Oxford Biomedica

A life saving cell and gene therapy company

August 2022

Forward Looking Statements

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Science based innovative services company with a proprietary pipeline

1

A leader in viral vectors within the fast-growing cell and gene therapy industry

First FDA approved lentiviral vector-based gene delivery system through our collaboration with Novartis on Kymriah®

Multiple partnerships with leading companies

AstraZeneca · Bristol Myers Squibb · NOVARTIS · Boehringer Ingelheim

2

Diversified business with process development and manufacturing revenues with long term upside from our proprietary pipeline

Process development and manufacturing operations with regulatory approved facilities provide multiple revenue streams

Leveraging expertise to deliver innovative therapies through our proprietary pipeline

3

Established operational infrastructure and proven commercial supply capabilities

Proven commercial supply capability in 30 countries

Over 810 staff located at 6 UK-based facilities covering in excess of 200,000 sqft[1]

As of March 2022, c.125 employees based in Boston, US

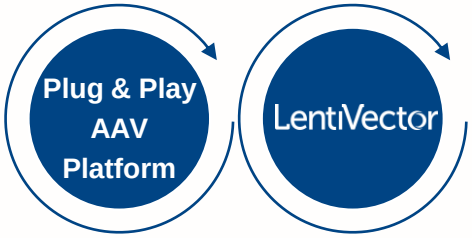
FDA · pmda · MHRA · European Medicines Agency

1. Includes manufacturing, laboratory and office space

Oxford Biomedica

A leading viral vector specialist using science to save lives

Delivering on Our Strategy to Become a Global Viral Vector Leader



Proprietary platform

IP: patents and know-how

Quality Systems

Expertise

Facilities

Process development and manufacturing provides multiple revenue streams

Commercial Stage Viral Vector Innovative Service Provider with >25 years Experience
UK (Oxford) and US (Boston) manufacturing facilities

20+ Partner Programmes **12** Customers

AstraZeneca · Bristol Myers Squibb · Boehringer Ingelheim · Orchard therapeutics · ARCELLX · NOVARTIS · immatics · Beam THERAPEUTICS · Cabaletta Bio · HOMOLOGY Medicines, Inc.

Gene Therapeutics

Delivering innovative therapies

5 Proprietary Products

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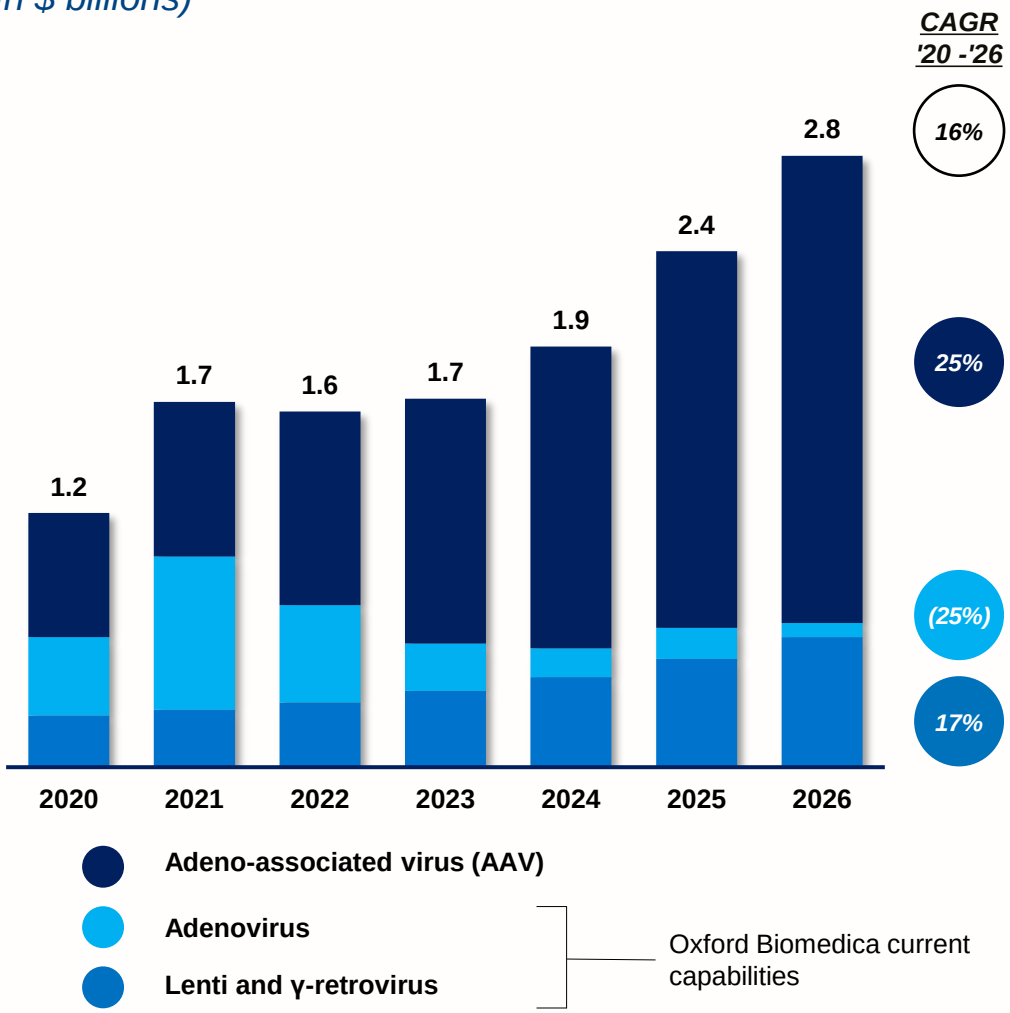
Viral Vector Manufacturing to Continue its Growth Trajectory

