Disclaimer

Forward-Looking Statements

This document may contain forward-looking statements. Forward-looking statements are statements that are not historical facts and may be identified by words such as "plans", "targets", "aims", "believes", "expects", "anticipates", "intends", "estimates", "will", "may", "should" and similar expressions. Forward-looking statements include statements regarding objectives, goals, strategies, outlook and growth prospects; future plans, events or performance and potential for future growth; economic outlook and industry trends; developments in BenevolentAI’s markets; the impact of regulatory initiatives; and/or the strength of BenevolentAI’s competitors. These forward-looking statements reflect, at the time made, BenevolentAI’s beliefs, intentions and current targets/aims. Forward-looking statements involve risks and uncertainties because they relate to events and depend on circumstances that may or may not occur in the future. The forward-looking statements in this release are based upon various assumptions based on, without limitation, management’s examination of historical operating trends, data contained in BenevolentAI’s records, and third-party data. Although BenevolentAI believes that these assumptions were reasonable when made, these assumptions are inherently subject to significant known and unknown risks, uncertainties, contingencies and other important factors which are difficult or impossible to predict and are beyond BenevolentAI’s control.

Forward-looking statements are not guarantees of future performance and such risks, uncertainties, contingencies and other important factors could cause the actual outcomes and the results of operations, financial condition and liquidity of BenevolentAI or the industry to differ materially from those results expressed or implied by such forward-looking statements. The forward-looking statements speak only as of the date of this release. No representation or warranty is made that any of these forward-looking statements or forecasts will come to pass or that any forecast result will be achieved.
Clinical-stage AI-enabled drug discovery company

Uniting artificial intelligence with cutting-edge science to decipher complex disease biology and discover novel treatments
About us

$300m in platform investment

Board with deep expertise across AI, drug discovery & development, pharmaceuticals

Listed on EuroNext Amsterdam
April 2022

Cash runway to Q4 2024
providing sufficient capital for key value inflection points

Full molecular biology, medicinal chemistry and in vivo pharmacology capabilities for in-house experimentation

TEAM
as at June 2022

BOARD

Baroness Joanna Shields
CEO & Executive Director

François Nader
Chairman

Susan Liautaud
Non-Executive Director

Olivier Brandicourt
Non-Executive Director

Jean Raby
Non-Executive Director

Jackie Hunter
Non-Executive Director

Nigel Shadbolt
Non-Executive Director

John Orloff
Non-Executive Director
The Benevolent Platform™ is scientifically and commercially validated and has already delivered:

- 13 Named Platform-generated drug programmes
- 1 asset in Phase II
- 3 assets in pre-IND
- +10 Exploratory stage programmes

Identified a leading COVID-19 treatment that is now FDA approved.

Successful multi-target collaboration with AstraZeneca further validates our approach with a total of 5 novel targets selected for AstraZeneca’s portfolio.

Well funded with key value inflection points in the near and medium term.
Huge burden on society demands a new approach

96% overall failure rate in drug development

$2.6bn in average R&D and to market cost per drug

10 years to market

30-50% efficacy for leading drugs

Gaining a clear understanding of the **underlying molecular mechanisms of disease** based on the **totality of available biomedical data** is a vital step in the development of successful and efficacious treatments.
The Benevolent Platform™: a versatile, scalable and proven AI-enabled R&D engine

- Disease-agnostic
- Modality-agnostic
- Enables novel target ID
- Accelerates discovery
- Scalable and repeatable
- Potential to increase probability of success

85+ diverse data sources
The AI value proposition for pharma R&D

Direct R&D Cost Savings

Discovery & Pre-Clinical

“Faster and cost effective”

<table>
<thead>
<tr>
<th>INDUSTRY STANDARD</th>
<th>AI-ENHANCED</th>
</tr>
</thead>
<tbody>
<tr>
<td>$33m over 5.5 years</td>
<td>$15m over 3-3.5 years</td>
</tr>
</tbody>
</table>

Based on industry benchmarks and internal programmes

Reduce pre-clinical cost by >50% and time to market by 2-2.5 years

Note
Lab research and target identification costs and time not captured in industry data - likely to add significantly to the industry standard time and cost

Increasing Probability of Success

Clinical Development

“Get it right more often”

Highest attrition is at Phase II (current 34% success rate)\(^{(2)}\)

~50% Phase II/III trial failures due to lack of efficacy\(^{(3)}\)

<table>
<thead>
<tr>
<th>INDUSTRY STANDARD</th>
<th>AI-ENHANCED (ILLUSTRATIVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PoS from Phase I to Market</td>
<td>12%</td>
</tr>
<tr>
<td># Phase I Candidates Required for 1 Approved Drug</td>
<td>9</td>
</tr>
<tr>
<td>Illustrative NPV(^{(4)})</td>
<td>c$60m</td>
</tr>
</tbody>
</table>

Illustrative 25% PoS improvement at each clinical stage (Phase I-III)

Notes and Sources: For illustrative purposes only; \(1\) Illustrative NPV for a theoretical $750m peak sales drug during initial 10Y on the market (assumes: \(i\) peak sales reached 5 years post-launch, \(ii\) 90% gross margin, \(iii\) 20% S&M expenses, \(iv\) 20% tax, \(v\) a 10% discount rate, \(vi\) excludes any terminal value), \(2\) Based on Paul et al Nat Rev Drug Discov 2010, \(3\) Based on Harrison, Nat Rev Drug Discov 2016, \(4\) Based on Biomedtracker/PharmaIntelligence 2021, \(5\) Based on Odyssey Due Diligence report.

