

Bone Medical

**INVESTOR PRESENTATION**

**MARCH 2014**

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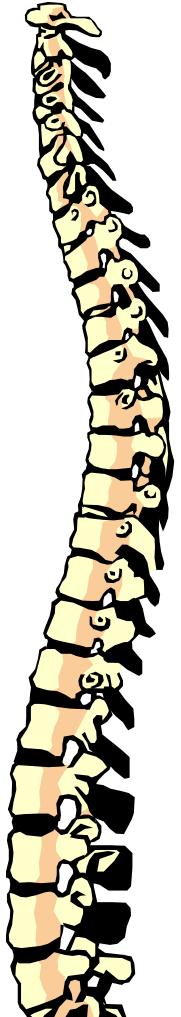
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# Superior Products for Musculoskeletal Diseases

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- Bone is developing improved treatments for musculoskeletal diseases with oral drug delivery & increased safety profiles
- Three significant musculoskeletal disease areas all in need of effective, safe new treatments:
  - ***Osteoporosis***
  - ***Osteoarthritis &***
  - ***Rheumatoid arthritis***
- The musculoskeletal diseases market has huge pharmaceutical interest and partnering potential
- Bone has a pipeline of high-potential product candidates based on exclusively licenced platform technologies



# Corporate Restructure – January 2014

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**\$3.8 million Capital Raised**

**Market Capitalisation \$6.4 million**  
*at 2.5 cents per share*

## **New Leadership**

Non-Executive Chairman	<b>Mr Robert Towner</b>
Chief Executive Officer	<b>Mr Peter Young</b>
Non-Executive Director	<b>Mr John Hannaford</b>
Non-Executive Director	<b>Dr Roger New</b>
Company Secretary	<b>Mr Phillip Wingate</b>

# Company Information

## Capital Structure

Ordinary shares	257.8m
Options	32m

Cash	\$3.1m
Debt	Nil

## Market Capitalisation

@2.5 cents per share      \$6.4m

ASX Code BNE



# Large, Growing, and Unsatisfied Target Markets

## Osteoporosis

Market Data	Current Treatments
\$10 billion in Global Drug Sales Affects approximately 200 million women. \$48 billion spent in North America and Europe to treat the disease	Bisphosphonates are market leaders but long-term safety concerns including jaw osteonecrosis, long bone shear fracture, esophageal cancer. Forteo is the only drug shown to build bone but requires daily injection.

## Osteoarthritis Pain

Market Data	Current Treatments
\$4.5 billion in global sales & \$6.0 billion forecast by 2019 In the USA about 14% > age 25 and ~35% > age 65 suffer from osteoarthritis; 25% of people > age 60 suffer disability	NSAIDs are the leading treatments but have serious limitations: high percentage of non-responders. Significant side effects (gastrointestinal, hepatic, cardiovascular, metabolic, skin) and drug interactions

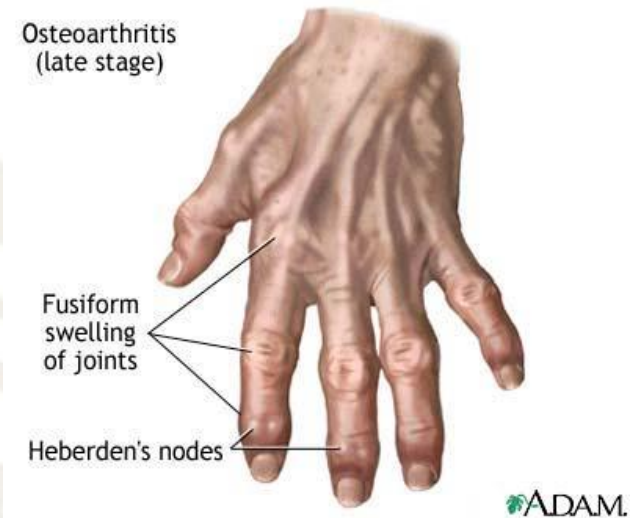
## Rheumatoid Arthritis

Market Data	Current Treatments
\$25 billion anti-TNF drug sales alone in 2012 51-59% of patients suffer work disability within a decade of onset; 30% of patients need help with personal care	Biologics such as Enbrel, Humira, Remicade and Orencia are injectables with significant immunosuppressive side effects; new JAK-inhibitors (Xeljanz) are oral but carry risk of cancer, serious infection, and other safety issues

# Clinical-Stage Products

## Capsitonin™ (oral calcitonin)

- Oral delivery of calcitonin hormone for the treatment of osteoarthritis pain
- Calcitonin is a natural hormone that has been used to treat bone diseases by injection and nasal spray for many years.
- An effective oral calcitonin could challenge the role of non-steroidal anti-inflammatory drugs (NSAIDs).

