**ASX & Media Release**

# Updated investor presentation and attendance at Bioshares

**Melbourne, Australia; 24 July 2019:** Patrys Limited (ASX: PAB, "Patrys" or the "Company") is pleased to release an updated investor presentation. The presentation will be used to update to shareholders, investors and potential strategic partners on the ongoing development of the Deoxymab 3E10 platform. Patrys will also be attending the 15th Bioshares Biotech Summit held on 26 to 27 July in Queenstown, New Zealand.

**Patrys Chief Executive Officer and Managing Director, Dr. James Campbell said:** "The Bioshares conference provides a great opportunity for Patrys to showcase the promising pre-clinical data from our Deoxymab 3E10 platform. Our lead candidate, PAT-DX1 represents a truly novel approach to cancer treatment. With a unique mechanism of action and its ability to cross the blood brain barrier, PAT-DX1 could dramatically improve patient outcomes across a range of difficult to treat cancers."

The updated investor presentation outlines Patrys' key investment highlights, development progress, pre-clinical data in initial target indications (glioblastoma and triple negative breast cancer brain metastases) and outlook. The annual Bioshares Summit attracts biotech CEOs, pharmaceutical licensing executives, fund managers, and retail investors from around the world.

**-Ends-**

To learn more please visit: www.patrys.com

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**About Patrys Limited**

Based in Melbourne, Australia, Patrys (ASX:PAB) is focused on the development of antibodies as therapies for a range of different cancers. Patrys has a pipeline of anti-cancer antibodies for both internal development and as partnering opportunities. More information can be found at www.patrys.com.

**About Patrys' Deoxymab 3E10 platform – lead candidates PAT-DX1 and PAT-DX1-NP:**

Deoxymab 3E10 is a DNA damage-repair antibody that was first identified in lupus. Of particular interest is that whilst most antibodies bind to cell surface markers, Deoxymab 3E10 penetrates into the cell nuclei and binds directly to DNA where it inhibits DNA repair processes and kills cells that have mutations or deficiencies in DNA repair mechanisms as found in various cancer cells. Deoxymab 3E10 has demonstrated single agent activity and

has been shown to significantly enhance the efficacy of both chemotherapy and radiotherapy. Further, Deoxymab 3E10 can be conjugated to nanoparticles to target delivery of chemotherapeutics and imaging agents to tumours.

Patrys has developed a humanised form of Deoxymab 3E10, PAT-DX1 with improved activity over the original version of 3E10, and is progressing this, and a nanoparticle-conjugated form (PAT-DX1-NP) towards the clinic. In a range of pre-clinical cancer models PAT-DX1 has shown significant ability to kill cancer cells in cell models, human tumour explants, xenograft and orthotopic models. Treatment with PAT-DX1 has been shown to significantly improve survival in orthotopic models of both triple negative breast cancer brain metastases and glioblastoma. Significantly, PAT-DX1 has repeatedly been shown to be able to cross the blood brain barrier, a significant hurdle for therapeutics to combat brain cancers.

Patrys' rights to Deoxymab 3E10 are part of a worldwide license to develop and commercialise as anti-cancer and diagnostic agents a portfolio of novel anti-DNA antibodies and antibody fragments, variants and conjugates discovered at Yale University.

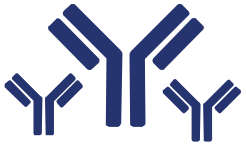
patrys

# Investor Presentation

July 2019

Dr James Campbell
CEO and Managing Director

# Patrys has a world first cell-penetrating antibody platform



## Novel biologics platform

Antibody platform which inhibits key mechanism of DNA repair in tumour cells

Crosses Blood Brain Barrier

No safety issues to date

## Promising pre-clinical results

Supresses tumour growth and increase survival rates in animal studies

Positive data for PAT-DX1 as a single agent, in both combination and conjugated approaches

## Multiple options for development

Multiple pre-clinical studies ongoing and planned in CY19 / CY20

On-track to file IND in CY20 then enter the clinic

Growing interest / potential BD opportunities

## Favourable macro themes

Large pre-clinical biologics deals relatively common

Focusing on two hard-to-treat cancers, streamlining development timelines

Target addressable markets worth ~US$1bn p.a.[1]

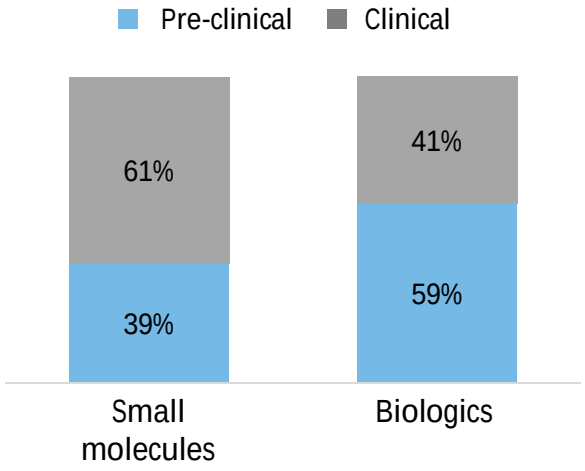
| Potential game changer for cancer treatment | Presented at scientific and industry conferences | Derisked by multiple development pathways | Patrys is operating in an attractive space |
|---|---|---|---|

1. Addressable market includes glioblastoma (GBM) and Triple Negative Breast Cancer (TNBC) brain metastasis . GBM addressable market sourced from GlobalData, TNBC addressable market sourced from report 'TNBC - Market Insight, Epidemiology and Market Forecast' and assumes ~50% of TNBC patients develop brain metastases

# Relative to small molecules, biologics typically transact at an earlier stage and at higher valuations

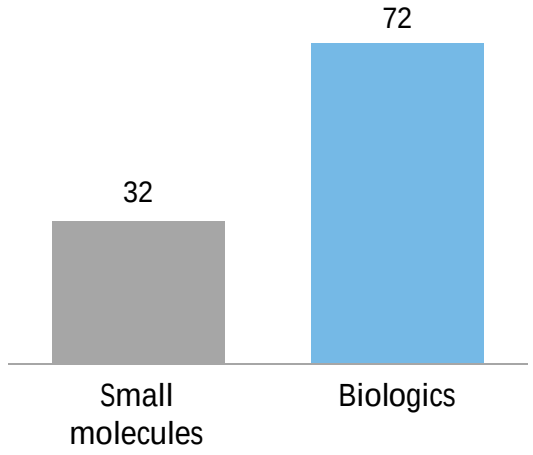
## Proportion of total deals[1]

*Majority of biologic deals occur at the pre-clinical stage*



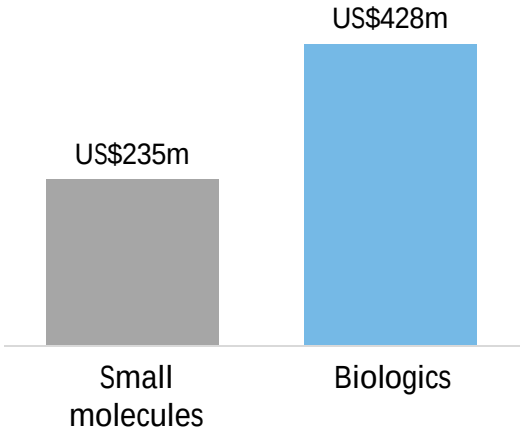

## Number of pre-clinical deals[1]

*Significantly more interest in pre-clinical biologic assets*




## Pre-clinical avg. deal size[1,2]

*Pre-clinical biologic deals executed at higher valuations*



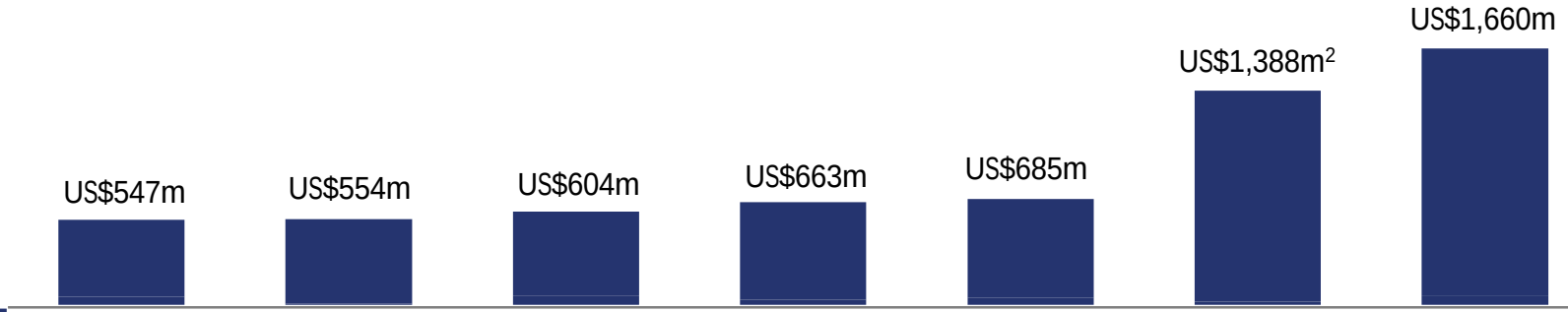

**The value of Patrys' novel therapy is underpinned by potential for multiple applications to achieve better patient outcomes**

