BIOTRON LIMITED
(ASX:BIT)

Biotech Showcase 2017

Forward Looking Statements

This presentation may contain forward-looking statements with respect to the financial condition, results and business achievements/performance of Biotron Limited (ACN 086 399 144) and certain of the plans and objectives of its management. These statements are statements that are not historical facts. Words such as “should”, “expects”, “anticipates”, “estimates”, “believes” or similar expressions, as they relate to Biotron Limited, are intended to identify forward-looking statements. By their nature, forward-looking statements involve risk and uncertainty because they reflect Biotron’s current expectations and assumptions as to future events and circumstances that may not prove accurate. There is no guarantee that the expected events, trends or results will actually occur. Any changes in such assumptions or expectations could cause actual results to differ materially from current expectations.

Investment Highlights

- Developing new class of antiviral drugs
- Lead programs: BIT225 targeting HIV-1 eradication and Hepatitis C virus (HCV) – multi-billion dollar markets
- Phase 1 / 2a trials completed in over 200 subjects – safety and efficacy validated
- Several near term, value-adding milestones driven by two key HIV-1 studies in 2017:
    - BIT225 treatment interruption study and BIT225 Phase 2 HIV-1 human trial

Corporate Snapshot

Key Financial Metrics

Ticker Code	ASX: BIT
Share Price (09 Jan 17)	A $0.04
Market capitalisation	A $12.24 million
12 Month Trading Range	A $0.040 – 0.105
Shares Outstanding	313 million
Cash Position (09/2016)	A $2.29 million

Brief Biotron Overview

- Spun out from John Curtin School of Medical Research at the Australian National University in 1999
- Listed on ASX in Jan 2001 (ASX:BIT)
- Headquartered in Sydney, Australia

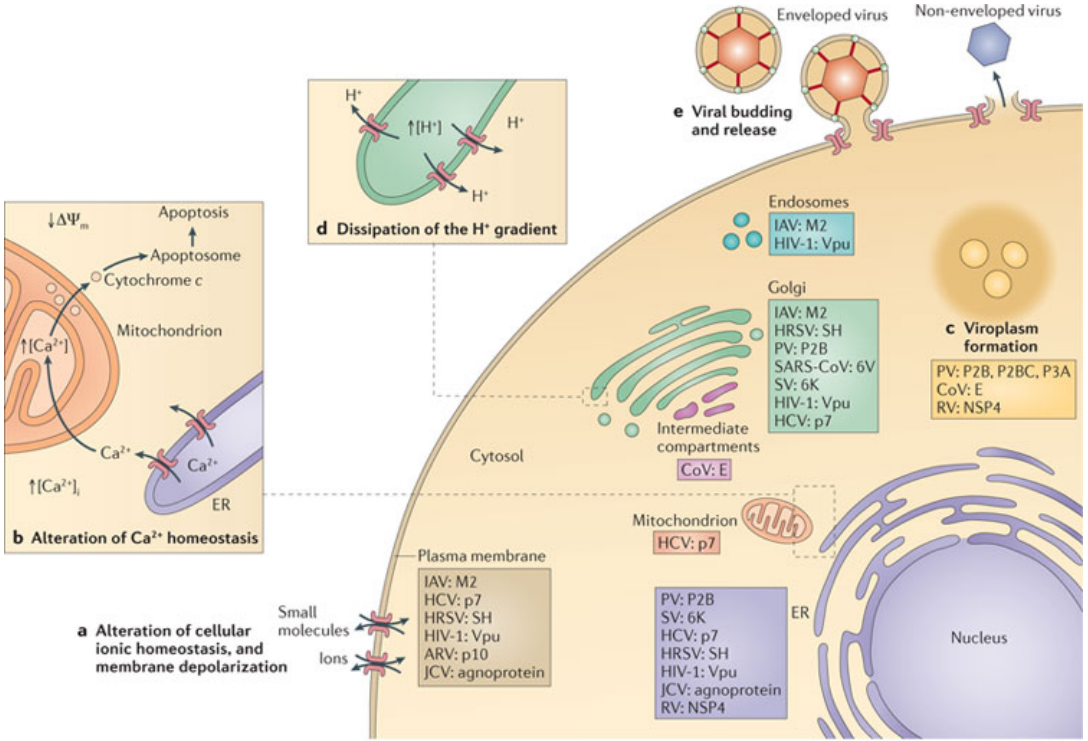
Board

Michael Hoy	Non-executive Chairman
Michelle Miller	Managing Director
Susan Pond	Non-executive Director
Rob Thomas	Non-executive Director
Denis Wade	Non-executive Director