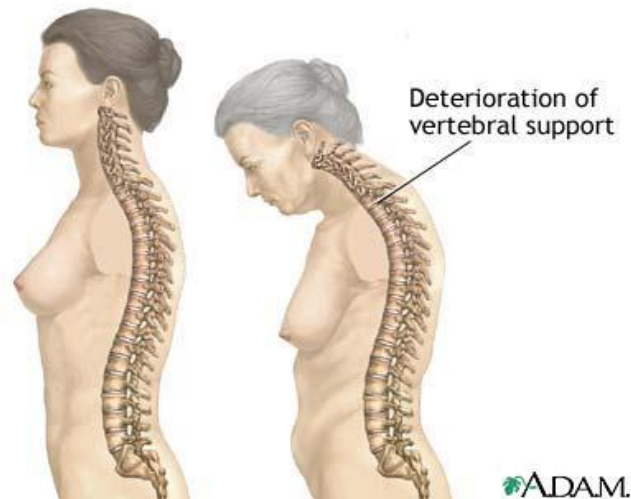




# Clinical-Stage Products

## CaPTHymone™

- Oral parathyroid hormone (“PTH”) for the treatment of osteoporosis
- PTH is a naturally occurring hormone that modulates healthy bone formation
- Current delivery of PTH is by daily injection with global sales from the leading medication Forteo® approximately US\$1 billion
- An effective oral PTH could replace injected PTH for the treatment of osteoporosis and also expand the market through greater patient acceptance





# Potential Breakthrough Treatment

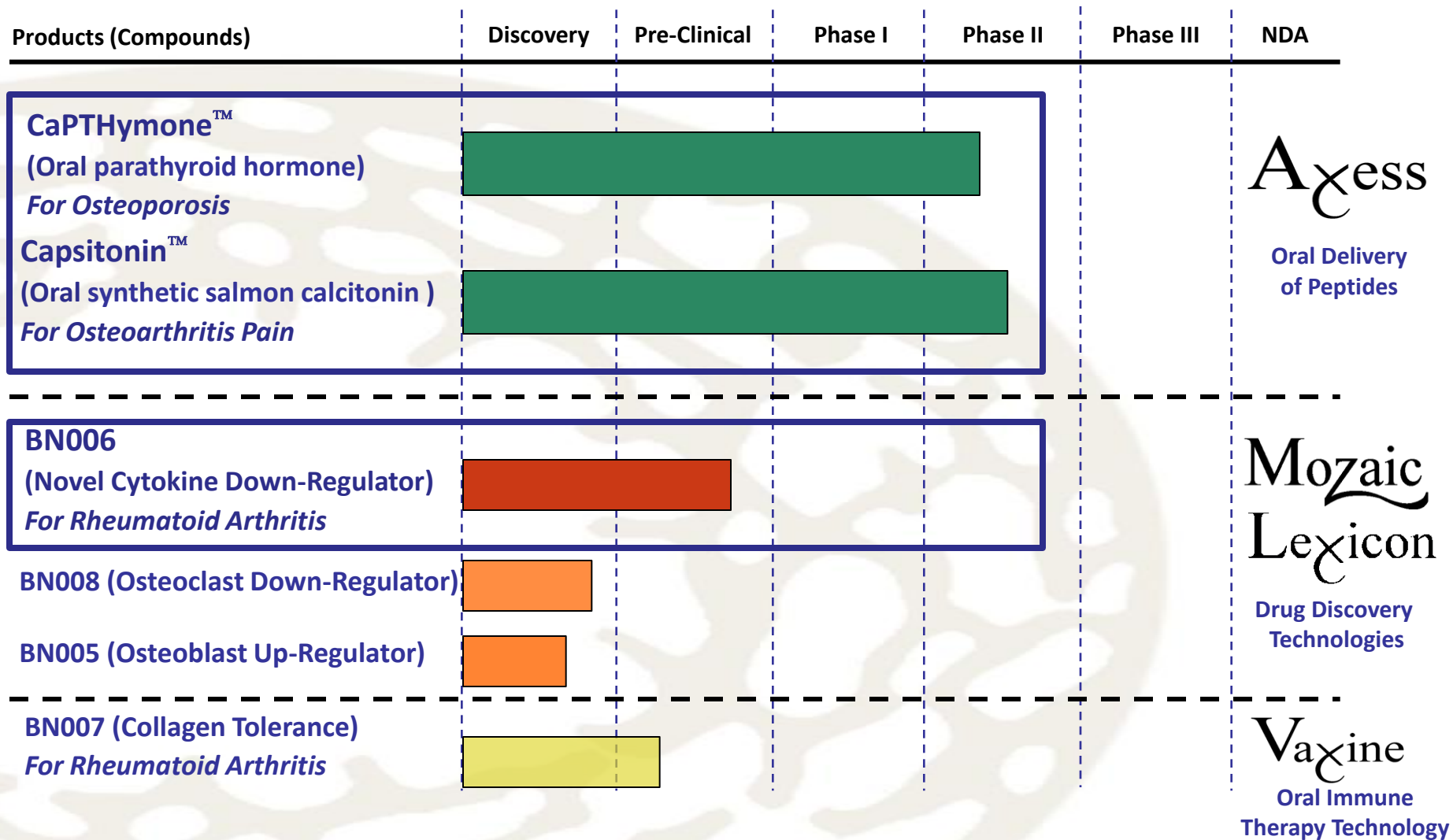
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## BN006