Context
- Phase II trials with pre-selection biomarkers already >50% more likely to succeed\(^{(4)}\)
- Industry experts estimate that the use of AI can improve the PoS of each phase by up to 45%\(^{(5)}\)
BenevolentAI technology approach

Our data foundations integrate the world’s relevant and available biomedical data to surface insights through our tools, improving how scientists discover and develop new therapies.

1. Creating Data Foundations
   Integrated knowledge platform built to ingest, represent, and surface insights from large volumes of diverse data types.

2. AI Tools for Scientists
   Suite of AI-driven tools and workflows allow scientists to explore data and discover novel, high-quality targets.

- 'Omics
- Molecules
- Experimental Data
- Literature
- Pathology
- Biological Systems

85+ Data Sources
46% information proprietary

Triage Evaluation
Predictive algorithms
Hypothesis-Driven Target ID
Progressibility Assessment
Experimental validation
Portfolio Programmes
How BenevolentAI’s approach compares to industry benchmarks

<table>
<thead>
<tr>
<th>Deployment run for chosen disease</th>
<th>Typical proportion of targets identified validated by lab assay</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>23%</strong></td>
</tr>
</tbody>
</table>

Potential increase in chance of a drug reaching the market vs industry benchmark

<table>
<thead>
<tr>
<th>Potential time saved relative to industry benchmarks</th>
</tr>
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<tbody>
<tr>
<td><strong>At least 2 yrs</strong></td>
</tr>
</tbody>
</table>

Cost from target to IND

<table>
<thead>
<tr>
<th>Potential cost benefit per IND relative to industry benchmarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>$18m saving &gt;50%</strong></td>
</tr>
</tbody>
</table>

What that equates to: higher productivity

Number of new INDs filed by year by pharma and biotech companies
Median number of Phase I starts over five years (2015-2020)*

<table>
<thead>
<tr>
<th>Company</th>
<th>2023-26 AIM</th>
<th>2027-31 AIM</th>
<th>Market cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>BenevolentAI</td>
<td>1-2</td>
<td>2-4</td>
<td>$1bn</td>
</tr>
<tr>
<td>Alnylam</td>
<td></td>
<td></td>
<td>$62bn</td>
</tr>
<tr>
<td>Ianis</td>
<td></td>
<td></td>
<td>$1bn</td>
</tr>
<tr>
<td>Nektar</td>
<td></td>
<td></td>
<td>$1bn</td>
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<tr>
<td>Ionis</td>
<td></td>
<td></td>
<td>$6bn</td>
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<tr>
<td>Regeneron</td>
<td></td>
<td></td>
<td>$1bn</td>
</tr>
<tr>
<td>BenevolentAI</td>
<td></td>
<td></td>
<td>$1bn</td>
</tr>
<tr>
<td>Moderna</td>
<td>2</td>
<td></td>
<td>$51bn</td>
</tr>
<tr>
<td>Denali</td>
<td>2</td>
<td></td>
<td>$3bn</td>
</tr>
<tr>
<td>Sangamo</td>
<td>1</td>
<td></td>
<td>$1bn</td>
</tr>
<tr>
<td>Gilead</td>
<td>5</td>
<td></td>
<td>$1bn</td>
</tr>
<tr>
<td>Amgen</td>
<td>4</td>
<td></td>
<td>$79bn</td>
</tr>
<tr>
<td>Sanofi</td>
<td>7</td>
<td></td>
<td>$101bn</td>
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<tr>
<td>Merck</td>
<td>7</td>
<td></td>
<td>$130bn</td>
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<tr>
<td>Roche</td>
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<td>$219bn</td>
</tr>
<tr>
<td>Pfizer</td>
<td>11</td>
<td></td>
<td>$257bn</td>
</tr>
<tr>
<td>AstraZeneca</td>
<td>8</td>
<td></td>
<td>$188bn</td>
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</table>

Note *IND filing rate is based on Phase I trial starts with the company as the lead sponsor. Average adjusted for companies which started clinical development during time period; Market cap as of 06 September 2022.

BenevolentAI potential productivity is in line with medium and large companies, but at a fraction of the total cost.

BenevolentAI will aim to increase the number of INDs from its Platform with incremental cost largely from development through to the clinic only.
The BenevolentAI business model — leveraging our technology platform to generate new drug IP at scale

**Decision Criteria:**

- **Pharma Collaborations:** Selective platform collaborations which can leverage the Platform in areas outside our core competencies
- **Non-commercial collaborations (DNDi, COVID-19)**

**BenevolentAI develop in-house**

- **Out-license at IND, end Phase I or end Phase II** (upfront, milestones, royalties)

**100% owned in-house pipeline** of novel discovery-stage assets taken to IND

**AI-Discovery Tools**

- Target Identification
- Knowledge Graph
- Precision Medicine
- Molecular Design

**Pharma Collaborations:**

- Economic benefits
- Platform validation
- Data generated enriches the Benevolent Platform™

**Non-commercial collaborations (DNDi, COVID-19):**

- ESG
- Platform validation
- Data generated enriches the Benevolent Platform™
Internal validation: pipeline generated from the Benevolent Platform™