Biotron – Leader in Viroporin-Targeting Drug Development

- Core expertise is design and development of a new class of antiviral drugs targeting viral-encoded viroporin proteins
- Viroporins are present in broad range of viruses: Influenza (M2), HIV-1 (Vpu), HCV (p7), Dengue and West Nile (M protein), SARS (E protein) and others
- Broad platform:
  - Rapid, proprietary primary bacterial cell-based screening assays for target proteins
  - Focused library of compounds that target these viral proteins
  - Pipeline of internally-generated, first-in-class small molecule viroporin inhibitors for key markets

Viroporins



- Small hydrophobic proteins with ion channel activity
- Form hydrophilic pores in host cell membranes
- Key stages of the viral cycle such as virus uncoating, transport and maturation are ion-influenced processes in many viral species
- Crucial for viral pathogenicity due to involvement in various steps of virus life cycles
- **Ideal therapeutic targets**

Nature Reviews Microbiology **10**, 563-574

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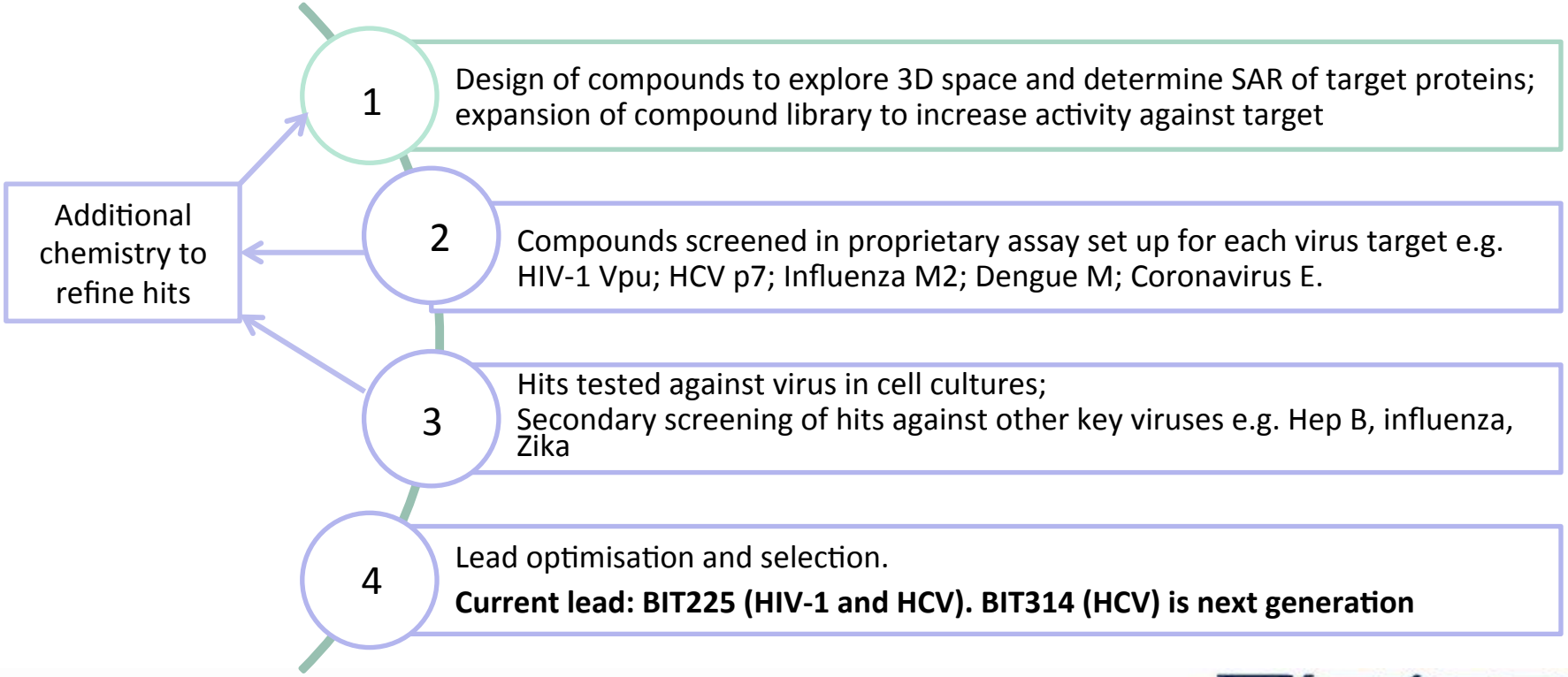
Compound Discovery Process



