



## INVESTOR PRESENTATION

November 2021

# Safe harbour statement

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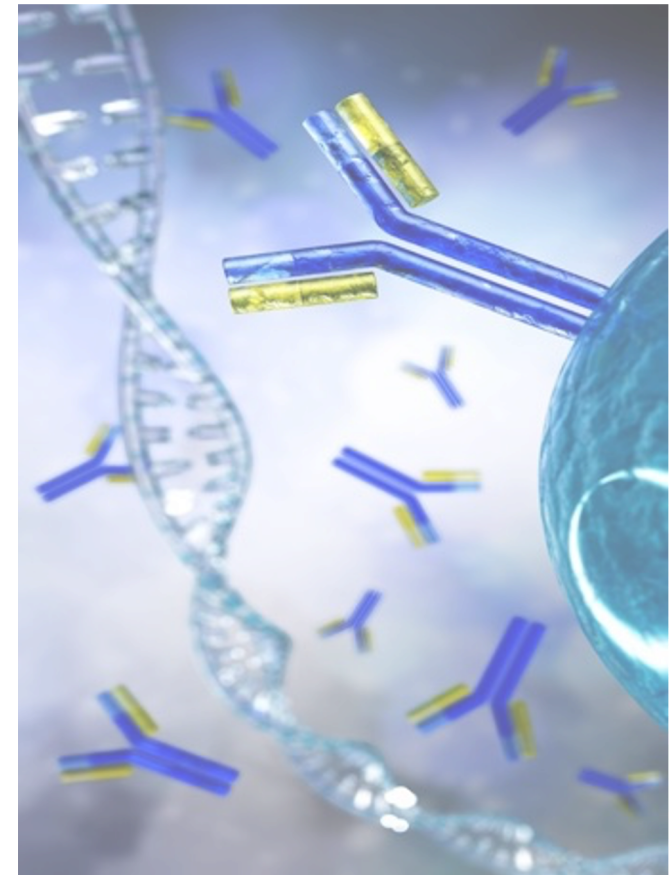
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# Overview

- Patrys is advancing its novel deoxymab antibody platform to develop a range of new therapeutic candidates that are:
  - Pan-cancer, independent of specific cell surface proteins
  - Able to penetrate and kill cancer cells
  - Able to deliver payloads intracellularly
  - Able to cross the blood-brain barrier (BBB)
- Deoxymabs have potential to be used as single agents, in combination, or as the basis for novel antibody drug conjugates, bispecific antibodies, and/or trafficking antibodies
- Deoxymabs target commercially attractive markets



# Investment summary

## Unique antibody platform

- Cancer targeting
- Cross blood brain barrier
- Block DNA repair

## Attractive markets

- PARP inhibitors US\$2.3B
- DNA repair deals
- ADC deals

## Intellectual property

- Global rights
- All cancer indications
- Humanised antibodies

## Multiple applications

- Single agent
- Combination agent
- Targeting agent

## Utility for brain cancers

- Primary brain cancer
- Secondary brain cancer

## Strong balance sheet

- A\$9.8M cash (30 Sept)
- DX1 funded to the clinic
- Raising \$7.8M<sup>1</sup> to advance DX3

# Company snapshot

Shares	1.83B
Market cap	A\$76M
Cash <sup>1</sup>	A\$9.8M
Last qtr burn <sup>1</sup>	(A\$1.2M)
Headquarters	Melbourne
Board	John Read (Chair) James Campbell (CEO & MD) Pamela Klein (NED) Suzy Jones (NED) Michael Stork (NED)
Substantial	Dr Dax Marcus Calder – 10.8% Mason Stevens – 6.3% Stork Holdings – 5.4%

<sup>1</sup> As at 30 September 2021

<sup>2</sup> As at close of trading, 27 October 2021



# Board of Directors



**John Read Chairman**

- Experienced Chairman and Director in public, private and government organisations
- Extensive career in venture capital, private equity and commercialisation
- Chairman of CVC Limited (ASX: CVC), previously Eildon Capital Limited (ASX:EDC)



**Dr James Campbell**

- >20 years of international biotechnology research, management and leadership
- Previously the CFO and COO of ChemGenex Pharmaceuticals Limited (ASX:CXS) and of Evolve Biosystems Inc.
- Board member, Ausbiotech
- Board member, Prescient Therapeutics (ASX: PTX)



**Dr Pamela M. Klein**

- Former VP, Development at Genentech, led development of a large portfolio of drugs
- Former Chief Medical Officer of Intellikine (acquired by Millennium/Takeda)
- Board member at Argenx (Euronext & Nasdaq: ARGX)
- Chief Medical Officer of Olema Oncology (Nasdaq: OLMA)



**Suzy Jones**

- Founder and Managing Partner of DNA Ink, a life sciences advisory firm in San Francisco
- 20 years at Genentech in BD, product development and immunology research
- Board member at Calithera (Nasdaq: CALA)



**Mike Stork**

- Managing Director of Stork Holdings Ltd, active in Canadian technology start-up sector
- Director of multiple leading Canadian technology start-up companies