<table>
<thead>
<tr>
<th>Target ID</th>
<th>Hit to Lead</th>
<th>Lead Opt</th>
<th>Preclinical</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
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<tbody>
<tr>
<td>BEN-2293</td>
<td>Atopic Dermatitis</td>
<td></td>
<td></td>
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<tr>
<td>BEN-8744</td>
<td>Ulcerative Colitis</td>
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<tr>
<td>BEN-9160</td>
<td>Amyotrophic Lateral Sclerosis</td>
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<tr>
<td>BEN-28010</td>
<td>Glioblastoma Multiforme</td>
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<tr>
<td>Inflammatory Bowel Disease</td>
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<tr>
<td>Amyotrophic Lateral Sclerosis</td>
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<tr>
<td>Antiviral</td>
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<tr>
<td>Oncology</td>
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<td>Oncology</td>
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<tr>
<td>Parkinson's Disease</td>
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<tr>
<td>Nonalcoholic Steatohepatitis</td>
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<tr>
<td>Oncology</td>
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<tr>
<td>Parkinson's Disease</td>
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<td></td>
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<tr>
<td>Chronic Kidney Disease</td>
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<tr>
<td>Idiopathic Pulmonary Fibrosis</td>
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<tr>
<td>Idiopathic Pulmonary Fibrosis</td>
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<tr>
<td>Chronic Kidney Disease</td>
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</table>

BEN-2293 - Phase Ib complete, Phase IIa ongoing

BEN-8744 - Novel target - zero prior linkage to UC
2 years from target validation to candidate selection

Broad disease coverage given platform
Balance of risk between “best in class” and “first in class” drug candidates
Strategic validation: successful collaboration with AstraZeneca

Multi-year Target-ID collaboration is delivering multiple, novel targets for complex diseases with high unmet need

✔ Separate data environment established to integrate AstraZeneca’s data into a bespoke Knowledge Graph

✔ BenevolentAI and AstraZeneca teams working in close collaboration to explore, identify and validate targets

✔ Deal structure of upfront license fee, milestone payments and downstream royalties

✔ Collaboration enables BenevolentAI to enrich its platform via the data generated as part of the collaboration but also further validate the use of our AI platform

THERAPEUTIC AREAS

INITIAL DEAL (APRIL 2019)

- Chronic kidney disease (CKD)
- Idiopathic pulmonary fibrosis (IPF)

EXPANSION (DEC 2021)

- Heart failure
- Systemic lupus erythematosus

KEY MILESTONES

To date, five novel targets have been validated & selected for AstraZeneca’s portfolio

CKD
- Jan 2021
- Oct 2022

IPF
- Dec 2021
- May 2022
- Oct 2022
Regulatory validation: identified a COVID-19 treatment now fully approved for use by the FDA

| ✔ NOVEL | Our technology and AI workflows identified a previously unknown antiviral mechanism\(^1\) |
| ✔ RAPID | The Benevolent Platform\(^{TM}\) empowered scientists to rapidly formulate a hypothesis in just 48 hours |
| ✔ EFFECTIVE | Baricitinib shown to reduce mortality from COVID-19 in randomised controlled trials: COV-BARRIER trial showed baricitinib reduces mortality by 38% in hospitalised patients\(^2\), and by 46% in ventilated or ECMO patients\(^3\) |

BenevolentAI published research in Feb 2020\(^1\)

THE LANCET

Led to equity investment from Eli Lilly

<table>
<thead>
<tr>
<th></th>
<th>H1 2022 Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Continued progress across in-house pipeline</td>
</tr>
<tr>
<td>2</td>
<td>Consistent delivery in collaboration with AstraZeneca - non-commercial collaborations progressing</td>
</tr>
<tr>
<td>3</td>
<td>Full FDA approval of COVID-19 treatment first identified by BenevolentAI</td>
</tr>
<tr>
<td>4</td>
<td>Continuous enhancement of the Benevolent Platform™</td>
</tr>
<tr>
<td>5</td>
<td>Completed Business Combination/listed Amsterdam EuroNext - raised gross proceeds of €225m</td>
</tr>
<tr>
<td>6</td>
<td>Strengthened Board of Directors and Leadership</td>
</tr>
<tr>
<td>7</td>
<td>Building Business Operations capability for long term success</td>
</tr>
</tbody>
</table>
1H 2022 Financial highlights

<table>
<thead>
<tr>
<th></th>
<th>2022 £'000</th>
<th>2021 £'000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>4,843</td>
<td>1,664</td>
</tr>
<tr>
<td>R&amp;D - Drug discovery [&quot;DD&quot;]¹</td>
<td>(19,292)</td>
<td>(12,957)</td>
</tr>
<tr>
<td>R&amp;D - Product &amp; technology [&quot;P&amp;T&quot;]¹</td>
<td>(10,684)</td>
<td>(9,940)</td>
</tr>
<tr>
<td>G&amp;A - Business operations [&quot;Bus Ops&quot;]¹</td>
<td>(8,074)</td>
<td>(7,000)</td>
</tr>
<tr>
<td>Underlying expenses related to share-based payments</td>
<td>(22,145)</td>
<td>(18,343)</td>
</tr>
<tr>
<td>Other income</td>
<td>72</td>
<td>74</td>
</tr>
<tr>
<td>Normalised operating loss</td>
<td>(55,280)</td>
<td>(46,502)</td>
</tr>
<tr>
<td>Normalised EPS (in pence)²</td>
<td>(44.7)</td>
<td>(45.8)</td>
</tr>
<tr>
<td>Weighted average ordinary shares outstanding (in millions)</td>
<td>100.5</td>
<td>89.8</td>
</tr>
</tbody>
</table>

Revenue increase across AstraZeneca collaboration, with a milestone reached related to the second novel target for idiopathic pulmonary fibrosis.

DD spend increase driven by portfolio advancing into later stages of development, in particular BEN-2293 entering adaptive Phase I/II clinical study.