Source: GlobalData

1. Small molecules and biologics transactions between 2017 and 2019
2. Deal size includes upfront and potential milestone payments

# Significant upside value for Patrys underpinned by recent significant pre-clinical deals executed for antibody assets

## Recent pre-clinical antibody transactions (licensing, asset and corporate)[1]



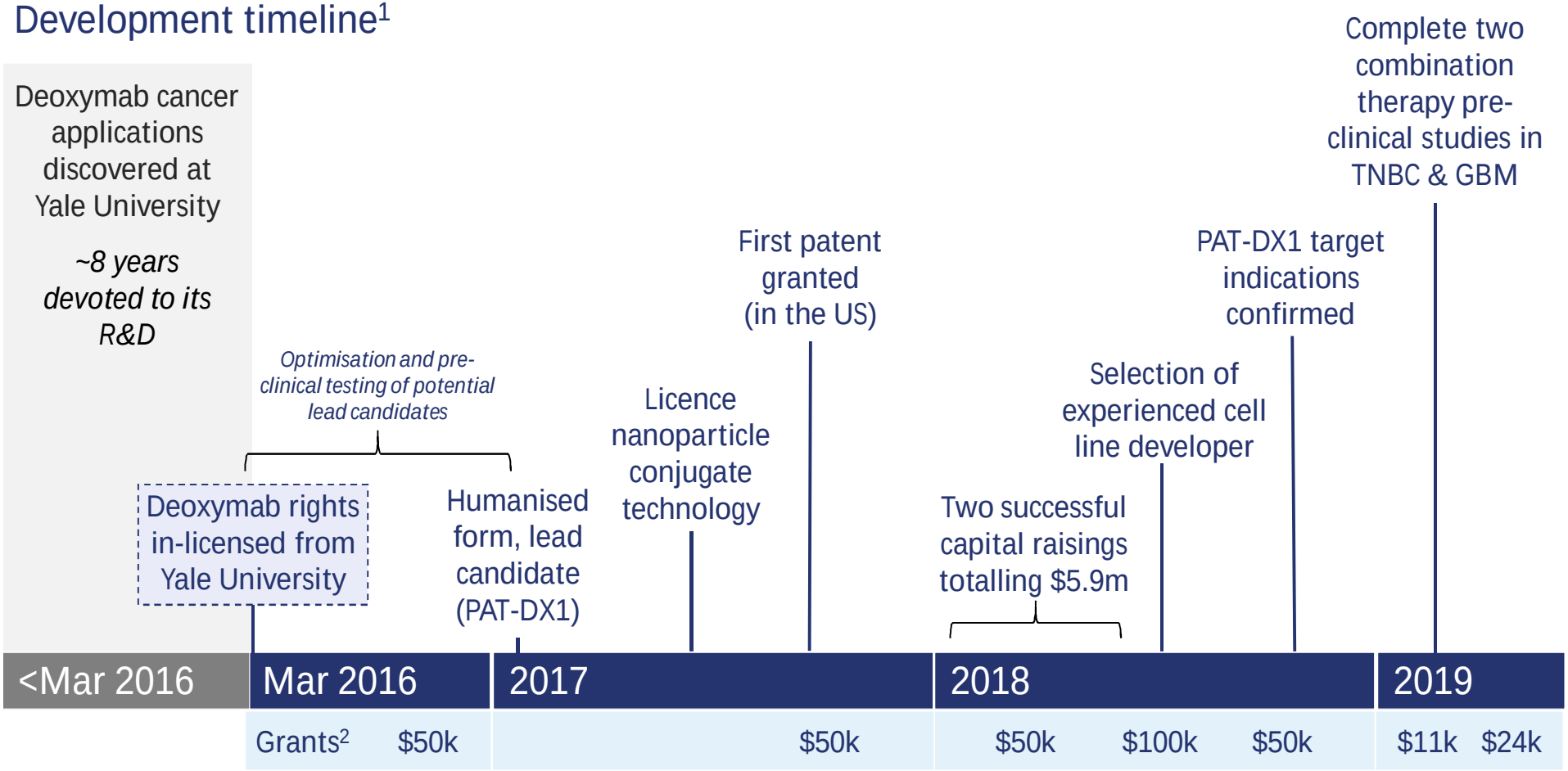

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Deal date | 4Q18 | 3Q18 | 3Q18 | 3Q18 | 3Q18 | 2Q18 | 3Q18 |
| Deal type | Licensing | Licensing | Licensing | Co-development | Licensing | Licensing | Licensing |
| Up front payment | US$50.0m | US$4.3m | US$54.0m | US$30.0m | US$40.0m | US$18.4m | US$60.0m |
| Licensee/ Acquirer | AMGEN | TRIGR THERAPEUTICS | Genmab | Takeda | abbvie | Boehringer Ingelheim | MERCK |
| Licensor/ Target | MOLECULAR partners | ablbio medicine for a better life | immatics | tem MOLECULAR TEMPLATES | argenx | OSE IMMUNO THERAPEUTICS | SUTRO BIOPHARMA |
| Technology & target indication(s) | MP0310: Anti-cancer immune cell activator for the treatment of cancers | Rights to develop 5 antibodies in ABL Bios pipeline for the treatment of cancers | XPRESIDENT® technology: Bispecific immunotherapies for the treatment of cancers | CD38-targeted ETB: Engineered Toxin Bodies to target multiple myeloma | ARGX-115: a novel immuno-oncology target glycoprotein A repetitions predominant (GARP) | OSE-172: a SIRP-alpha monoclonal antibody with potential in various cancers | Conjugation platforms for immune-modulating therapies for cancer and autoimmune disorders |

Source: Company information

1. All deal values exclude potential royalty payments
2. IRESS: USD/EU as at 4 April 2018: 0.8133

# PAT-DX1 is supported by significant R&D investment and Patrys is well positioned to progress towards the clinic

## Development timeline[1]




1. Timeline is not to scale, for illustrative purposes
2. A number of grants have been awards to Patrys and its research collaborations. Excludes R&D tax refunds of $556k (FY17/18) and $293 (FY16/17). Federal Government Innovation Connections (2016: $50k and 2018: A$50k), Australian Academy of Technology and Engineering (ATSE Global Connections Bridging Grant (2017: A$50k), Victorian Medical Research Acceleration Fund (2018: A$100k), Export Market Development Grant (2019: A$11k), CSIRO Kick Start Program (2019: $24k).

