The LentiVector® Platform Company
A leader in gene and cell therapy

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New York, June 2017

John Dawson, CEO

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Summary: A Leading Gene and Cell Therapy Company

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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 unique advantages for cell and gene therapy
3. OXB's sought-after LentiVector® gene delivery platform for both *in vivo* and *ex vivo* lentiviral vector products
4. OXB has world-class bioprocessing facilities and collaboration track-record in the field
5. OXB's product interests include own clinical and preclinical pipeline either spun out or out-licensed and an economic interest in partners' products

[1] Clive Glover, GE Healthcare "Sales of cell and gene therapy will reach $10 billion by 2021", October 2015.

Corporate Overview

>20 years as the leader in lentiviral vectors

- ✓ **1st** to administer *in vivo* (both brain and eye)
- ✓ **>60** patients treated *in vivo*
- ✓ **Four** Phase I/II studies completed with encouraging safety and efficacy
- ✓ **Five** in-house products, available for spin out or out-licensing

Integrated LentiVector® gene delivery platform

- ✓ **IP** - extensive IP comprising both patents and know-how
- ✓ **Facilities** – state-of-the-art bioprocessing and laboratory facilities
- ✓ **Employees** – Over 250 full time employees, many highly qualified and experienced
- ✓ **Quality** – robust quality processes for lentiviral vector production

Partnered with

NOVARTIS

IMMUNE DESIGN

Green Cross LabCell

Orchard therapeutics

Discussions with several other potential partners ongoing

Products & patents licensed to

SANOFI

gsk GlaxoSmithKline

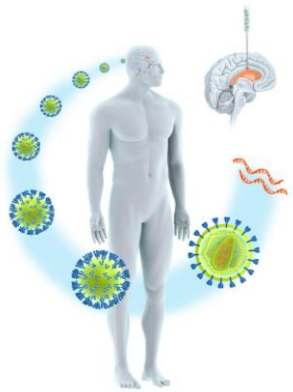
The Gene and Cell Therapy Revolution

The use of DNA to treat diseases by delivery therapeutic DNA into patients' cells

Offers potential for single treatment giving long-term or even permanent efficacy

In vivo development – e.g. OXB-102

- Lentiviral vector engineered to carry three genes encoding key enzymes for synthesis of dopamine
- The lentiviral vector is directly injected into the appropriate part of the brain, called the striatum
- The lentiviral vector genetically modifies the cells to produce dopamine