P&T spend increase reflecting increased headcount, which is set to plateau.

Bus Ops spend +15%, driven predominantly by listing status but expected to maintain at this level.

1) Excludes exceptional costs related to the Business Combination
2) Normalised EPS also excludes taxation impact from exceptional items and finance income related to the Business Combination
Cash runway to Q4-2024 providing sufficient capital for key value inflection points

Cash Runway

Cash at 30th June 2022 £165m

H2 2022 cash spend £36m-£40m

BEN-2293 trial costs (c.£15m) fall away in 2023

Cash runway guidance assumes no future capital from licensing or collaboration agreements

Multiple assets at or close to key value inflection points and ready for out-licensing

Capital allocation

1. Fund Phase I/II trial for BEN-2293 in Atopic Dermatitis (before subsequent out-license)

2. Fund Phase I trial for BEN-8744 in Ulcerative Colitis and commencement of Phase II trial in 2024

3. Prioritisation of clinical spend on target Therapeutic Indications, with 2 Phase I trial starts by 2025

4. Continuous enhancement of the Benevolent Platform™

5. Investment to support listing status and further collaborations
BEN-2293 - Atopic Dermatitis (AD)

- Atopic dermatitis is the most common chronic inflammatory skin disease, characterized by intensely itchy, red, and swollen skin\(^1\)
  - Affects **10-20% of children** and up to **3% of adults**\(^2\)
  - Approximately **60-70% of all cases** present with mild-moderate disease severity\(^3\)
  - Prevalence is rising\(^3\), with market value in 7MM forecast to exceed **$14 billion**\(^2,4\)
- Skin inflammation and chronic pruritus associated with atopic dermatitis negatively impact quality of life and psychosocial well-being\(^1\)
- Clear unmet need in **mild to moderate patient** segment for treatment addressing itch and inflammation, without side effects of steroids

**BEN-2293: Topical best-in-class PanTrk inhibitor to relieve inflammation and rapidly resolve itch in patients with AD**

- **BEN-2293** is a **PanTrk inhibitor** targeting TrkA,B and C receptors. The Trk receptors were identified as part of an effort to find **mediators of both itch and inflammation in AD**. Using our Molecular Design expertise we were able to design a PanTrk inhibitor, equipotent against the 3 receptors
- **BEN-2293** is expected to **treat atopic dermatitis** by: inhibiting **itch signaling** and blocking nerve sensitization (TrkA) in addition to inhibiting Th1 and Th2-mediated **dermal inflammation** (TrkB, TrkC)
- **BEN-2293** will target **Mild, Moderate and Severe Atopic Dermatitis patients**, addressing unmet need in the treatment of mild to moderate Atopic Dermatitis as a steroid sparing alternative and in more severe patients undergoing treatment with biologics (e.g. dupilumab) that require add-on treatment

**Sources:** (1) Weidinger et al. Nat Rev Dis Primers 2018; (2) GlobalData Report 2018: Atopic Dermatitis: Global Drug Forecast and Market Analysis to 2027; (3) GlobalData Report 2018: Atopic Dermatitis: Epidemiology Forecast to 2027; (4) Evaluate Pharma
BEN-2293 - indicative data from Phase Ib
Eczema Area and Severity Index (EASI)

Caveats:
- Phase Ib was **NOT** powered to meaningfully assess efficacy - only 6 patients dosed with active per group
- Maximum duration of dosing 14 days (EASI score changes typically measured at 28 days)
BEN-8744 - Ulcerative Colitis (UC)

Affects 0.4% US population\(^1\), 1.7 million patients in 7MM\(^1\), forecast $7.8bn market by 2026\(^2\)

- A chronic, lifelong disease that causes inflammation and ulceration of the inner lining of the colon and rectum
- Efficacy - 20-40% of Moderate-severe patients do not respond to anti-TNF (main treatment paradigm)\(^3\)
- Safety - Treatments have many side effects — from steroids to anti-TNF and JAK inhibitors (black box warnings)\(^4\)
- High unmet need for an alternative oral small molecule treatment option with improved safety profile and efficacy in treatment of refractory patients


BEN-8744: Oral, peripherally-restricted, PDE10 inhibitor under development as a first-in-class treatment for refractory UC

- Phosphodiesterase 10 (PDE10) was identified by our TargetID platform as an entirely novel target for the treatment of UC/IBD
- Using our Molecular Design expertise we optimally designed a best in class peripherally restricted PDE10 inhibitor: BEN-8744
- BEN-8744 is expected to provide an efficacious disease modifying oral treatment for UC/IBD
- BEN-8744 will target Moderate and Severe UC/IBD patients, meeting the unmet need left by existing therapies including:
  - Patients refractory to anti-TNFs or other biologics
  - Improved safety and tolerability profile compared to competitors
  - A Precision Medicine approach to target key responder patient cohorts, avoiding the safety risks associated with ineffective therapies

Ulcerative Colitis

<table>
<thead>
<tr>
<th></th>
<th>Mild-moderate</th>
<th>Moderate-severe</th>
<th>Severe-fulminant</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>64</td>
<td>31</td>
<td>5</td>
</tr>
</tbody>
</table>

BEN-8744: Oral, peripherally-restricted, PDE10 inhibitor under development as a first-in-class treatment for refractory UC
Target validation in colon tissue from ulcerative colitis patients

Inflamed colonic mucosa biopsies from UC patients
- Disease phenotype retained with high basal cytokine release
- Readouts: IL6 and IL8 - key mediators of UC pathology

Tissue samples treated with:
- Target-selective tool compound (BEN-3218)
- Positive controls – prednisolone and tofacitinib

