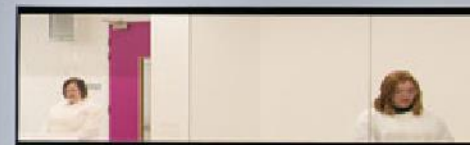




OxfordBioMedica

A LentiVector® Company, and a leader in gene and cell therapy

Annual General Meeting
7 June 2016



Forward-looking statements

This presentation does not constitute an offer to sell or a solicitation of offers to buy Ordinary Shares (the “Securities”). Although reasonable care has been taken to ensure that the facts stated in this presentation are accurate and that the opinions expressed are fair and reasonable, the contents of this presentation have not been formally verified by Oxford BioMedica plc (the “Company”) or any other person. Accordingly, no representation or warranty, expressed or implied, is made as to the fairness, accuracy, completeness or correctness of the information and opinions contained in this presentation, and no reliance should be placed on such information or opinions. Further, the information in this presentation is not complete and may be changed. Neither the Company nor any of its respective members, directors, officers or employees nor any other person accepts any liability whatsoever for any loss howsoever arising from any use of such information or opinions or otherwise arising in connection with this presentation.

This presentation may contain forward-looking statements that reflect the Company's current expectations regarding future events, its liquidity and results of operations and its future working capital requirements. Forward-looking statements involve risks and uncertainties. Actual events could differ materially from those projected herein and depend on a number of factors, including the success of the Company's development strategies, the successful and timely completion of clinical studies, securing satisfactory licensing agreements for products, the ability of the Company to obtain additional financing for its operations and the market conditions affecting the availability and terms of such financing.

Overview - a gene and cell therapy company with a leading lentiviral vector delivery platform (LentiVector®)



1

- **Gene and cell therapy is predicted to grow into a multi-billion US\$ sector over the next 5-10 years¹**
 - Several *ex vivo* products likely to reach the market within next 2-3 years
 - Multiple players in *ex vivo* cell therapy CAR-T, TCR, Stem Cells, NK cells, etc.
 - Several *in vivo* clinical studies, particularly in ophthalmology and CNS

2

- **Lentiviral vectors have advantages over other vector types**
 - *Ex vivo* cell therapies require integrating vectors – lentiviral vectors are the preferred choice
 - Lentiviral vectors beginning to demonstrate long-term efficacy which supports the “one-off” treatment hypothesis

3

- **OXB's sought-after LentiVector® gene delivery platform**
 - Can be used for both *in vivo* and *ex vivo* lentiviral vector products
 - Founded on 20 years' experience of delivering lentiviruses *in vivo*
 - Integrated combination of our IP, employees' expertise and bioprocessing and laboratory facilities

4

- **OXB's product interests**
 - Two in-house products to enter Phase I/II clinical studies in next 12 months and a CAR-T pre-clinical programme targeting solid tumours
 - Economic interest in partners' products: Sanofi (SAR422459/SAR421869); Novartis (CTL019 and other undisclosed CAR-T programme); Immune Design (LV305) and GSK (two undisclosed rare orphan products)

¹ Clive Glover, GE Healthcare “Sales of cell and gene therapy will reach \$10 billion by 2021”, October 2015.

2015/2016 key achievements (1/2)

- **Strong progress from LentiVector® delivery platform**
 - Portfolio review in Q1 2016: focus on OXB-102, OXB-202 and OXB-302
 - OXB-102: Phase I/II study in Parkinson's disease approved by MHRA
 - OXB-202: Preparations for Phase I/II study in corneal graft rejection continue; CTA filing planned for 2016
 - OXB-302: pre-clinical data demonstrates efficacy in tumour challenge model (CAR-T 5T4)
 - LentiVector® platform evidence of long-term duration
- **2015 lentiviral vector production volumes increased by 72% over 2014**



Vector harvest volumes
Litres

2015/2016 key achievements (2/2)