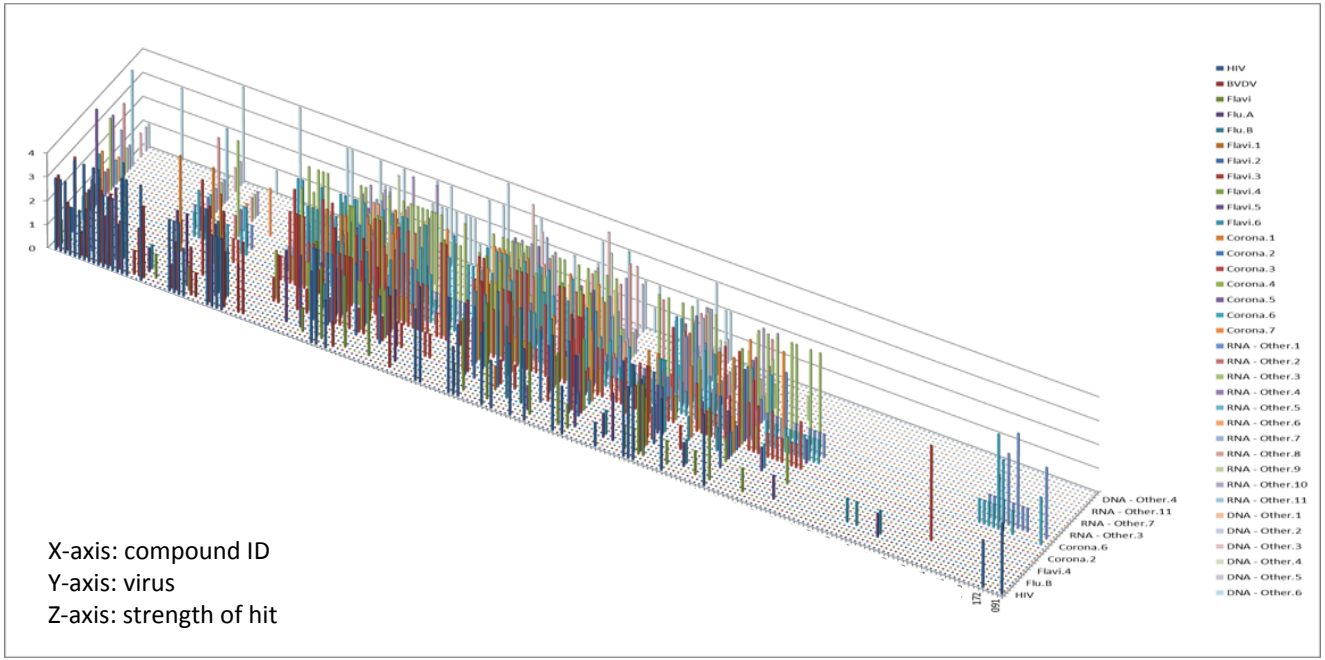
Core Technology Drives Rich Compound Library

Library of compounds designed to target viroporins:

Initially >250 compounds designed and synthesised; library now ~350

OTHER "HITS" IN LIBRARY include:

- Influenza A and B
- Coronaviruses (Including SARS)
- Epstein-Barr virus (EBV)
- Hepatitis B virus (HBV)
- Zika virus
- others



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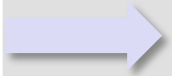
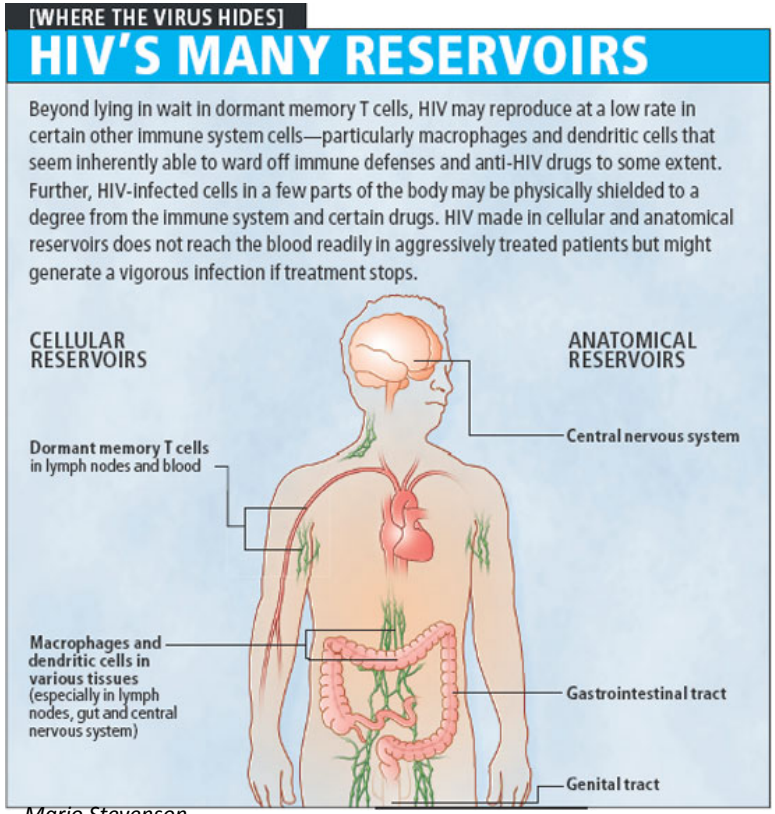
Biotron - Advanced Pipeline

