

Level 2, 66 Hunter Street  
Sydney NSW 2000  
Tel: (61-2) 9300 3344  
Fax: (61-2) 9221 6333  
E-mail: [pnightingale@biotron.com.au](mailto:pnightingale@biotron.com.au)  
Website: [www.biotron.com.au](http://www.biotron.com.au)

13 January 2017

The Manager Companies  
ASX Limited  
20 Bridge Street  
Sydney NSW 2000

(26 pages by email)

Dear Madam

**BIOTRON LIMITED PRESENTS AT BIOTECH SHOWCASE™ 2017**

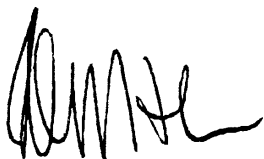
**CORRECTED PRESENTATION**

Biotron Limited advises that Dr Michelle Miller, Managing Director, will be giving the attached presentation to the Biotech Showcase™ 2017 Conference being held this week in San Francisco, California, USA.

In addition, Dr Miller will give briefings to USA institutional investors and pharmaceutical company representatives as part of activities surrounding the annual JP Morgan Healthcare Conference. This is one of the most important annual healthcare investor conferences, attracting thousands of healthcare and life science business executives, as well as investors and analysts, to San Francisco.

The Biotech Showcase™ features corporate presentations by innovative life science companies to an audience of public and private investors, business development executives and professional advisors who are interested in investment opportunities and collaborations. Now in its ninth year, it expects to attract upwards of 2,800 attendees.

Yours sincerely



Peter J. Nightingale  
Company Secretary

pjn8740

**BIOTRON LIMITED**  
**(ASX:BIT)**

**Biotech Showcase 2017**

*Biotron*

A decorative horizontal bar at the bottom of the slide. It features a dark blue background with a lighter blue, wavy, liquid-like pattern on the left side. On the right side, the word "Biotron" is written in a stylized, italicized font.

# 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

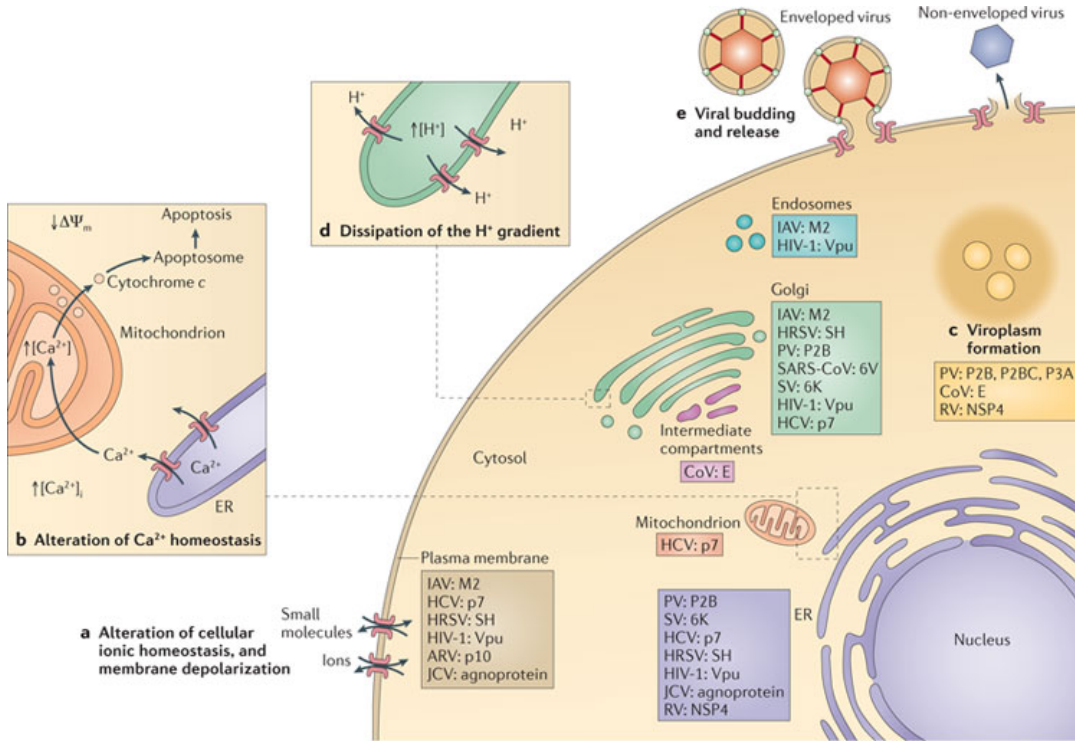
|                 |                        |
|-----------------|------------------------|
| Michael Hoy     | Non-executive Chairman |
| Michelle Miller | Managing Director      |
| Susan Pond      | Non-executive Director |
| Rob Thomas      | Non-executive Director |
| Denis Wade      | Non-executive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