Selective target inhibition showed comparable reduction of IL-6 and IL-8 to the positive controls

Validated as a target with a novel mechanism of action for ulcerative colitis
BEN-8744 results and progress to date

2019 | 2020 | 2021 | 2022 | 2023

Target validation

Novel, potent advanced lead molecule developed within 2 years

Preclinical

Phase I clinical study

TARGET IDENTIFICATION

Novel target for UC

- Discovered using Benevolent TargetID tools
- PDE10 has zero linkage to UC in all available biomedical literature
- Experimentally validated in ex-vivo UC colon samples from patients refractory to SoC treatment

CHEMISTRY

Rapid and efficient lead optimisation

- Molecular Design tools enabled rapid and efficient lead optimisation
- Candidate nominated in Sep ‘21
- Novel, potent, selective, peripherally restricted PDE10. Inhibitor, with low dose prediction
- Only 2 years from programme initiation

CLINICAL DEVELOPMENT

Developing responder and progression endotypes

- We will develop responder and progression endotypes, adding molecular descriptors
- These will inform our trial design, patient selection and further target identification in UC
- Augmenting a further loop of iteration on an enriched graph
Poised for growth and success

Strengthened financial position enhances our leadership position in AI-enabled drug discovery and enable us to:

✔ **Independently pursue the clinical development** of certain **in-house pipeline** assets in core therapeutic areas

✔ **Out-license multiple assets** over the next 1-3 years to strengthen our balance sheet and drive long term value creation

✔ **Increase the size of our pipeline** with a healthy balance of new first-in-class and best-in-class assets with 1-2 CTA / IND-stage drug candidates every year

✔ **Sign new collaboration agreements** with pharma companies to leverage our disease agnostic capabilities into therapeutic indications outside our focus areas, to generate incremental revenue

✔ **Maintain our leading position in Target ID** through increased investment in our technology capabilities

✔ **Build out our technology metrics** to exemplify the differentiation of our approach
Appendix
**Benevolent AI • Investment Highlights**

| √ Market leader in AI drug discovery with scientifically and technologically differentiated approach |
| √ Significant platform scale and internal capability |
| √ Rich portfolio of drug programmes all generated from the Benevolent Platform™ |
| √ High-value and successful commercial partnership proving strategic validation |
| √ Robust IP with patents on drug pipeline and copyright and trade secrets on our technology platform |
| √ Flexible business model with revenue opportunities to extend cash runway |
| √ Near and medium-term key value inflection points |
| √ World-renowned Board and experienced leadership team |

*From analyst day mar 22*
Portfolio key inflection points

<table>
<thead>
<tr>
<th></th>
<th>H2 2022</th>
<th>2023</th>
<th>2024</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEN-2293 Atopic Dermatitis</td>
<td>Complete Phase Ila clinical study</td>
<td>Full data package available Q1 2023</td>
<td>Phase I data package early 2024, with Phase II to follow shortly after</td>
</tr>
<tr>
<td>BEN-8744 Ulcerative Colitis</td>
<td>File Clinical Trial Application (CTA) late 2022</td>
<td>Begin Phase I study early 2023</td>
<td>Initiate Phase I study</td>
</tr>
<tr>
<td>BEN-28010 Glioblastoma multiforme</td>
<td>Commence iND enabling studies</td>
<td>Submit Clinical Trial Application (CTA)</td>
<td>Aim to progress 1-2 CTA/IND stage drug candidates every year</td>
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<tr>
<td>Pipeline depth and progression</td>
<td>Move at least 1 project into lead opt &amp; Initiate 2 - 4 new drug discovery programmes</td>
<td>Expect to add 4-6 names drug programmes</td>
<td></td>
</tr>
</tbody>
</table>
Reported loss significantly driven by non-recurring costs of Business Combination.

Non-cash exceptional costs related to acceleration of share based payments also incurred from Business Combination, and set to reduce beyond 2022.

Non-cash listing service expenses reflects cost of share issuance to Odyssey SPAC as part of Business Combination net of assets acquired (before PIPE and backstop).

1) Excludes exceptional costs related to the Business Combination
Cashflows focused upon drug and platform development

£0.3m lab equipment; £0.1m computer; £1.1m property-related leases

£3m charge from Euro holdings, £1.8m gain from operational

Non-Transaction-related equity awards removed from the P&L (no cash impact)

Largely driven by outstanding R&D tax credit receivable (£12m) expected in 2H and other payable decreases

End-June cash position of £165.3m provides ample liquidity to meet multiple key value inflection points

<table>
<thead>
<tr>
<th></th>
<th>2022 £'000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normalised¹ operating loss</td>
<td>(55,280)</td>
</tr>
<tr>
<td>Depreciation &amp; amortisation</td>
<td>1,506</td>
</tr>
<tr>
<td>Foreign exchange</td>
<td>(1,589)</td>
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<tr>
<td>Equity share-based payment</td>
<td>21,913</td>
</tr>
<tr>
<td>Cash flows from changes in working capital</td>
<td>(12,312)</td>
</tr>
<tr>
<td>Cash expended from underlying operating activities</td>
<td>(45,762)</td>
</tr>
<tr>
<td>Opening cash balance</td>
<td>40,553</td>
</tr>
<tr>
<td>Closing cash balance</td>
<td>165,338</td>
</tr>
</tbody>
</table>

1) Excludes exceptional costs related to the Business Combination
AI is becoming a validated approach in Pharma

Significant investment fuels massive growth for the AI market in drug discovery & development

