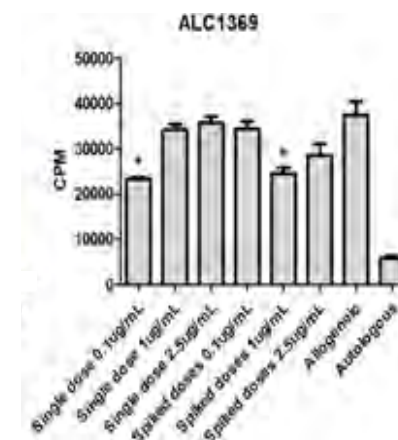
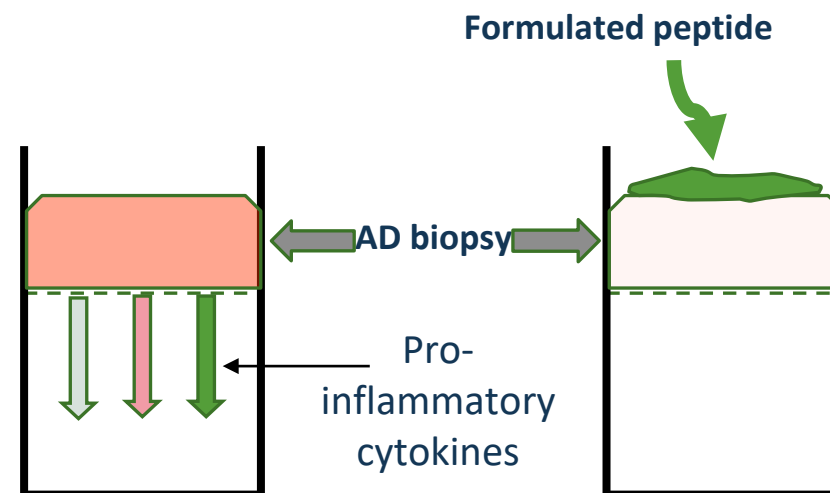
JEL0305 with a fluorescent tag in the cells' cytoplasm

Area JEL0305 binds in docking studies



# It works in a highly translatable pre-clinical study

- Manufacture of peptide
- Formulation of peptide
- Set up tissue assays in lab
- Sourced AD tissue from patients with NHS collaborator (ethical approval granted)
- Significant reduction – at the lowest dose (100ng/ml)
- **It works!**



N=3

# The Carocell Bio product

- Cool, rapidly absorbed cream – that feels great to apply
- Nanoparticles in the cream promote skin absorption and uptake by cells
- Reduces the inflammatory process and prevents reactivation of inflammation.....delay aging





Carocell Bio's new peptide not only reverses AD  
It could also *significantly delay aging of the skin* – and reduce surgery



**Healthier skin through  
healthier healing**

# Team



**John Nicholson, PhD**  
Chairman

MA, University of Cambridge  
International experience in pharma from start-up to the market  
Well networked for raising new monies for pharma businesses in UK and USA  
Raised new capital for several startups  
Advisory Board of Northwest Business Fund (\$175m)  
Chairman and CEO of Gentronix to 2019



**Dr Mike Davies, MD, FRCS**  
CEO & Founder

MD, Edinburgh University  
Fully trained as surgeon  
>25 years experience in drug development  
Pfizer, AstraZeneca, Shire and biotechnology companies  
Taken new medicines from ideas to the market  
Invested over \$625,000 and sweat equity into Carocell Bio



**Ann Mackey, BA, CPA**  
CFO

BA, Vanderbilt University  
Debt and capital raised for companies from startup to IPO on NYSE  
Adept at corporate structuring and working with private equity  
Experience as FD, CFO and CEO since leaving public accounting. All companies grown >25%



**Graham Coombe, BSc**  
Business Development

BSc (Hons), University College London  
23 years developing marketing and branding strategies for biotech companies  
Immersive industry presence matches talent to opportunity  
Founder and Chief Connector, BioSell



# Advisors



## Professor Anne Dickinson, PhD

**Emerita Professor, Newcastle University and Director of Newcastle Cellular Therapies Facility**

A health professional, clinical scientist and Director of Newcastle Cellular Therapy Facility (until her retirement in August 2019), her direct experience in the regulatory framework involved in Good Manufacturing Practice (GMP) for the development of Advanced Therapy Medicinal Products (ATMPs). Developed the 3D skin equivalent skin explant (Skimune™) technology to predict adverse immune reactions to novel compounds



## Professor Yvonne Perrie, PhD

**Drug Delivery, Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde, Glasgow**

Multi-disciplinary research focusing on developing drug delivery systems to facilitate the delivery of drugs and vaccines, thus providing practical solutions for current healthcare problems. Internationally recognised expert in the field of liposomes and particulate drug delivery research.



## Professor Antony Sedgwick, PhD

**Experienced biotech executive with over 40 years of experience in the sector**

Trusted advisor roles for CEOs and heads of R&D. Chairman positions at several companies including Plastid AS (2008-2011), ThioLogics (2011-2013) and Cotton Mouton Diagnostics (2017-2019).