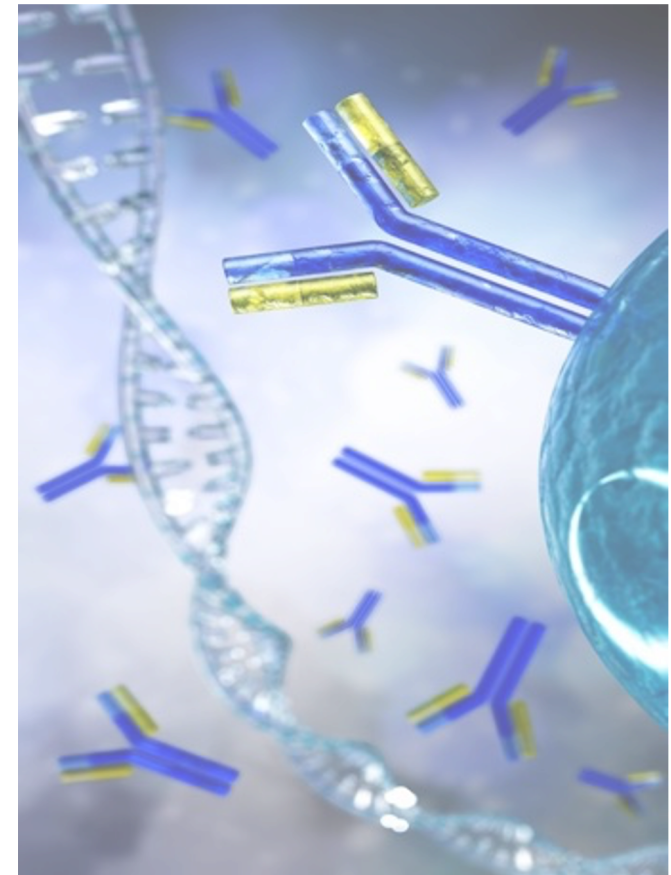


# Technology Overview



# First anticancer antibody therapeutic targeting DDR

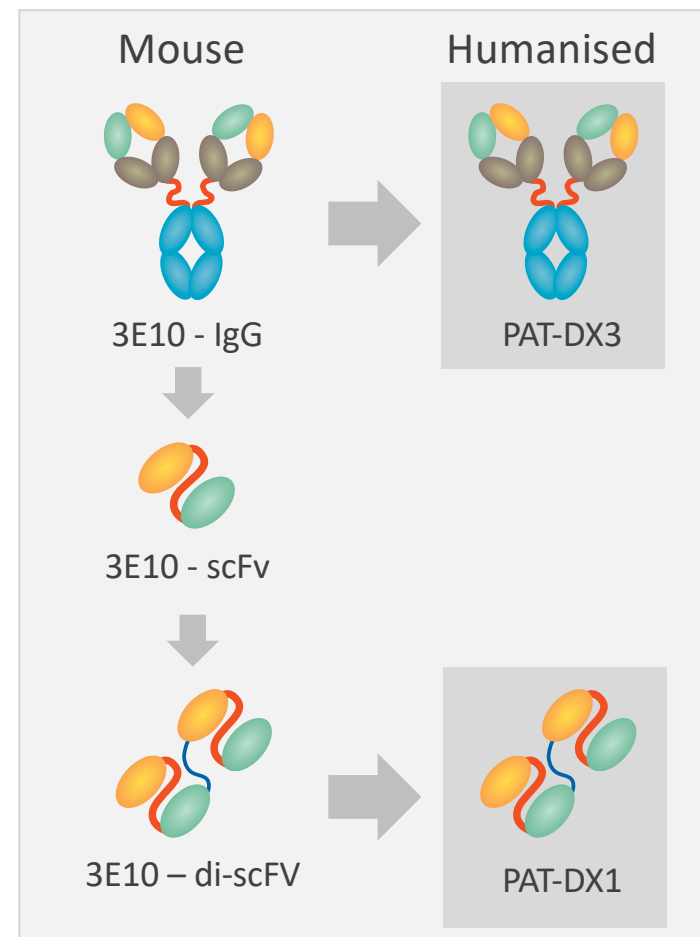
- Deoxymabs are derived from an antibody, 3E10, which was isolated from a mouse model of the autoimmune disease lupus (SLE)
- Deoxymabs bind to DNA and have a unique combination of properties:
  - **Cancer seeking:** tumors release DNA which attracts deoxymabs
  - **Cell penetrating:** able to get into cells and the cell nucleus
  - **Block DNA damage repair (DDR):** killing dividing cancer cells
  - **Cross the blood-brain barrier (BBB):** to treat cancers in the brain
- Preclinical studies: deoxymabs safe with very little effect on normal, healthy cells
- Previous phase 1 clinical trial of 3E10 in 9 SLE patients showed no safety issues<sup>1</sup>





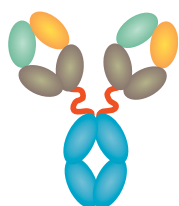
# Patrys' deoxymab platform

- Patrys' deoxymab platform is based on humanised versions of the mouse 3E10 antibodies
- Global rights to 3E10 antibodies for the treatment of cancer were acquired in 2016
- Patrys has created humanised versions of the 3E10 antibodies for therapeutic development:
  - **PAT-DX1**: two copies of a humanised binding domain of 3E10
  - **PAT-DX3**: a humanised version of the full IgG 3E10 mouse antibody
- PAT-DX1 and PAT-DX3 have different pharmaceutical properties, enabling their use for a wide range of healthcare applications
- Manufacturing and formulation program is underway for both assets



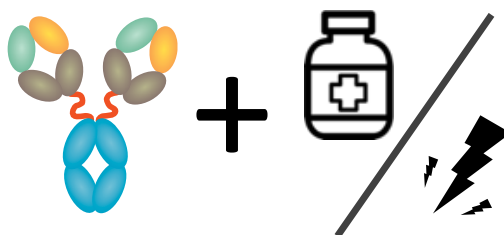
# Deoxymab platform offers multiple therapeutic approaches

## Single Agent



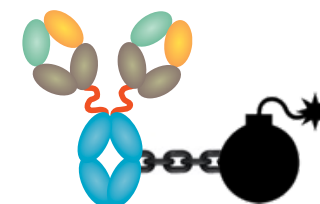
- Many cancers have pre-existing defects in their DNA damage repair (DDR) systems
- Additional blocking of DDR by deoxymabs can increase the amount of DNA damage to a level where it is lethal
- Consistently demonstrated ~50% increase in median survival in TNBC; pancreatic; brain cancers

## Combination Therapies



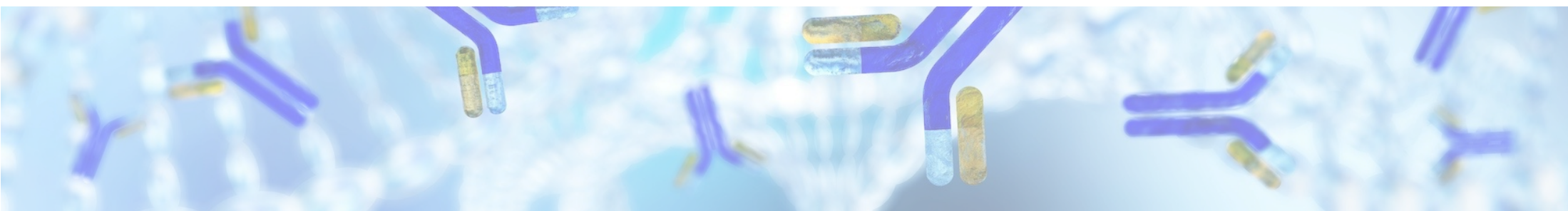
- Radiation therapy and many chemo drugs work by causing damage to DNA
- Deoxymabs can slow the repair of the damage caused by these agents by blocking the DDR systems
- Combination with radiation demonstrated 3-fold better survival than radiation alone

## Targeted Therapies

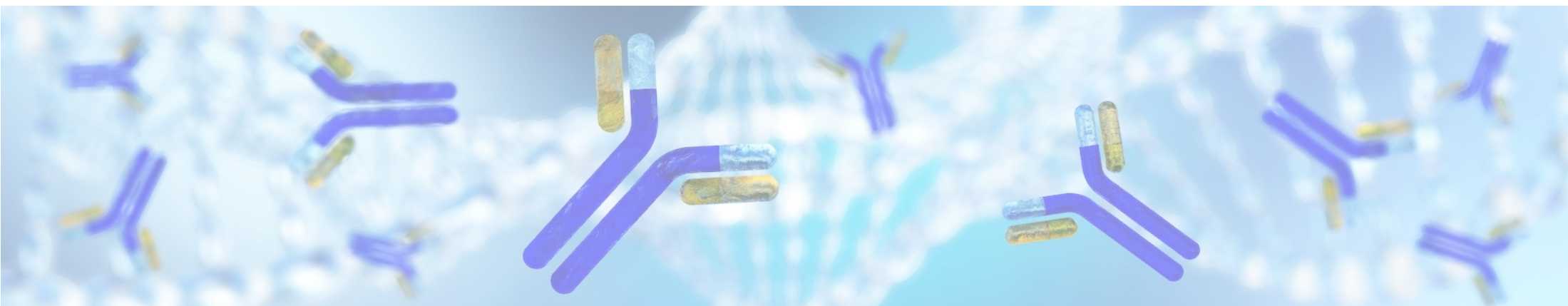


- Deoxymabs can direct delivery of payloads to cancer cells and the cell nucleus
- ADC opportunity (99.7% tumour growth inhibition)
- Imaging opportunity (collaboration with Imagon; ASX:IBX)
- Intracellular payload delivery

All of these approaches for using deoxymabs have been successfully demonstrated in preclinical studies



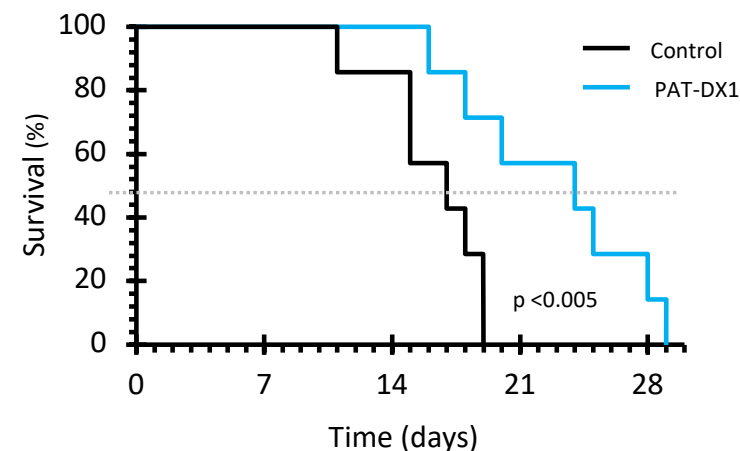
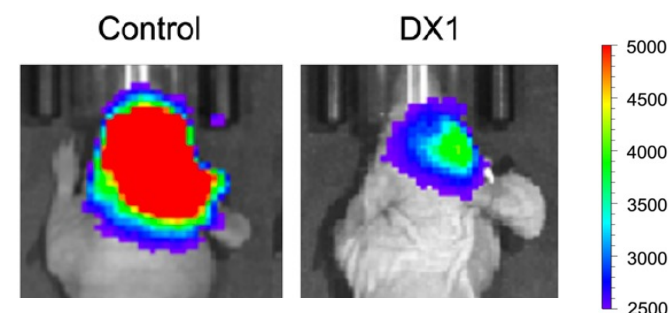
# Deoxymab results



