

BIOTRON LIMITED
(ASX:BIT)

Biotech Showcase 2016

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.

Financial Information

Key Financial Metrics

Ticker Code	ASX: BIT
Share Price (8 Jan 2016)	A \$0.05
Market cap	A \$16 million
12 Month Trading Range	A \$0.041 – 0.165
Shares Outstanding	313 million
Options (BITO)	50.7 million \$0.12 expiry 30/09/16

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

12 Month Share Price Performance



Biotron

Biotron Limited






- 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
- Directors
 - Michael Hoy Chairman
 - Michelle Miller CEO & Managing Director; ex-Johnson & Johnson Research; ex-Start-up Australia biotech fund
 - Denis Wade Independent non-executive director; ex-J&J (Chairman and MD Johnson & Johnson Research); Director of Heartware Inc (NASDAQ:HTWR)
 - Susan Pond Independent non-executive director; ex-J&J (Chairman and MD Johnson & Johnson Research)
 - Rob Thomas Independent non-executive director; Director of Heartware Inc (NASDAQ:HTWR); Starpharma (ASX:SPL), REVA Medical Limited (ASX:RVA); Virgin Australia Limited (ASX:VAH)

Biotron

Biotron – Leader in Viroporin-Targeting Drug Development

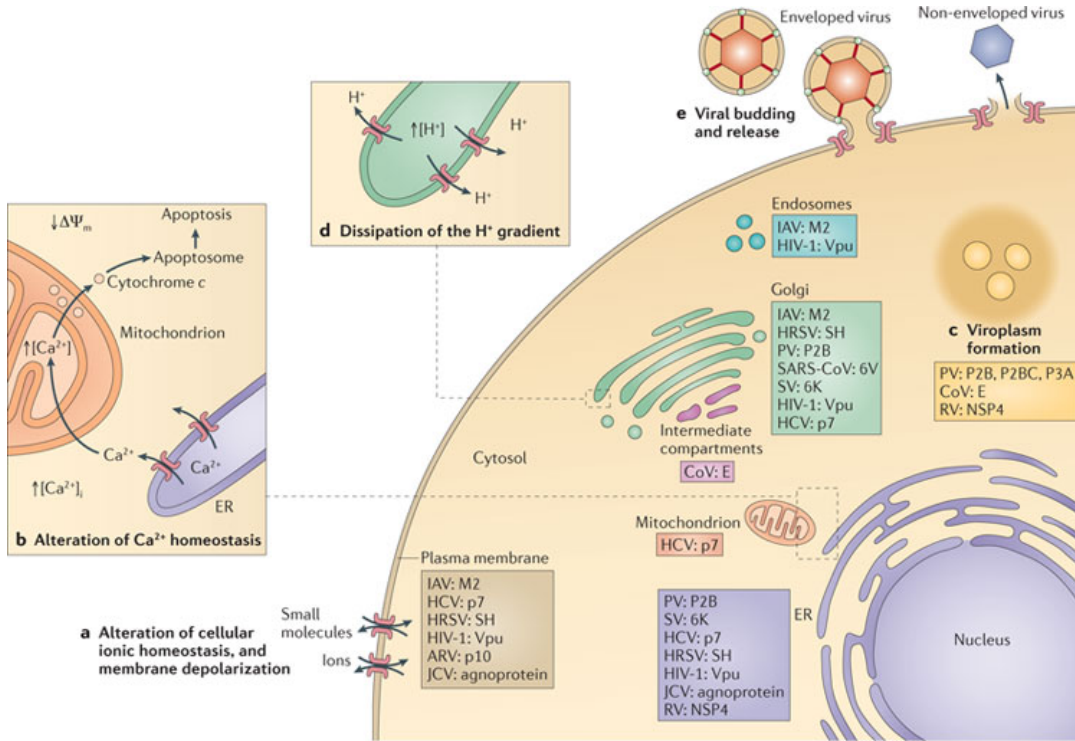
- Viroporin proteins are present in influenza (M2), HIV-1 (Vpu), Hep C (p7), Dengue and West Nile (M protein), SARS (E protein) and others
 - Rapid proprietary primary bacterial cell-based screening assays for target proteins
 - Designed library of compounds to target these viral targets
- Pipeline of internally-generated, first-in-class small molecule viroporin inhibitors for key markets
- Focused on clinical development of lead drug BIT225 (HIV-1 and HCV)
 - Next generation inhibitor ready to progress to IND-enabling studies
- Promising earlier stage drug discovery programs for other viruses including Dengue, Hepatitis B and others

Biotron - Advanced Pipeline

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

Biotron

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

Biotron's Core Technology

Designed library of compounds to target **viroporins**:

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

Compounds screened in proprietary assay set up for each virus target e.g. HIV-1 Vpu; HCV p7; Influenza M2; Dengue M; Coronavirus E.