- **Investment in people, facilities and plant**

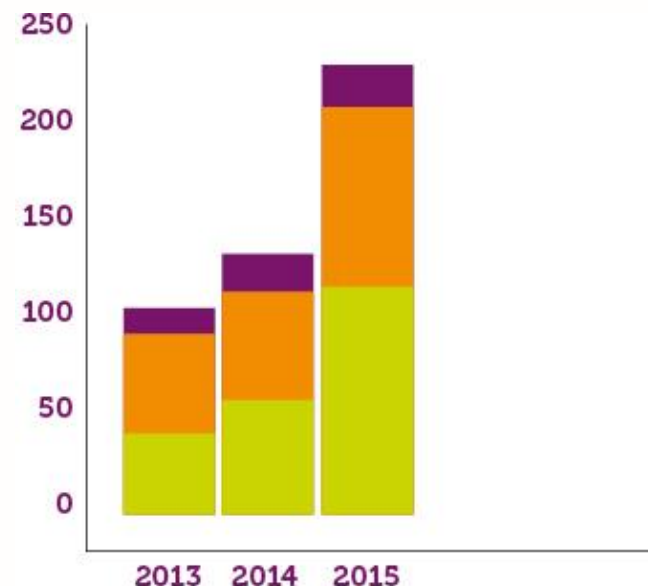
- Headcount increased from 134 to 231 during 2015, 250 at end May 2016
- New Yarnton facility operational
- Harrow House extension and Windrush Court laboratories currently being validated

- **Partnerships broadened**

- Research collaboration in NK cells (CAR-NK) with Green Cross LabCell
- Immune Design LV305 collaboration/new IP licence
- Novartis 2nd CAR-T product
- GSK acquired IP licence for 2 rare disease product candidates

- **Board strengthened**

- Dr Lorenzo Tallarigo, Chairman
- Stuart Henderson, Chair of Audit Committee



Employee numbers

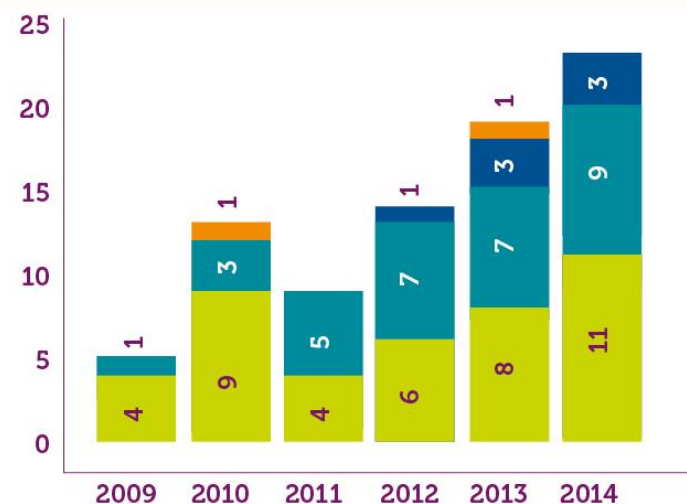
- Admin and corporate
- Product and technology development
- Bioprocessing and process development

Strategic Review



Strategic review confirms Oxford BioMedica as leader in field

- Gene and cell therapy field set to grow into \$ multi-billion sector over next 5-10 years. Several products, particularly *ex vivo*, likely to launch in next few years
- Lentiviral vectors are preferred choice for *ex vivo* therapies because they integrate into DNA of target cells with a genetic payload replicating when cells divide
- Increasing number of lentivirus clinical studies initiated in recent years
- Regulatory environment changes enabling faster progress through regulatory systems
- Oxford BioMedica has unique combination of patents, know how, expertise and facilities in lentiviral vectors – the LentiVector® platform