# PAT-DX1 improves survival in glioblastoma

- Glioblastoma (GBM) is the most common form of primary brain cancer, with approximately 23,000 new cases diagnosed in the US each year
- GBM is highly aggressive with few effective treatment options (5-year survival rate = 5.6%)
- First line therapy for GBM is surgical removal of the tumour followed by radiation. Temozolomide (Temodar®) improves survival by 2 months
- ~ 40% of GBM tumors have a mutation in a protein call PTEN which is involved in the repair of DNA damage
- In GBM cells, single agent PAT-DX1:
  - has no impact on survival in cells with an intact PTEN protein
  - significantly decreases survival in cells with a PTEN mutation (DDR deficiency)
- In an animal model using human GBM explants, PAT-DX1 on its own was able to improve median survival by 47%

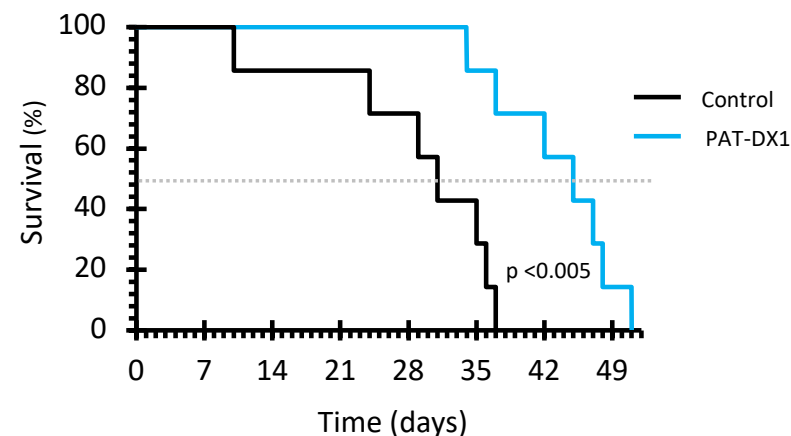
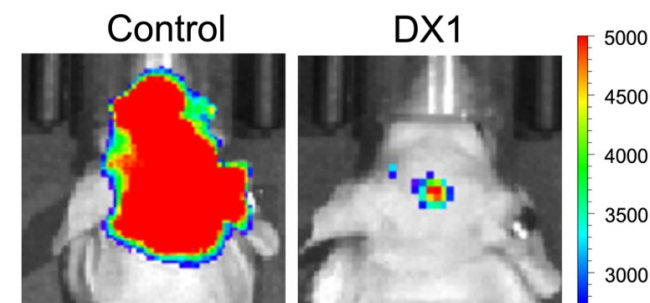
## Mice with human GBM



# PAT-DX1 improves survival with breast cancer metastases

- Approximately 230,000 women are diagnosed with breast cancer in the US each year
- 10%-15% have Triple Negative Breast Cancer (TNBC), an aggressive form with deficiencies in the BRCA1 gene (DNA damage repair)
- ~50% of TNBC patients develop brain metastases
- Like glioblastoma, TNBC brain metastases are very difficult to treat and patients usually have poor outcomes
- Mice with TNBC metastases treated with PAT-DX1 as a single agent (4 cycles), had 93% less brain metastases than control animals after 28 days
- This resulted in a 45% increase in median survival

## TNBC<sup>1</sup> Brain Metastases Model

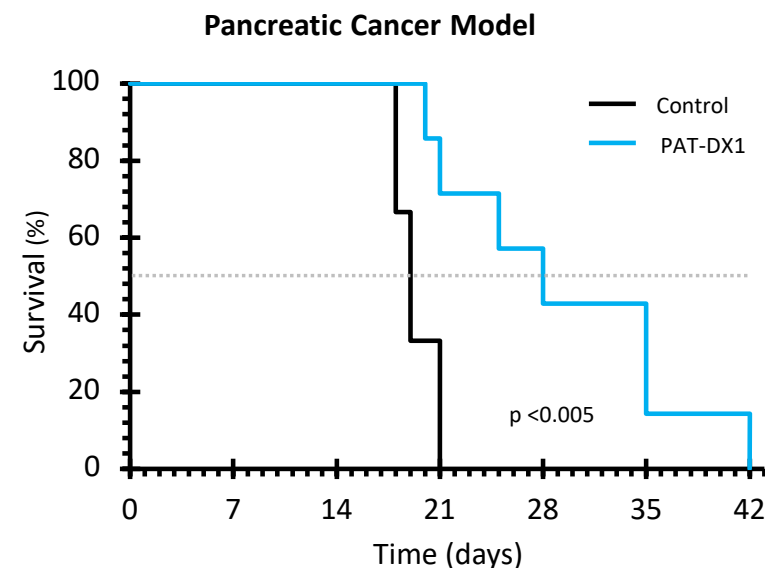


<sup>1</sup> TNBC = triple negative breast cancer which has DDR deficiency



# PAT-DX1 improves survival in pancreatic cancer

- Pancreatic ductal adenocarcinoma (PDAC) is one of the most common and aggressive cancer types, with a 5-year survival rate of 2–9%<sup>1</sup>
- Globally, 460k new cases and 432k deaths in 2018
- Limited treatment options
- Projected to become the second leading cause of cancer death in the Western world by 2030
- First line therapy is surgical removal of the tumour followed by chemotherapy and radiation
- In an animal model of pancreatic cancer, single agent PAT-DX1 improved median survival by 47%

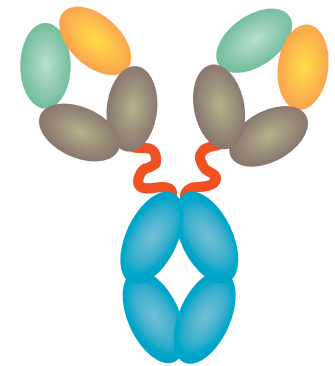


1. Arias-Pinilla & Modjtahedi. Therapeutic Application of Monoclonal Antibodies in Pancreatic Cancer: Advances, Challenges and Future Opportunities. *Cancers*. 2021