# Proven Board and scientific advisory team with significant industry, clinical development and commercialisation experience

**John Read**
Chairman

*Chairman of multiple private and public companies*

**Dr James Campbell**
Chief Executive Officer

*Multiple successful company transactions*

**Dr Allen Ebens**
Scientific Advisory Board

*Established oncology research lab at Juno Therapeutics*

**Suzy Jones**
Non-Executive Director

*Former head of Business Development for Genentech*

**Mike Stork**
Non-Executive Director

*Various Board positions across a range of sectors*

**Dr Pamela M. Klein**
Scientific Advisory Board

*Led the development of Herceptin®*

## Worked with leading pharmaceutical and biotechnology companies globally

JUNO THERAPEUTICS
NIH National Cancer Institute
INVION
CALITHERA
Genentech A Member of the Roche Group
argenx
Spartan
Prescient Therapeutics
EXELIXIS
Dejero
CHEMGENEX
Evolve

## Proven clinical development expertise and commercialisation credentials

PERJETA® pertuzumab
Rituxan
EVIVO
Tarceva® erlotinib
SYNRIBO (omacetaxine mepesuccinate) for Injection FOR SUBCUTANEOUS USE
Herceptin® trastuzumab Precision • Power • Promise

# A first-in-class antibody platform with potential to revolutionise treatment across a broad range of cancers

## Deoxymab 3E10 platform overview

- Deoxymab 3E10 is the world's first cell-penetrating anti-DNA antibody for the treatment of cancer
- Platform technology in-licensed from Yale University
- Patrys has developed a humanised form of Deoxymab 3E10 called PAT-DX1, currently in pre-clinical studies

*Path to shareholder value*

### Single agent and combination approach (PAT-DX1)

Antibody platform targeting difficult to treat cancers in combination with existing standard of care (radiation, chemotherapy)

### Conjugation approach (PAT-DX1-NP)

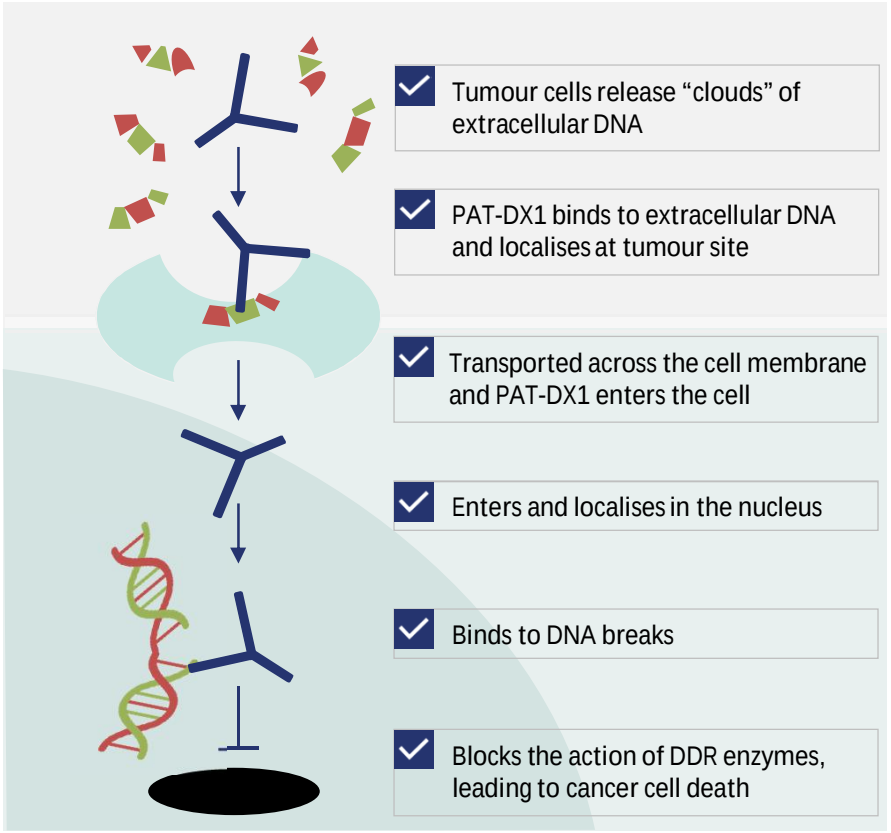
Antibody platform transports conjugated nanoparticles into cancer cells in a highly targeted way

## Differentiating features

- ü Deoxymab 3E10 preferentially localises to tumours
- ü Penetrates the cell membrane and the cell nucleus
- ü Crosses the blood brain barrier (BBB)
- ü Kills cancer cells deficient in DNA repair

# PAT-DX1 has a novel mechanism of action that interferes with tumour cell DNA repair processes

## A novel mechanism of action…




### PAT-DX1 preferentially localises to tumours

- Specifically attracted to extracellular DNA from dying cancer cells

### Penetrates the cell membrane and the cell nucleus

- PAT-DX1 is able to penetrate the cell membrane, then enter the nucleus

### Crosses the blood brain barrier

- Very few proteins or antibodies have been shown to transit across the blood brain barrier

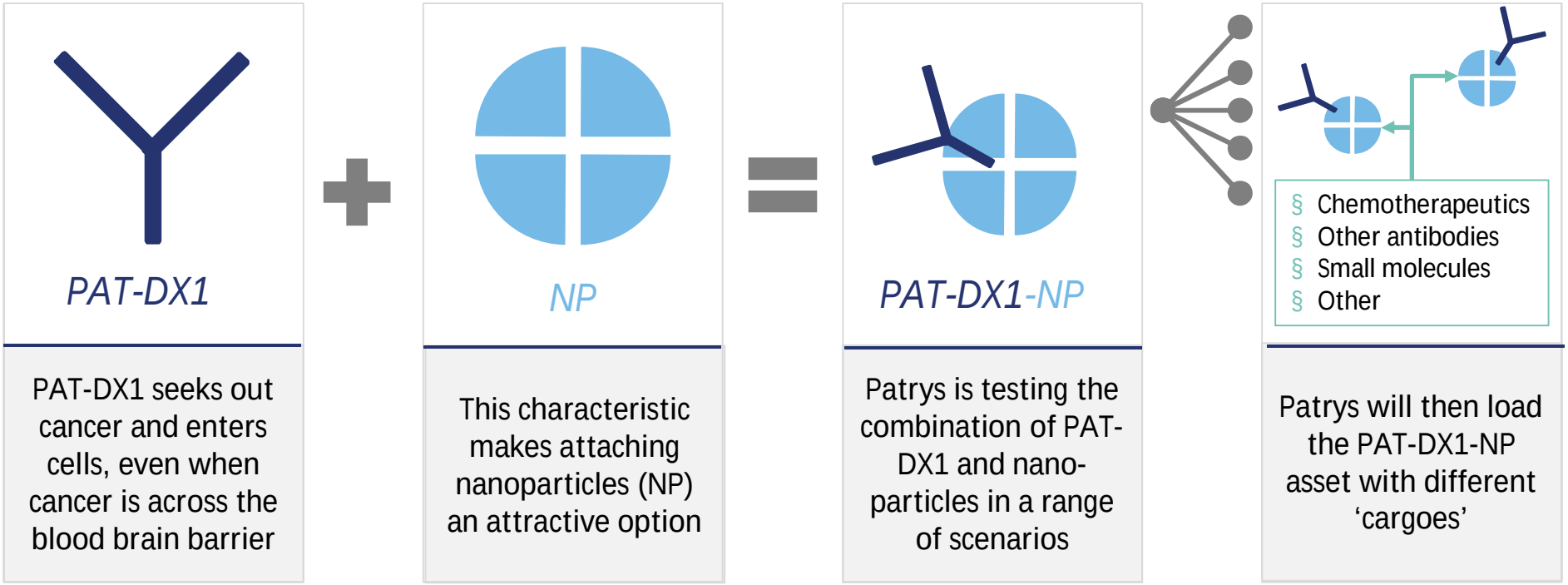
### Kills cancer cells deficient in DNA repair

- Diminishes cancer cells’ ability to repair themselves
- Has high therapeutic value against a wide range of cancer repair pathways

View the animation for more information on the mechanism of action:

*www.patrys.com*

# Attaching nanoparticles to PAT-DX1 creates a cancer-targeting delivery vehicle for a range of ‘cargoes’ (e.g. chemotherapeutics)




PAT-DX1 seeks out cancer and enters cells, even when cancer is across the blood brain barrier

This characteristic makes attaching nanoparticles (NP) an attractive option

Patrys is testing the combination of PAT-DX1 and nano-particles in a range of scenarios