- Market-leading Rheumatoid Arthritis products sold **US\$25b** worldwide in 2012 but have major drawbacks
  - Antibody-based mechanism of action
  - Systemic inhibition of immunological proteins
  - Immunosuppressive side effects
  - Injectable-only
- BN006 designed to modify expression of immunological proteins without systemic inhibition & have potential for improved safety profile
- Proof of concept study in Rheumatoid Arthritis animal model vs. market leader showed ***equal efficacy with less reduction of immunological proteins***
- Orally deliverable



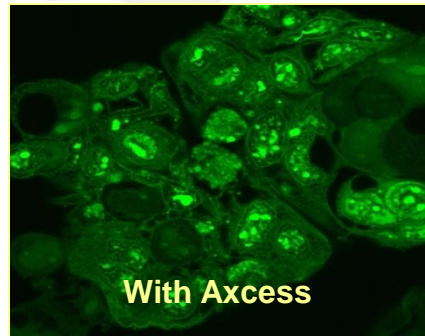
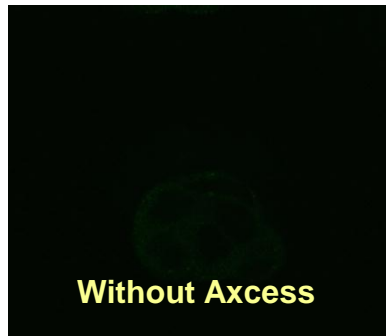
# Product Pipeline Includes High-value Opportunities



# Oral Delivery Technology: A<sub>χ</sub>ess™

**Bone's exclusively licenced A<sub>χ</sub>ess™ technology platform permits oral delivery of peptides. This is a major unfulfilled pharmaceutical industry goal**

- Differentiated versus other oral peptide techniques under development
- Uses accepted, well-known, commonly used components
- Works via trans-cellular transport through normal gut absorption – versus other technologies that affect intercellular -junctions creating potential toxicity

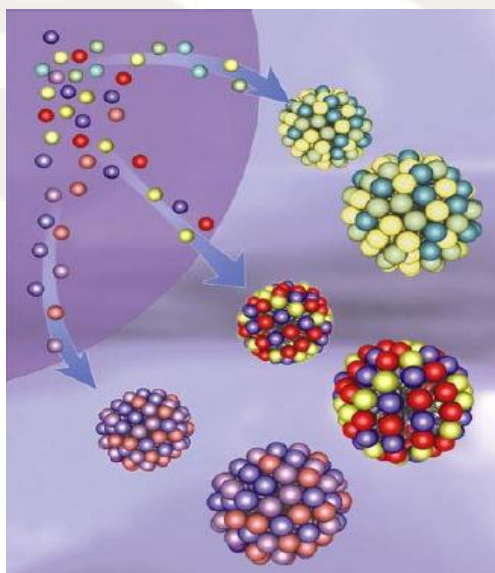


In vitro uptake of radio-labeled insulin by Caco2 human-derived intestinal cells: unformulated versus formulated with A<sub>χ</sub>ess