*Biotron*

# Biotron – Leader in Viroporin-Targeting Drug Development

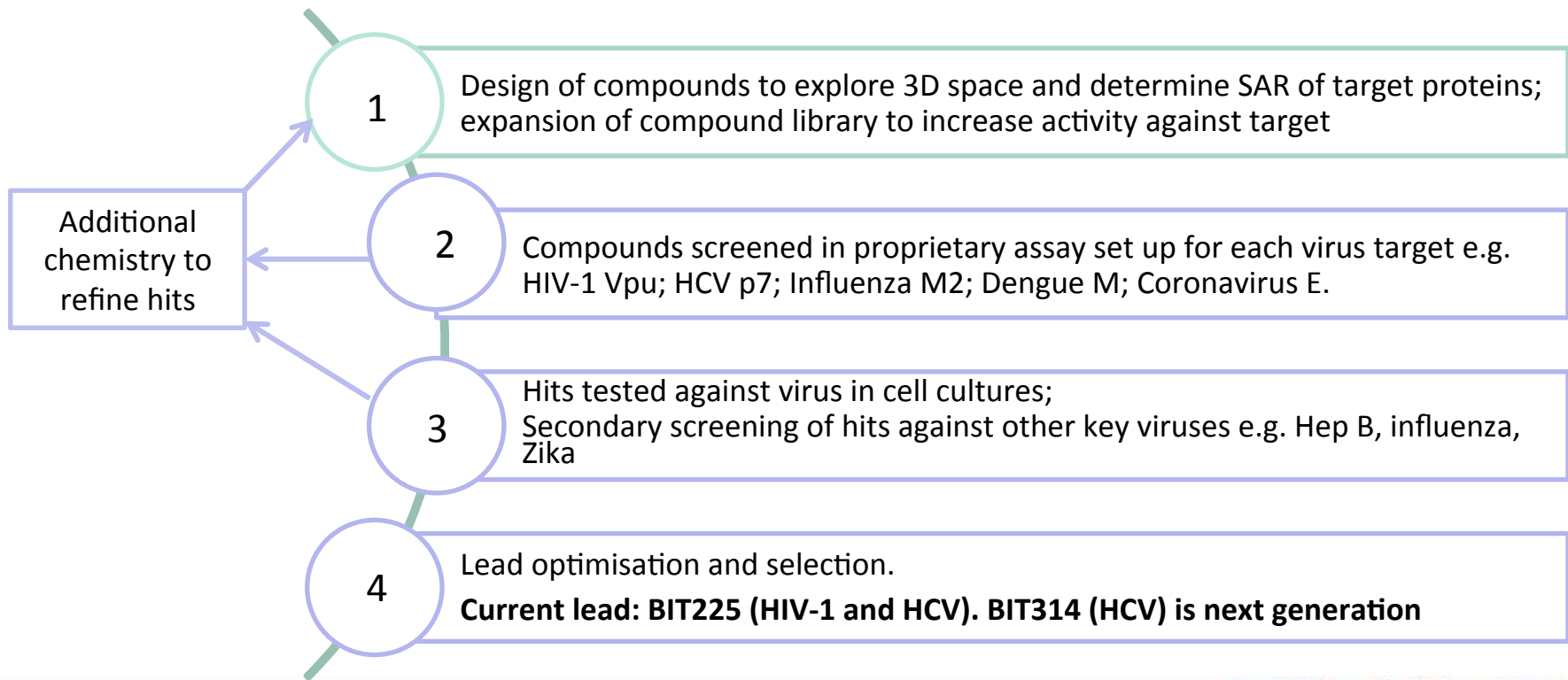
- Core expertise is design and development of a new class of antiviral drugs targeting viral-encoded viroporin proteins
- Viroporins are present in broad range of viruses: Influenza (M2), HIV-1 (Vpu), HCV (p7), Dengue and West Nile (M protein), SARS (E protein) and others
- Broad platform:
  - Rapid, 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