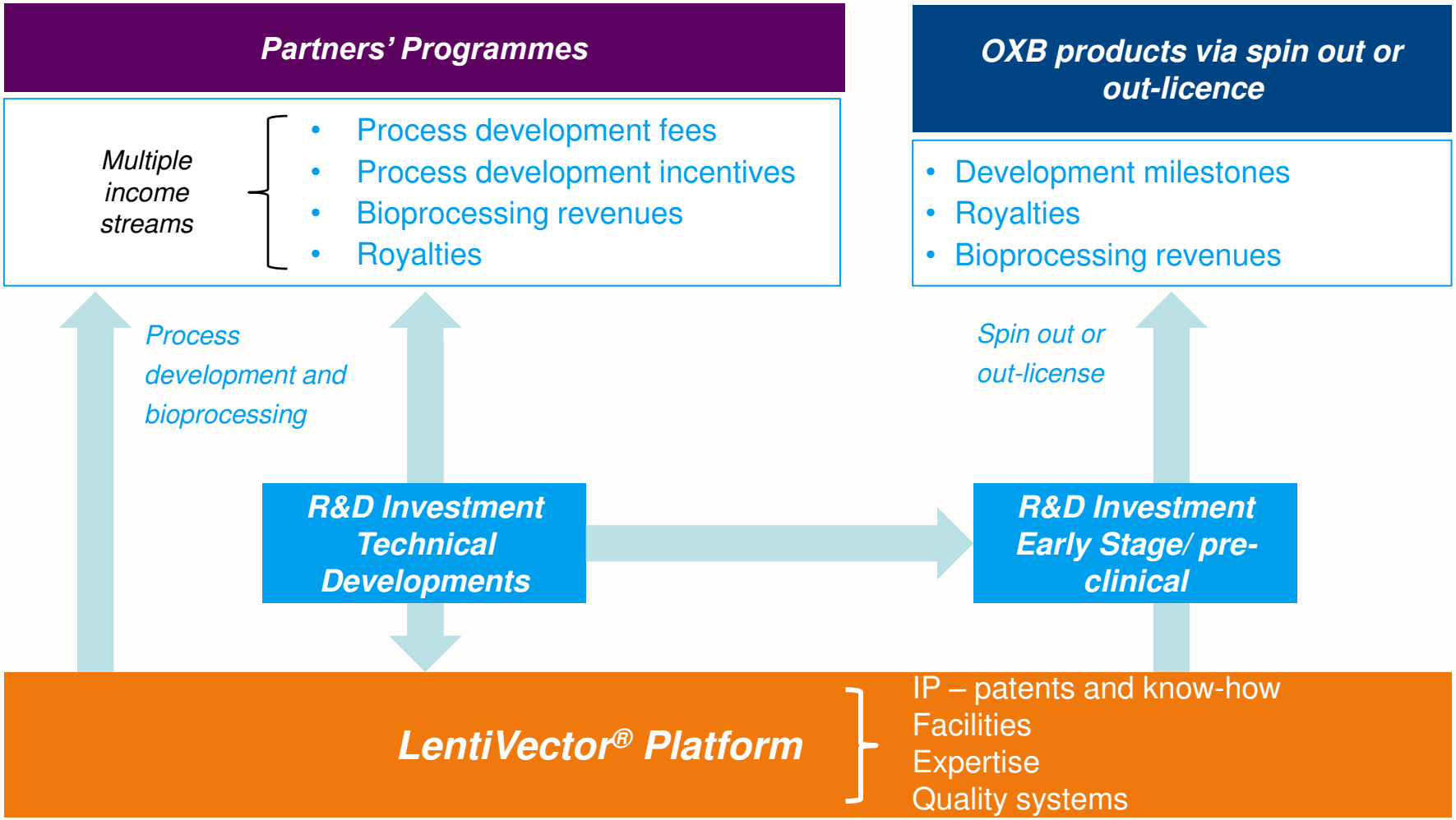
Ex vivo development – e.g. CTL019

- OXB produces GMP lentiviral vector encoding CAR targeting CD19
- T-cells isolated from patient's blood and transduced with OXB vector
- Modified T-cells are infused back into the patient
- Once re-infused, the T-cells multiply, "hunt" cancer cells and destroy them

Lentiviral vector advantages for cell and gene therapy

- Large therapeutic payloads (up to 9 kb)
- Permanent modification of dividing cells
- No pre-existing immunity

Strategy: Leveraging Our LentiVector® Delivery Platform



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Products Pipeline - Proprietary and Partnered

Product	Indication	Pre-Clinical	Phase I	Phase I/II	Phase II	Phase III	Approval	
OXB Proprietary Products								
OXB-102	Parkinson's disease							To be spun out or out-licensed
OXB-202	Corneal graft rejection							
OXB-302	Cancer, multiple							
OXB-201	Wet AMD							
OXB-301	Cancer (multiple)							
OXB Partnered products								
SAR422459	Stargardt disease							Development milestones and royalties
SAR421869	Usher syndrome 1B							
Partners' Products								
CTL019	r/r ALL						(Projected H2 2017)	Process development and bioprocessing revenues, and royalties
CTL019	r/r DLBCL							
2nd CAR-T	Cancer (multiple)							
CMB305	Advanced, relapsed or metastatic sarcoma							
LV305	NY-ESO-1 expressing cancers							
ADA-SCID	ADA severe combined immunodeficiency							
MPS IIIA	Sanfilippo A syndrome							
Undisclosed	Undisclosed							
Undisclosed	Undisclosed							

Clinical Lentiviral Vector Experience

- OXB's lentiviral vector administered to >100 patients (by OXB or its partners) and cumulative patient safety data >300 years

In Vivo

- OXB-101 - 15 patients treated via stereotactic delivery[1]
  - Safe and well tolerated with cohort 1 out to 7 years
- OXB-201 - 21 patients treated via subretinal delivery
  - Safe and well tolerated with cohort 1 out to 4 years
  - Protein expression from transgenes observed at latest time point (4yr)
- SAR422459/SAR421869 – Over 20 patients treated via subretinal delivery
  - Safe and well tolerated with SAR422459 cohort 1 out to 3 years[2]
  - Safe and well tolerated with SAR421869 cohort 1 out to 2 years[3]