INDICATION	COMPOUND	DISCOVERY	PRECLINICAL	PHASE 1	PHASE 2	PHASE 3
HCV	BIT225					
HIV-1	BIT225					
Next generation - HCV	BIT314					
Dengue	Leads					



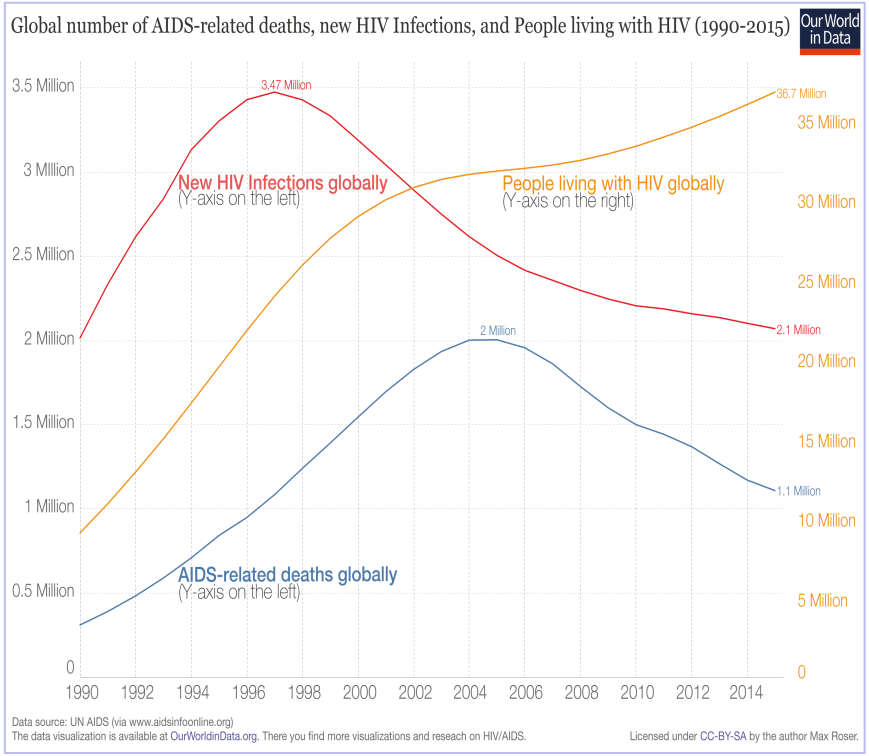
HIV-1 Reservoirs



Mario Stevenson
Scientific American ***299****, 78 - 83 (2008)*

- HIV-1 remains hidden in reservoirs, leading to chronic, life-long infection
  - Invisible to body's immune defenses
  - Not sensitive to anti-HIV-1 drugs
- Eradication will require multiple approaches; approaches include:
  - Anti-latency agents for latently-infected T cells
  - Drugs to modify immune response
  - Drugs targeting HIV-1 in macrophage lineage cells