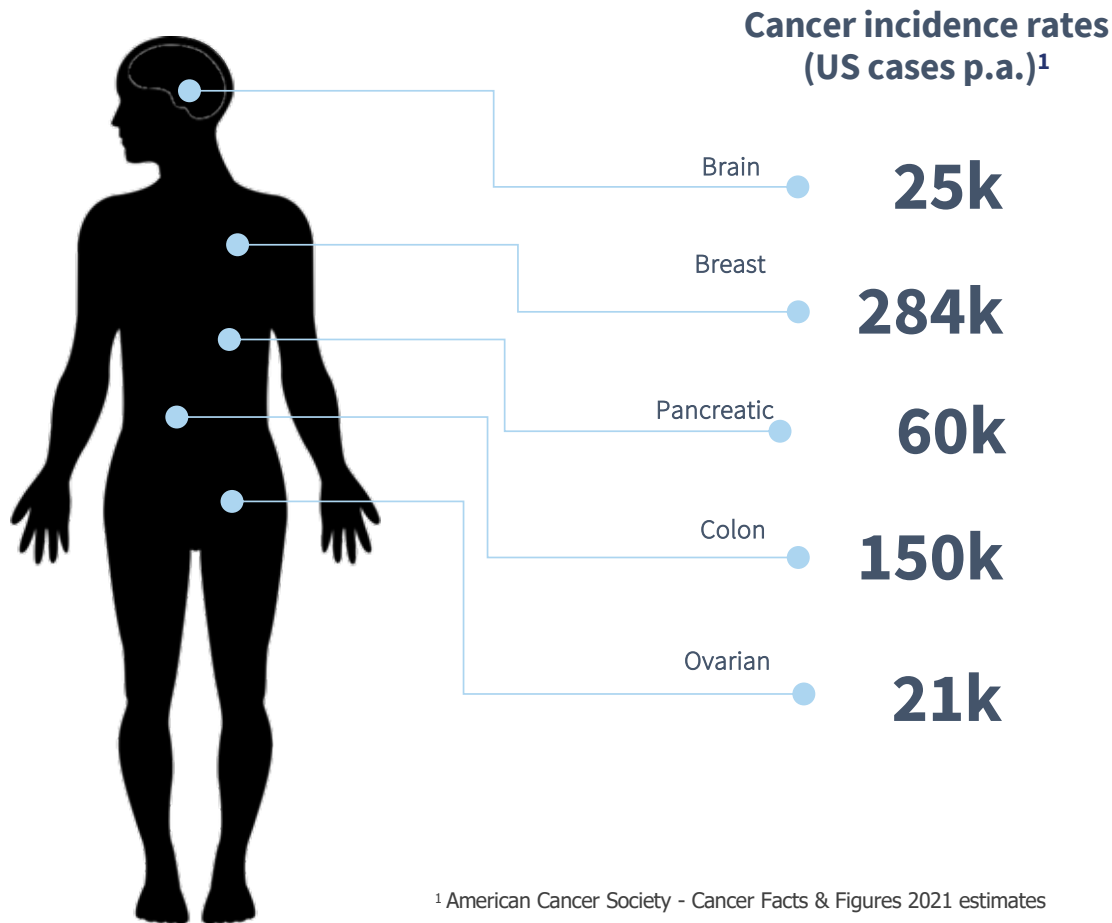
# PAT-DX3 development path has been initiated

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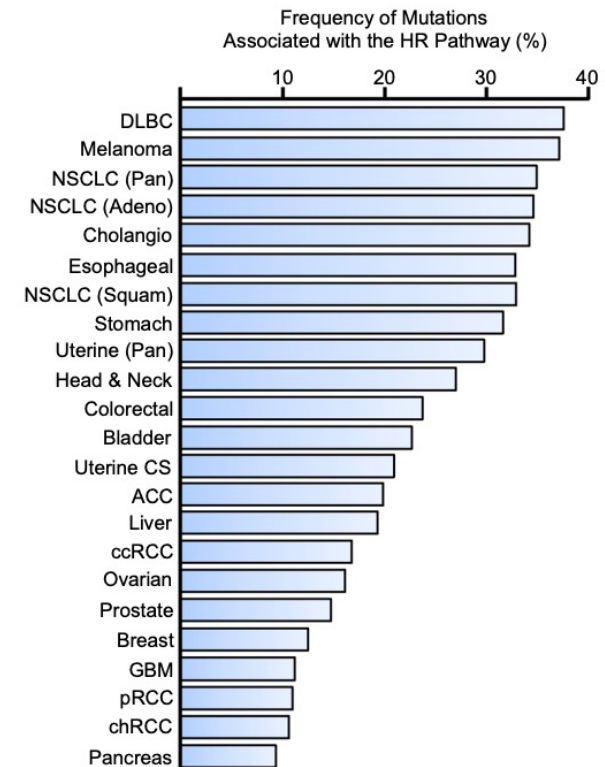
- Full sized, IgG deoxymab antibody, PAT-DX3, produced in September 2020
- PAT-DX3 shares biological activity with PAT-DX1, but is differentiated and complementary
  - Different pharmacokinetic profile
  - Can cross the blood brain barrier in animal models of brain cancer
  - Potential for use as a tumour targeting agent for antibody drug conjugates (more conjugation sites than PAT-DX1)
- Enabled by the financing in November/December 2021, Patrys has initiated a formal development program for PAT-DX3
- This will include the development of a manufacturing process to provide clinical grade PAT-DX3 at commercial scale, including establishing a stable, high-yielding producer cell line (stable cell line), and requisite manufacturing process optimization
- Responding to significant investment and deal activity in ADC technology, Patrys will conduct a range of ADC studies to explore the broad utility of DX3 in cancer and enhance potential partnering opportunities



# Many solid tumors have DDR mutations



<sup>1</sup> American Cancer Society - Cancer Facts & Figures 2021 estimates

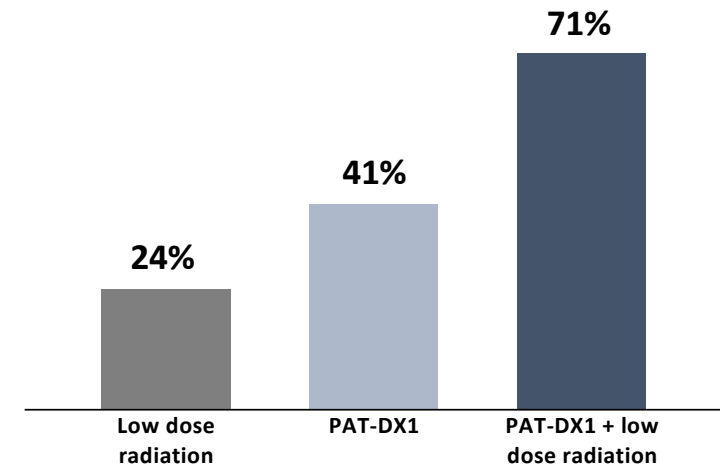


Principe et al 2020. Frequency and prognostic value of mutations associated with the homologous recombination DNA repair pathway in a large pan cancer cohort, *Scientific Reports* volume 10, Article number: 20223 (2020)

# Combination therapies – improving glioblastoma treatments

- Radiation is a mainstay treatment for glioblastoma (GBM) patients and is used:
  - as a monotherapy (less frequently)
  - post-surgical removal of tumour tissue
  - in combination with the drug temozolomide (Temodar®)
- The efficacy of radiation therapy is dose-dependent, which is limited by potential side-effects:
  - risk of damage to adjacent healthy brain tissue
  - tiredness, weakness, loss of hair, nausea
  - worsening of brain cancer symptoms
- PAT-DX1 can improve the efficacy of low-dose radiation in a preclinical model of aggressive GBM
- PARP-inhibitors have had limited success in GBM due to their inability to cross the blood-brain barrier