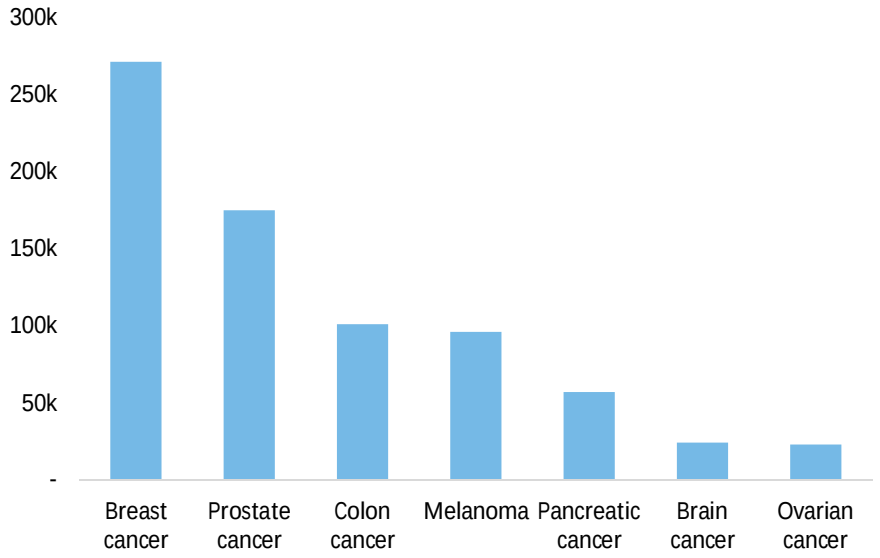
Patrys will then load the PAT-DX1-NP asset with different ‘cargoes’

**PAT-DX1-NP loaded with chemotherapeutics doubles efficacy of chemotherapeutic response[1]**

1. Chen et al., Oncotarget (2016) 7(37): 59965-59975

# Platform technology with broad applicability across multiple indications, with Patrys' focus informed by disease mechanism and market attractiveness

## Potential cancers Patrys could target and Incidence rates (US cases p.a.)[1]




## Patrys' approach to prioritising and selecting target indications

- Does PAT-DX1 have a differentiated capacity to succeed compared to current standard of care?
- Is there a significant unmet medical need?
- Are there opportunities for regulatory incentives?
- Has PAT-DX1 demonstrated promising pre-clinical results?
- Is there a large addressable market?

~20% of patients with cancer will develop brain metastases[2] and glioblastoma is a particularly aggressive, highly malignant primary brain cancer. The prognosis for patients with brain cancer remains poor.

1. American Cancer Society - Cancer Facts & Figures 2019

# Prioritising two target indications to progress towards the clinic

## Metastatic triple-negative breast cancer (MTNBC)

- In the US, Breast cancer is the second leading cause of cancer death in women[1]
- Most deaths due to metastatic behaviour (not the primary tumour)[2]
- TNBC makes up 15% to 20% of all breast cancer cases globally[3]
- ~50% of TNBC patients develop brain metastases that has devastating effects on overall quality of life and survival[4]

## Glioblastoma (GBM)

- GBM is a particularly aggressive, highly malignant form of brain cancer
- GBM constitutes ~17% of all primary brain cancers[5]
- ~12,000 new cases diagnosed in the U.S. each year[5]
- Current standard of care is surgical resection followed by radiation and chemotherapy, with a median survival of 15 months[6]

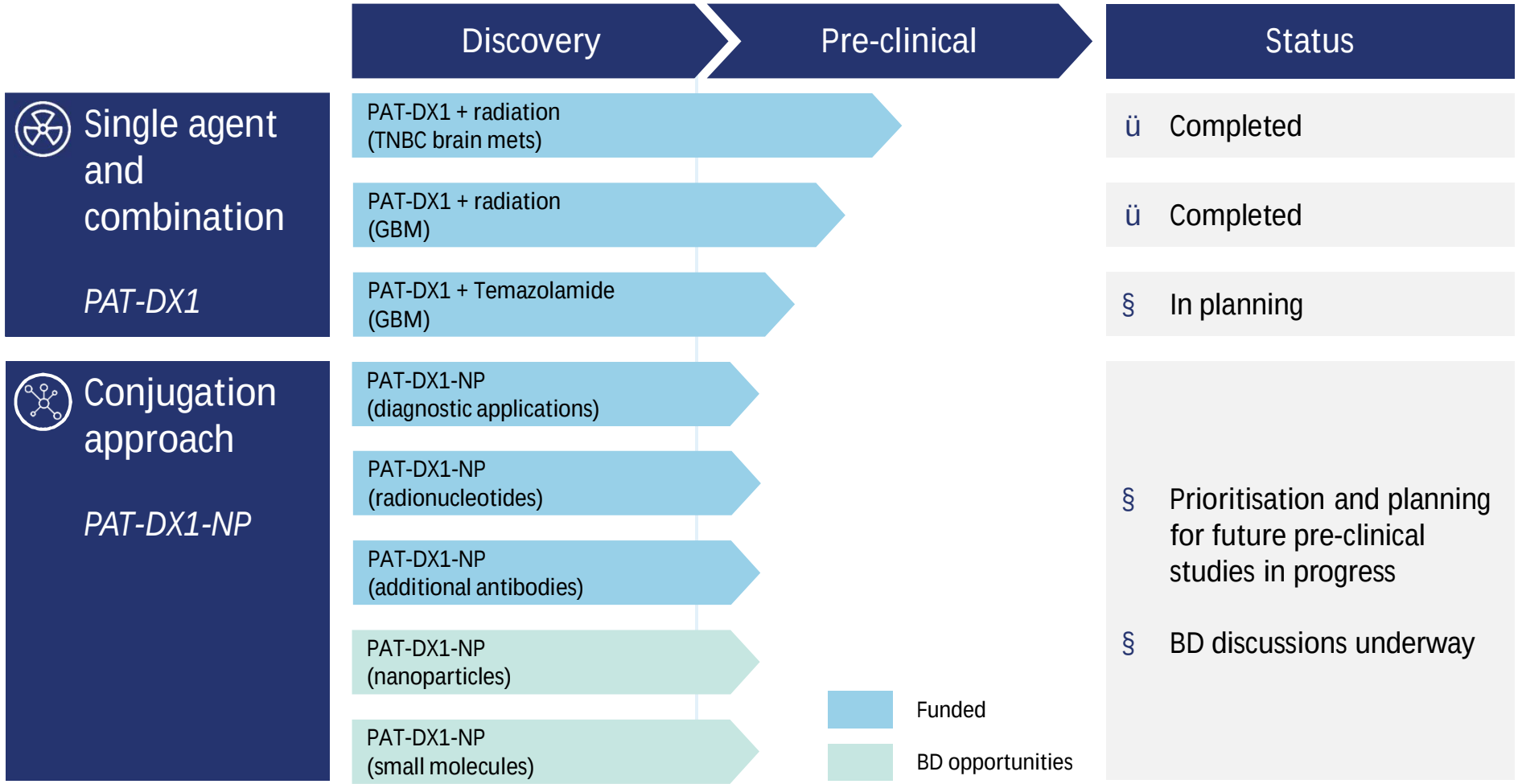
**With its ability to cross the blood brain barrier, Patrys' Deoxymab platform could hold the key to improving patient outcomes for patients suffering from MTNBC, GBM and other brain cancers**

1.) American Cancer Society - Cancer Facts & Figures 2019 2.) Al-Mahmood S, Sapiezynski J, Garbuzenko OB, Minko T. Metastatic and triple-negative breast cancer: challenges and treatment options. Drug Deliv Transl Res. 2018;8(5):1483–1507. doi:10.1007/s13346-018-0551-3 3.) Yao H, He G, Yan S, et al. Triple-negative breast cancer: is there a treatment on the horizon?. Oncotarget. ;8(1):1913–1924. doi:10.18632/oncotarget.12284 4.) Anders, C. K. (2016) Management of Brain Metastases in Breast Cancer. Clinical Advances in Hematology & Oncology, August 2016 - Volume 14, Issue 9 5.) American Association of Neurological Surgeons (AANS), Glioblastoma Multiforme. 6.) Davis ME. Glioblastoma: Overview of Disease and Treatment. Clin J Oncol Nurs. 2016;20(5 Suppl):S2–S8. doi:10.1188/16.CJON.S1.2-8