# Compound Discovery Process





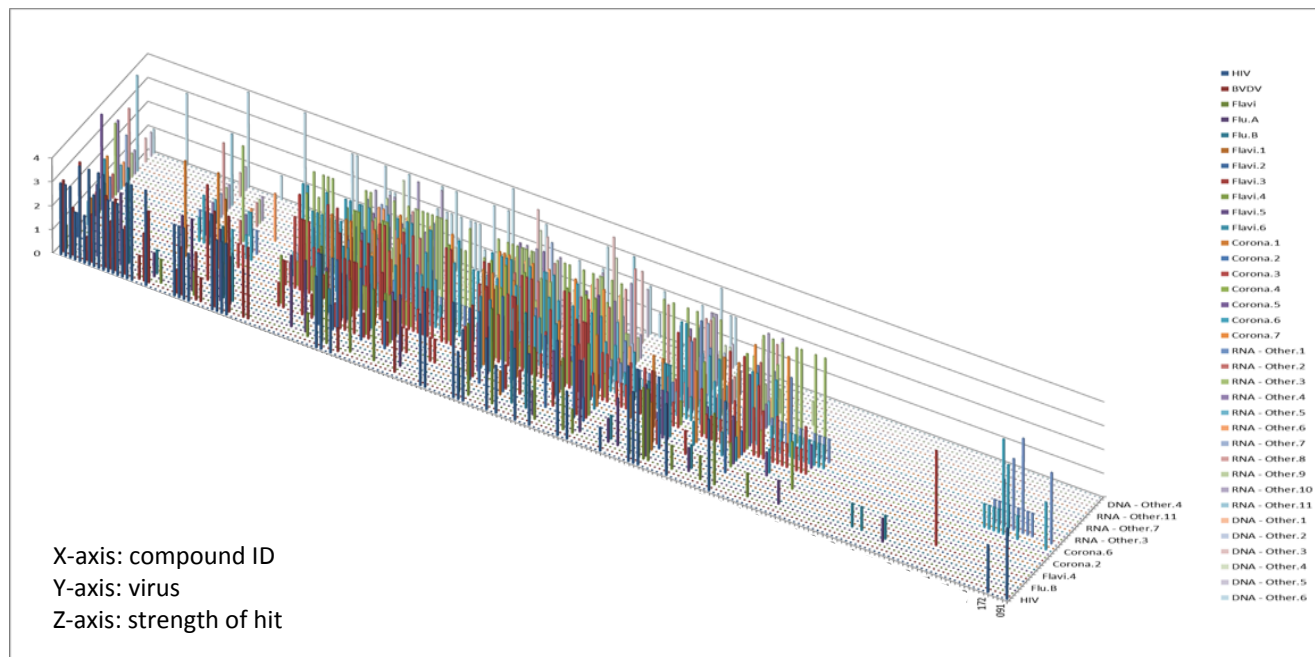
# Core Technology Drives Rich Compound Library

Library of compounds designed to target viroporins:




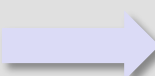
Initially >250 compounds designed and synthesised; library now ~350

OTHER “HITS” IN LIBRARY include:

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



# Biotron - Advanced Pipeline

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

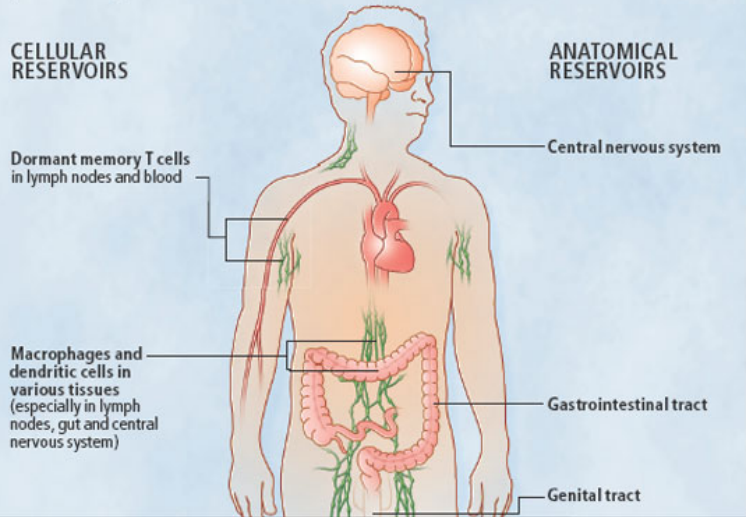


# HIV-1 Reservoirs

[WHERE THE VIRUS HIDES]

## HIV'S MANY RESERVOIRS

Beyond lying in wait in dormant memory T cells, HIV may reproduce at a low rate in certain other immune system cells—particularly macrophages and dendritic cells that seem inherently able to ward off immune defenses and anti-HIV drugs to some extent. Further, HIV-infected cells in a few parts of the body may be physically shielded to a degree from the immune system and certain drugs. HIV made in cellular and anatomical reservoirs does not reach the blood readily in aggressively treated patients but might generate a vigorous infection if treatment stops.

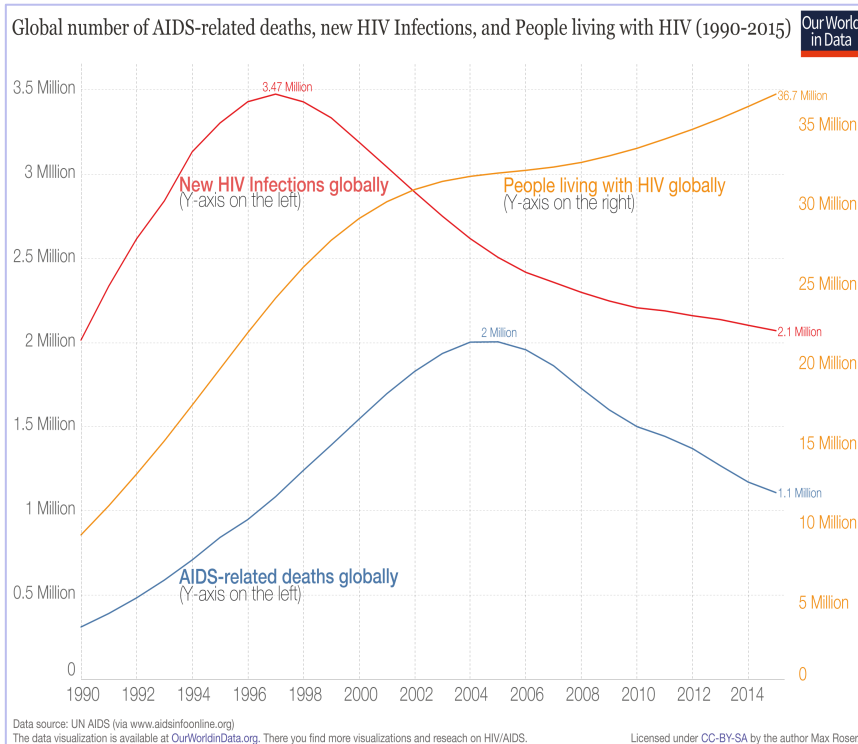


- HIV-1 remains hidden in reservoirs, leading to chronic, life-long infection
  - Invisible to body's immune defenses
  - Not sensitive to anti-HIV-1 drugs
- Eradication will require multiple approaches; approaches include:
  - Anti-latency agents for latently-infected T cells
  - Drugs to modify immune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