## Radiation + PAT-DX1 improves survival

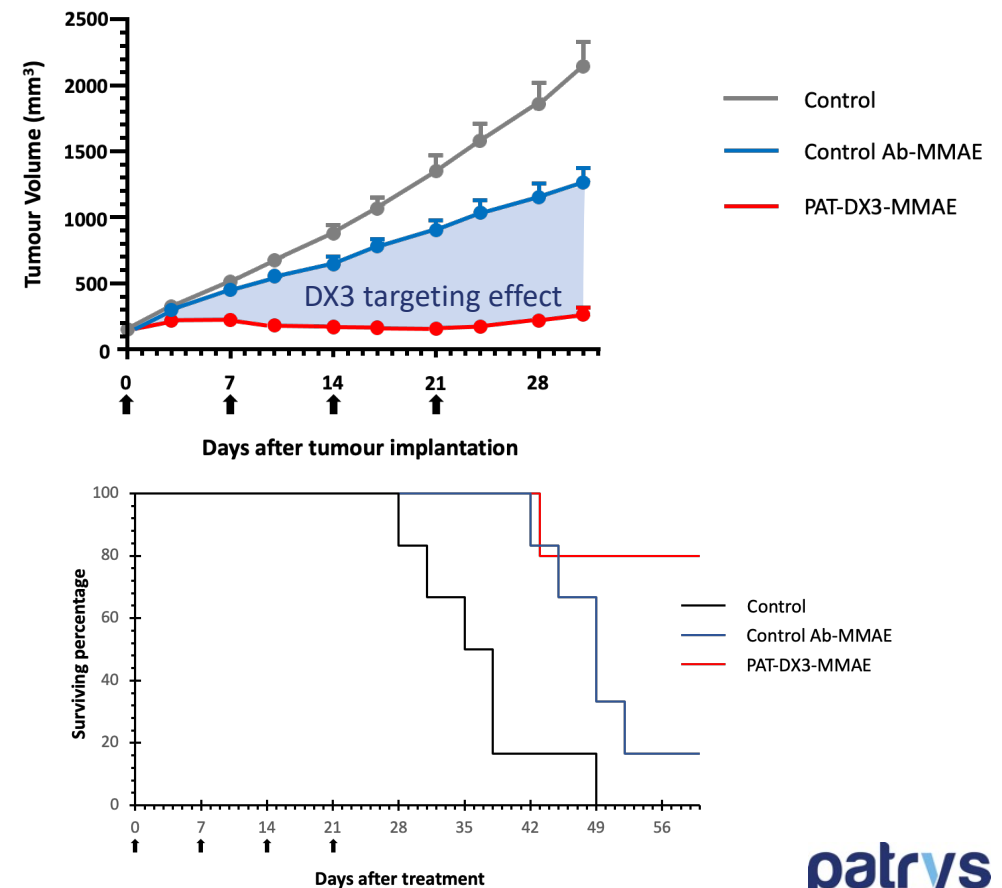


Human glioblastoma cells implanted in mice. Seven mice were in each of four groups: 1. control, 2. radiation alone, 3. PAT-DX1 alone, 4. radiation + PAT-DX1. The bars represent improvement in survival over the control group at day 28.

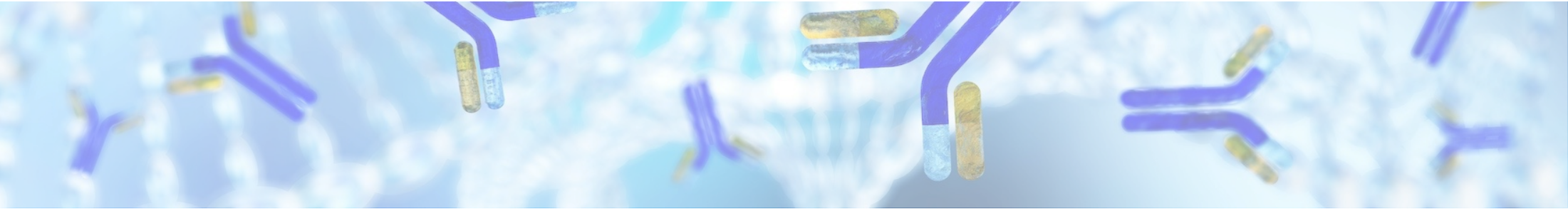
# PAT-DX3 ADC proof of principle

- Antibody drug conjugates are a fast-growing technology
- Use antibody to target delivery of toxic payload to cancer cells. Often superior benefits to antibodies alone
- Proof of principle study with PAT-DX3 conjugated to MMAE (payload used in approved ADCs)
- Clear tumour targeting effect when compared to control antibody
- 99.7% tumour growth inhibition after 3 weeks
- PAT-DX3-MMAE significantly increased survival compared to the control group of animals ( $p < 0.005$ )