Global Viral Vector Supply (Outsourced)[1]

(In $ billions)



Entire market now fully addressable with multi-site, multi-technology capable labs & manufacturing

1. Source: Company estimates and third party research

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Oxford Biomedica AAV Manufacturing and Innovation Business: A High Performing Process Development and Manufacturing Platform

- In January 2022, Oxford Biomedica announced it was broadening its leading viral vector offerings by incorporating Homology Medicines' established AAV capabilities into a newly formed AAV Manufacturing and Innovation Business in the US with Homology Medicines as 20% owner[1]

Location

Boston, Massachusetts, United States

Employees

Team of c.125 with AAV manufacturing expertise

Manufacturing Capabilities

Process / Analytical Development & early stage clinical manufacturing at 500L, proven scalability to 2,000L for commercial supply

25,000 sq.ft

Manufacturing Capacity & Facility

State-of-the-art GMP facility

10 – 15 500L batches
10 – 15 1,000L batches
annually at steady state[2]

Platform & IP

Proprietary 'plug and play' manufacturing process and platform

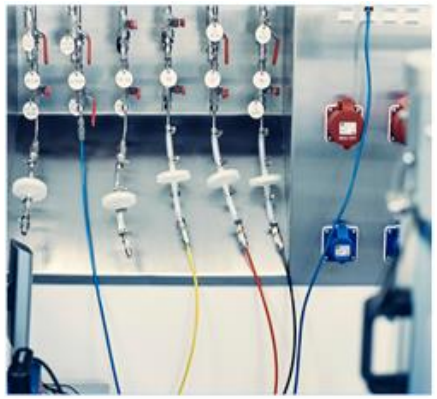
c.$25m (£19m)

Contracted Revenues

Minimum contracted revenues in the first full twelve months of operation

Profitability

Break-even expected by year 3 with gold standard long term target margins



1. The transaction completed on 11th March 2022
2. Company estimates

GBP:USD = 1.33726

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Oxford Biomedica + AAV Manufacturing and Innovation Business: A Global Viral Vector Champion

1. **Creates a leading partner of choice with advanced capabilities across key vector types**
2. **Track record, skills and expertise in a significantly larger total addressable market**
3. **Addressing the increasing market requirements for efficacy, safety and affordability in C&GT**
4. **Technologies and IP to continue innovation to further enhance platform and customer offering**
5. **Strong synergy opportunities from combination of technical capabilities and cross-selling to existing customers in attractive end markets**

Innovative CDMO Services

Customer-centric

Leading provider of scale up solutions and commercial supply

Innovative Services: 2021-22 Highlights

BMS

- **July 2022:** Amended and expanded the License and Clinical Supply Agreement with Juno Therapeutics to include two new CAR-T viral vector programmes and received an undisclosed target nomination fee

COVID-19 Vaccine and Agreement with AstraZeneca

- **July 2022:** Signed a new three-year Master Services and Development Agreement to facilitate potential future manufacturing opportunities. Oxford Biomedica expects to recognise aggregate revenues of approx. £30m from AZ in 2022

Novartis

- **Dec 2021:** Novartis and Oxford Biomedica extended and updated their commercial supply agreement; Oxford Biomedica regained rights to three CAR-T targets (including CD19 targeted therapies) and Novartis to have additional flexibility and no minimum order commitment

Boehringer Ingelheim

- **Apr 2021:** Entered into a new three-year development and supply agreement with Boehringer Ingelheim for the manufacture and supply of various types of viral vectors, demonstrating the versatility of Oxford Biomedica's platform
- **Oct 2021:** Boehringer Ingelheim exercised its option to license Oxford Biomedica's lentiviral vector technology to manufacture, register and commercialise BI 3720931 as a long-lasting therapeutic option for patients with cystic fibrosis

New partnerships

- **Nov 2021:** Signed a new agreement with Immatics, a leading company developing T-cell-redirecting cancer immunotherapies
- **Dec 2021:** Announced a new license and supply agreement and a three-year clinical supply agreement with leading next-generation CAR-T developer Arcellx, and is currently working on their lead CAR-T programme
- **Jan 2022:** Announced a Licence and Supply Agreement with Cabaletta Bio for their DSG3-CAART programme
- **July 2022**: Announced a Licence and Supply Agreement with an undisclosed US-based partner for their lead CAR-T programme