This progress has been underpinned by three trends - advances in machine learning techniques, greater availability of biomedical data, increase in computational power

Source: RBC Capital Markets; Emersion Insights. Capital includes funds from private investors, VC and corporate investment funds. Company Websites and press releases. Jayatunga et al. Nat Rev Drug Discov 2022: Number of annual R&D programmes and assets over time, showing the growth of AI-enabled drug discovery. Note: Categories are mutually exclusive. Investment includes equity, Partnerships/collaborations and acquisitions
Therapy area and business model rationale

CORE THERAPEUTIC AREAS

- IMMUNOLOGY
- NEUROLOGY
- ONCOLOGY

- Clinical development & commercialisation
- Development & out-license at IND, Phase I or Phase II
- Out-license prior to Phase I

NON CORE THERAPEUTIC AREAS

- ANY INDICATIONS
- Pharma collaborations
- Non-commercial collaborations

SCIENTIFIC & BD STRATEGY

- SCIENTIFIC
- COMMERCIAL
- CLINICAL DEVELOPMENT
- DATA
Categorisation of AI/ML companies in biotech, hit & target-ID

Companies can be characterized across two key dimensions: **Original technology focus** and **drug discovery approach**

### Target-ID

**WHAT TARGET DO WE NEED TO HIT TO BE EFFECTIVE AND SAFE IN A SPECIFIC DISEASE (pathways, cellular processes)?**

**HIGH COMPLEXITY THROUGH BIOLOGY**
Many layers of knowledge needed, and many areas where research is not yet complete

### Hit-ID

**HOW DO WE NEED TO HIT THE TARGET WE HAVE IDENTIFIED (specific drug characteristics)?**

**HIGH COMPUTATIONAL COMPLEXITY**
Atom-to-atom interaction is relatively well known, but requires many calculations and simulations

---

**Drug Discovery approach**

**Hypothesis driven**

Involves a **data-driven hypothesis-led** approach to therapeutic target identification

**Non hypothesis driven**

Leverages technology to identify solutions **without specific conditions to target specified at the outset**

**Pharma** companies also active in the space, through **internal development** and/or **collaborations**

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**Figure: Oliver Wyman Analysis (listed companies only)**
Source: Company Websites, Oliver Wyman Analysis
Principles and benefits of our technology approach

**Industry R&D CHALLENGES**

- Half of clinical failures due to poor understanding of disease biology/mechanisms
- Siloed disease-specific approach – scientists can’t connect or infer shared mechanisms across diseases
- Single modality data - each with limitations and biases
- Often limited understanding of what drives lab phenotypic effects
- Much of target discovery is serendipitous, not a scalable or repeatable process

**BenevolentAI’s APPROACH**

1. **Biology first**
2. **Comprehensive data approach**
3. **Hypothesis driven**
4. **Software based**

**BenevolentAI BENEFITS**

- Disease-agnostic
- Modality-agnostic
- Enables novel target ID
- Accelerates discovery
- Scalable & repeatable
- Potential to increase probability of success

**Benevolent Platform™**
Data Foundations integrate diverse data types

- **Experiments**
  - Assay Data (Binding, Omics Comparison, CRISPR Screens)
  - Clinical Trial

- **OMICS**
  - Genes
  - Proteins
  - Isoforms
  - Transcripts & Variants

- **Molecules**
  - Organic Compounds
  - Preclinical Candidates
  - Approved Drugs
  - Antibodies
  - Other Biologics
  - Pharmacology
  - Pharmacokinetics

- **Literature**
  - Scientific Literature
  - Patent Literature
  - Regulatory Documents

- **Aetiology**
  - Diseases
  - Symptoms

- **Biological Systems**
  - Cellular Component
  - Molecular Function
  - Biological Process
  - Mechanism
  - Pathways

- **Data Processing Pipelines**
  - Clinical Data
  - Transcriptomics
  - Clinical Databases
  - Literature

- **Extracted & Inferred Data**

- **Natural Language Processing**
  - Named Entity Recognition & Relationship extraction

- ✔ Integrates 85+ disparate data sources
- ✔ A data foundation that is proprietary, and scalable

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**THE DATA FOUNDATION OF OUR PLATFORM**

**SOD1** mutation causes ALS phenotype in human MNs
The BenevolentAI Data Foundations, in numbers

- **Data sources**: 85+
- **Biomedical relationships**: 409m
- **Entity types**: 33
- **Proprietary information**: 46%

**Data Modalities**
- Ontology and Dictionary
- Genetics and Clinical
- Experimental
- Literature
- Structured Databases
- Omics-derived

**Data Volume**

- **Total**:
  - Jun 2021: 0
  - Dec 2021: 100
  - Aug 2022: 500

- **Proprietary**:
  - Jun 2021: 50
  - Dec 2021: 100
  - Aug 2022: 200
BenevolentAI’s Target ID workflow and tools

**Target Identification**
- **Disease Selection**
- **Assay Definition**
- **Define the Tech Approach**
- **Predictions**
- **Triage**

**Prep Phase:** Define disease of interest and scope potential assays.

**Define the Tech Approach, Prediction, and Assessment**
Iteratively formulate a hypothesis for the tools to predict against, alongside the context used to define the disease state, then generate predictions to triage. During triage, scientists review evidence for each target and determine progressibility based on relevance to biology.

**Assay:** Targets sent to a series of mechanistic and disease-relevant assays to assess a target’s potential.

**Target Progressibility Assessment (TPA)**
Assessment on the progressibility potential of the target, chemistry or biologic opportunity, opportunity to differentiate in the field, and safety. Can occur before, during, or after targets are sent to assay.