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

Biogen

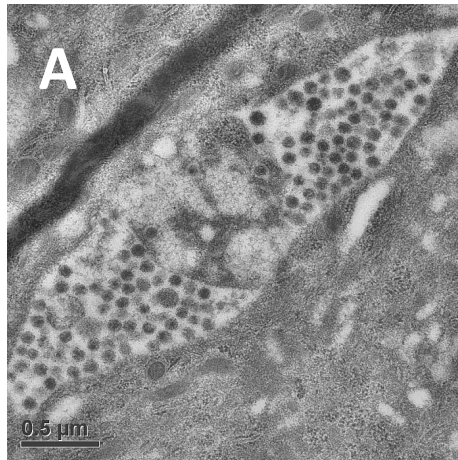
# HIV-1: Towards a Cure



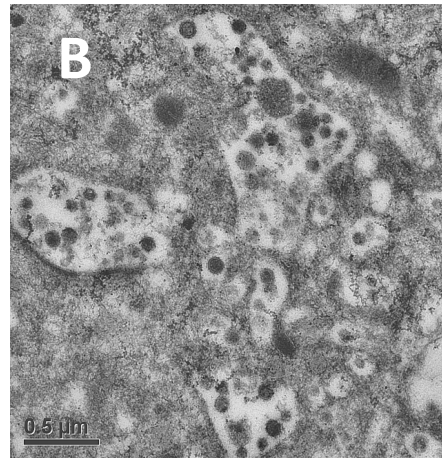
- Over 1.1 million people living with HIV-1 in the USA, with 1 in 6 unaware of diagnosis
- US\$11.9 bn sales in US, Europe and Japan in 2013; expected to grow to US\$16.8 bn by 2020
- HIV-1 patients need to stay on antiretroviral drugs (ART) to keep virus levels under control
- Long-term health implications 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

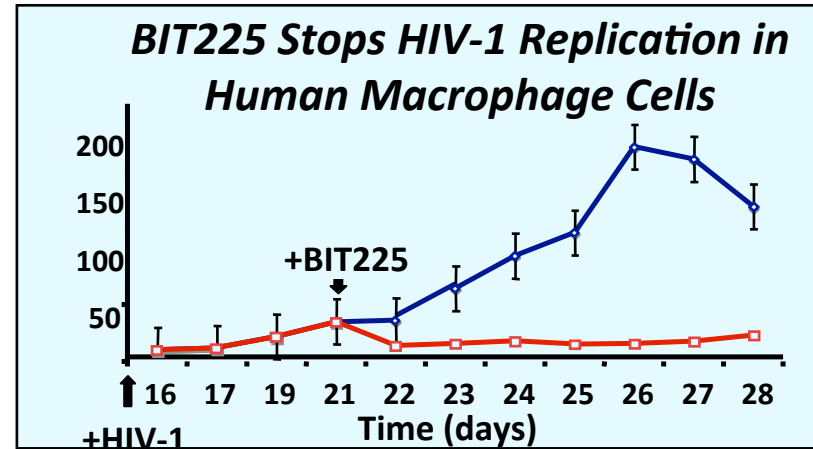
- BIT225 inhibits assembly and budding of new virus in macrophages
- Phase 2a trial (004) demonstrated that BIT225 can reduce HIV-1 levels in macrophage cells *in vivo*, paralleling *in vitro* studies (Wilkinson *et al*, J Antimicrob Chemother. 2015 Nov 29. pii: dkv389. [Epub ahead of print])
- Potential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