Innovative Services: 2021-22 Highlights

Building the Future

- Conversion of office space into GMP grade laboratories at Windrush Court completed; laboratories now in use to meet expected near term demand in commercial development and analytics
- **Aug 2022:** First fill / finish suite at Oxbox has been granted MRHA approval
- **Sep 2021:** Serum Life Sciences Ltd (a subsidiary of Serum Institute of India) made an investment of £50 million in the Company in return for 3.9% of the share capital at the time
- The proceeds of the transaction will fund the development of the fallow area at Oxbox into a flexible advanced manufacturing space for a variety of viral vector based products, including cell and gene therapy products, vaccines and other advanced therapeutics at 2,000L scale

Expansion into US and AAV

- **Jan 2022:** Oxford Biomedica announced it was broadening its leading viral vector offerings by incorporating Homology Medicines' established AAV capabilities into a newly formed AAV Manufacturing and Innovation Business in the US with Homology Medicines as 20% owner

CDMO pipeline – page 1 of 2

Product	Indication	Pre-Clinical	Phase I	Phase I/II	Phase II	Phase III	Approval
LentiVector® platform							
Kymriah®[1]	r/r ALL / r/r DLBCL						
2nd CAR-T	Cancer (multiple)						
3rd CAR-T	Cancer (multiple)						
4th CAR-T	Cancer (multiple)						
5th CAR-T	Cancer (multiple)						
1st CAR-T / TCR-T	Undisclosed						
2nd CAR-T / TCR-T	Undisclosed						
3rd CAR-T / TCR-T	Undisclosed						
4th CAR-T / TCR-T	Undisclosed						
5th CAR-T	Undisclosed	**Phase undisclosed**					
6th CAR-T	Undisclosed	**Phase undisclosed**					

Process development and bioprocessing revenues, and royalties

NOVARTIS

Bristol Myers Squibb

[1] USAN name is tisagenlecleucel

In vivo programmes *Ex vivo programmes*

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CDMO pipeline – page 2 of 2

Product	Indication	Pre-Clinical	Phase I	Phase I/II	Phase II	Phase III	Approval
LentiVector® platform							
OTL-201	MPS-IIIA						
Other	Undisclosed						
CAR-T	Cancer (multiple)						
CAR-T	Multiple myeloma						
CAR-T	Undisclosed						
CAAR-T	mPV (autoimmune)						
TCR-T	Undisclosed						
CAR-T	Undisclosed						
CFTR gene	Cystic Fibrosis						
Ocular gene	Inherited retinal disease						
AZD1222	COVID-19 Vaccine						

Process development and bioprocessing revenues, and royalties

Orchard therapeutics

Beam Therapeutics

Arcellx

Cabaletta Bio

immatics

Undisclosed

Boehringer Ingelheim

UK Cystic Fibrosis Gene Therapy Consortium

Santen

AstraZeneca

Note 1

Note 1: Scale up and vaccine manufacturing revenues

In vivo programmes *Ex vivo programmes*

Oxford Biomedica

Juno Therapeutics / BMS CAR-T & TCR-T Partnership

Juno Therapeutics / Bristol Myers Squibb agreement signed in Mar-20

Licence to the platform for CAR-T and TCR-T programmes in the field of oncology and other indications

Non-exclusive licence

OXB to receive sales royalties

$10m upfront and potential to receive up to $217m in development, regulatory and sales related milestones

Five-year clinical supply agreement where OXB will receive undisclosed process development and batch revenues

Jul 22: Added an additional 2 CAR-T programmes; received target nomination fee

Bristol Myers Squibb

Press release (03 Jan 2019)
***Giovanni Caforio, M.D. Chairman and Chief Executive Officer of Bristol-Myers Squibb said**:*

"Together with Celgene, we are creating an innovative biopharma leader, with leading franchises and a deep and broad pipeline that will drive sustainable growth and deliver new options for patients across a range of serious diseases,"

Current status and expectations

- Currently working on six active projects – First licence to TCR-T products
- As part of the agreement Juno / BMS will have access to Oxford Biomedica's new 84,000 sqft commercial manufacturing centre, Oxbox
- Juno / BMS are able to initiate additional projects in the future
- The Group is eligible to receive up to $86m in development & regulatory related milestones and up to $131m in sales related milestones

Novartis CAR-T Partnership

Novartis partnership in place since 2014. 1st commercial supply agreement signed in 2017 and extension signed Dec 2021 to the end of 2028; OXB also regained rights to all CAR-T targets (including CD19 targeted therapies)

- Clinical and commercial supply of vector
- Kymriah® (tisagenlecleucel)/CTL019 and four additional lentiviral vectors for CAR-T programmes
- IP licence
- Vector manufacturing revenues
- Undisclosed process development fees
- OXB receives royalties on sales

NHS England

News release (05 Sept 2018)
Simon Stevens, Chief Executive NHS England said:

"CAR-T therapy is a true game changer, and NHS cancer patients are now going to be amongst the first in the world to benefit. Today's approval is proof-positive that, in our 70th year, the NHS is leading from the front on innovative new treatments. This constructive fast-track negotiation also shows how responsible and flexible life sciences companies can succeed - in partnership with the NHS - to make revolutionary treatments available to patients."