Hits tested against virus in cell cultures

DENGUE – Several compounds with promising antiviral activity

OTHER VIRUSES – Secondary screening of hits against key viruses e.g. Hep B, influenza

Lead optimisation and selection

BIT314 (HCV)

BIT225 (HIV-1 and HCV)

OTHER “HITS” IN LIBRARY include:

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

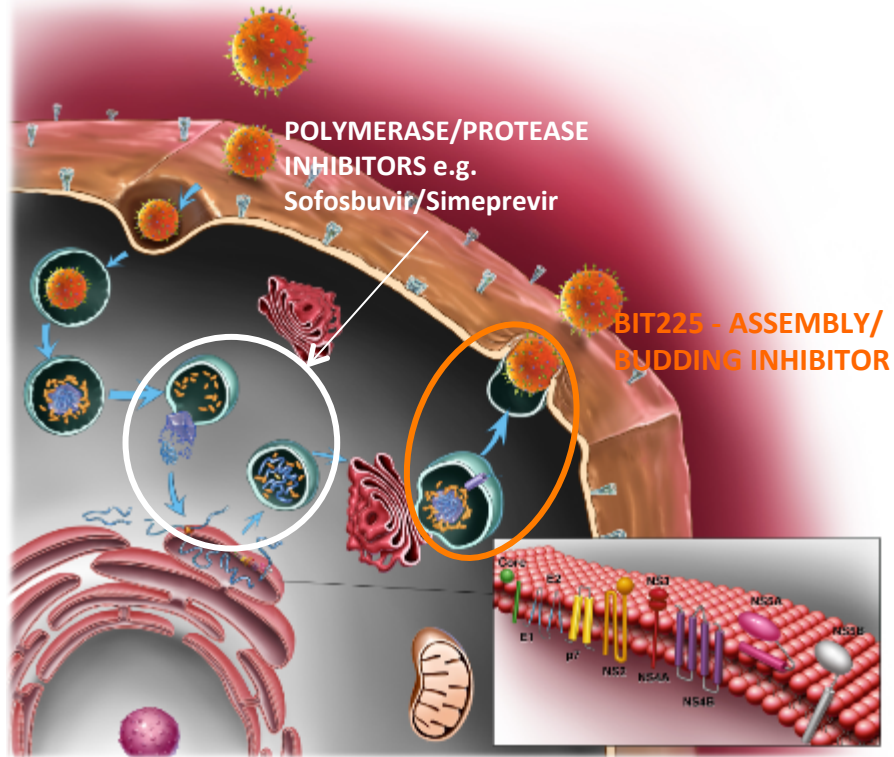
BIT225 is a representation of the value that resides within Biotron's core expertise

Biotron

BIT225 Snapshot

- First in class drug and new drug target for treatment of HIV-1 and Hepatitis C virus (HCV)
- Seven clinical trials completed; another is fully recruited with data expected 1Q16
 - Over 200 subjects dosed in trials to date
- Promising clinical efficacy against HIV-1 and 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
 - BIT225 efficiently inhibits HIV-1 replication in macrophage reservoir cells *in vitro* and *in vivo* (BIT225-004)

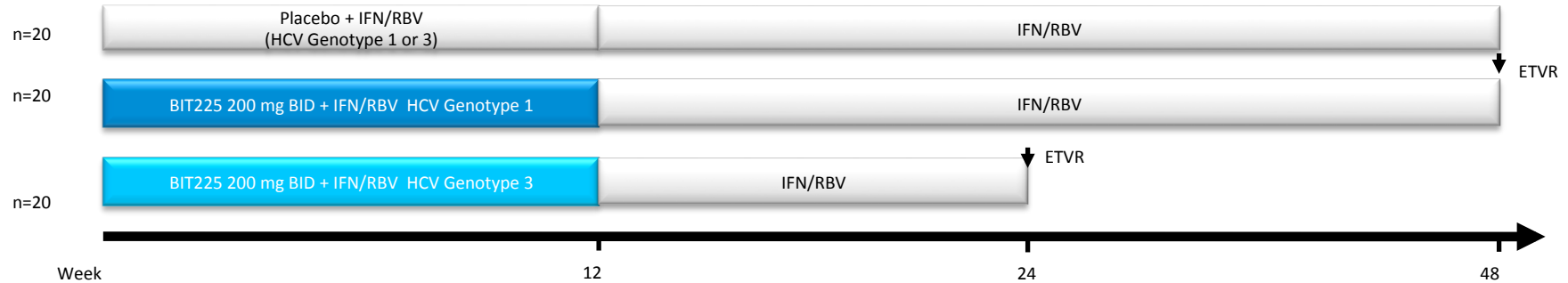
BIT225 – First of a New Class of HCV DAA Drugs



