Ophthalmic biotech spin out company from

Dr Andrew Hopkinson, Founder and CSO
Mission: develop high quality, and affordable sight saving therapies for everyone, everywhere
Dr Andrew Hopkinson, Founder and CSO

nuVision™

Ophthalmic biotech spin out company from Ophthalmics Ltd

Mission: develop high quality, and affordable sight saving therapies for everyone, everywhere

Omnigen™

An easily accessible biological bandage for treatment of eye injuries
An easily accessible biological bandage for treatment of eye injuries

‘making saving sight as easy as applying a bandaid’

Dr Andrew Hopkinson, Founder and CSO
nuVision™ team: Expertise to deliver products to market

**CEO, director**
Bryan Lister
- 25 years in healthcare
- 10+ years in sales and marketing to the NHS

**Clinical director, Non-Exec**
Prof Harminder Dua
- World leading cornea surgeon
- Leading advocate of Omnigen™
- President of Royal College of Ophthalmologists
- 43 years clinical experience

**Product development**
Dr Matthew Branch
- Inventor for NuVision technologies
- Research and development

**CSO, director**
Dr Andrew Hopkinson
- NuVision Founder
- Inventor for NuVision technologies
- Amniotic membrane research expert
- 15 years in ophthalmic regen med
- Associate professor

**Manufacturing technician**
Mr Owen McIntosh
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**Other directors**

Dr Helen Shaw
- 20 years in Medical/pharma industry
- Director Proveca pharmaceuticals
- Non Exec Director Mode Diagnostics Ltd, Glasgow
- Director FourSHaw Consulting Ltd
- Medical Director Boots Healthcare

Bruce Venning
- Commercial Manager UoN TTO
- Sales and marketing Director, NonLinear Dynamics

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[Diagram showing team members and their roles]
team: Expertise to deliver products to market

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Manufacturing technician

Mr Owen McIntosh

Advisory board

Dr Nick Pope
- 32 years in Life science Biotech
- Business coach
- CEO of several life science

Dr Adriana Oikonomou
- 10 years in GMP expertise
- Operational manager of NUH facility
Clinical Situation

- Millions of people suffer for chronic corneal conditions
- 1 million emergency corneal injuries across the UK and EU p.a.
- Surgeons are tasked to treat corneal blindness
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Clinical Situation

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-Crudely manufactured - quality issues
- Currently stored **frozen** in dedicated regulated facilities
- Not stored in hospitals where it is needed
- Can only be shipped once ordered per use - delays treatment
- 48 hour use of dispose rule
- Greatly limited access and utility
## Pain

<table>
<thead>
<tr>
<th>Emergency</th>
<th>Intermediate phase</th>
<th>Surgical</th>
</tr>
</thead>
<tbody>
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### Outpatient clinics
- Monitoring period until the ocular surface becomes stable

### NICE
- Antibiotics/Analgesia - Observe

### Surgical intervention options
- Amniotic membrane transplantation
## Pain

*Treatment of corneal blindness can take up to 2 years*

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- **Outpatient clinics**
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**NICE**

Antibiotics/Analgesia - Observe
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### Outpatient clinics
- Antibiotics/Analgesia - Observe
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### Surgical
- Amniotic membrane transplantation
- Surgical intervention options

£17k per patient

- Treatment of corneal blindness can take up to 2 years
- Costly long term treatment pathways for ophthalmology units
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### Treatment of corneal blindness can take up to 2 years

### Costly long term treatment pathways for ophthalmology units

### No onsite hospital-stored amniotic membrane stock

- Greatly limited clinical access for surgeons
- **No current access for emergency medicine**

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£17k per patient
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### NICE National Institute for Health and Care Excellence

- Antibiotics/Analgesia - Observe
- Outpatient clinics
  - Monitoring period until the ocular surface becomes stable
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£17k per patient

- Treatment of corneal blindness can take up to 2 years
- Costly long term treatment pathways for ophthalmology units
- No onsite hospital-stored amniotic membrane membrane stock
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- No like for like affordable alternative
Pain

Treatment of corneal blindness can take up to 2 years

Costly long term treatment pathways for ophthalmology units

No onsite hospital-stored amniotic membrane stock
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No like for like affordable alternative