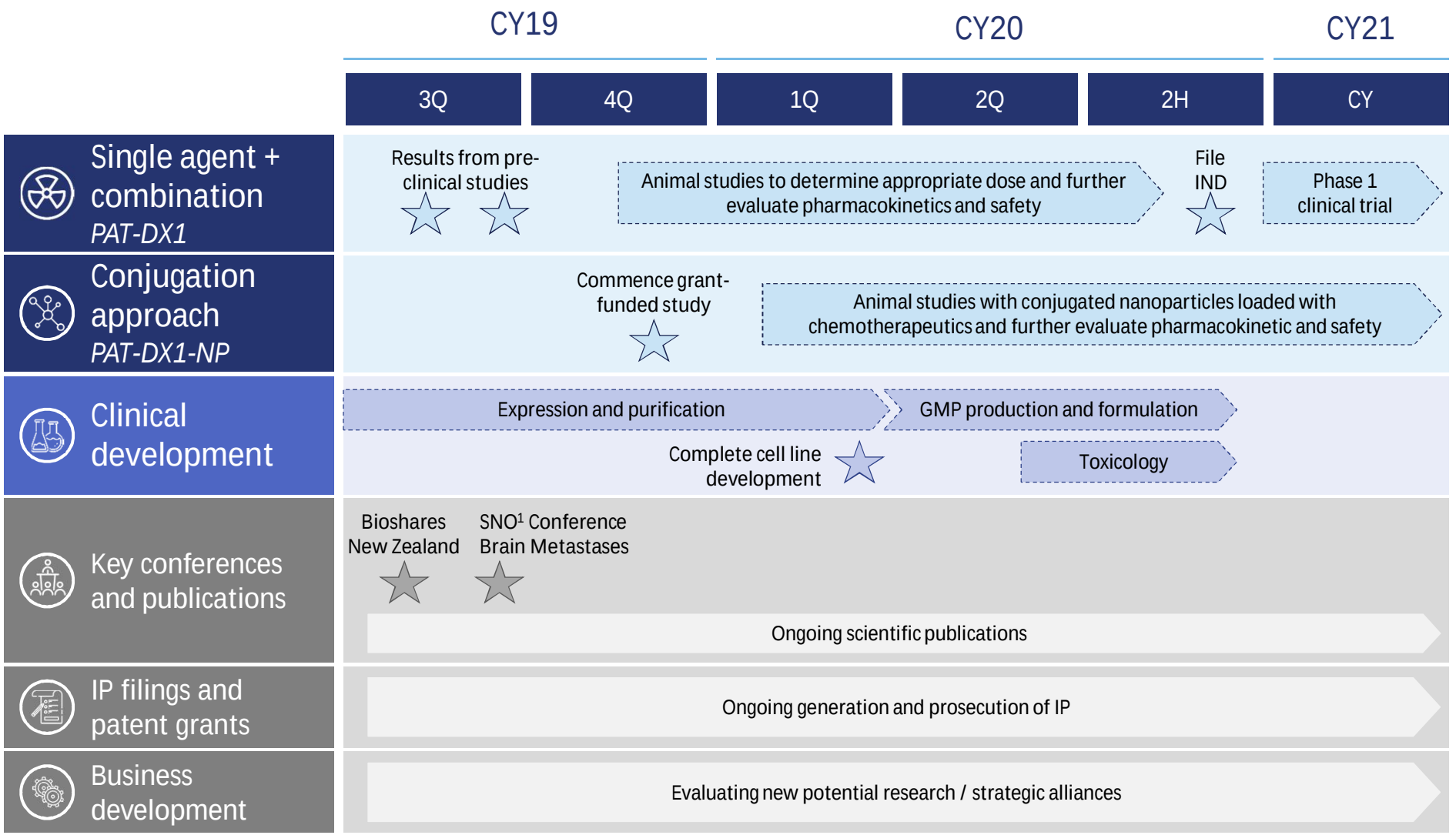
# Patrys' key development pathways progressing well, with positive data from multiple pre-clinical studies generating industry interest

| | Single agent and Combination *PAT-DX1* | | Conjugation approach *PAT-DX1-NP* | |
|---|---|---|---|---|
| Validated by years of scientific research | 25+ Pre-clinical studies | 11+ Animal studies | 8+ Years of development | 6 World-leading research institutions |
| Promising study results | ü PAT-DX1 is able to cross the BBB, no toxicity observed<br>ü Single agent treatment causes similar tumour growth suppression to that of low dose radiation treatment<br>ü Combination with radiation resulted in significantly more tumour suppression than radiation alone<br>ü PAT-DX1 significantly reduced TNBC brain metastasis and GBM proliferation and improved survival | | ü Enables targeted delivery of therapeutics – preferentially attracted to tumours<br>ü Doubles efficacy of chemotherapeutic response<br>ü PAT-DX1-NP crosses the BBB<br>ü Localises to both primary and secondary tumours | |
| Multiple grants and collaborations | CSIRO; Beth Israel Deaconess Medical Center; Yale University; Walter+Eliza Hall Institute of Medical Research; Garvan Institute; Australian Government Australian Trade and Investment Commission; Australia Unlimited; Victoria State Government health.vic Victoria's hub for health services & business; Applied Australian Academy of Technology & Engineering | | | |

# Patrys' development program is fully funded to date and expected to release additional pre-clinical data in the near term



# Upcoming key catalysts and milestones




[1]US Society for Neuro-Oncology

# Appendix

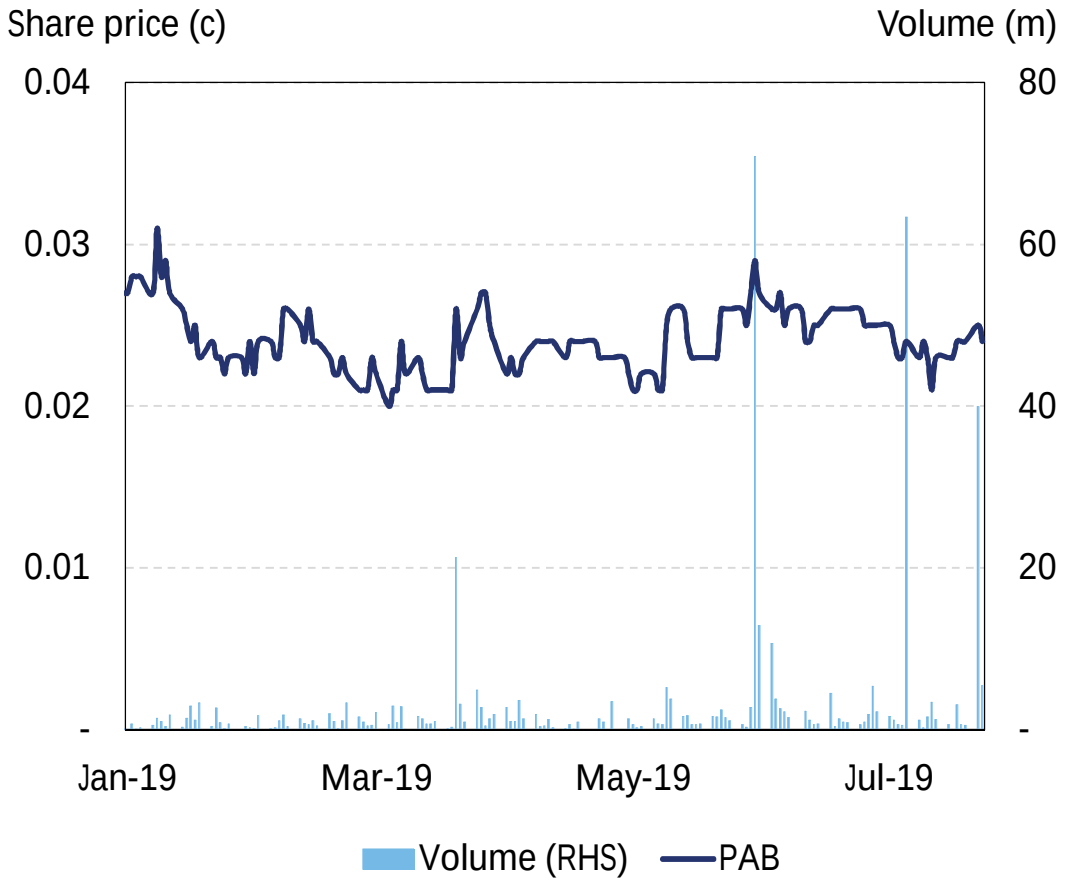
# Patrys is a biopharmaceutical company devoted to the development of antibody technologies to improve outcomes for cancer patients