(A) Untreated Controls



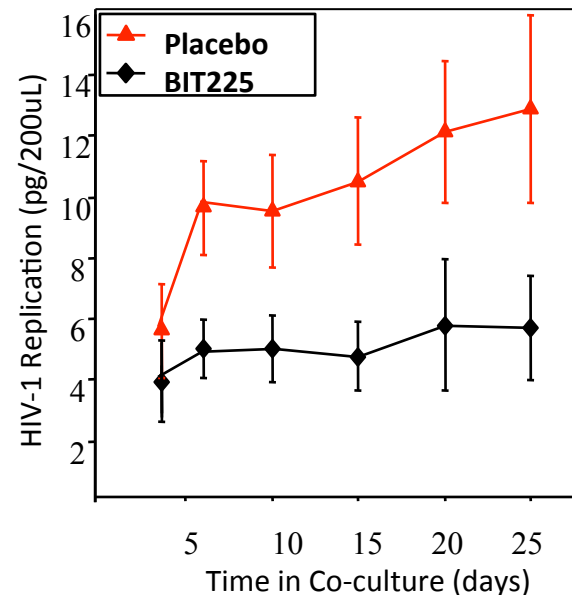
(B) BIT225 treated cells



Biotron

# 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

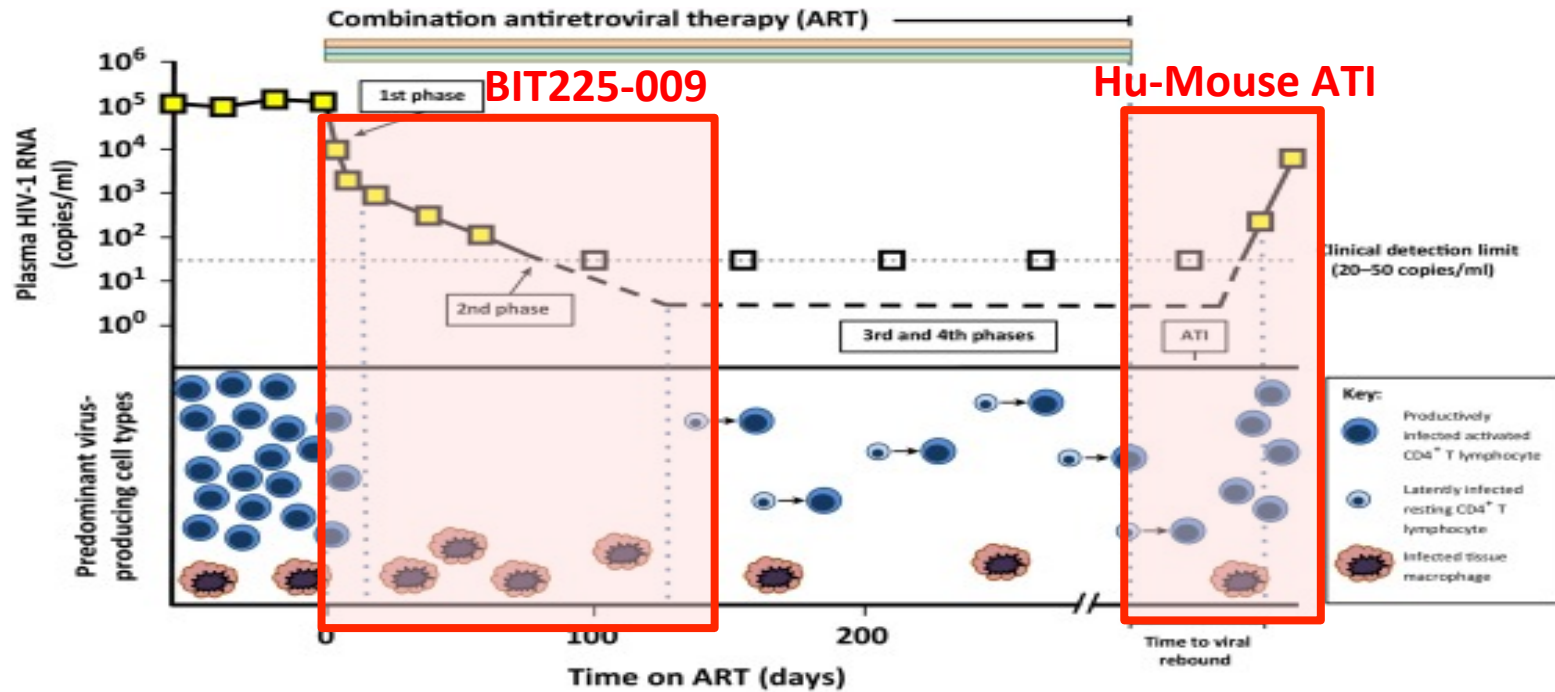


## Potential role for BIT225:

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



# HIV-1 Viral Dynamics



Trends in Molecular Medicine

*Biotron*

# BIT225 HIV-1 Eradication – Next Steps

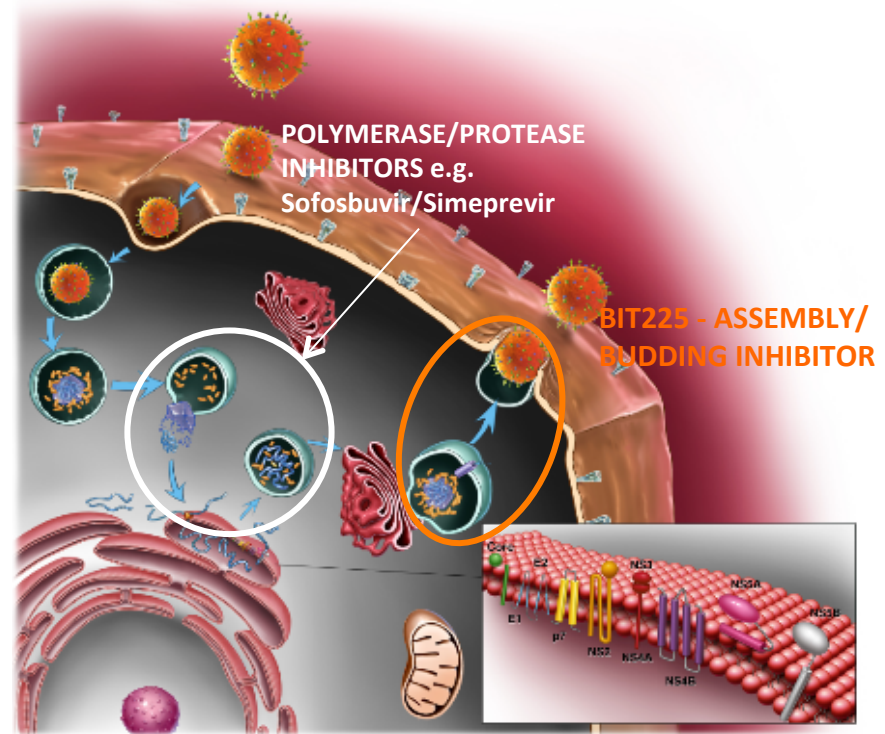
Creating value inflection points with positive trial data

- 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



Biotron

# HCV BIT225 Program Snapshot

- Four clinical trials I HCV-infected subjects completed (including one HIV-1/HCV coinfecting 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