Initiated lentivirus clinical trials by year and phase

Phase



Source: Journal of Gene Medicine, July 2015

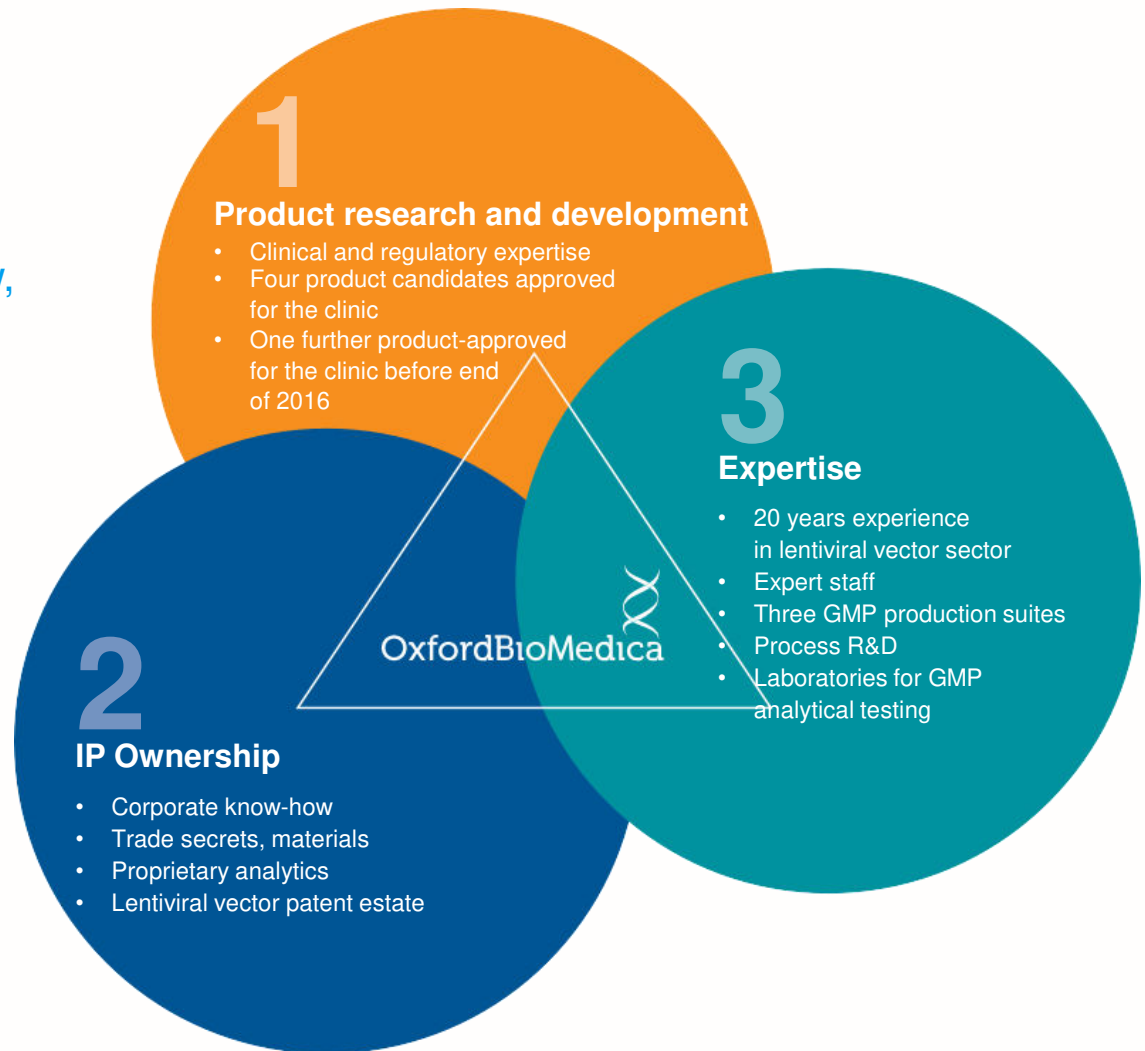
Management conclusions from strategic review

- **Successful companies will be those which own or have economic interests in gene and cell therapy products**
 - Oxford BioMedica is and will remain a product-focused company: we now focus on three priority programmes together with partnered programmes
- **A pure “in-house product only” approach is potentially very high reward but with commensurate high risk and cost, and**
 - Would depend on other providers to design and process vectors
- **Our proprietary LentiVector® vector gene delivery platform, built over 20 years and continuing to develop, positions Oxford BioMedica as the partner-of-choice:**
 - Partnering with companies helps them develop better gene and cell therapy products, more quickly. In exchange we obtain short- and long-term economic interest in partners' products through fees, royalties and other incentives
 - Relationships in place with Novartis, Sanofi, GSK, Immune Design, Green Cross LabCell. Discussions ongoing with further potential partners
- **Therefore exploiting the integrated LentiVector® delivery platform is our path to generating patient benefits and sustainable shareholder value**

Oxford BioMedica, an integrated LentiVector® Company

Our USP is based on a unique combination of:

- intellectual property including patents and integrated know-how,
- expert staff
- bioprocessing and laboratory facilities
- product development experience
- clinical & regulatory expertise



Product Update



OxfordBioMedica 

Products

Oxford BioMedica has an interest in many gene and cell therapy projects and our integrated platform technology is instrumental in the following wholly-owned and partnered / royalty-bearing programmes

Product	Indication	Research/ Pre-Clinical	Phase I	Phase I/II	Phase II	Phase III	Approval	
Priority programmes								
OXB-102	Parkinson's disease (Central Nervous System)							OxfordBioMedica
OXB-202	Corneal graft rejection (Ophthalmology)							OxfordBioMedica
OXB-302	Cancer (multiple) (Oncology)							OxfordBioMedica
Other candidates								
OXB-201	Wet AMD (Ophthalmology)							OxfordBioMedica
OXB-301	Cancer (multiple) (Oncology)							OxfordBioMedica
Partnered /IP enabled & royalty bearing products								
SAR422459	Stargardt disease (Ophthalmology)							SANOFI
SAR421869	Usher syndrome type 1B (Ophthalmology)							SANOFI
CTL019	Cancer (multiple) (Oncology)							NOVARTIS
Undisclosed CAR-T	Cancer (multiple) (Oncology)							NOVARTIS
LV305	Cancer (multiple) (Oncology)							IMMUNE DESIGN
Undisclosed	Undisclosed							gsk GlaxoSmithKline
Undisclosed	Undisclosed							gsk GlaxoSmithKline

OXB-102 for Parkinson's Disease

Overview

- **OXB-101 (ProSavin®)/OXB-102 aims to provide dopamine (DA) replacement to patients with Parkinson's disease**
- Uses Lentiviral vector technology to deliver genes for 3 enzymes required for DA synthesis
- Administered locally to the striatum, where DA is normally released
- Converts non-dopaminergic cells to replacement of DA
- Evidence of at least 4 year duration emerging from OXB-101 patient follow-up

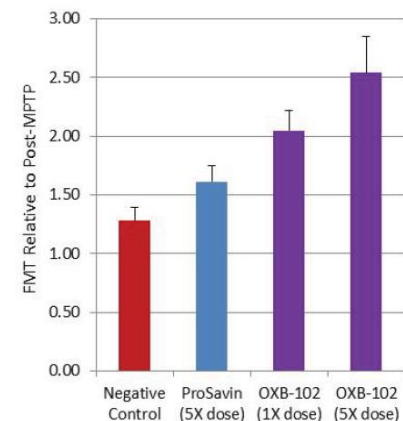
Market size

- **Parkinson's disease affects millions of people worldwide¹**
- Currently 1.7 million adults affected with PD in seven major markets (US, Japan, and EU 5)¹
- This is expected to rise to 1 million in the US and 880 thousand in the EU by 2022 due to an aging population¹

Programme Status

- Phase I/II regulatory approval submission underway
 - Study protocol approved by MHRA (UK authority) and submission Q2 2016 for ANSM (French authority)
- Same Cambridge and Paris sites to be used as for OXB-101 Phase I/II study, with potential for an extra site in UK
- 1st patient likely to be dosed during Q3 2016
- Dose escalation over three cohorts of six patients per cohort and dose confirmation cohort of 12 patients
- Expect preliminary readout from first cohort towards the end of 2017

PET analysis (with [¹⁸F] fluoro-L-m-tyrosine (FMT))



OXB-102 gives rise to higher AADC activity than ProSavin®

¹ PharmaPoint Parkinson's Disease Global Forecast & Market Analysis to 2022, Global Data June 2015

OXB-202 for Corneal Graft Rejection

Overview

- **OXB-202 is designed to prevent corneal graft rejection**
- Despite one of the most successful tissue transplants, a significant number of grafts are rejected due to corneal vascularisation (NV)
- OXB-202 is a human donor cornea genetically modified with the same lentiviral vector as OXB-201 to secrete 2 anti-angiogenesis proteins, endostatin and angiostatin
- This *ex vivo* treatment of donor corneas prior to transplant inhibits NV and, consequently, graft rejection
- **Approximately 100,000 corneal grafts are performed every year worldwide¹**
- This figure, representing only 1% all patients in need of a transplant, will increase significantly as countries develop their own eye banking infrastructure²
- Company estimates peak sales range of £120m to £415m