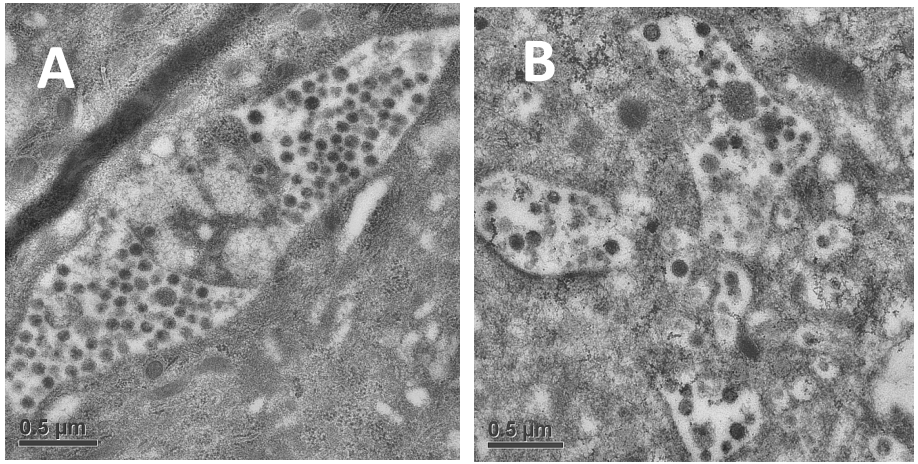
HIV-1: Towards a Cure



- Over 1.1 million people living with HIV-1 in the USA, with 1 in 6 unaware of diagnosis
- US$11.9 bn sales in US, Europe and Japan in 2013; expected to grow to US$16.8 bn by 2020
- HIV-1 patients need to stay on antiretroviral drugs (ART) to keep virus levels under control
- Long-term health implications even in patients on antiretroviral drugs e.g. HAND, immune activation, etc
- New mode of actions drugs are needed to eradicate or cure HIV-1 infection

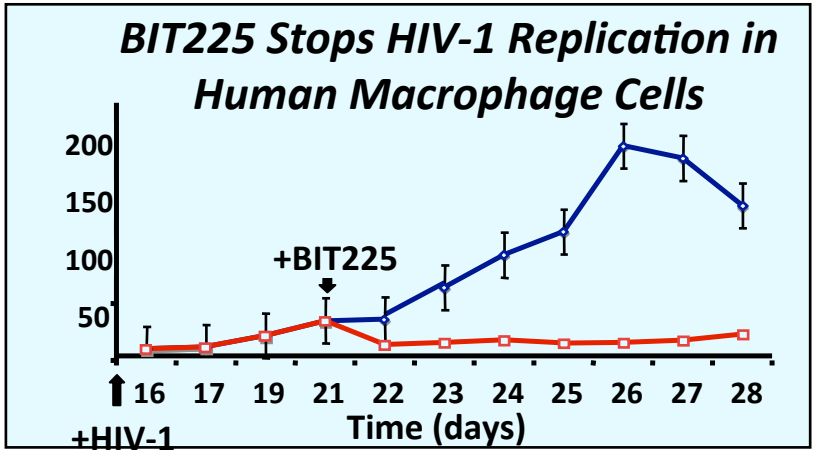
BIT225 Targets HIV-1 in Reservoir Cells

- BIT225 inhibits assembly and budding of new virus in macrophages
- Phase 2a trial (004) demonstrated that BIT225 can reduce HIV-1 levels in macrophage cells *in vivo*, paralleling *in vitro* studies (Wilkinson *et al*, J Antimicrob Chemother. 2015 Nov 29. pii: dkv389. [Epub ahead of print])
- Potential benefits on immune aging and HIV-associated dementia
- Potential for use in future virus eradication treatment



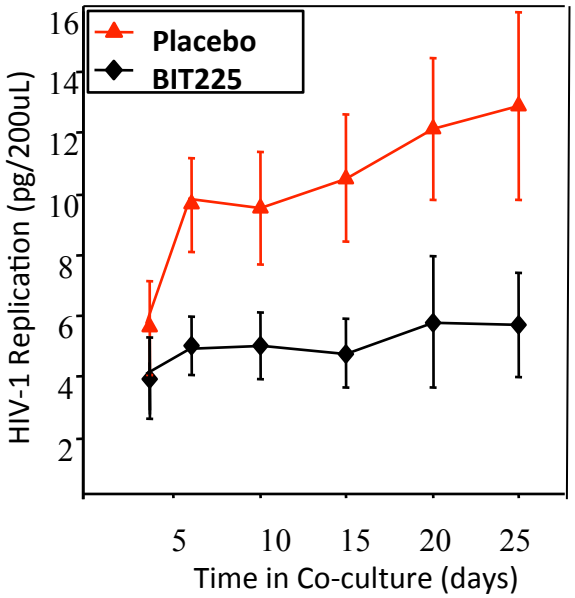
(A) Untreated Controls

(B) BIT225 treated cells



BIT225 – Proven Clinical Activity Against HIV-1

- BIT225-004: Phase 1b/2a randomised, placebo controlled, double-blind trial
  - 21 patients, HIV-1 positive, treatment-naïve; 10 days dosing with BIT225 (monotherapy)
- **Results demonstrated that BIT225:**
  1. **Significantly reduces HIV-1 levels in the macrophage (reservoir) cells**
  2. **Crosses the blood-brain barrier, opening up the possibility of treatment of AIDS-related dementia**
  2. **Reduced myeloid-specific immune activation markers during trial**