Current status and expectations

- Kymriah® approved for r/r ALL & r/r DLBCL indications in US, EU, JP, AU, CA
- Kymriah® the only CAR-T available in Asia
- In May 2022, the FDA granted accelerated approval for Kymriah® for the treatment of adult patients with relapsed or refractory (r/r) follicular lymphoma (FL) after two or more lines of systemic therapy
- Over 365 qualified treatment centres and 30 countries worldwide have coverage for Kymriah® for at least one indication
- Sales estimate **>$1.2bn[1]** by 2025

[1] Global Data Pharma eTrack Product Sales/Analyst consensus, extracted Feb 2020

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Boehringer Ingelheim/UK CFGTC/IP Group

Oct 21 BI exercises option for CF treatment, following earlier partnership agreement signed Aug-18

Exclusive option & licence agreement with BI, option exercised Oct 21

Process development agreement with BI/UK CFGTC/IP Group

Follows 3 year Development and Supply agreement with BI for the manufacture and supply of various types of viral vectors, signed Apr 21

With BI for lentiviral vector technology to manufacture, register and commercialise the lentiviral gene therapy for the treatment of CF

Responsible for process & analytical development, scale up of manufacture and generation of material for toxicology studies

Boehringer Ingelheim

Dr Clive Wood, Senior Corporate Vice President Discovery Research said:

"Through this collaboration, we are joining forces with some of the top talents in this disease space to propel treatment advances forward. Bringing together our existing expertise as a leader for nearly a century in the discovery and development of therapies that have advanced patient care in respiratory diseases with the gene therapy knowledge of our partners, we aim to unlock unprecedented opportunities for patients with this devastating disease, who are desperately waiting for better treatment options"

Current status and expectations

- Currently the CF gene therapy product is in pre-clinical development with plans to manufacture material for toxicology studies
- Sales of products to treat Cystic Fibrosis in the 7 major markets reached **$2.2bn** in 2015 and is forecast to reach **$8.6bn** by 2025[1]

[1] OpportunityAnalyzer: Cystic Fibrosis. Opportunity Analysis and Forecast to 2025. Published by Global Data April 2017

Platform

Innovation-centric
Driving industrialisation of viral vectors

Platform update

Industrialisation of viral vector manufacturing

- Our expertise, IP and investment make us a world leading producer of lentiviral vectors
- Multiple elements of IP and innovation is relevant across all viral vector classes

Innovation

- Process C now proven at 200L scale in GMP, giving better quantity and quality (includes perfusion and U1)
  - ➢ Process C has now begun to be offered commercially to customers
- Ongoing investment in high-throughput automation and robotics to reduce costs by enabling faster screening, analytical testing and streamlining production
- *In vivo* CAR-T generation for greater patient access and superior efficacy. Off- the-shelf, reduced COGs – direct reprogramming of patient's cells
- **Jul 22:** Initiated a new project with Orchard utilising LentiStable™ technology – aimed at evaluating stable producer cell lines

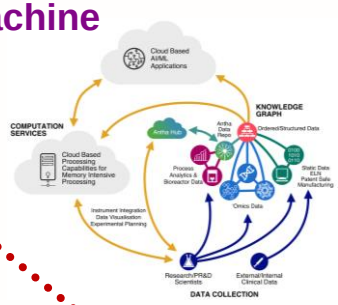
Building the future

- Windrush Innovation Centre – to be the key hub of both innovation for the platform as well as proprietary product development

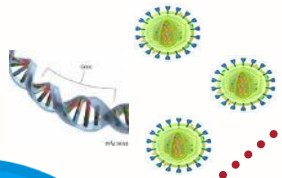
Proprietary Platform Innovation

Maximising data integration and analysis

AI and machine learning

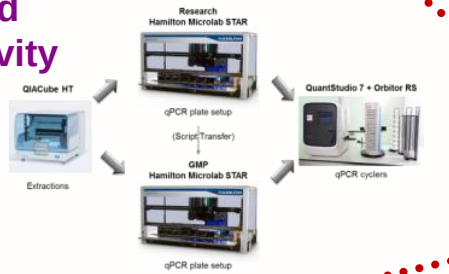


Targeted vectors with optimal/regulated expression

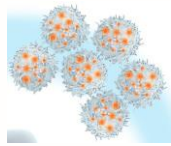


Cell and vector engineering to increase capability and productivity

Automation for increased productivity

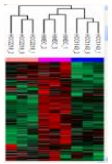


Therapeutic vectors with tailored attributes



Proteomics/ transcriptomics

Analytical dev. to characterise vectors (purity) and achieve rapid batch release



Process C: Higher titre and superior quality – Includes Perfusion, U1 (RNA) & U2

Process D: Producer cell lines

Large scale bioprocessing: Increase yield and improve purity

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Gene Therapeutics
Patient-centric
Leveraging expertise to deliver lentiviral vector based gene therapies

Gene therapeutics update

Appointment of new Chief Medical Officer

- Dr. Rao joined OXB in April 2022, with responsibility for developing the OXB therapeutic product strategy – both by building on our existing product pipeline and further evaluating novel areas of opportunity