## Overview

| Trading information | |
|---|---|
| Share price (23-Jul-19) | A$0.024 |
| 52 week low / high | A$0.020 /A$0.050 |
| Shares outstanding[1] | 1.073bn |
| Market capitalisation | A$25.7m |
| Net cash (31-Mar-19) | A$7.2m |

| Top shareholders – June 2019 | |
|---|---|
| Dr Dax Marcus Calder | 11.2% |
| Stork Holdings | 9.2% |
| Mason Stevens | 6.2% |
| Other Board and management | 1.0% |

## Share price performance (since 1-Jan-2019)




Source: IRESS, company information

1. Excludes 67.3m options

# Proven Board and scientific advisory team with significant industry, clinical development and commercialisation experience

## John Read | Chairman

- 30+ years experience as a Chairman and Director in public, private and government organisations
- Expertise in the formation and growth of emerging companies through career in venture capital, private equity and commercialisation

## Dr James Campbell | Chief Executive Officer

- 20+ years biotechnology experience through multiple Board and senior executive roles
- Previous CFO and COO of ChemGenex Pharmaceuticals, helping the A$10m research-based company achieve clinical trials submissions to the FDA and EMA and its A$230m sale to Cephalon in 2011
- Extensive capital raising and partnering experience

## Suzy Jones | Non-Executive Director

- Founder and Managing Partner of DNA Ink, a provider of corporate strategic guidance
- 20 years experience developing and commercialising cancer drugs at Genentech
- Managed the Rituxan product team, the first monoclonal antibody launched to treat cancer

## Mike Stork | Non-Executive Director

- MD of Stork Holdings, an investment holding company active in the Canadian technology start-up sector
- Holds various Board positions across a range of sectors and an active Board member of several leading Canadian technology start-up companies

## Dr Allen Ebens | Scientific Advisory Board

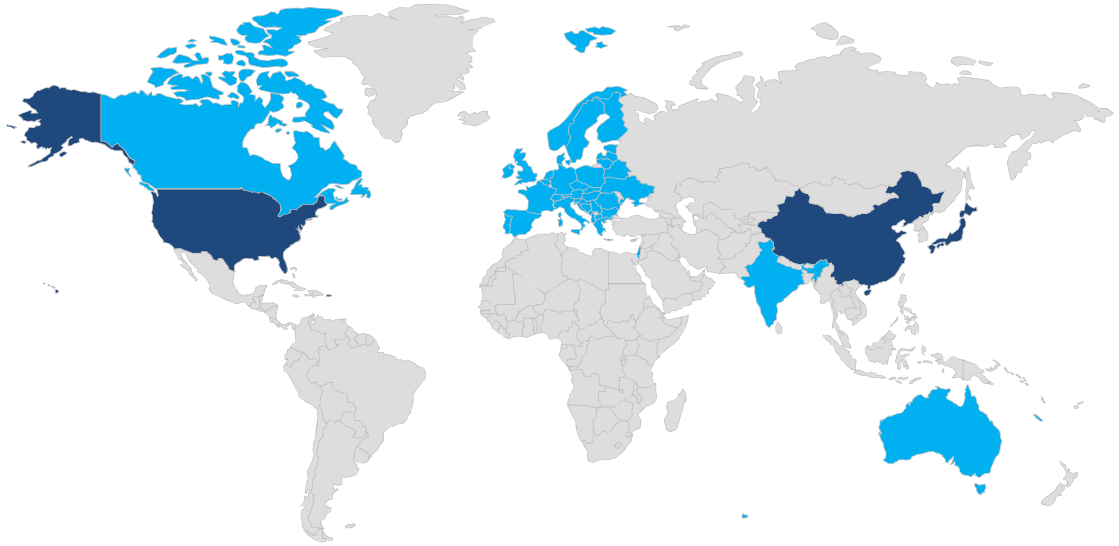
- Currently Chief Scientific Officer at Trucode Gene Repair
- Former senior roles at Exelixis, Genentech and NGM Biopharmaceuticals including experience in research oncology working from concept to clinic across multiple therapeutic platforms
- Established the oncology research lab at Juno Therapeutics

## Dr Pamela M. Klein | Scientific Advisory Board

- Corporate and Scientific advisor to a range of different biotech and investment companies
- Former Vice President, Development at Genentech, led development of a large portfolio of drugs including Herceptin, Tarceva and Perjeta
- Former Chief Medical Officer of Intellikine and Research Director at National Cancer institute

# Active intellectual property strategy in place to protect key assets

## Patrys' Deoxymab patent portfolio[1]




## Deoxymab patent portfolio

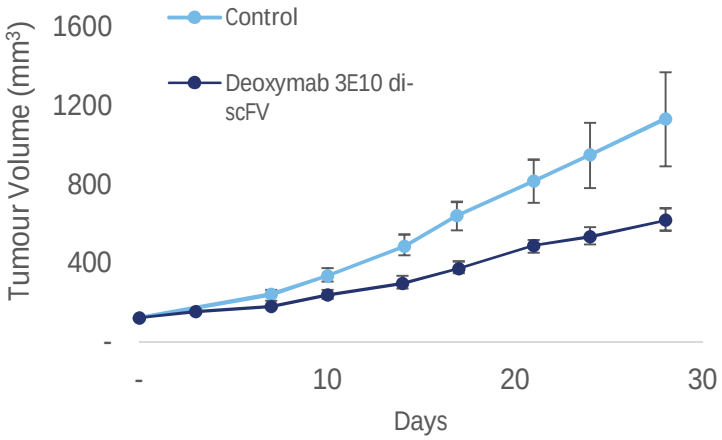
| | |
|---|---|
| 9 | Active patent families |
| 5 | Granted patents[2] |
| 19 | Patent applications pending[1] |

**Patrys' patent portfolio is targeted at major jurisdictions across United States, China, Europe and Australia; which represent attractive market opportunities**

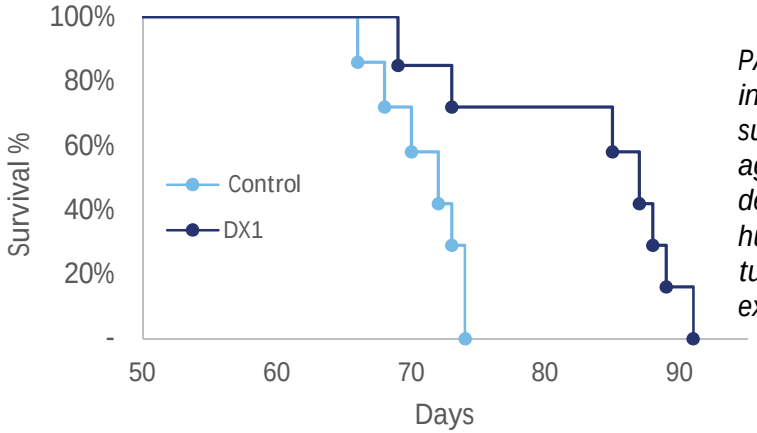
1. All patent applications (pending or granted) do not expire until at least 2032
2. Five patents granted in Europe, China, Japan and two in the US. Patents pending in US, Hong Kong, AU, Canada, India, Israel, Japan and China.