Ex Vivo

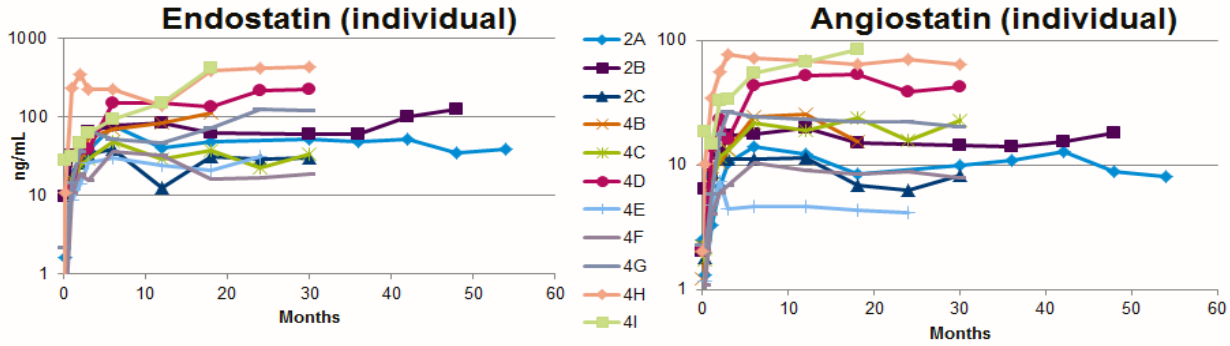
- CTL019 – ELIANA and JULIET clinical studies

- Ongoing safety profile is very well tolerated
- No transgene related immune responses observed

1 Published in *The Lancet* January 2014 (Palfi *et al.*)
2 Binley et al. Transduction of Photoreceptors With Equine Infectious Anemia Virus Lentiviral Vectors: Safety and Biodistribution of StarGen for Stargardt Disease. IOVS 54 (6): 4061-4071, 2013
3 Weleber et al. Early findings in a Phase I/IIa clinical programme for Usher syndrome 1B (USH1B; MIM #276900). ARVO Meet Abstr. 2286 (B0191), 2015.

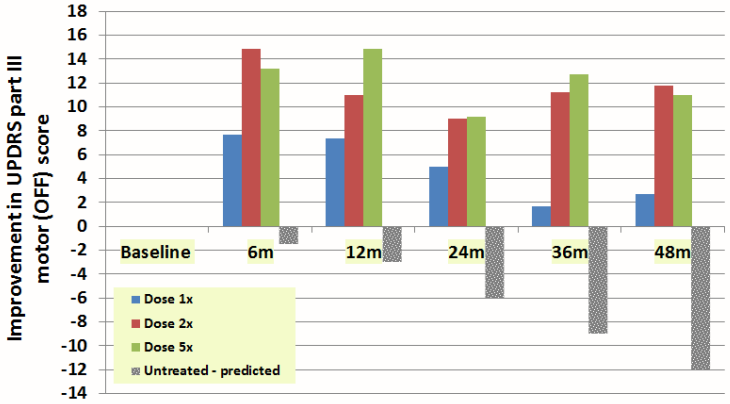
LentiVector® Platform Evidence of Long-term Duration

- Long-term four year follow up data for OXB-201[1]
  - Dose responsive expression of proteins
  - Long term follow up continues



Persistent expression out to >4 years so far (ongoing)

- OXB-101 efficacy analysis by cohort out to four years[2]



- At 12m, all patients had equal or better UPDRS Part III OFF scores than at baseline
- At 24m 12 out of 14 patients[2], at 36m 10 out of 11 of patients[2], at 48m 8 out of 10 patients had equal or better UPDRS Part III OFF scores than at baseline
  - UPDRS Part III OFF score expected to increase 1-2pt/year

[1] Campochiaro PA, et al. "Lentiviral vector gene transfer of endostatin/angiostatin for macular degeneration (GEM) study". Hum Gene Ther. 28 (1) 99-111, 2017
[2] Summary of 12 month and three year follow up data of the Phase I/II study with ProSavin® (OXB-101); Source: Palfi et al. Oral presentation AANS Conference, May 2015

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Novartis CAR-T Partnership

Overview of 2014 Contract

- Non-exclusive licence to OXB's IP:
  - Up fronts (2014) and future royalties
- Lentiviral Vector bioprocessing:
  - Initial three year contract to produce CTL019 for clinical studies; extendable
- Process Improvements:
  - Collaboration in process development
  - Performance incentives paid on achievement of targets
- $90m over 2014-2017