Proprietary in-house product development

- Select set of products being developed for which external funding will be sought
- Lead programme: OXB-302 – Acute Myeloid Leukaemia, CAR-T therapy for AML targeting 5T4 – preparation for clinical trial initiation ongoing
- Liver gene therapy – liver is an attractive target for Lentiviral vectors due to potential one-off therapy to give life-long benefit
- *In vivo* CAR T generation for greater patient access and superior efficacy. Off the shelf, reduced COGs direct reprogramming of patient's cells

AXO-Lenti-PD – Parkinson's Disease

- On 31st January 2022, Oxford Biomedica was informed by Sio Gene Therapies of their intention to return the rights for AXO-Lenti-PD. We plan to out-license the programme again to a suitable partner

Collaborative and complementary AAV and lentiviral vector-based approach

	Transfection	Upstream & Downstream	Analytical Testing	Cell Technology
AAV Manufacturing and Innovation	Triple and dual plasmid system	Scaled to 500L & 2,000L Sector leading AAV vector quality	Full suite of methods established	HEK293 cells transient production
Oxford Biomedica Technology	More stable transfection mix	Perfusion technology TRiPSystem™ SecNuc™	Assay automation Advanced analytics (mass spectrometry)	HEK293, HEK293T cells for transient production & LentiStable™
Technical Synergies	Lower material costs Improved quality Easier scale up to >500L	Higher yields with superior quality attributes	Faster more efficient testing Leading in vector characterisation	Opportunity for better transient and stable cell lines for LV and AAV production

Collaborative and complementary AAV and lentiviral vector-based approach has the potential to accelerate the mission to improve patients' lives worldwide

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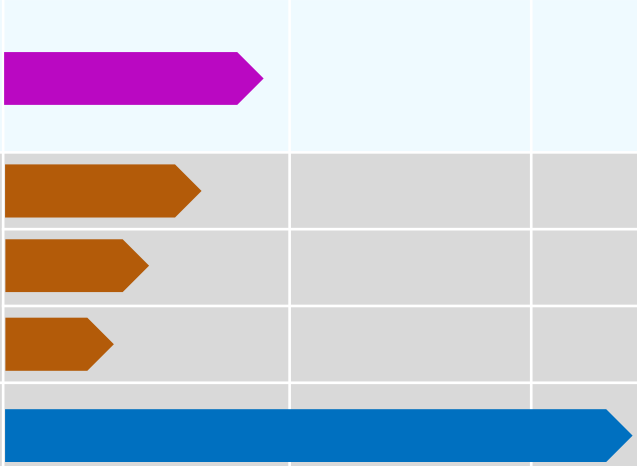
Gene therapeutics pipeline

Product	Indication	Pre-Clinical	Phase I/II	Phase II	Phase III
OXB Proprietary Unencumbered Products					
OXB-302	Acute Myeloid Leukaemia				
OXB-401	Undisclosed liver indications				
OXB-40Y					
OXB-40Z					
Axo-Lenti-PD[1]	Parkinson's disease				



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In vivo programmes *Ex vivo programmes*

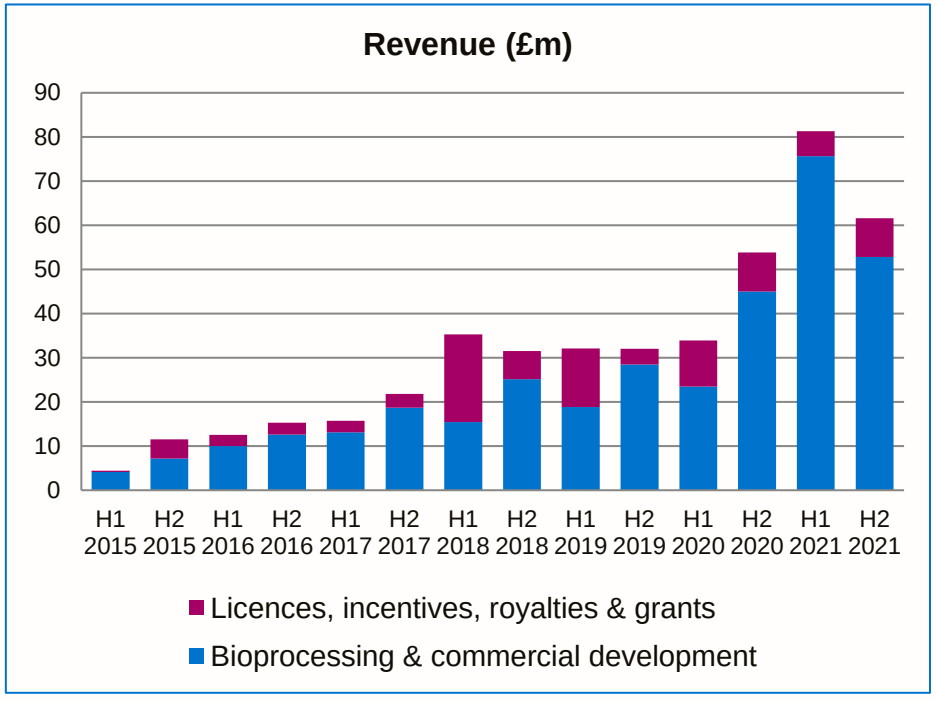
[1] Axo-Lenti-PD formerly known as OXB-102, which OXB out-licensed to Sio Gene Therapies. On 31st January 2022, Oxford Biomedica was informed by Sio Gene Therapies of their intention to return the rights for AXO-Lenti-PD. We plan to out-license the programme again to a suitable partner