- ✓ 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 hard-to-treat HCV GT 1 (1a and 1b) and GT 3

Biotron

BIT225-008: Phase 2 HCV Three-Month Dosing Trial



Design:

- Randomised, placebo-controlled, double-blind trial (n=60)
- Treatment naïve, HCV GT 1 and 3
- 3 months dosing with BIT225 in combination with IFN/RBV
- Using new capsule formulation
 - 1.6 fold higher blood levels than previous formulation
- Fully recruited (Thailand); data expected 1Q16

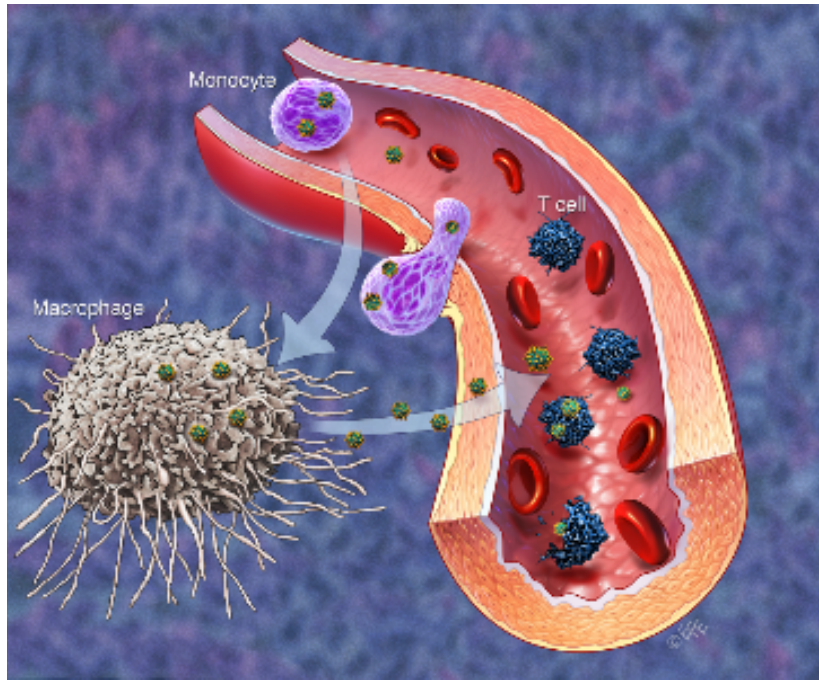
Aims:

- Demonstrate safety of BIT225 with 3 months dosing
- Extend HCV GT 1&3 efficacy data
- Provide key data to assist with determining future dosing with BIT225 capsules

Positioning BIT225 within HCV Landscape

- HCV market forecast to grow to over \$19bn by 2016
 - 180 million infected worldwide (3% world population)
 - ~3 to 5 million in US
- The race to cure patients faster (and cheaper) is still on
- Recent new HCV drug combinations are good, but not optimal
 - Lengthy treatment – 12 weeks or more
 - Not pan-genotypic – **BIT225 is pan-genotypic *in vitro***
 - EXPENSIVE!!!
- Very large markets currently untapped ex-USA/Europe
 - 30 million in China
- Potential for another class of DAA such as BIT225 to shorten treatment and reduce costs, and in other markets as well as US/Europe

HIV-1: Towards a Cure



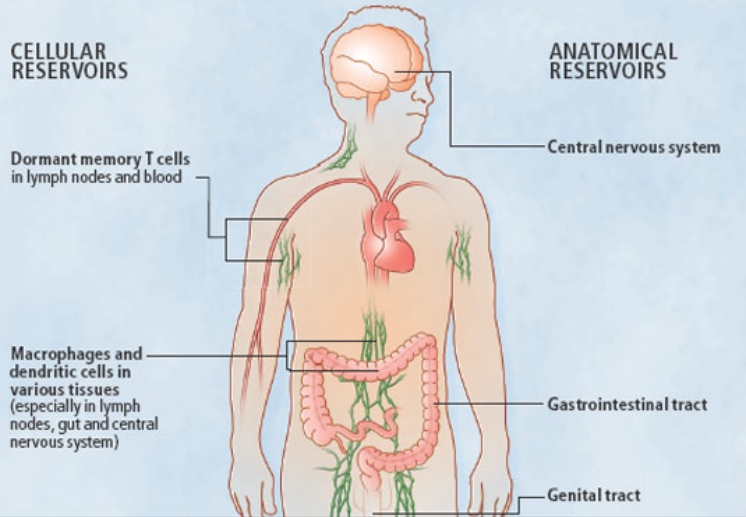
- Over 1.1 million people living with HIV-1 in the USA, with 1 in 6 unaware of diagnosis
- US\$11.9 bn sales in US, Europe and Japan in 2013; expected to grow to US\$16.8 bn by 2020
- HIV-1 patients need to stay on antiretroviral drugs (ART) to keep virus levels under control
- Long-term health implications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