£17k per patient
## Pain

Treatment of corneal blindness can take up to 2 years

Costly long term treatment pathways for ophthalmology units

No onsite hospital-stored amniotic membrane membrane stock

- Greatly limited clinical **access** for surgeons
- **No current access for emergency medicine**

No like for like affordable alternative
Our Solution
Our Solution

Omnigen™

Dry standardised ‘off the shelf’ amniotic membrane derived biological bandage
Our Solution

Dry standardised ‘off the shelf’ amniotic membrane derived biological bandage

Unlike the current frozen amniotic membrane, Omnigen is:

- **Accessible** at the point of care for treating injured corneas
- **Greater utility** - Simple and easy to use directly dry
- **Improved quality**, reliability and efficacy
Our Solution

Dry standardised ‘off the shelf’ amniotic membrane derived biological bandage

Unlike the current frozen amniotic membrane, Omnigen is:

- **Accessible** at the point of care for treating injured corneas
- **Greater utility** - Simple and easy to use directly dry
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Barriers include:

- Dual patent protected, and extensive proprietary knowhow manufacturing known as the Tēreō™ process
- Extensive expertise behind development
- Developed over 13 years with ~£2 million research funding
- Developed with the **British military** (£700k support) for battlefield application
Growth projections
## Growth projections

<table>
<thead>
<tr>
<th>Time frame</th>
<th>Activity</th>
<th>Milestone</th>
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<tbody>
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Growth projections

- **Time frame**: Sept 2014 to March 2015
- **Activity**: Manufacturing setup & Clinical testing
- **Milestone**: Set up clinical manufacturing and testing

- **Year 1**: Licensed manufacturing of Omnigen
- **Year 2**: Clinical testing

- **Year 3** to **Year 5**: Milestones not specified
Growth projections

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Manufacturing setup & Clinical testing

- Sept 2014 to March 2015
  - Set up clinical manufacturing and testing
  - Licensed manufacturing of Omnigen
  - Clinical testing

Beach head - Existing uses/users

- April 2015 - March 2016
  - Capture current UK surgical market

Further UK users and uses

- January 2016 onwards
  - Implement scalability strategy
  - Expand Omnigen use
## Growth projections

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### Time frame
- Set up period: Sept 2014 to March 2015
- Year 1: April 2015 - March 2016
- Year 2: January 2016 onwards
- Year 3: February 2015 onwards
- Year 4 and 5: Ongoing

### Activity
- Set up clinical manufacturing and testing
- Capture current UK surgical market
- Implement scalability strategy
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<td>Engage NICE</td>
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<td><strong>New UK Emergency market</strong></td>
<td>Widespread EU distribution through a partner</td>
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<td>February 2015 onwards</td>
<td>Work with clinicians to develop emergency use of Omnigen</td>
<td>Distribute Omnigen in the EU 5 big markets</td>
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<td><strong>EU Surgical market</strong></td>
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<td>Penetrate EU emergency market</td>
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Set up period: Year 1

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### Pipeline technologies

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<tr>
<th>Description</th>
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</tr>
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<tbody>
<tr>
<td>Tissue engineering substrate</td>
<td>Prototype: Final stages of development</td>
</tr>
<tr>
<td>Transplantable decellularised corneas</td>
<td>Pipeline - R&amp;D.</td>
</tr>
<tr>
<td>Stem cell therapy</td>
<td>Pipeline - R&amp;D.</td>
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<td>Tissue engineered construct</td>
<td>Concept</td>
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<td>Tissue engineered construct - <em>In vitro</em> model for toxicology testing</td>
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- **OmnigenTE™**
- **Theagen™**
- **Limbøgen™**
- **rēKēra™**
- **Limbētoxx™**

- Continued R&D - Projected commercial realisation 2022
- Continued R&D - Projected commercial realisation 2022
Offers and needs
Offers and needs

**What we need**
- European/global partner with experience in marketing and distributing wound care technologies
- Experts in wound care (diabetic ulcers) to develop Omnigen for wider therapy use

**We can offer**
- Profile of innovative wound care and regenerative technologies under development
- Regen med, tissue engineering, stem cell biology, expertise
- Pre-clinical research models
- Access to academic funding steams
Thank you!

Questions?

hopkinson@nu-vision.co.uk

@NottinghamCER