



10 August 2009  
BioPharmica (ASX: BPH) ASX Announcement

## New Anti-Mitotic Drug Development for Pre-Clinical Testing

A new class of anti-mitotic drugs, discovered by BioPharmica's cancer cell biology researcher Dr Robin Scaife, has undergone extensive development toward pre-clinical testing of anti-cancer activity. Detailed analyses of chemical analogues of the new drug have yielded a new drug that exhibits nearly 1000 times the biological activity of the initial compound derived by screening of a chemical library. This new drug has also recently undergone testing in animals to rule out adverse toxic side-effects. Animals exposed to very high levels of the new drug exhibited no signs of acute toxicity. BioPharmica's new anti-mitotic drug is, therefore, primed for pre-clinical testing of anti-tumour activity, and it is anticipated that the research program may enable commercial development within this financial year.

The inhibition of cell proliferation and induction of cancer cell death is due to the anti-mitotic activity of these potential new drugs. Anti-mitotic drugs, such as the blockbuster anti-cancer drug Taxol®, are considered to be among the most clinically important cancer drugs discovered to date<sup>1</sup>, generating revenue well in excess of one billion USD/yr<sup>2,3</sup>.

### Also for more information contact:

Mr David Breeze  
BioPharmica Limited  
Tel : +61 8 9328 8366

Yours sincerely,

David Breeze  
Chairman

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<sup>1</sup> "Taxol has become one of the most valuable cytotoxic chemotherapeutic agents we have in clinical oncology. It has proven effective in ovarian, breast, lung, and head and neck cancer and it has contributed immensely to the quality of life of cancer patients," ([www.medicalnewstoday.com/articles/26471.php](http://www.medicalnewstoday.com/articles/26471.php))

<sup>2</sup> "In 2000, BMS reported its annual sales of Taxol® was \$1.592 billion - equal to excess \$4.3 million per day" ([www.21cecpharm.com/px](http://www.21cecpharm.com/px))

<sup>3</sup> "A taxane is a type of chemotherapy that stops cell division in order to fight tumors. Sales of taxanes were approximately \$2 billion in 2007," ([www.wikinvest.com/stock/Abraxis\\_BioScience\\_\(ABII\)](http://www.wikinvest.com/stock/Abraxis_BioScience_(ABII)))

# Novel Anti-Mitotic Cancer Therapeutics



**BioPharmica Limited**  
Bridging Biotechnology Borders

BioPharmica manages a strong portfolio of biomedical technologies emerging from research by leading Universities, Medical Institutes and Hospitals across Australia.

BioPharmica is working with the Western Australian for Institute for Medical Research (WAIMR).

WAIMR combines the Royal Perth Hospital, Sir Charles Gairdner Hospital, Fremantle Hospital and the University of Western Australia (UWA) and aims to uncover the genetic and environmental causes of a range of diseases. The ultimate goal is to prevent



## Background

Unregulated cell proliferation and evasion of cell death (apoptosis) are two of the fundamental hallmarks of cancer. While a number of pharmacological agents can target cell proliferation or apoptosis, anti-mitotic agents have proven to be among the most clinically effective anti-cancer drugs. The exceptional tumour inhibitory activity of anti-mitotic drugs is due to their unique ability to link perturbation of cell proliferation (metaphase arrest) with apoptosis (mitotic death and/or catastrophe) (Figure 1).

## Data

In light of the clinical success of the anti-mitotic microtubule drug Taxol®, the identification of new and improved anti-mitotic pharmacophores remains one of the primary objectives of current oncology drug discovery. Indeed, in addition to improved microtubule drugs (Ixabepilone), inhibitors of Polo/Aurora kinases (BI-2536/VX-680) and mitotic kinesins (Ispinesib, GSK-923295) have recently emerged as highly promising new anti-cancer therapeutics.

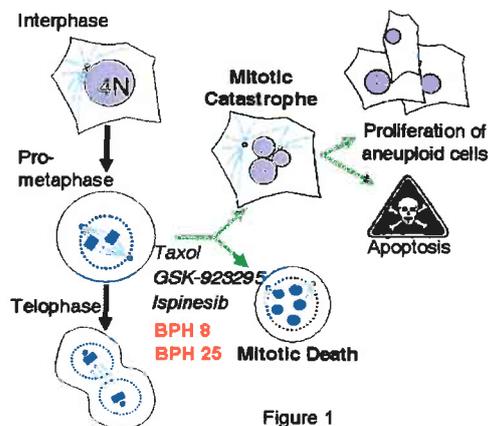


Figure 1

## Our Technology

BioPharmica has recently identified new anti-mitotic agents that induce mitotic arrest and apoptosis. While these actives do not affect the microtubule cytoskeleton in interphase cells, they perturb the function of the mitotic spindle (Figure 2), thereby selectively linking cell division with cell death.

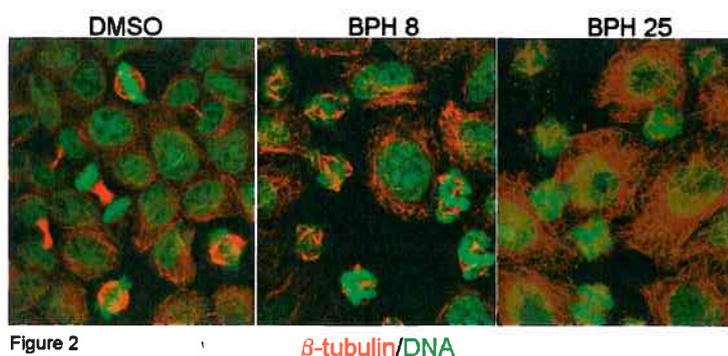


Figure 2

$\beta$ -tubulin/DNA

In addition to defining the molecular and cellular modes of action of these compounds, BioPharmica is also actively pursuing hit optimization through *in silico* and *in vitro* medicinal chemistry.

## Australian Research Network

The Australian Research Network represents BioPharmica Limited.

The Australian Research Network is a technology transfer company based in Los Angeles focused on the commercialization of early stage technologies from Australia.

The Australian Research Network is a wholly owned subsidiary of TM Ventures Pty Ltd, a business development company based in Sydney Australia.



David Breeze  
Chairman  
BioPharmica Limited  
T +61 8 9328 8366  
david@biopharmica.com.au  
www.biopharmica.com.au

## For Further Information