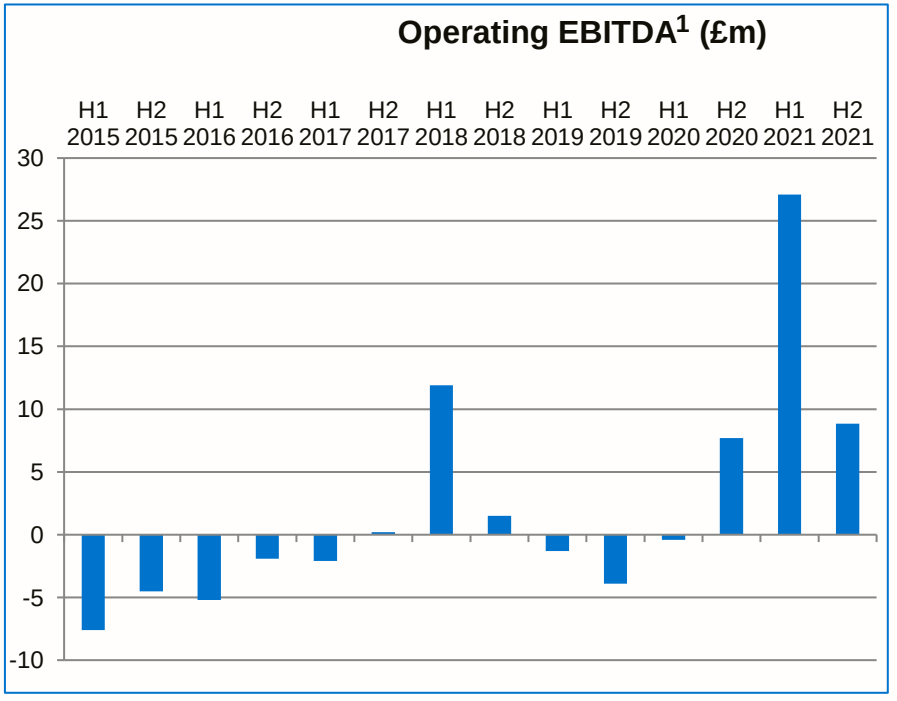
Oxford Biomedica

Financials, News Flow and Summary

FY 2021 Financial Highlights

- Total revenues increased by 63% over 2020 to £142.8m (2020: £87.7m)
- Revenues from bioprocessing and commercial development grew 87% driven by large scale commercial manufacture of the Oxford AstraZeneca COVID-19 vaccine
- Operating EBITDA[1] and operating profits were £35.9m and £20.8m respectively (2020: £7.3m and (£5.7)m)
- Cash at 31 December 2021 was £108.9m and £144m at 31 March 2022 (after $85m loan facility drawn)
- Gross proceeds of £50.0 million were raised through a placing with Serum Life Sciences Ltd in September 2021 to develop the fallow area of the Oxbox manufacturing facility