# Single agent approach: 3E10/PAT-DX1 demonstrates significant potential as a single agent

## Results from key single agent studies




*3E10 supresses tumour growth in a pancreatic BRCA2-xenograft model*



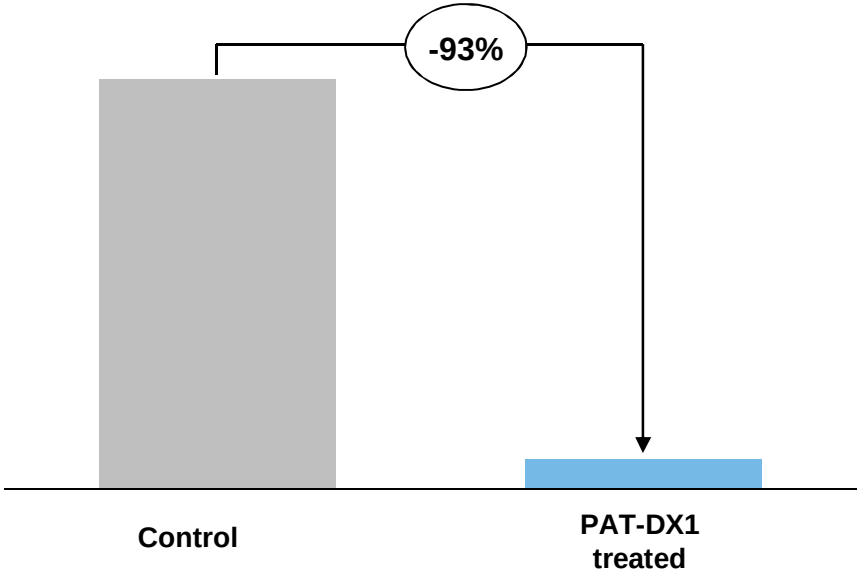

*PAT-DX1 increases survival against GBM derived from human tumour explants*

## As a single agent, 3E10/PAT-DX1 has also been shown to…

- ü Kill various cancer cells that lack key DNA repair enzymes (BRCA1/2 & PTEN)
- ü Kill primary human glioblastoma explants from patients
- ü Supress tumour growth in animal model of triple negative breast cancer
- ü Cross the BBB, reducing tumour size and increasing survival in models of both glioblastoma and brain metastasis
- ü Target and kill glioblastoma cancer stem cells

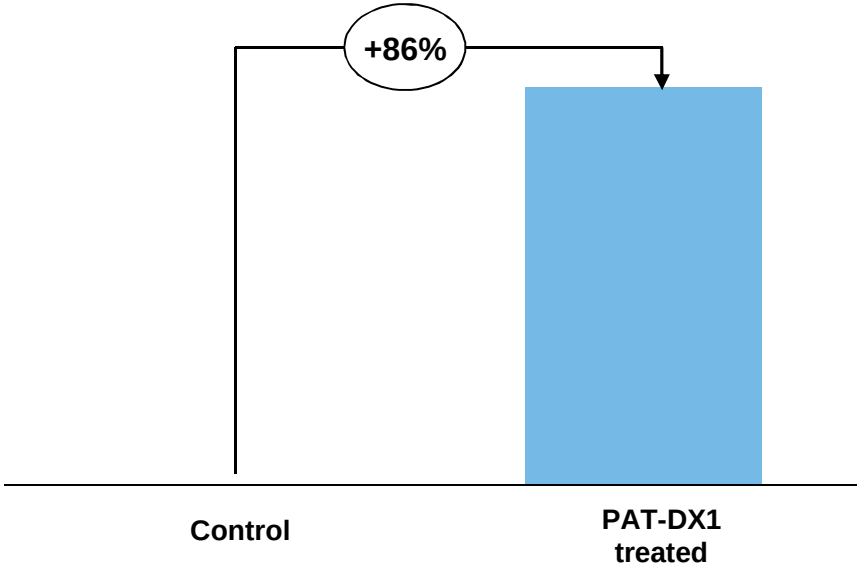
# Single agent approach: successful pre-clinical mouse model study against TNBC brain metastases[1]

## Supressed breast cancer brain metastases




*After 4 weeks of treatment, treated mice showed 93% less brain metastases than untreated mice (quantified by luminescence intensity)*

## Significantly increased survival



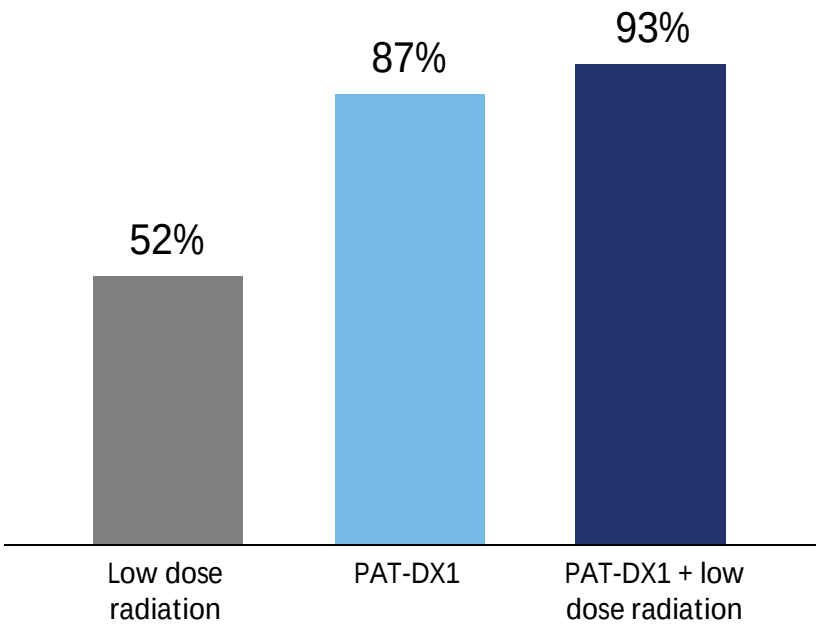

*PAT-DX1 treatment significantly improved survival, with 86% of the mice treated with PAT-DX1 still alive after all control mice had died*

**PAT-DX1 suppresses TNBC brain metastases and increases survival with no toxicity observed**

1. Details of study design: Dr James Hansen and Jiangbing Zhou of the Yale School of Medicine demonstrates single agent activity Brain metastases were generated by injection of luciferase-labelled, brain seeking TNBC cells directly into circulation via intracardiac injection One week later, the presence of brain metastases was confirmed and PAT-DX1 was administered by tail vein injection

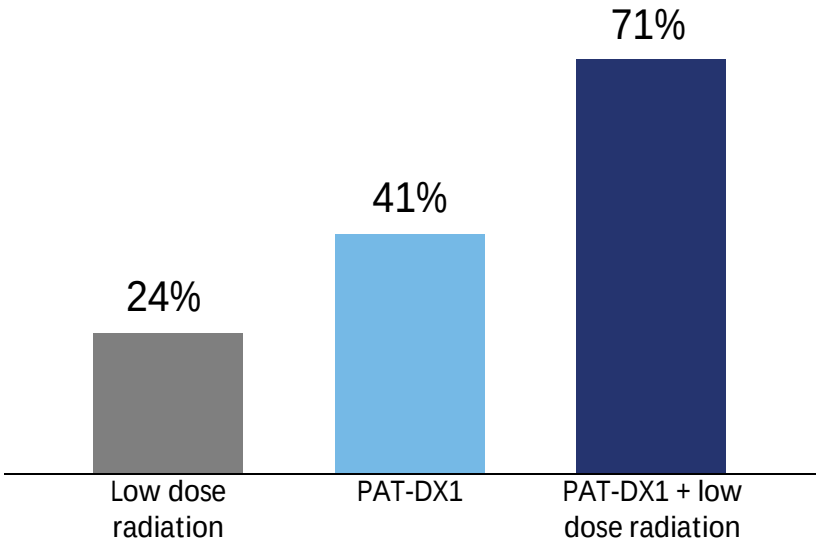
# Combination approach: PAT-DX1 significantly improves survival in an animal model of highly aggressive glioblastoma[1]

## Supressed GBM tumour growth




*After 2 weeks, treatment with PAT-DX1 reduced tumour size by 87% and treatment with PAT-DX1 in combination with lose dose radiation reduced tumour size by 93% , relative to the control.*