## Priya Kalia, BSc, PhD

**Director of Communications**

Molecular Genetics and Molecular Biology, University of Toronto  
Regenerative Medicine, UCL  
Managing Director at sciTribe  
Chair of the London Materials Society



## Mr David Black

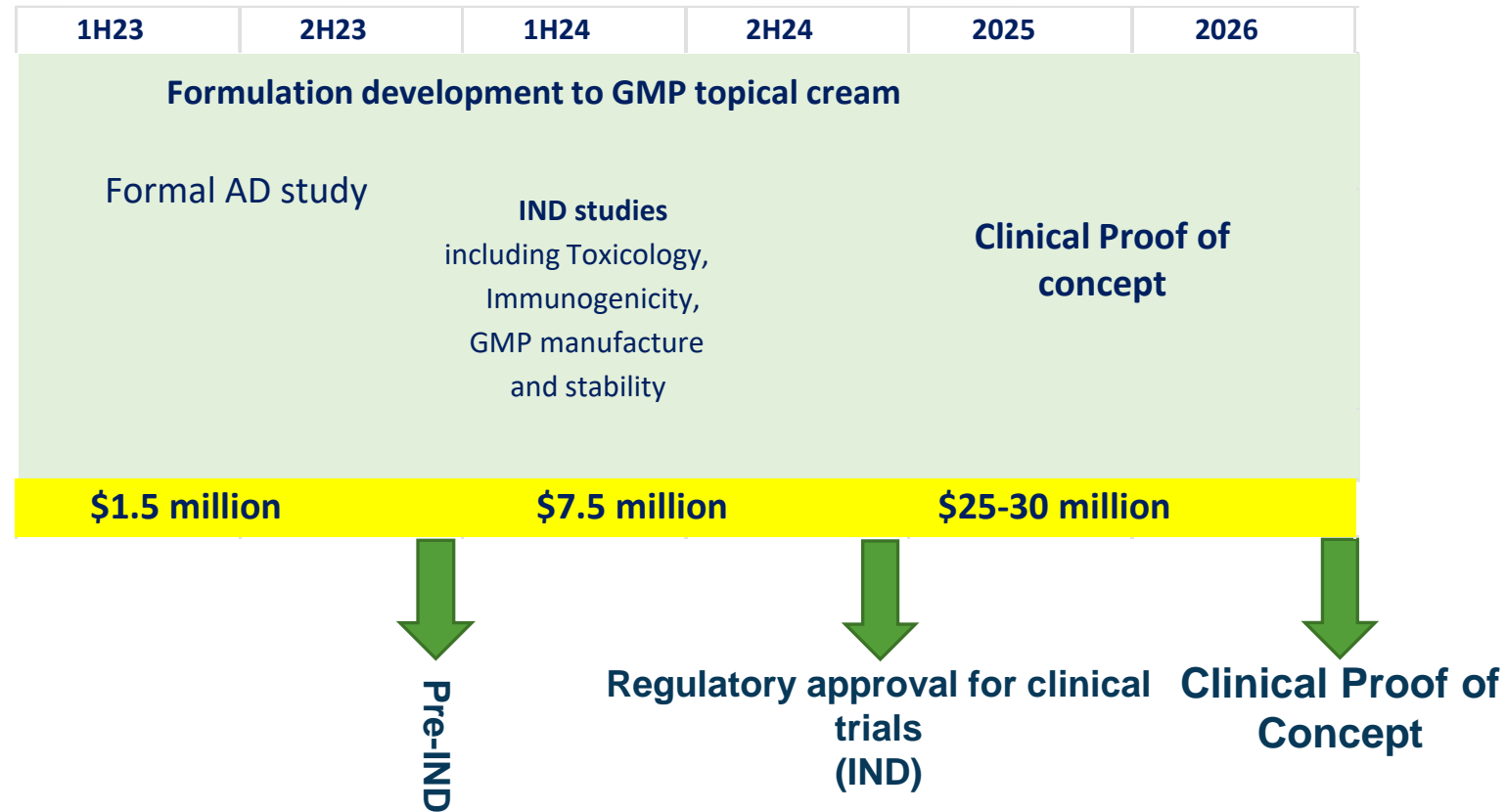
**Marketing Consultant**

Director owner of Onside Creative  
Director of several manufacturing businesses  
30 years of experience in Marketing and Advertising

# Traction

- 3 Patents issued
  - USA, EU, Japan (Pending – China)
- 1 patent submitted, 1 patent in preparation
- Cellular studies completed
- Human tissue biopsies, with ethical approval, shows it works
- Though AD is the target market, there are other large market opportunities, such as IBD, scar reduction
- **Big pharma excited for when we get to the clinic – *we need your help to get there***

# Investment of \$9 million over next two years required for IND



- Current investor has strongly indicated that they will re-invest
- **More investors required to complete this round and beyond**

# Carocell Bio is addressing a significant gap in the market



**Topical steroids work – but are TOXIC**

**Over 40 companies trying to find a “new, safe, topical steroid”**

**\$21 billion for mild-moderate AD**

**Carocell Bio’s topically applied peptide works in human AD biopsies**

**JEL0305 not only switches off inflammation it prevents the activation of inflammation**

**Daily application of topical cream will treat the flare, prevent it coming back and so may *delay the aging of the skin***

**Most other approaches are small molecules – Carocell Bio’s peptide approach will be safe  
Carocell Bio’s topical peptide anti-inflammatory approach is novel and scientifically proven  
Carocell Bio can transform the AD patient experience and *delay the aging of the skin***

# Thank you

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# Appendix





# Mechanism of Action