Achievements to date

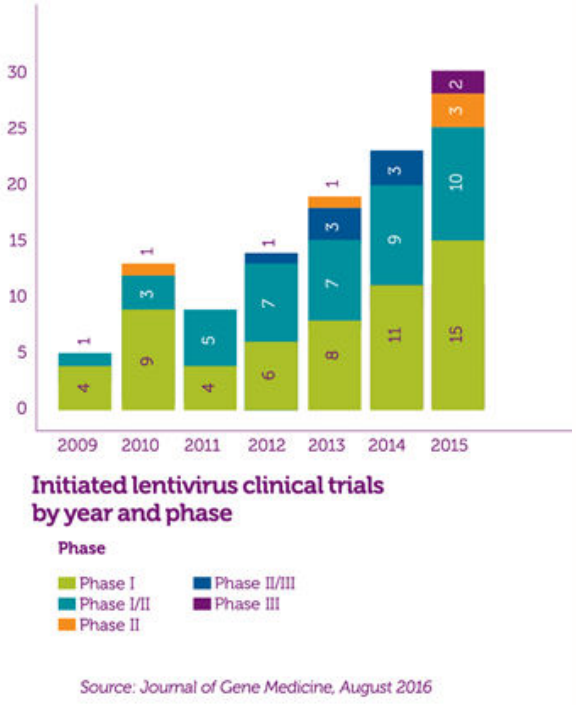
- Multiple CTL019 clinical study batches supplied to Novartis since October 2014
- Multiple confirmed purchase orders through 2017
- ELIANA clinical study data announced December 2016. On 29 March 2017, the FDA accepted the BLA filing and granted a priority review for CTL019
- Novartis have indicated potential blockbuster status
- r/r DLBCL granted FDA Breakthrough Therapy designation
- Successful development of 200 litre process with significant productivity improvements

Forward Looking

- JULIET study (DLBCL) data expected 12 June 2017
- CTL019 approval expected Q3 2017
- OXB will be sole manufacturer for product launch
- Royalty flow expected to start in H2 2017.
- 2nd CAR-T programme (undisclosed indication) to expand

Business development
- increasing lentiviral vector clinical/pre-clinical trial activity

Examples of companies working in clinical development



Examples of companies working in pre-clinical development

Proprietary R&D Activity

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

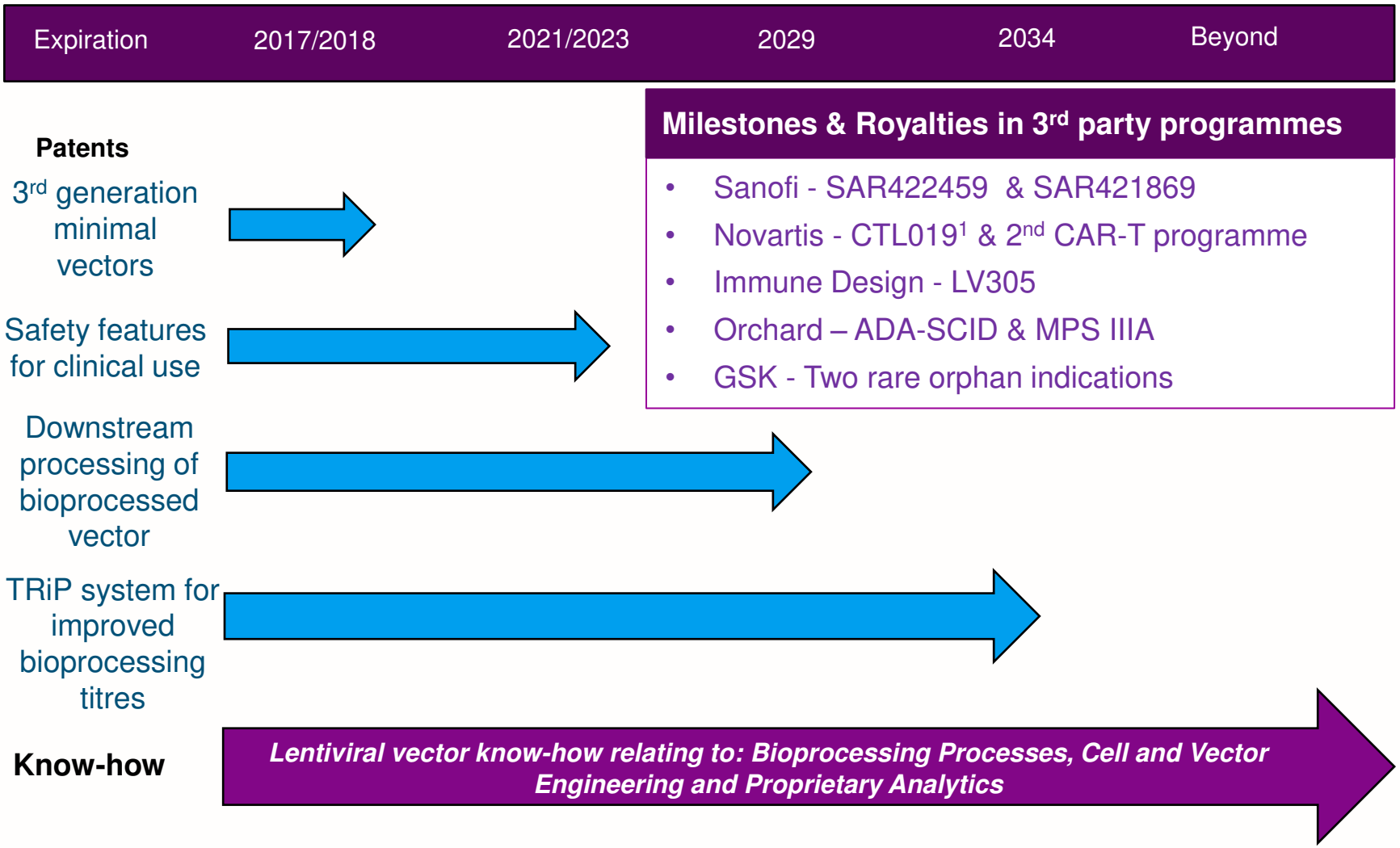
- Several ocular orphan diseases programmes
- CNS orphan disease programme
- Respiratory orphan disease programme
- Gene-modified NK cell therapeutics with Green Cross LabCell for cancer