Pre-clinical Data

- OXB-202 programme supported by extensive OXB-201 data (non-clinical and clinical)

¹ Human organ and tissue transplantation. Report by the Secretariat. Executive Board EB112/5, 112th session, Provisional agenda item 4.3. World Health Organisation. May 2003

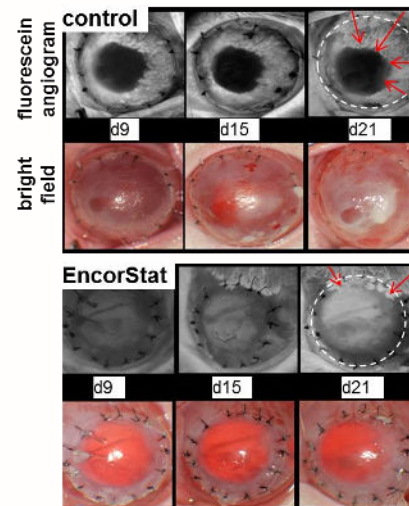
² Venkataraman, B. Countries make push to increase eye donors. The New York Times, July 15, 2008

³ Parker et al. "Suppression of neovascularization of donor corneas by transduction with equine infectious anemia virus-based lentiviral.....". Human Gene Therapy 25 (5):408-18, 2014

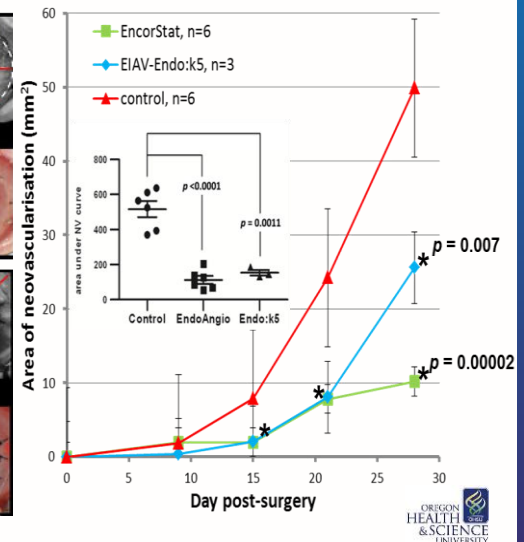
⁴ Scripps et al. European Society for Gene and Cell Therapy (ESGCT) Abstract# P283, October 2013

Illustrative Results

Efficacy in pre-clinical model of rejection (aggressive)³



Reduction in corneal NV, opacity and immune infiltration in a pre-clinical PK model⁴



Programme Status

- Submit clinical trial application (CTA) by end of 2016 for Phase I/II clinical study
- Clinical trial may involve up to 40 patients, starting with severe patients and progressing to less severe
- Moorfield Eye Hospital is the UK site, with the potential for a US site

OXB-302 for Targeting Solid Cancer Tumours (CAR-T 5T4)

Overview

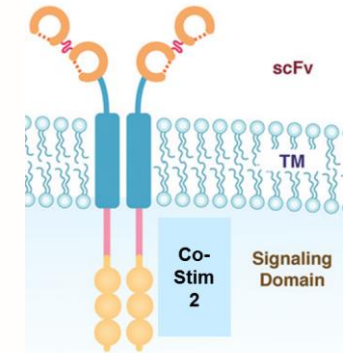
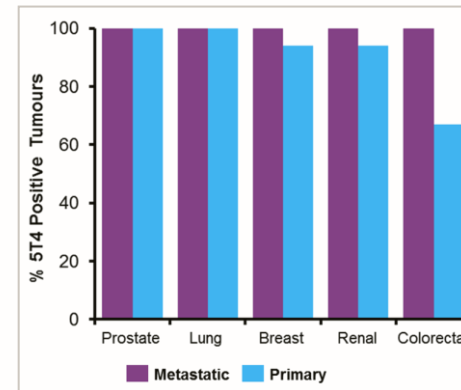
- Chimeric Antigen Receptors (CARs) enable the re-direction of a patient's T cells to target cancer cells expressing a specific tumour antigen
- OXB-302 is a combination of our LentiVector® and 5T4
- CAR-T 5T4 targets 5T4, an oncofoetal antigen expressed on the surface of most solid tumours and some haematological malignancies
- The restricted expression profile of 5T4 on normal tissues combined with its broad expression on tumour cells (including cancer stem cells) make 5T4 an attractive target for therapeutic intervention