**Validation Package**

**Portfolio Entry**
Preparation: Evidence from assays, surfaced insights, and analysis combined to form a validation package to evaluate for portfolio entry.
Can we treat ALS by reversing Autophagy impairment in microglia by reducing oxidative stress?

**1. Define the Tech Approach**

Using our in-house tools and algorithms we explore the data and define the input to our predictive models.

**Disease Target**

Can we treat ALS by reversing Autophagy impairment in microglia by reducing oxidative stress?

**Endpoint: What we are measuring in the assay**

**Sign**

**Mechanism**

**Cell type**

**2. Target Prediction**

Our AI algorithms, data queries, and endotype-driven workflows identify targets that are likely to address the tech approach.

**Graph Models**

**Transcriptomics Models**

**Precision Medicine Genetics**

**Precision Medicine 'Omics**

**Data queries**

**Large Language Model**

**Aggregation**

**Prioritization**

**Targets**

**3. Triage and Assess Progressibility**

Our tools aggregate and present the necessary data for scientific decision-making, progressing only the most promising hypotheses.

**4. Validate Experimentally**

Targets sent to a series of mechanistic and disease-relevant assays to assess a target’s potential.
Advanced laboratory capabilities help move programmes faster, and generate data at scale for continuous innovation

Advanced capabilities and technologies

- **Fully equipped laboratory** facilities; Biology, Chemistry, CMC, DMPK.
- **Highly experienced scientists** across all drug discovery disciplines
- In-house investment in **CRISPR, RNA seq** and **human iPSC** capabilities
- Robust and secure data storage capacity
- Access to the **Babraham Institute Research facility**, with state of the art High Content Imaging and FACs capabilities.
- **CROs** and **academic** collaborations complement and extend internal capabilities

Experimental capabilities enhance entire drug discovery process

- Mechanism selection, **Target identification**, target triage and experimental validation
- Refined, model-enabled **Design-Make-Test** cycle

Closing the data loop

- Experimental data from hypothesis validation workflows, portfolio projects and disease relevant **expression data** are integrated back to further **enrich the knowledge graph and our representation of human biology**

Work progresses rapidly from in-silico to in-vitro experimental test

Dynamic experimental feedback loop between scientists & technologists
BEN-2293 - Phase Ib safety and tolerability study successfully completed

Phase Ib/IIa double-blind, placebo-controlled, first-in-patient, two-part clinical study

Phase Ib

First-in-human dose escalation

Phase Ib completed Dec 2021
8 Mild-Moderate AD patients (18-65 years) per cohort, randomised 3:1 BEN-2293:Placebo

Safety, Tolerability, PK
- Adaptive multiple ascending dose cohort design
- Includes efficacy endpoints
- MALDI imaging
  - To evaluate human skin PK

Phase Ib:

✔ Successfully completed
Safety and Tolerability arm

Adaptive design for Phase Ib of the clinical study

Cohort 1
0.25%
QD 7 Days
10% BSA

Cohort 2
1%
QD 7 Days
10% BSA

Cohort 3a
1%
QD 14 Days
30% BSA

Cohort 4a
1%
BID 14 Days
30% BSA

Cohort 3b
0.25%
QD 14 Days
30% BSA

Cohort 4b
0.25%
BID 14 Days
30% BSA

Terminates Study

Not tolerated/Inadequate SM

Tolerated/PK Supports SM

BSA = Body surface area. QD = once per day dosing. BID = twice per day dosing.
BEN-2293 - Phase IIa progressing
Phase Ib/IIa double-blind, placebo-controlled, first-in-patient, two-part clinical study

Phase IIa clinical study design

- Baseline assessments: itch and AD score
- Re-baseline or exclude
- Continuous safety monitoring
- Study endpoints - itch and AD rating scales

Screening → Wash out → Run in → 28d BID dosing over affected skin area → Follow up

- *7 day Wash out from any existing medication*
- *3 day Placebo run in*
- *28 day BID dosing on affected skin up to a maximum of 30% BSA Placebo:Active (1:1), Moderate: Mild patient ratio 70:30, Total of 90 patients (45 active:45 placebo)*
- *14 day Final safety assessment*

- **11 active recruiting sites**, 7 in the UK, 4 in Europe. A further 17 sites under final approval
- **Recruitment completion** anticipated 4Q22

*Our intention is to partner this asset with a pharmaceutical company that has a focus in dermatology for continued clinical development and, if approved, commercialisation*
We expect BEN-2293 to provide both symptomatic relief and to reverse disease progression in atopic dermatitis

- **BEN-2293** is highly selective for Trk receptors, with IC50 potencies in the low nM range for TrkA, B, and C.

- **BEN-2293** dose dependently inhibits release of inflammatory Th1 and Th2 cytokines TNFα, IFNγ, IL-13, and IL-4 in human peripheral blood mononuclear cells (PBMCs) stimulated with an inflammatory T-cell stimulus (anti-CD3/CD28).

- **BEN-2293** inhibits the release of Calcitonin Gene-Related Peptide (CGRP), a mediator of itch, sensory nerve hypersensitisation and neurogenic inflammation, in dorsal root ganglion (DRG) isolated from adult rats and stimulated with NGF.

- **BEN-2293 series** significantly (p<0.05) reduced mouse ear inflammation following administration of PMA, significantly reducing expression of cytokines IL-1β, IL-4, IL-6, CXCL1, MCP-1, and Tarc.

- **BEN-2293** demonstrates excellent tolerability and safety margins in IND/CTA-enabling toxicology studies.