- Demonstrated in multiple different oral peptide programs
- Manufacturing process is low-cost and uses standard techniques

# Novel Drug Discovery Platform: Mozaic™ Lexicon™

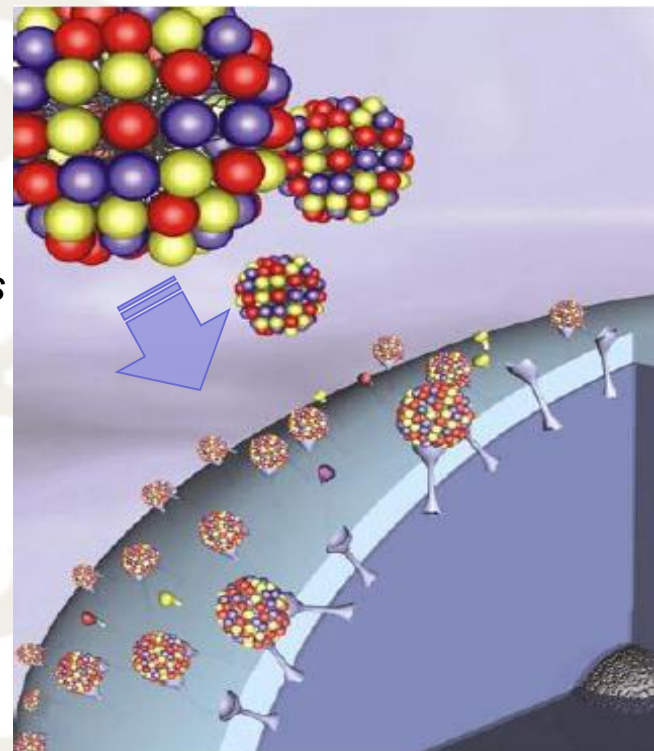
**Bone's exclusively licenced Mozaic™ & Lexcicon™** platform technologies provide a new proprietary method for building new molecules with targeted biological properties



*Multiple combinations of amino acid building blocks presented as 3-D mosaics on micelle surface*