Pre-clinical Data

- 2 different OXB-302 Lentiviral based vectors have been produced
- Both OXB-302 vectors transduce human PBMCs
- CAR-5T4 transduced human T cells show good growth kinetics and secrete cytokines in response to “*in vitro* challenge” with a range of human tumor cell lines
- In vivo* testing has demonstrated efficacy in an industry standard tumour challenge model

Illustrative Results

Expression of 5T4 on primary and metastatic human tumours:



- Targeting 5T4 expression on solid tumours with OXB-302 (CAR-T 5T4) leads to tumour killing in *in vivo* models

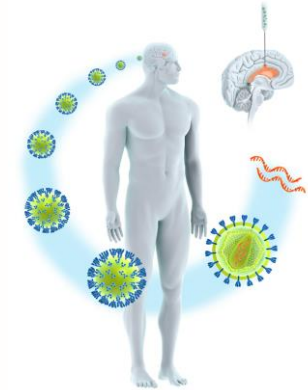
Programme Status

- End of pre-clinical studies expected by end of 2016
- Following demonstration of pre-clinical proof of concept, clinical planning for OXB-302 will be initiated

Product and delivery platform news 2015/2016 (1/2)

In-house priority products

- OXB-102 (Parkinson's disease) Phase I/II gained MHRA approval - clinical trial site initiation planned H1 2016
- OXB-202 (Corneal graft rejection) Phase I/II MHRA filing on track
- OXB-302 (in oncology) pre-clinical studies ongoing