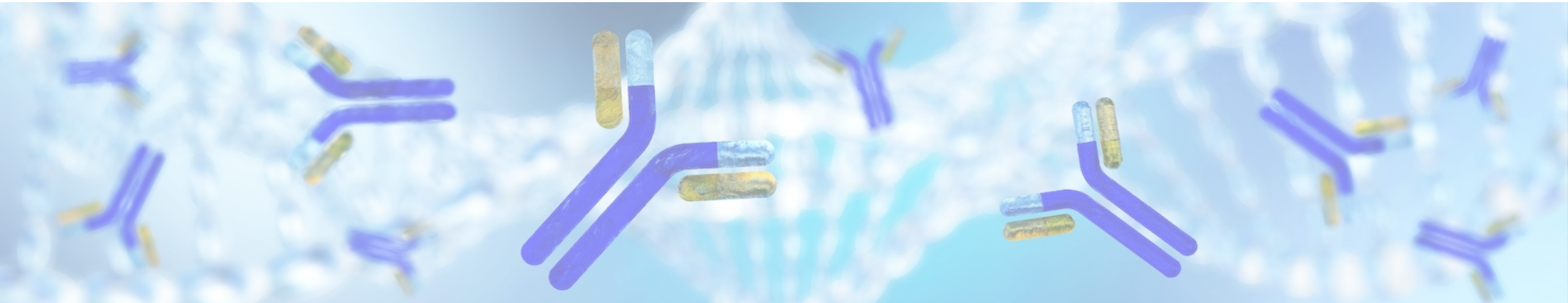
## MCF7 Breast Cancer Model



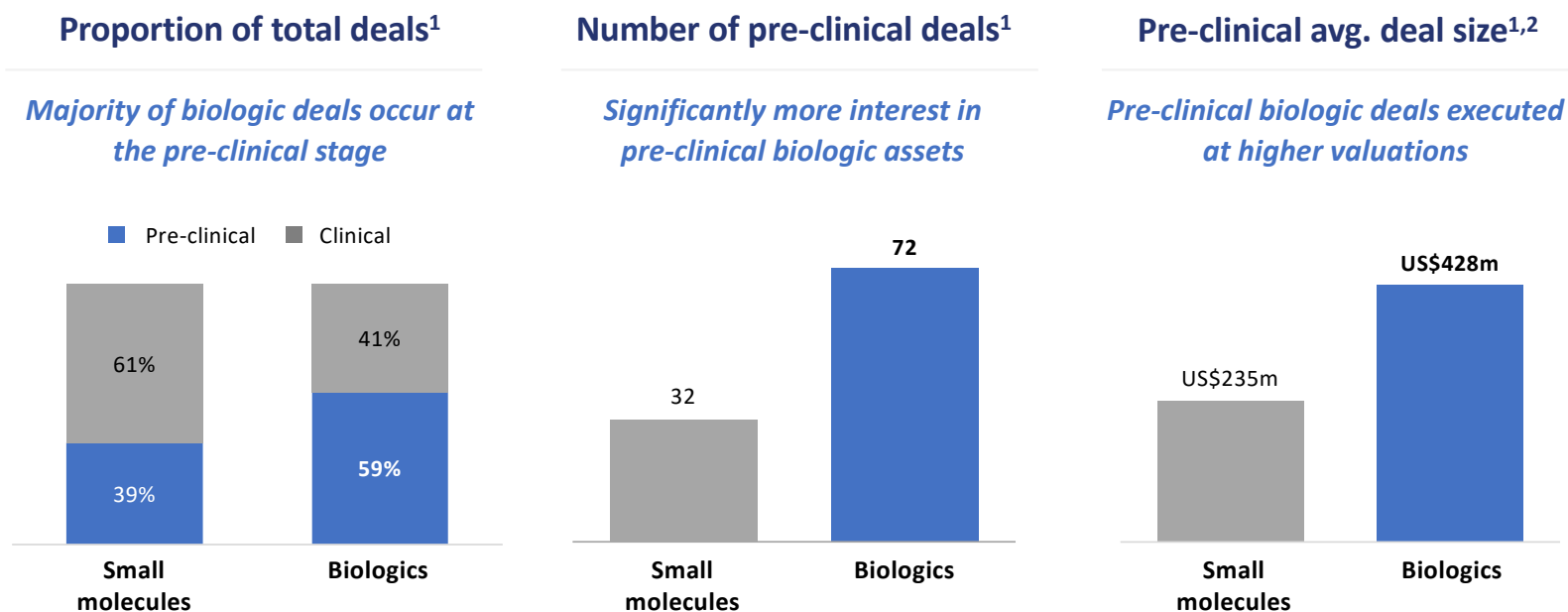




# Commercial landscape



# Biologics typically transact earlier and at higher valuations than small molecules



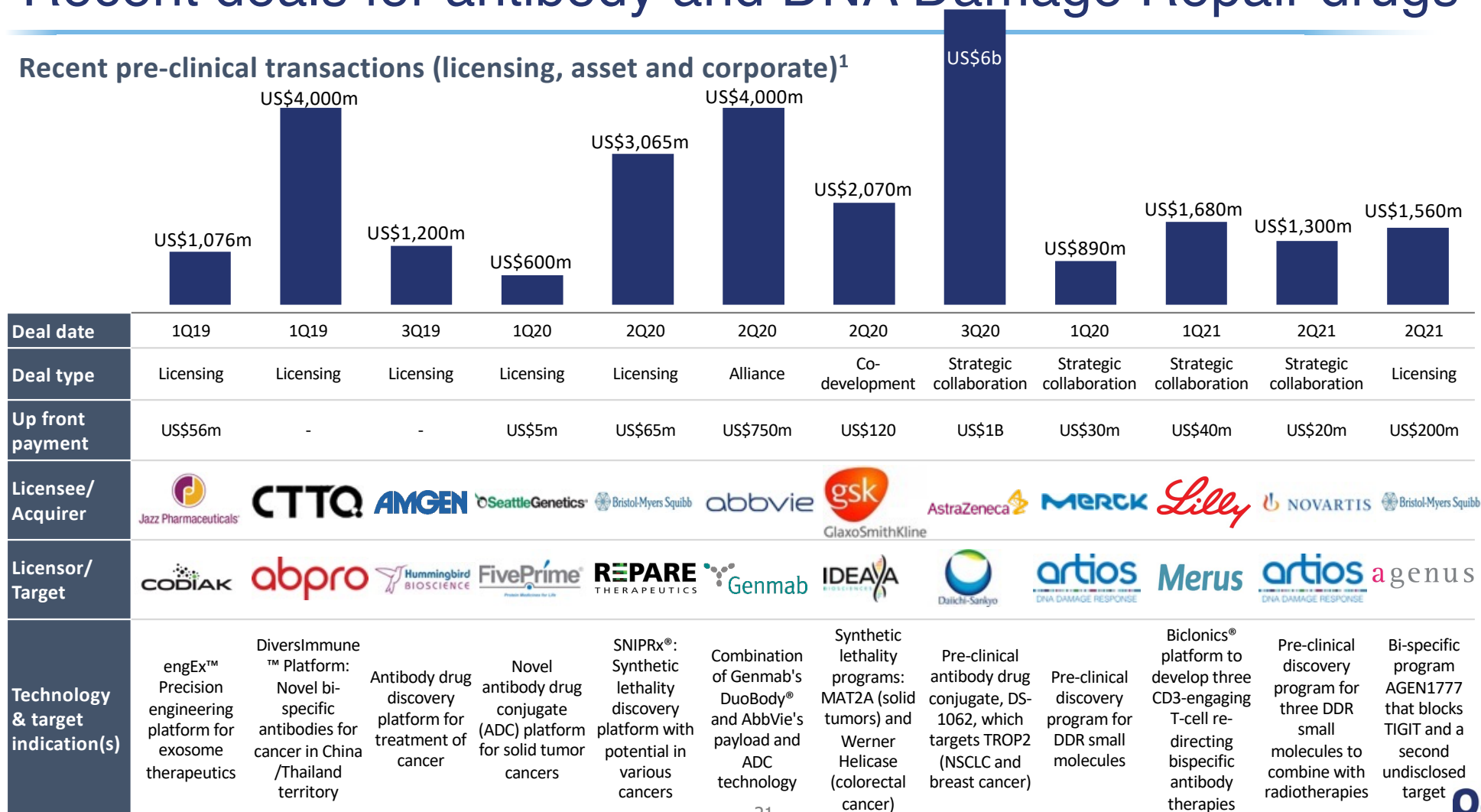
The value of Patrys' novel therapy is underpinned by potential for multiple applications to achieve better patient outcomes

Source: GlobalData

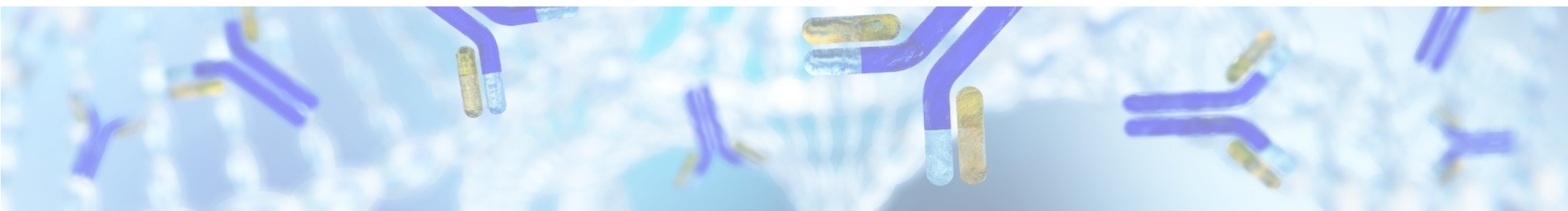
1. Small molecules and biologics transactions between 2017 and 2019
2. Deal size includes upfront and potential milestone payments

# Recent deals for antibody and DNA Damage Repair drugs

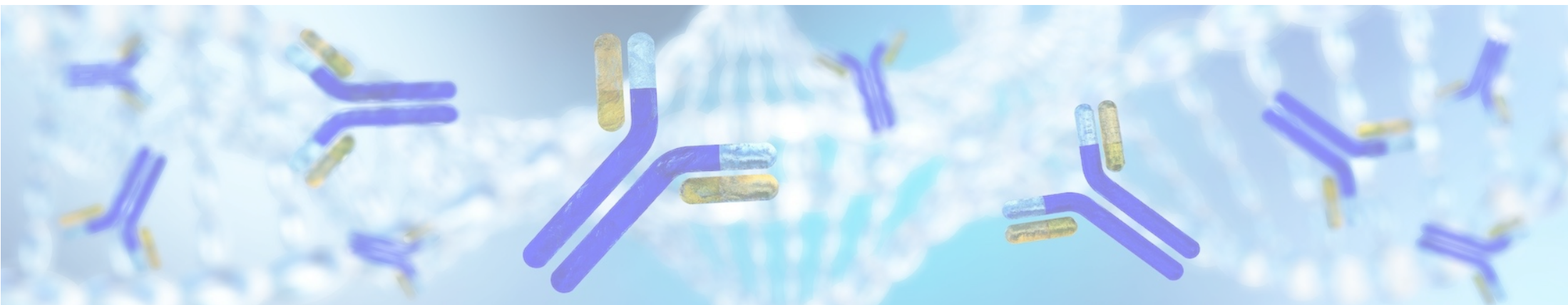
Recent pre-clinical transactions (licensing, asset and corporate)<sup>1</sup>