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.



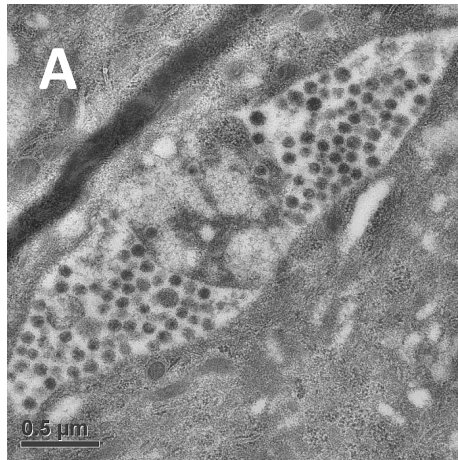
- HIV-1 remains hidden in reservoirs, leading to chronic, life-long infection
 - Invisible to body's immune defenses
 - Not sensitive to anti-HIV-1 drugs
- Eradication will require multiple approaches; approaches include:
 - Anti-latency agents for latently-infected T cells
 - Drugs to modify immune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

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

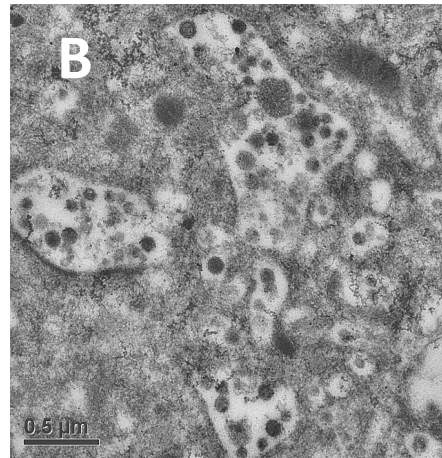
Statron

BIT225 Targets HIV-1 in Reservoir Cells

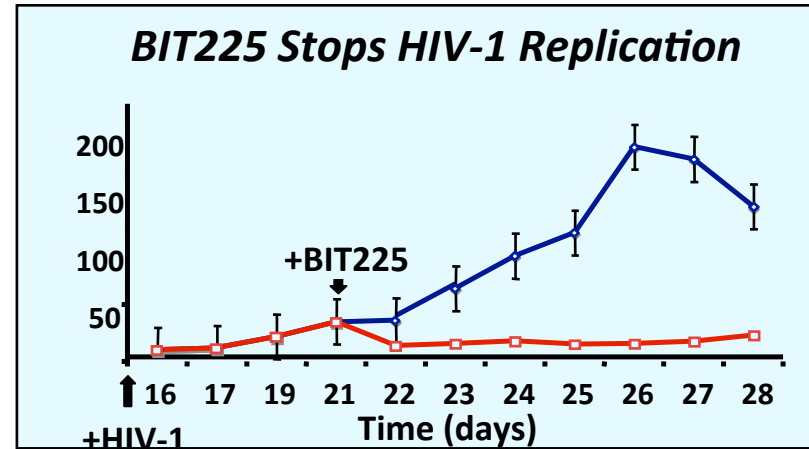
- BIT225 inhibits assembly and budding of new virus in macrophages
- Phase 2a trial (004) demonstrated that BIT225 can reduce HIV-1 levels in macrophage cells *in vivo*, paralleling *in vitro* studies (Wilkinson *et al*, J Antimicrob Chemother. 2015 Nov 29. pii: dkv389. [Epub ahead of print])
- Potential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