## Singificantly increased survival



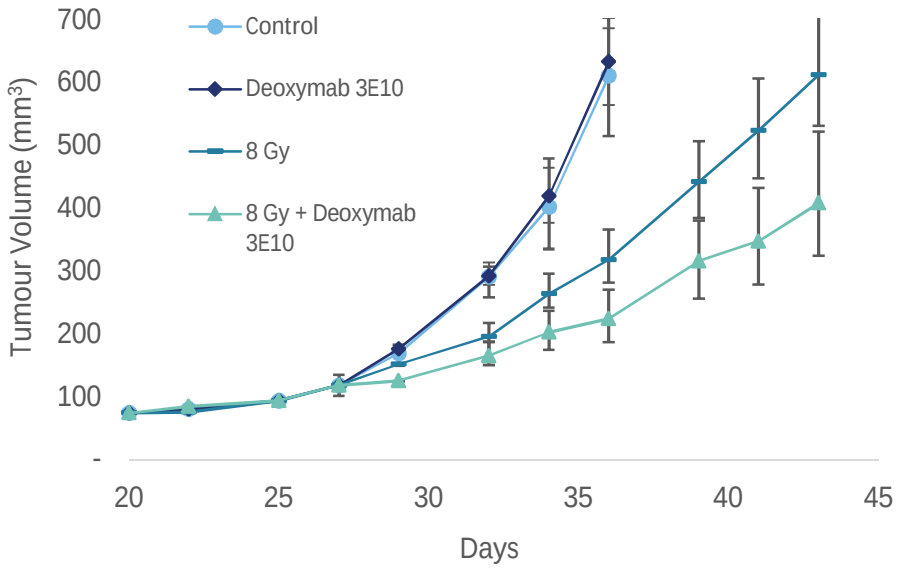

*PAT-DX1 as a single agent extended survival by 41% and PAT-DX1 in combination with low dose radiation extended survival by 71%. No toxicity associated with PAT-DX1 was observed.*

1. Details of study design: Yale School of Medicine used a highly aggressive human GBM tumour explant to generate brain tumours in mice. Tested tumour growth and mouse survival across four treatment regimens: 1.) Control vehicle delivered three times a week 2.) Control vehicle delivered three times a week + a single low dose radiation treatment 3.) PAT-DX1 alone delivered three times a week 4.) PAT-DX1 delivered three times a week + a single low dose radiation treatment. The GBM tumour explant was used to inoculate the brains of mice and the brain tumour growth was then imaged weekly. For further details on the study refer to the ASX release dated 22 July 2019.

# Combination approach: combination of the current standard of care with 3E10/PAT-DX1 enhances activity

## Combination with radiation

### Giloma cancer xenograft

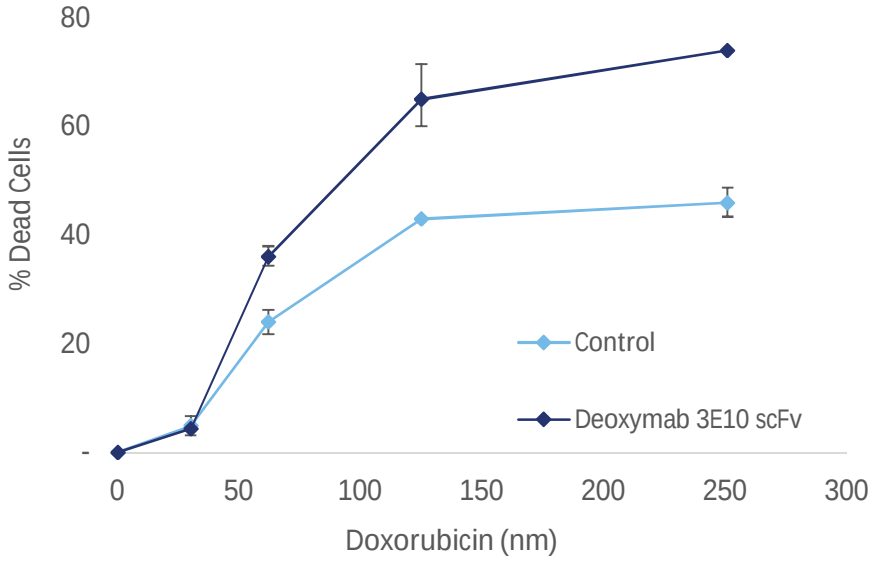



*In vivo* study showed that 3E10 enhanced the tumour reduction effect of radiation treatment

Supported by follow-up experiments with PAT-DX1

## Combination with chemotherapy

### Glioma cancer cells




*In vitro* study showed that 3E10 enhanced the cancer cell killing of doxorubicin

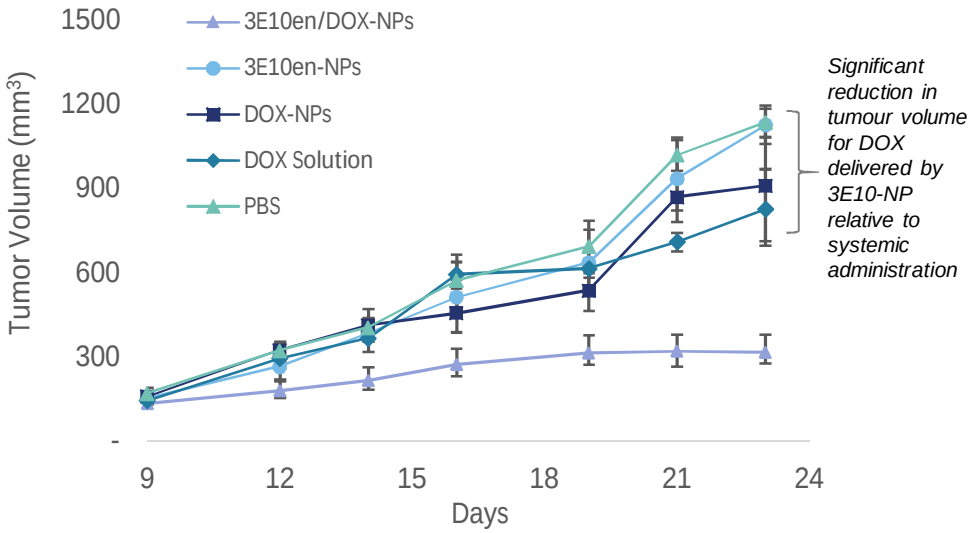
Follow-on *in vivo* studies with DX1 planned

Hansen *et al.*, Science Translational Medicine (2012) 4(157): 157ra142

# Conjugation approach: 3E10/DX1 transports drug loaded nanoparticles directly to the tumour, increasing efficacy with lower overall toxicity

## Conjugation approach with PAT-DX1-NP supresses tumour growth

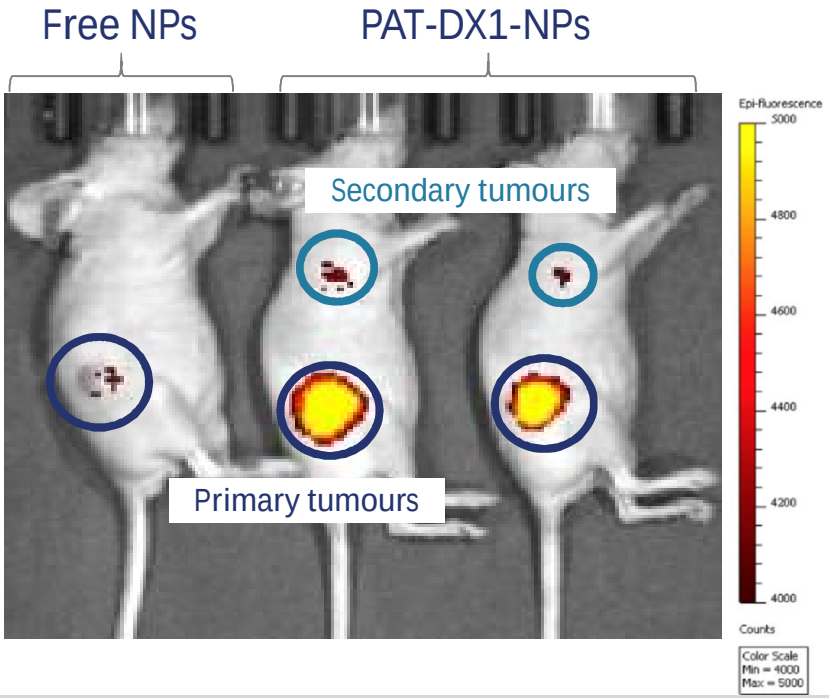
### Breast cancer xenograft




Chen *et al.*, Oncotarget (2016) 7(37): 59965-59975

- ü 3E10-NPs have been used to deliver the chemotherapy doxorubicin (DOX) preferentially to tumours
- ü **Significantly supressed tumour growth in a breast cancer xenograft**
- ü **Potential to reduce side effects of existing chemotherapies**

## PAT-DX1-NPs localise to metastases




- ü PAT-DX1-NPs **are preferentially attracted to tumours**
- ü PAT-DX1-NPs localises to **both primary and secondary** (axillary lymph node metastases) tumours

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