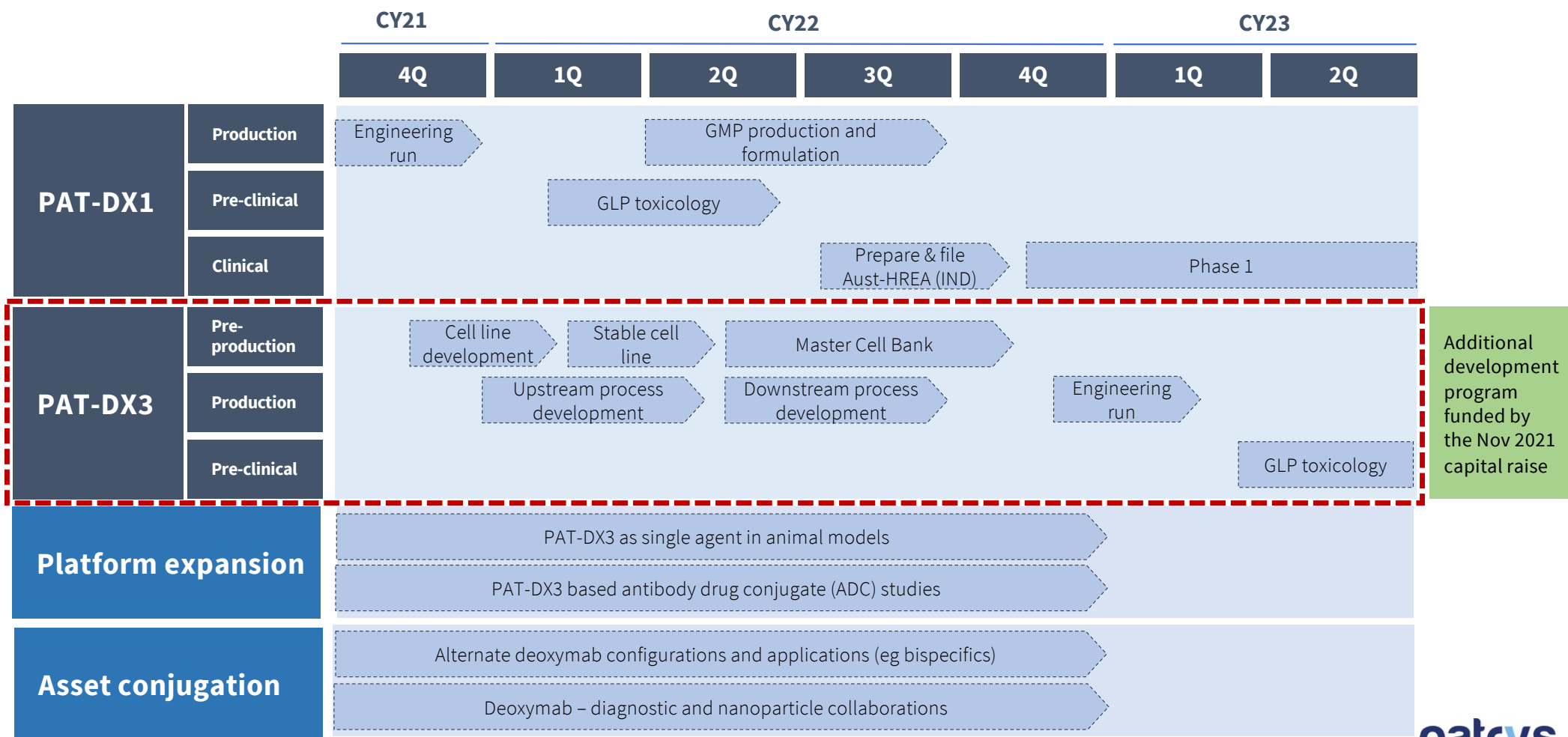
Source: Company information - all deal values exclude potential royalty payments



Looking ahead



# Timeline

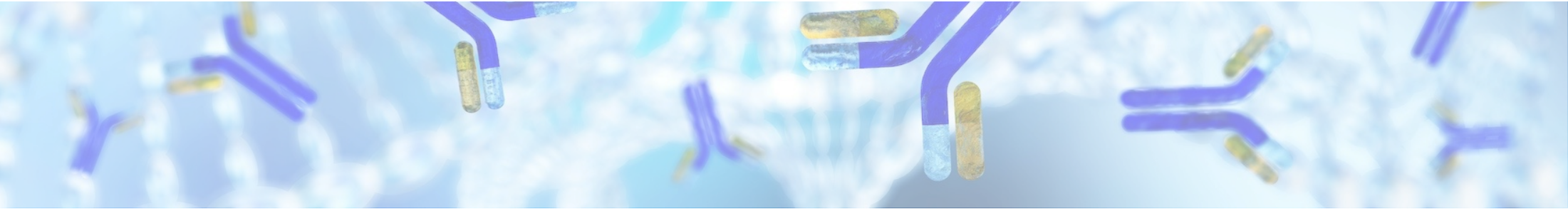




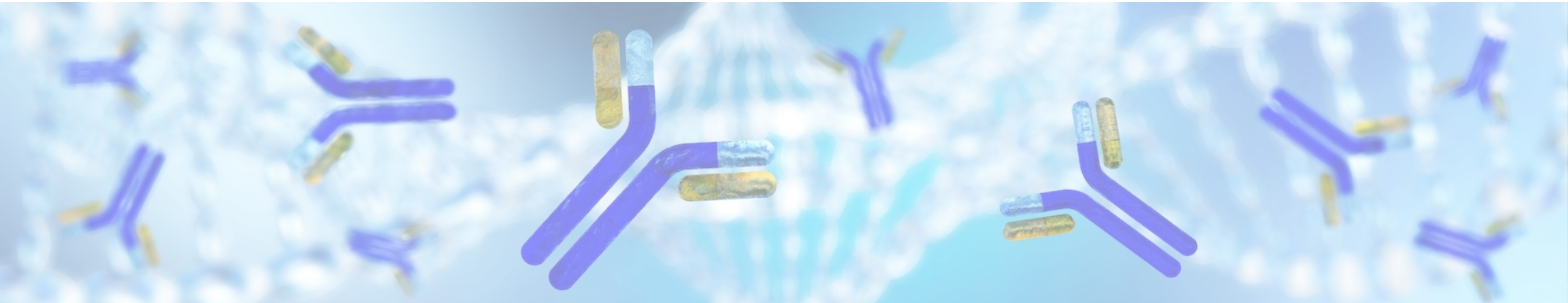
## Anticipated newsflow / Milestones to end of 2022

PAT-DX1 engineering production run completed	Q4 2021
* PAT-DX3 stable cell line development completed	Q1 2022
PAT-DX1 GLP toxicology studies completed	Q2 2022
* PAT-DX3 final stable cell line selected	Q2 2022
PAT-DX1 upstream process development completed	Q2 2022
PAT-DX1 GMP production and formulation program completed	Q3 2022
PAT-DX1 downstream process development completed	Q3 2022
PAT-DX1 IND (as Australian Human Research Ethics Application) submitted	Q4 2022
PAT-DX1 Phase 1 clinical study initiated	Q4 2022
* PAT-DX3 master cell bank completed	Q4 2022
* PAT-DX3 engineering production run initiated	Q4 2022
Expansion of deoxymab platform (ADCs, bispecific antibodies, nanoparticles, imaging)	Ongoing
Scientific publications	Ongoing
New IP filings and patent grants	Ongoing
Alliances, collaborations and grants	Ongoing

\* additional news flow arising from newly funded PAT-DX3 program



# Risk factors



# Key Risks

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Investment in the Company involves risks that may be higher than the risks associated with an investment in other companies. Securities in the Company carry no guarantee with respect to the payment of dividends, returns of capital or the market value of the securities.

Before deciding to invest in the Company, you should refer to announcements made by the Company to the ASX to ensure you understand the operations of the Company and appreciate the risks involved with investing in the Company. Further, you should consider the investment in the context of your individual risk profile for speculative investments, investment objectives and individual financial circumstances.

Nothing in this presentation is financial product advice and this document has been prepared without taking into account your investment objectives or personal circumstances.

The business, assets and operations of the Company are subject to certain risk factors that have the potential to influence the operating and financial performance of the Company in the future. These risks can impact on the value of an investment in the securities of the Company. There are also general risks associated with any investment in securities. Some of these specific and general risks are outside the control of the Company and are not capable of mitigation.