Potential role for BIT225:

- **Addition to current ART to eradicate key reservoirs, impacting immune activation**
- **Key component of cure/eradication strategies**

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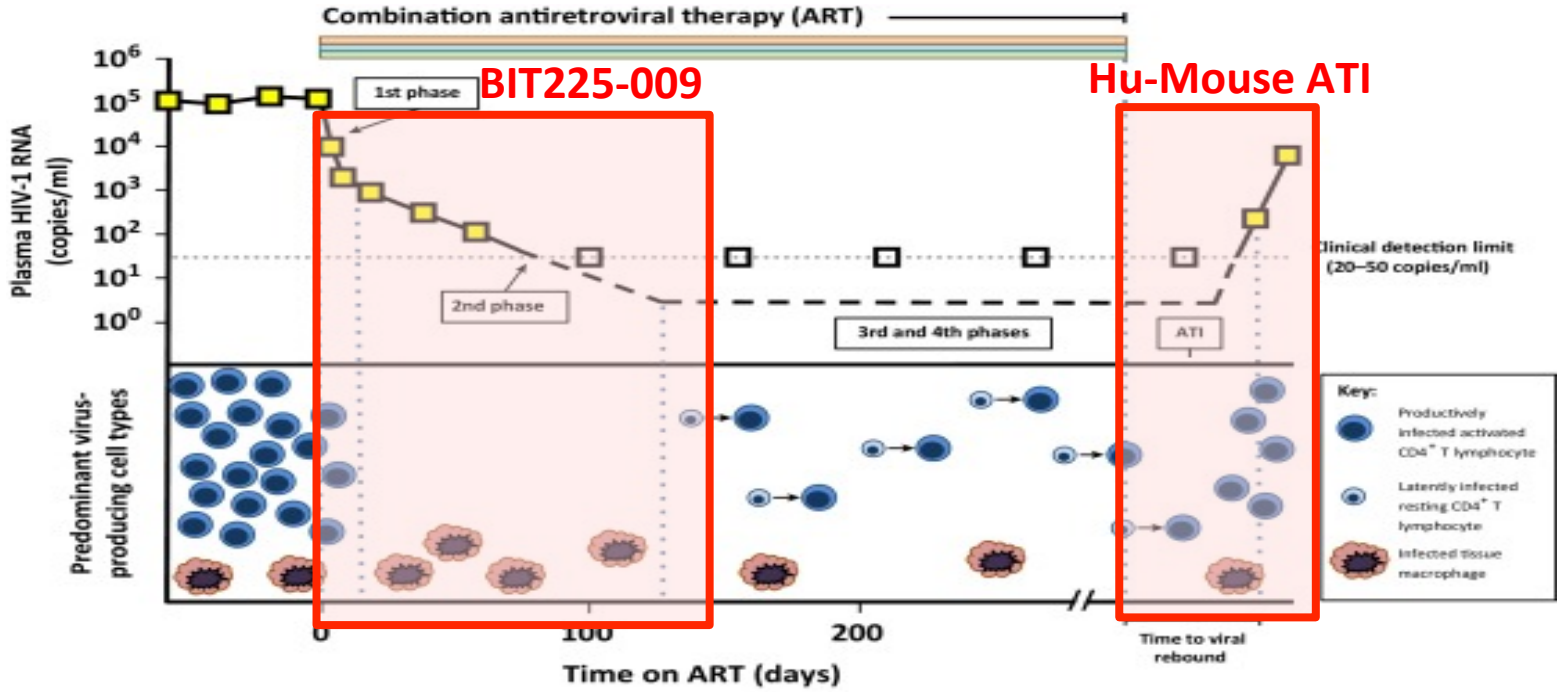
HIV-1 Viral Dynamics