*Mozaic nanoparticles bind to cell surface receptors*

**Resulting biological effects allow selection and optimization of molecules with desired activity**



## Six-month Value-generating Milestones

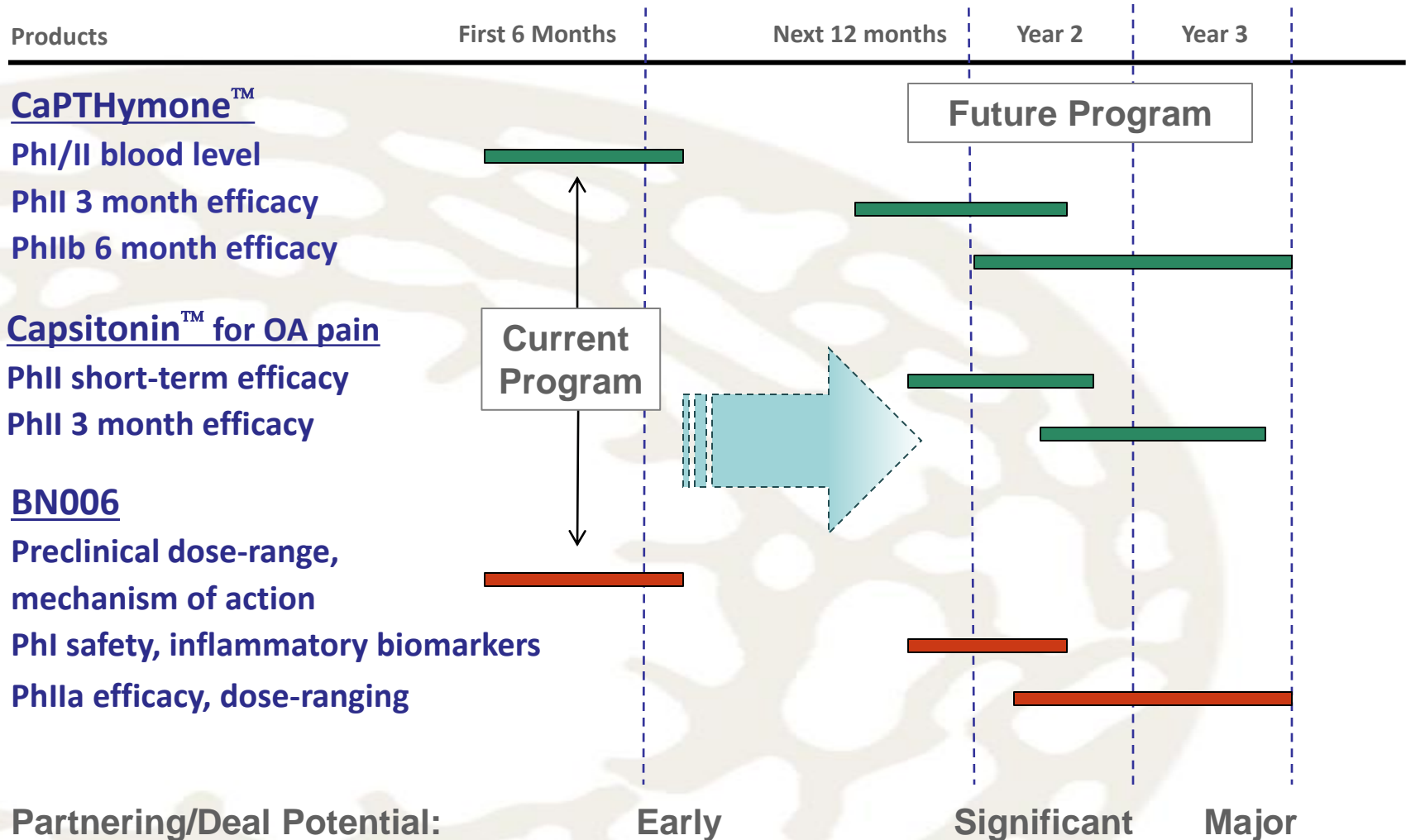
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- **New clinical data confirming CaPTHymone™ oral PTH blood levels vs. Forteo® (US\$1B injectable PTH for osteoporosis)\***
  - Demonstrate that substituting our oral formulation should achieve the same medical effect as Forteo®
- **Complete mechanism of action, animal dose-ranging & oral dosing data for BN006 for rheumatoid arthritis\***
  - Confirm profile as a potential RA treatment in man
- **Evaluate new technology acquisition candidates to further diversify & leverage pipeline potential**

***\*EARLY PARTNERING MILESTONE***



# Key Product Development/Partnering Milestones





# Value Benchmarks

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- **Transdermal delivery technologies: Acrux Ltd**
  - Australian company (ASX: ACR)
  - Transdermal delivery technologies, marketed products (Axiron) with Lilly
  - Market cap: \$351m (February 2014)
- **Oral peptide value comparator: Oramed**
  - Israeli company with a US market listing (NASDAQCM: ORMP)
  - Oral peptide technology, oral insulin in PhIIa clinical trials
  - Market cap: US\$143m (February 2014)
- **Rheumatoid arthritis value comparator: Galapagos**
  - Belgian company (NYSE Euronext: GLPG)
  - 2012 licencing deal with Abbott for GLPG0634: PhIIa-stage
  - Selective JAK inhibitor for rheumatoid arthritis
  - US \$150m upfront, \$200m at end of PhII, \$1b other milestones
  - Double-digit royalty

# Historical Share Price Performance



# Investment Summary

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- Recapitalized & restructured, new leadership
- Focused on large, unsatisfied musculoskeletal disease markets with high industry-partnering potential
- Pipeline of high-potential product candidates based on exclusively licenced technology platforms
- Active search for new technology acquisitions to leverage value growth
- Low capital & operating burden to achieve near-term value milestones (leveraged by 45% cash-back tax credit for Australian-based R&D)
- Significant value appreciation potential

# Contacts

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