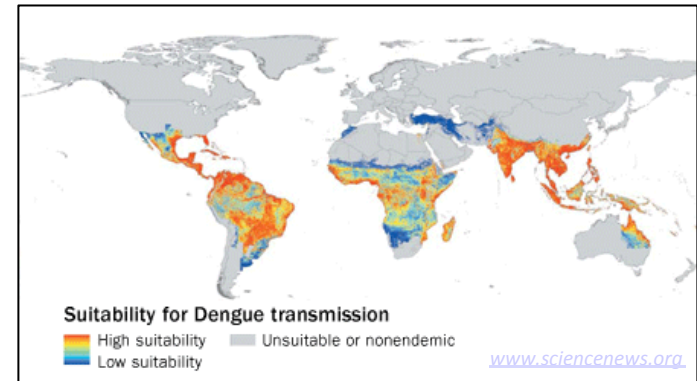
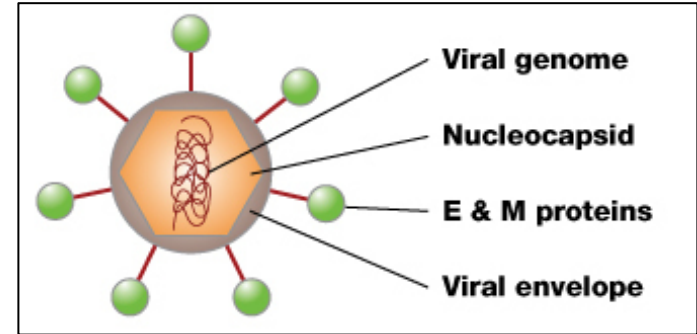
- Emerging evidence that Interferon sparing therapies may cause reactivation of Hepatitis B (HBV)
  - Evidence of reactivation of hepatitis B in co-infected patients (HBV & HCV) presented at AASLD
  - 30 – 50 million HCV-infected subjects in China
    - High HCV/HBV co-infection rate in China
- Potential 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



# 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

*Biotron*

Dr Michelle Miller  
Managing Director  
+61 412 313329  
[mmiller@biotron.com.au](mailto:mmiller@biotron.com.au)  

---

[www.biotron.com.au](http://www.biotron.com.au)

*Biotron*