Accordingly, an investment in the Company should be regarded as speculative and investors should be in a position to bear the loss of their entire investment. Before deciding whether to invest in the Company potential investors should seek professional advice from their accountant, stockbroker, lawyer or other professional advisor.

Set out on the following pages are some Specific and General risks to which the Company is exposed. The risks described are not to be taken as exhaustive.

# Specific Risks - i

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## **Innovative technological development**

The Company's product range includes candidates that are in pre-clinical development and need to be further tested before they can progress to human clinical trials. Pre-clinical and clinical development of the Company's product candidates could take several years to complete, and might fail for a number of reasons including but not limited to lack of efficacy, failure to obtain regulatory approval, difficulty or failure to manufacture the Company's products on a large scale, or toxicity. There is no guarantee that Patrys' products will be commercially successful.

## **Regulatory risks**

The research, development, manufacture and sale of products deploying the Company's technology is subject to a number of regulations prescribed by government authorities in Australia and overseas. Generally, there is a high rate of failure for drug candidates proceeding through pre-clinical and clinical trials. Further, even if the Company views the results of a trial to be positive, the FDA or other regulatory authorities may disagree with the Company's interpretation of the data. Thus, any product deploying Patrys' technology may be shown to be unsafe, non-efficacious, difficult or impossible to manufacture on a large scale, uneconomical to market, compete with superior products marketed by third parties, fail to secure meaningful reimbursement approval, or not be as attractive as alternative treatments.

## **Dependence on service providers and third party collaborators**

The Company relies upon independent third party service providers and third party collaborators including academic institutions to complete the development and commercialisation of its products. The Company therefore is exposed to the risk that any of these parties can experience problems related to operations, financial strength or other issues, which in turn could negatively impact the progress or success of the Company's product development efforts.

The COVID-19 pandemic creates particular risks and challenges for the Company, which outsources both research and manufacturing activities, as operational progress may be slowed or arrested as jurisdictions and suppliers respond to differing conditions.

## Specific Risks - ii

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**Reliance on key personnel**

The responsibility of overseeing the day-to-day operations and the strategic management of the Company depends substantially on its senior management and its key personnel. There can be no assurance given that there will be no detrimental impact on the Company if one or more of these employees cease their employment.

**Intellectual Property**

The Company's ability to leverage its innovation and expertise depends upon its ability to protect its intellectual property including maintaining patent protection for its product candidates and their respective targets. The Company owns, or has licensed issued and pending patent applications covering a range of antibodies, cell lines, molecular targets, potential drug candidates and platform technologies. The prospect of attaining patent protection for products such as those Patrys proposes to develop is highly uncertain and involves complex and continually evolving factual and legal questions. The Company may incur significant costs in prosecuting, or defending its intellectual property rights.

**Competition risk**

The biotechnology and bio-pharmaceutical sectors are highly competitive and subject to rapid and significant technology change. The development of therapeutics is very difficult and demanding; even more so if this competition is against competitors who may have larger resources than the Company. A number of companies, both in Australia and overseas, may be developing products that target similar markets that Patrys is targeting. Patrys may face competition from companies with superior technologies or greater resources. As a result, there is the risk that the Company may be beaten to the market by one or more competitors.



## Specific Risks - iii

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<b>Currency risk</b>	Revenue and expenditure in overseas jurisdictions are subject to the risk of fluctuations in foreign exchange markets. The Company carries on part of its business outside of Australia and intends to continue to do so. Accordingly, revenues and payments will be made in those countries' currencies and may deviate from budgeted expectations if there are adverse currency fluctuations against the Australian dollar.
<b>Requirement to raise additional funding</b>	The Company may be required to raise additional funds in the future. There is no guarantee that Patrys will be able to raise such additional capital when it is required, or on terms satisfactory to the Company. If the Company is unsuccessful in obtaining funding when required, this may have a material adverse effect on the Company's business and financial condition and performance and Patrys may need to delay, scale down or cease its operations. Further, any additional capital raised may dilute shareholders' interests in the Company.
<b>Risk of delay and continuity of operations</b>	Patrys may experience delays in achieving some or all of its milestones, including but not limited to product development, completion of trials, obtaining regulatory approvals manufacturing delays, or delays in sales or out licensing. The Company is also dependent on amongst other things its technology, key personnel and IT systems. Any disruption or delay to any key inputs could impact adversely on the Company.
<b>Insurance</b>	The Company insures its business and operations. However, the Company's insurance may not be of a nature or level to provide adequate insurance cover to insure against the occurrence of all events that may impact on the operations of the Company. The occurrence of an event that is not covered or fully covered by insurance could have a material adverse effect on the business, financial conditions and results of the Company.

# General Risks - i

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**Market Conditions** The stock market, and in particular, the market for biotech companies, has experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of such companies. These factors may materially affect the market price of the Company's securities, regardless of the Company's operational performance.

The price at which the Company's securities are quoted on ASX may increase or decrease due to a number of factors outside the Company's control and which are not explained by the fundamental operations and activities of the Company, including unpredictable influences on the market for securities in general and biotech stocks in particular. These factors may cause the Securities to trade at prices above or below the price at which the Company's securities were initially acquired. There is no assurance that the price of the Company's securities will increase if they are quoted on ASX. Some of the factors which may affect the price of the securities include:

- fluctuations in the domestic and international market for listed stocks
- general economic conditions in both Australia and internationally, including interest rates, inflation rates, exchange rates, commodity prices
- inclusion in or removal from market indices
- changes to government fiscal, monetary or regulatory policy, legislation or regulation
- the nature of competition in the markets and industries in which the Company operates
- the introduction of taxation reform
- general operational and business risks.

# General Risks - ii

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<b>Liquidity</b>	There can be no guarantee that an active market in the Securities will develop or that the price of the Securities will increase. There may be relatively few buyers or a relatively high number of sellers of Securities on ASX at any given time. This may increase the volatility of the market price of Securities. It may also affect the market price at which Shareholders are able to sell their Securities.
<b>Force Majeure</b>	Events may occur within or outside Australia that could affect investor sentiment or impact upon the global and Australian economies, the operations of the Company and the price of the Securities. These events include acts of terrorism, an outbreak of international hostilities, fires, floods, earthquakes, labour strikes, civil wars, natural disasters, outbreaks of disease or other man-made or natural events. These events can have an adverse effect on the demand for the Company's goods and services and its ability to conduct business. The Company has only a limited ability to insure against some of these risks.
<b>Litigation risk</b>	There is a risk that Patrys may in the future be the subject of or require to commence litigation, mediation or arbitration. The impact of such actions may have a material adverse impact on the Company.

# General Risks - iii

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## **Taxation Risks**

Changes in tax law, or changes in the way tax laws are interpreted ,may impact the tax liabilities of the Company, Shareholder returns, or the tax treatment of a Shareholder's investment. In particular, both the level and basis of taxation may change. Tax law is frequently being changed, both prospectively and retrospectively. Any actual or alleged failure to comply with, or any change in the application or interpretation of tax rules applied in respect of such transactions, may increase the Company's tax liabilities or expose it to legal, regulatory or other actions.

## **Changes in Accounting standards**

Australian accounting standards are issued by the Australian Accounting Standards Board and are not within the control of the Company and its directors. Any changes to the accounting standards or to the interpretation of those standards may have an adverse effect on the reported financial performance and position of the Company.

## **COVID-19**

The COVID-19 global pandemic is having a significant and material impact on global markets and providing substantial impingement on the day-to-day operations of businesses. The pandemic may disrupt or prevent the Company from undertaking its operations and intended programs and may impact the Company's ability to raise capital in the near to medium term future. The Company's development timeline has previously been impacted by global supply chain issues related to the pandemic, and further delays, whilst actively being managed to identify and mitigate, are possible.



## CONTACT

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**[www.patrys.com](http://www.patrys.com)**

Patrys Limited (ASX:PAB)