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**Graphs:**

- **BEN-2293 Inhibition of human primary T-cell activation**

- **Inhibition of sensory neuron activation**

- **Reduction in mouse ear inflammation**

**Key:** Tropomyosin-related kinase (Trk) receptor tyrosine kinase family, namely TrkA, TrkB, and TrkC; Nerve Growth Factor (NGF); Brain Derived Neurotrophic Factor (BDNF); Neurotrophin-3 (NTF-3)/NT3.
BEN-2293 is being developed to address key unmet needs in the treatment of Atopic Dermatitis

BEN-2293 development is targeting:

- **Efficacy** against both itch and inflammation, with potential disease modifying effects
- **Improved safety** profile, suitable for chronic use with no irritancy on application

**Positioning:**

- Potential to displace ineffective and poorly tolerated second line treatment for chronic use in adults and paediatrics
- Potential use in a subset of first line patients where rapid itch resolution is key and
- In the severe patient population as an adjunct treatment option
Can we treat UC by reversing chronic inflammation of the colonic mucosa by targeting pathways in colon epithelial cells and tissue resident immune cells?

**BEN-8744 - UC Target Identification workflow**

1. **Biological Question**
   - **Disease**: UC
   - **Sign**: reversing chronic inflammation of the colonic mucosa by targeting pathways in colon epithelial cells and tissue resident immune cells?
   - **Endpoint**: What we will measure

2. **Predictive algorithms ran over the curated knowledge graph to identify potential targets, aggregate findings and present the most relevant ones to DD scientists**

3. **Target assessment and validation tools presented scientific evidence allowing scientists to evaluate the rational and opportunity for progressibility**
   - ✔ PDE10 has zero linkage to UC in all available biomedical literature

4. **Experimental validation**
   - **Endoscopic Biopsy from UC patients**
   - Colonic mucosa tissue culture and compound treatment
   - PDE10 inhibition promoted an anti-inflammatory effect
   - Inflammatory cytokine measurement
Transcriptomics data support the rationale for PDE10 as a novel target for UC

- PDE10 regulates signal transduction by hydrolysing cGMP
- PDE10 is significantly upregulated in UC-derived colon and colonic mucosa samples, whilst guanylyl cyclase, which makes cGMP, is down-regulated

Reduced levels of guanylyl cyclase correlate with increased TNF-α in UC colonic mucosa

- cGMP is downregulated in UC and its expression inversely correlates to disease severity
- PDE10 is well-studied in CNS disorders but not in inflammation with zero linkage to UC

PDE10 demonstrates restricted expression in peripheral tissue

- Reduces the safety liability of targeted inhibition

Differential RNA expression of PDE10A and GUCY2C: normal vs UC

Low basal PDE10 expression, highest levels in brain. Low basal soluble guanylate cyclase (GUCY2C) levels except in colon and sm intestine

Source: (1) Brenna et al. Scand J Gastroenterol 2015
Image (left): Rashed, Second Messenger System 2018
PDE10 inhibition: potential to normalise dysregulated mechanisms in IBD

- Reduced inflammatory cytokine release from intestinal epithelia via \( \downarrow \) NFkB(1)
- Reduced tissue-resident macrophage activation(1)
- PDE10 inhibition
  - \( \uparrow \) cGMP
  - \( \uparrow \) cAMP
- Improved TJ assembly via PKG/PKA-mediated \( \downarrow \) pMLC(2)
- Improved fluid/mucus homeostasis via PKG phosphorylation of intestinal CFTR(3)
- Reduced intestinal inflammation

Images: Nettleford and Prabhu, Antioxidants 2018 (left); He et al. Int J Mol Sci 2020 (right)
BEN-8744 - Oral, peripherally-restricted, PDE10 inhibitor under development as a first-in-class treatment for refractory ulcerative colitis (UC)

- **Phosphodiesterase 10 (PDE10)** was identified by our TargetID platform as an entirely novel target for the treatment of UC/IBD
- Using our Molecular Design expertise we optimally designed a best in class peripherally restricted PDE10 inhibitor: **BEN-8744**
- **BEN-8744** is expected to provide an efficacious disease modifying oral treatment for UC/IBD
- **BEN-8744** will target Moderate and Severe UC/IBD patients, meeting the unmet need left by existing therapies including:
  - Patients refractory to anti-TNFs or other biologics
  - Improved safety and tolerability profile compared to competitors
  - A Precision Medicine approach to target key responder patient cohorts, avoiding the safety risks associated with ineffective therapies

An opportunity to differentiate on safety, efficacy and a precision medicine approaches

<table>
<thead>
<tr>
<th>Drug</th>
<th>Company</th>
<th>MoA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zeposia (Ozanimod)</td>
<td>BMS</td>
<td>S1P1 receptor agonist</td>
</tr>
<tr>
<td>Etrasimod</td>
<td>Arena</td>
<td>S1P1 receptor agonist</td>
</tr>
<tr>
<td>Jyseleca (Filgotinib)</td>
<td>Galapagos &amp; Gilead</td>
<td>JAK1 inhibitor</td>
</tr>
<tr>
<td>Rinvoq (Upadacitinib)</td>
<td>Abbvie</td>
<td>JAK1 inhibitor</td>
</tr>
<tr>
<td>TD-1473</td>
<td>Theravance &amp; Janssen</td>
<td>Pan-JAK inhibitor (gut-selective)</td>
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**Safety**
- S1P1 agonists are associated with immunosuppression and anaemia
- JAK inhibitors carry a black box health warning