Trends in Molecular Medicine

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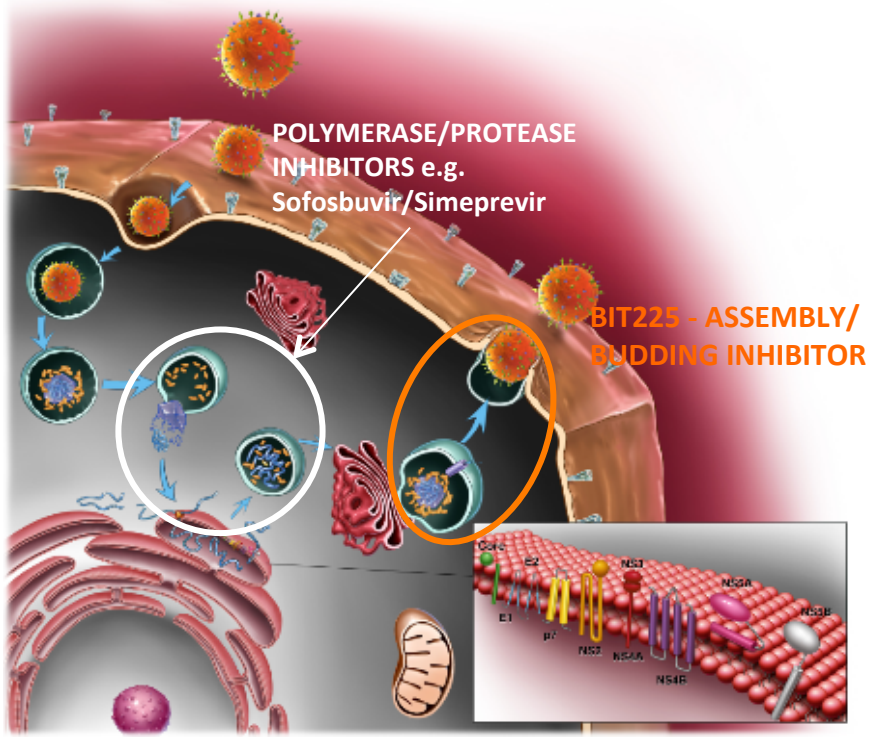
BIT225 HIV-1 Eradication – Next Steps

Creating value inflection points with positive trial data

- Initiate Phase 2 HIV-1 Clinical Trial - 3 month trial in combination with ART (BIT225-009); Expect trial commencement early 2017 – Data expected in 3Q17
  - ***Expected outcome(s) – Impact on kinetics of viral load decay in combination with ART indicating impact on underlying viral reservoir, also impact on immune activation***
- Analytical Treatment Interruption (ATI) Study – Currently underway evaluating BIT225 in HIV-1 Infected Humanised Mice - Data expected Q1 2017
  - ***Expected outcome(s) – impact on viral kinetics in combination with ART, plus potential impact on rebound once ART is stopped***
- Accumulated significant quantity of clinical data for BIT225 from healthy volunteer, HCV & HIV-1 patient trials.

BIT225 – First of a New Class of HCV DAA Drugs

- Novel, oral, small molecule compound
- Only one of its class (p7 inhibitor) in clinical trials
- Inhibits viral assembly and infectivity
- Pan-genotype activity:
  - Active *in vitro* against all main genotypes
  - Clinically active against HCV GT 1 (1a and 1b) and GT 3
- Seeking partnerships for further development, in particular, in Asia



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HCV BIT225 Program Snapshot

- Four clinical trials I HCV-infected subjects completed (including one HIV-1/HCV coinfected trial)
- Promising clinical efficacy against HCV
  - HCV GT1 (BIT225-005) – 100% receiving 400mg BID for 28 days in combination with 48 weeks IFN/RBV (per protocol) were virus-free at 48 weeks
  - HIV-1/HCV GT3 (BIT225-006) – 100% receiving 300mg BID for 28 days in combination with 48 weeks IFN/RBV (per protocol) **achieved SVR12 i.e. cured of HCV infection**
  - **BIT225 increases the rate at which HCV is cleared in combination with other drugs**

HCV – Remains an Opportunity

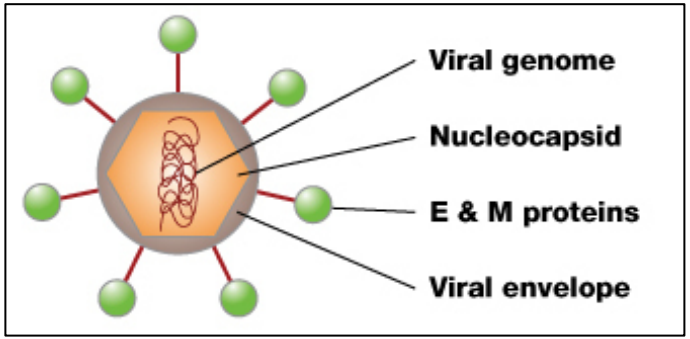
- Emerging evidence that Interferon sparing therapies may cause reactivation of Hepatitis B (HBV)
  - Evidence of reactivation of hepatitis B in co-infected patients (HBV & HCV) presented at AASLD
  - 30 – 50 million HCV-infected subjects in China
    - High HCV/HBV co-infection rate in China
- Potential for another class of DAA such as BIT225 to shorten treatment and reduce costs, in particular in markets ex-USA/Europe