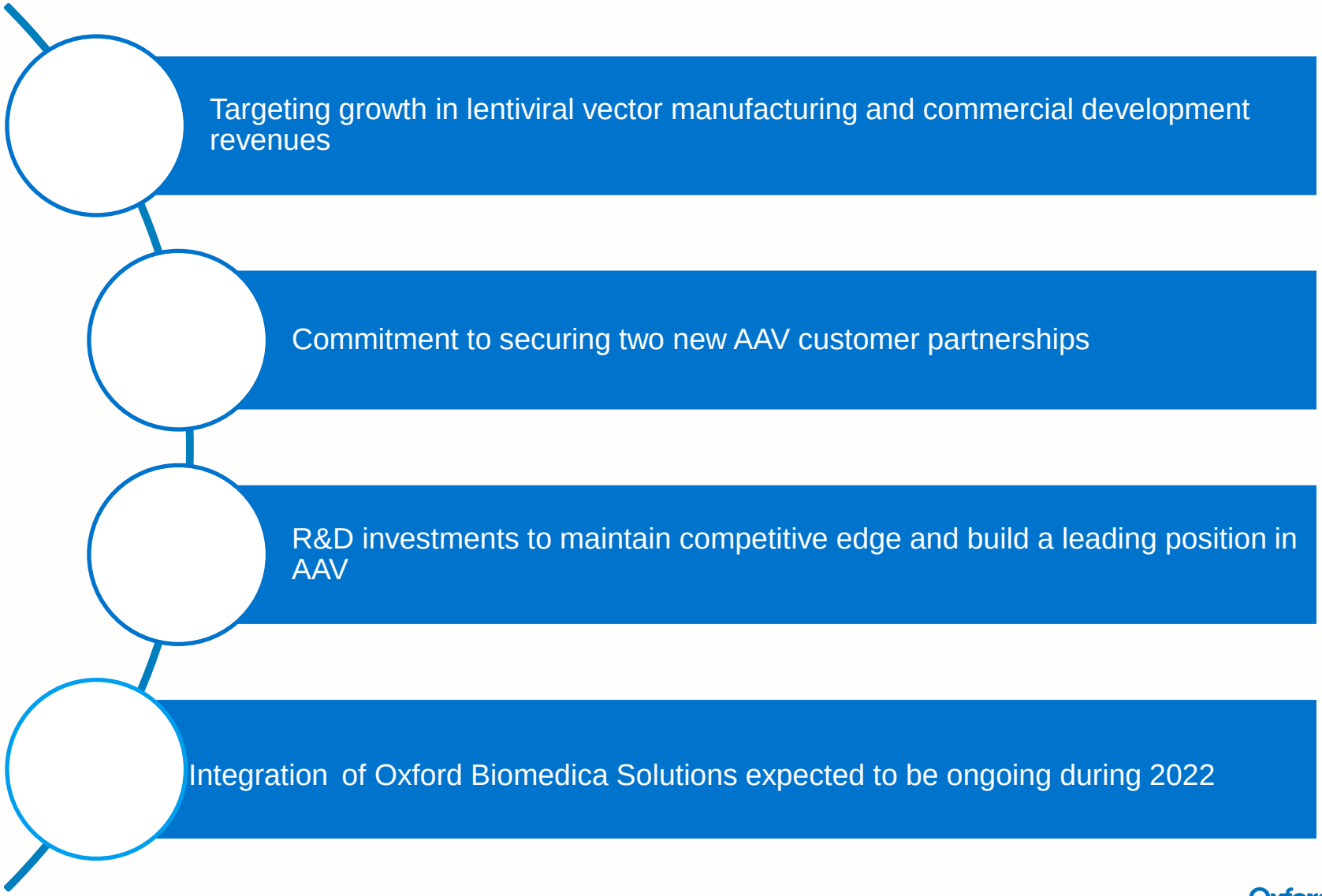
[1] Operating EBITDA (Earnings Before Interest, Tax, Depreciation, Amortisation, revaluation of investments and assets at fair value through profit & loss, and Share Based Payments).

Oxford Biomedica

Financial Outlook for 2022

- Overall revenues are expected to be lower than in 2021 (but significantly ahead of 2020)
- Vaccine manufacturing volumes expected to be substantially lower during 2022; discussions continue on a potential extension of the 18-month supply agreement with AstraZeneca
- Higher one-off costs in administrative expenses, and higher bioprocessing costs as the Group integrates Oxford Biomedica Solutions and builds the AAV customer base
- Accelerated investment in R&D in order to maintain competitive edge and build a leading position in AAV, in addition to lentiviral vectors
- Integration of Oxford Biomedica Solutions expected to be fully completed within 12 months
- The consolidation of the initially loss-making Oxford Biomedica Solutions expected to result in OXB being loss-making on an Operating EBITDA level in 2022, however with significant growth targeted in 2023
- Cautious strategy with regards to capital expenditure
- Growing customer base and new base in the US puts Oxford Biomedica in an ideal position to maximise growth and achieve its goal of becoming an innovative global viral vector leader

Outlook for 2022



A leading viral vector specialist using science to save lives

1

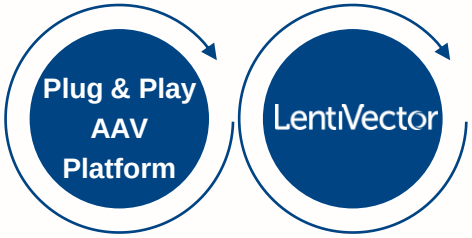
A leader in viral vectors within the fast-growing cell and gene therapy industry

2

Diversified business with process development and manufacturing revenues with long term upside from our proprietary pipeline