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
- Scale-up bioprocessing
  - Serum free
  - Suspension
  - 200 L bioreactor

Innovation and optimisation to build long-term value – a key competitive advantage to durably maintain leadership in the field

LentiVector® Platform IP



[1] USAN name is tisagenlecleucel

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Oxford BioMedica Facilities in the UK

Facilities less than 1 hour from London Heathrow Airport:

Windrush Court

- Corporate HQ & Laboratories
  71,955 sq.ft (6,684 sq.m)
- GMP Warehouse Hub
  2,691 sq.ft (250 sq.m).

Harrow House & Chancery Gate

19,375 sq.ft (1,800 sq.m)

- cGMP production facility
- Two clean room suites
- GMP QC microbiology laboratories
- Raw material testing
- GMP cold chain warehouse & office space

Yarnton

18,300 sq.ft (1,700 sq.m)

- cGMP production facility
- One clean room suite

Source: https://resources.oncourse.iu.edu/access/content/user/leema/profilepage/oxford.html

Potential catalysts over next 12 months

- Novartis progress
  - Data from JULIET (adult r/r DLBCL study) expected June 2017
  - Confirmation of OXB commercial supply agreement for CTL019 vector
  - FDA approval of CTL019 for r/r ALL and product launch
  - Submission of DLBCL for approval
- LentiVector® delivery platform
  - Approval to supply lentiviral vector for commercial use
  - Further contracts with new and existing partners giving us long-term economic interest in partners' product candidates
  - Established 200L bioreactor serum-free suspension platform to produce lentiviral vectors at significantly lower cost per dose
- In-house products
  - Spin out / out-license of in-house product candidates

Vision of Oxford BioMedica – By End of 2018

Core LentiVector® platform R&D

New product candidates emerging from research/discovery using the LentiVector® platform

Lead gene-modified NK cell therapeutic candidate emerging from the GCLC research collaboration

Technical developments – continuous improvement of the LentiVector® platform

Feeds further partnership / monetisation opportunities

Partnerships and Licences

Novartis
- CTL019 launched
- Oxford BioMedica supplying commercial material
- Royalties from CTL019
- Second CAR-T product into clinical development
- Further CAR-T programmes

Sanofi
- SAR422459 to be in a pivotal trial

Immune Design
- LV305 progressing well in clinical development

Orchard Therapeutics
- ADA-SCID pivotal trial close to completion
- MPS IIIA in clinical development

OXB Products with Partners
- Progressing well through Phase I/II studies

Multiple further partnerships
Which give Oxford BioMedica economic interests in a range of gene and cell therapy products and process development revenue / income opportunities

Bioprocessing

Facilities operating at, or very, near capacity

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