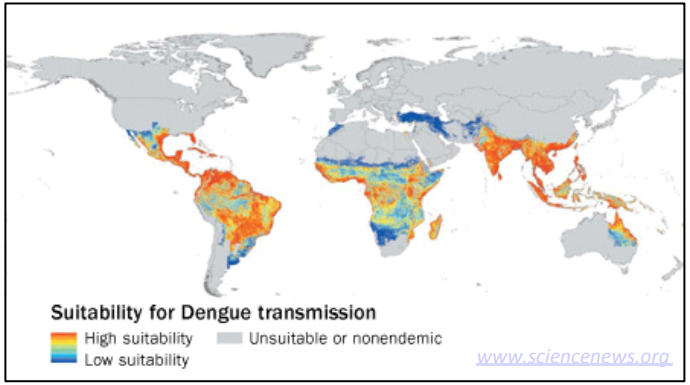
Unlocking Value in Compound Library

- Renewed industry interest in targeting viral diseases including
  - Respiratory diseases e.g. Respiratory syncytial virus (RSV) & Influenza
  - Hepatitis B virus
  - Tropical diseases including Dengue
- Ebola, Zika and MERS-CoV outbreaks have caused public health issues worldwide
- **BIT225 has demonstrated the robustness of Biotron's approach with targeting viroporin proteins**
- Compounds with activity against other key viruses have been identified; secondary screening is in progress, with the aim of identifying potential candidates to progress into IND-enabling studies
- Main focus remains on commercialising the Company's HIV-1 and HCV programs, but essential that other opportunities are developed

Dengue Virus Program

- 2.5 billion people (40% world population) live in areas at risk of Dengue
- ~100 million people infected yearly
- A leading cause of illness and death in tropics and subtropics
- Transmission is by mosquito; most prevention programs target the vector
- No approved Dengue-specific therapeutic drug
- Vaccine trials have had disappointing results
- Biotron is targeting Dengue M protein – Similar target to HIV-1/Vpu and HCV/p7
    - Several compounds with promising activity have been generated; tests are on-going
    - Potential for pan-Flavivirus therapeutic





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Hepatitis B Virus

- Limited screening of Biotron compound library has generated interesting data
- Hits identified
- Very experienced scientific advisory and operational team in place for HBV
- Seeking collaboration to explore hits and develop program
- Hepatitis B remains a significant unmet need with a multi-billion dollar market

Commercialisation and Partnering

- **HIV-1 Program** - Significant value inflection points around HIV-1 program data expected in 2017
- **HCV Program** - BIT225 particularly well suited to Asia, with high numbers of HCV-infected patients including a high proportion of HCV/HBV co-infected patients
- Early stage collaboration opportunities for pre-clinical targets, such as:
  - Dengue
  - Hepatitis B
- Additional development collaboration potential for “other” pharma targets
- Seeking partners for individual targets or entire platform

Key Milestones for 2017

- Complete Analytical Treatment Interruption (ATI) Study in HIV-1 Infected Humanised Mice
  - Data expected Q2 2017
    - ***Expected outcome(s) – Impact on kinetics of viral load decay in combination with ART indicating impact on underlying viral reservoir***
- Complete Phase 2 HIV-1 Trial - Data expected in 3Q17
    - ***Expected outcome(s) – impact on viral kinetics in combination with ART, plus potential impact on rebound once ART is stopped***
- Finalise a regional partnering agreement for BIT225 for HCV

Investment Highlights

NOVEL ANTIVIRAL PLATFORM	**Targeting viroporin proteins with a rapid screening proprietary primary bacterial cell-based platform - a library of over 350 compounds with activity against a range of viruses.**
BROAD ANTIVIRAL PIPELINE	**Clinical and Preclinical programs in indications with high unmet clinical need or large patient populations such as HIV-1, HCV & Dengue, HBV, Zika & Influenza**
ROBUST CLINICAL VALIDATION	**Completed 7 human Clinical Trials with promising safety and efficacy outcomes**
STRONG INTELLECTUAL PROPERTY POSITION	**Portfolio of patents and patent applications directed to the Company's anti-viral drug portfolio**

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