3

Established operational infrastructure and proven commercial supply capabilities



Proprietary platform

IP: patents and know-how

Quality Systems

Expertise

Facilities

Oxford Biomedica

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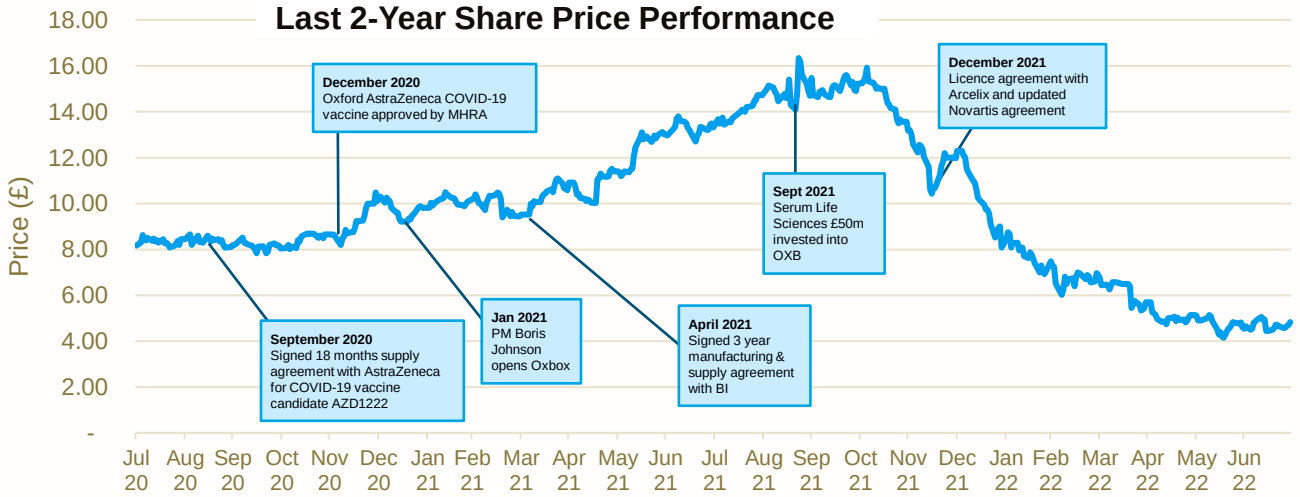
Appendix

Corporate and Market Information

Company Facts

- IPO on Main list LSE in April 2001 (OXB.L)
- £310 million (approx. $388 million) raised to date
- At 05 August 2022
  - Share price £5.02 ($6.06)
  - Market cap: £482 million / $582 million

Major/significant Shareholders (1)	Share
Novo Holdings A/S	10.4%
Vulpes Investment Management	9.6%
Liontrust Asset Management	8.7%
M&G Investments	5.8%
Serum Life Sciences	3.5%
Nine Ten Capital Management	3.5%
Vitruvian Partners	3.1%
Hargreaves Lansdown Asset Management	3.1%
Mr Shah	3.0%
Other	49.3%



[1] As of 15 July 2022

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ESG 2021 Achievements

Oxford Biomedica's ESG strategy is focused on five pillars: People; Community; Environment; Innovation and Supply Chain.

People

3 year Equality, Diversity & Inclusion action plan in place

Company-wide employee engagement survey launched with 70% response rate

New mental health and wellbeing initiatives introduced

Community

33 apprenticeships running at year end

System for voluntary charitable monthly payroll contributions launched

Environment

61% reduction in Virkon waste

3rd party sustainability assessment on redevelopment of existing building

14% reduction in CO_2 emissions per FTE

Innovation

Inclusion of ethical review within the New Technology and New Product Committees

Supply Chain

Sourced new ethical GMP grade suppliers for PPE

Progress made towards a formalised code of conduct for suppliers

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LentiVector® Platform and OXB 302 Patent Families (Published)

Patent Family (publication no.)	What is covered
US 7,419,829	WPRE variant – key safety feature
WO 03/064665	Rev-less vectors – key safety feature for clinical use
WO 2009/153563	Downstream processing of manufactured vector to maximise yield
WO 2015/092440	TRiP system – improved manufacturing, particularly vector titre
EP3502260; EP3633040; EP3696272; US 2019-0211358	Vector production methods – modular plasmids and stable cell lines
WO 2019/175600	Vector production methods – secreted nuclease
WO 2021/014157	Vector production methods (U1)
WO2018/167486	Anti-5T4 methods for treating/preventing haematological malignancies Anti-5T4 CARs with specific sequences
WO2021/094752	Improved TRiP system
WO2021/181108	Automated RCL assay
WO 2021/160993	MSD-KO – improved safety profile of vectors
WO2021/181108	Lentiviral vector genome modifications – improved capacity and safety profile
WO2021/229242	U2 – an additive to increase titre
WO2022/101617	Transfection method and upstream process C

Oxford Biomedica

Senior Executive Team (1/3)

Roch Doliveux
Chair and Interim CEO

Joined OXB as Non-Executive Chair in 2020, then appointed Interim-CEO in 2022

CEO

President

Stuart Paynter
Chief Financial Officer

Joined OXB in 2017

EU Finance Director

Head of Global Audit

Jason Slingsby, PhD
Chief Business and Corporate Development Officer

Joined OXB in 2015

Tim Kelly
Chief Executive Officer of Oxford Biomedica Solutions

Joined OXB in 2022

Senior Executive Team (2/3)

Kyriacos Mitrophanous, PhD

Chief Scientific Officer

Joined OXB in 1996

PhD in Molecular Biology from UCL; postdoctoral research at Oxford University

Recognised expert in lentiviral vectors with key publications (*Lancet*, *Human Gene Therapy*) and inventor on numerous patents

James Miskin, PhD

Chief Technical Officer

Joined OXB in 2000

Nick Page

Chief Operations Officer

Joined OXB in 2018

Ravi Rao, PhD

Chief Medical Officer

Joined OXB in 2022

Senior Executive Team (3/3)

Lisa James
Chief People Officer
Joined OXB in 2016

Natalie Walter
General Counsel
Joined OXB in 2019

Matthew Treagus
Chief Information Officer
Joined OXB in 2021