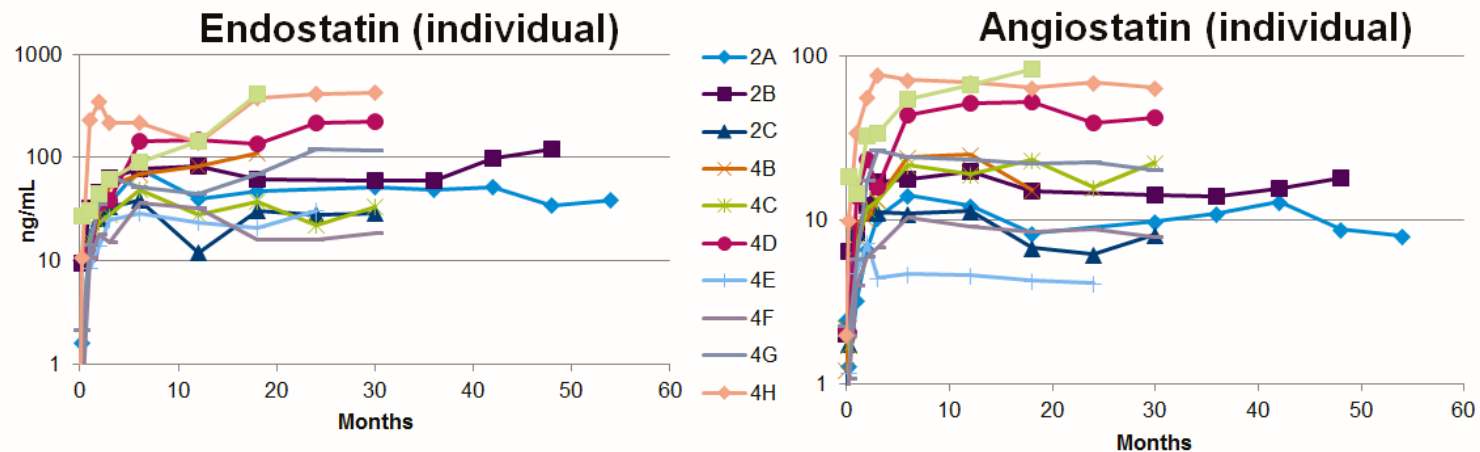
Partnerships

- **Novartis**
 - CTL019 study results expected H2 2016
 - Novartis 2nd CAR-T programme
- **Immune Design**
 - Clinical-stage immunotherapy company with next-generation in vivo T-cell approaches – expanded relationship with Oxford BioMedica
 - LV305 and CMB305 (combination of LV305 and G305 prime boost agent) in Phase 1/2 studies in cancers expressing NY-ESO-1 antigen
 - LV305 activates the immune system against a tumour by generating cytotoxic T cells (CTLs) against specific tumour-associated antigens
- **Green Cross LabCell**
 - Subsidiary of Green Cross Holdings, one of South Korea's leading biopharmaceutical companies
 - Research collaboration to focus on identifying and developing gene modified natural killer (NK) cell-based therapeutics for treatment of life-threatening diseases such as cancer

Product and delivery platform news (2/2)

LentiVector® gene delivery platform

- Ground breaking evidence of long-term duration of therapeutic expression in patients from four year long term follow up of OXB-101 (ProSavin®) and OXB-201 (RetinoStat®)
- Gene expression was dose- dependent and continued for more than four years in OXB-201 patients



Other proprietary R&D activity

In-house Product Discovery/Research – providing a flow of new product opportunities

- Several ocular orphan diseases programmes
- CNS orphan disease programme
- Respiratory orphan disease programme
- Gene-modified NK cell therapeutics with Green Cross LabCell for cancer

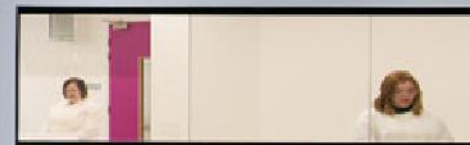
Technical developments – continuous improvement of the LentiVector® platform

- Cell and vector engineering projects to improve bioprocessing yield – for example:
 - TRiP system development
 - Packaging & producer cell lines
- Analytical methods improvements to improve efficiency and effectiveness of testing

Innovation and optimisation to build long-term value

Facilities

OxfordBioMedica 



State-of-the-art Bioprocessing Facilities (all located in Oxford, UK)

**Two separate bioprocessing sites
(total clean rooms 1,200m²/12,917ft²)**

Laboratories (2,136m²/22,992ft²)

Harrow House

Two independent
GMP clean room
suites (GMP1 and
GMP2) totalling
640m²/6,889ft²

GMP2 facility
designed for up to
two 200L single
use bioreactors

Potential for
further expansion

Yarnton

One independent
GMP clean room
suite (GMP4) of
560m²/6,028ft²

Potential for use
with 200L single
use bioreactors

Windrush Court Laboratories

Nine Tissue
Culture
Laboratories with
24 Microsafety
Cabinets

Two Analytical
Services Group
(ASG)
Laboratories

Cell Engineering
Laboratory

Three Bio Safety
Laboratory
Category 3 (BSL-
C3) Laboratories

Two Process
Research and
Development
(PR&D)
Laboratories

One PCR suite

Separate QC
Chemistry and
Microbiology
Laboratories

Clinical Analysis
Laboratory

Separate HPLC
and FACS Suites

Summary



Near-term catalysts

- **In-house priority products**

- OXB-102 Phase I/II first patient dosed
- OXB-202 Phase I/II study CTA filing in H2
- OXB-302 pre-clinical study results

- **Partners' products**

- Novartis CTL019 study results
- Novartis CTL019 BLA submission

- **LentiVector® delivery platform**

- Successful development of 200L bioreactor serum-free suspension process to produce lentiviral vectors
- Further contracts with new partners giving long-term economic interest in partners' product candidates

Summary: a leading gene and cell therapy company



1

- Gene and cell therapy is predicted to grow into a multi-billion US\$ sector over the next 5-10 years

2

- Lentiviral vectors have advantages over other vector types

3

- OXB's sought-after LentiVector® gene delivery platform for both *in vivo* and *ex vivo* lentiviral vector products

4

- OXB's product interests include in-house focused clinical and preclinical pipeline and an economic interest in partners' products

Contact Us

Oxford BioMedica plc
Windrush Court
Transport Way
Oxford
OX4 6LT

John Dawson, CEO
Tim Watts, CFO

Tel: +44 (0) 1865 783 000
enquiries@oxfordbiomedica.co.uk
www.oxfordbiomedica.co.uk


OxfordBioMedica