(A) Untreated Controls



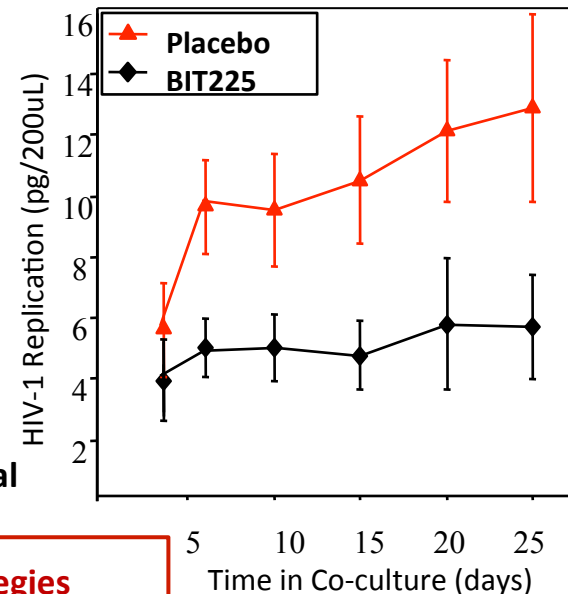
(B) BIT225 treated cells



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:
 1. BIT225 significantly reduces HIV-1 levels in the macrophage (reservoir) cells BIT225 can cross the blood-brain barrier, opening up the possibility of treatment of AIDS-related dementia
 2. BIT225 reduced myeloid-specific immune activation markers during trial



Results support a potential role for BIT225 in cure/eradication strategies

Anticipated that a Phase 2 HIV-1 trial of BIT225 in combination with current anti-HIV-1 drugs will commence mid-2016

Biotron

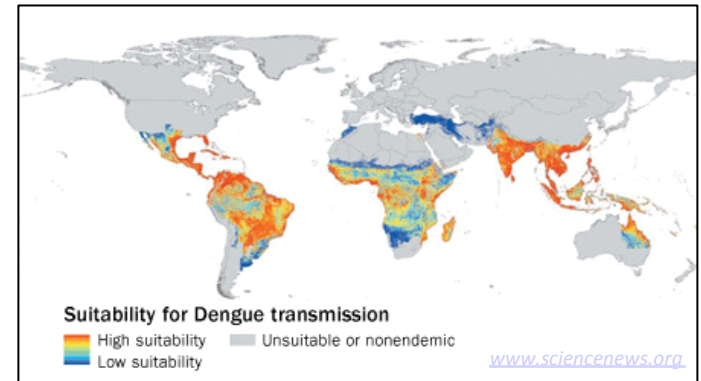
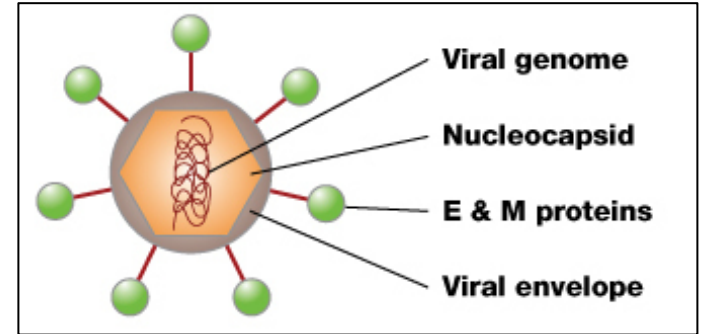
Unlocking Value in Compound Library

- Renewed industry interest in targeting viral diseases including
 - Respiratory syncytial virus (RSV)
 - Hepatitis B virus
 - Tropical diseases including Dengue
 - Influenza (in particular drug resistant strains)
- Ebola 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

Biotron

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



Biotron

Investment Proposition

- Unique core expertise against novel viral targets
- Demonstrated proof of concept of successful targeting of viroporins with BIT225
- Potential within compound library for significant other viral infections e.g. Dengue, RSV, Hep B
- BIT225 is a novel approach with demonstrated promising efficacy in Phase 2a/2 clinical trials
 - HCV and HIV-1 are high growth, multi-billion dollar markets
 - Treatment gaps remain
 - Represents a new class of direct-acting HCV drugs
 - Potential to fill significant HCV treatment gaps, shorten treatment and reduce costs
 - Potential to eradicate important HIV-1 reservoirs, plus may impact on immune activation
 - Robust data package has been generated to support combination studies with potential partners

Outlook for 2015/16

- Report data from BIT225-008 HCV trial
 - SVR12 for G1 due **1Q16**
- Investigational New Drug application (IND)
 - Finalise regulatory documentation containing an extensive data package
 - Partner for HCV combination studies
- Progress protocol and regulatory documentation for key Phase 2 HIV-1 trial to commence in 1H16
- Expand earlier stage drug programs e.g. Dengue virus
- Identify leads for other viruses including RSV and Hep B

Dr Michelle Miller
Managing Director
+61 412 313329
mmiller@biotron.com.au

www.biotron.com.au

Biotron