CEDRUS INVESTMENTS
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Overweight

Patrys Limited: A Potential Game Changer; Developing Novel Therapeutic Antibodies for Cancer Treatments

Key Points

- We are initiating coverage of Patrys Ltd. ("Patrys") with an **Overweight** and **Dec. 2020 target price of AUD0.15**, representing an upside potential of 477% over its 7 Dec. 2018 closing price.
- Patrys, a clinical-stage biopharmaceutical company listed on the Australian Securities Exchange (ASX) with ticker "PAB" and operations in both Australia and the U.S., is focused on the development of novel therapeutic antibodies potentially with improved clinical benefits for the treatments of a wide range of cancer types, including gliomas (brain cancer), breast, colon, pancreatic, ovarian and prostate cancer via its **two antibody platforms – Deoxymab and IgM**.

patrys

Price (7 Dec'18): AUD0.026
Dec. 2020 Target Price: AUD0.15

Market Data (7 Dec'18):
52-Wk High: AUD0.076 (19 Mar'18)
52-Wk Low: AUD0.0145 (8 Dec'17)
52-Wk Range: AUD0.0615
Market Cap: AUD27.8M
Shares Outstanding: 1,071M
Shares Floating: 961.0M
Dividend and Yield: N/A

- Deoxymab 3E10 and Deoxymab 5C6, **both in-licensed from Yale University** in the U.S., are Immunoglobulin G (IgG) antibodies capable of penetrating live cell nuclei, binding to DNA directly, and inhibiting the DNA repair process. The end result is killing cancer cells, which have deficiencies in the DNA repair mechanisms. This unique feature gives Patrys a strong market position, as the Deoxymab 3E10 converges two proven anti-cancer therapies, namely antibody and DNA damage response (DDR).
    - **Deoxymab 3E10**, a **first-in-class DDR therapeutic antibody**, synergizes with poly ADP ribose polymerase (PARP) inhibitors and showed safety profile in a previous Phase 1 lupus clinical trial.
    - **Patrys is developing a proprietary humanized version of Deoxymab 3E10 named PAT-DX1, a di-single chain fragment, to target solid tumors**. Studies in several pre-clinical models of cancer have demonstrated that PAT-DX1 can **kill cancer cells** and **outperform the non-humanized Deoxymab 3E10** in cell penetration and cancer cell death assays. A study of an orthotopic mouse model for glioblastoma showed that PAT-DX1 reduced tumor size and increased survival. In addition, PAT-DX1 targets and kills brain cancer stem cells. Based on supportive data available to-date and following a review of clinical needs and market opportunities, **two most attractive indications**, namely **triple negative breast cancer (TNBC) and glioblastoma (brain cancer), have been selected** for conducting clinical development of PAT-DX1 prior to human Phase 1 clinical trials.
- IgM (Immunoglobulin M) is another type of antibody and forms an integral part of the innate immune response of a human body. This type of antibody has also displayed anti-tumor activity in humans with outstanding safety profile and reduced side effects.
    - Patrys successfully **out-licensed one of its IgM assets**, the **PAT-SC1**, **to Hefei Co-source Biomedical Co., Ltd.**, a Chinese biotechnology company, in September 2015 for the exclusive development and commercialization for all oncology indications in the Chinese market.
    - **PAT-LM1**, another IgM asset, has been **identified as an out-licensing candidate**.
- Based on our assessment, **Patrys' current valuation is appealing**. In our view, Patrys' share price will possibly go higher after investors become more confident in the firm's prospects upon more success in its pre-clinical trials and further progress made to bring Patrys' therapeutic antibodies to clinical trials.

Table of Contents

I. INVESTMENT THESIS

- **Deoxymab is an advanced technology that targets DNA damage response (DDR).** Patrys devotes its focus and resources to Deoxymab, which is uniquely positioned at the convergence of two transformative anti-cancer therapies – antibodies and DDR. Importantly, Deoxymab **combines the advantages of antibodies** – known safety and commercial profile – **with a novel mechanism of action** akin to that of PARP inhibitors.

- **Deoxymab 3E10 is a novel form of treatment.** It penetrates into the cell nuclei and binds directly to DNA, where it **inhibits the DNA repair processes and kills cells that have mutations or deficiencies in DNA repair mechanisms** as found in cancer cells. Certain cancer cells attempt single-strand DNA repair, while others, using a different pathway, try to repair the more severe double-strand DNA repair. In both cases, Deoxymab 3E10 allows cancer cells of some cancers to be attacked by conventional agents, diminishing cancer cells' ability to repair themselves. If a cancer cell is unable to make the repairs, it triggers cell death. Deoxymab 3E10 is particularly effective against cancer cells attempting both single-strand and double-strand DNA repairs, effectively extending its therapeutic value against a wider range of cancer repair pathways. By doing so, cancer cells of certain cancers are much more susceptible to conventional chemotherapy and radiotherapy treatments, as their ability to repair themselves and therefore propagate is greatly reduced.

- **Lead candidate selected and working towards clinical trials.** Patrys has selected PAT-DX1 (humanized Deoxymab 3E10) as the lead candidate of the Deoxymab technology to progress towards clinical trials. PAT-DX1 has exhibited excellent performance by surpassing other variants in its ability not only to penetrate into cells' nuclei but also subsequently kill cancer cells. At the same time, it is an antibody that works to interfere with two distinctive DNA damage repair pathways, preventing cancer cells from repairing themselves. Pre-clinical studies on PAT-DX1 have already begun, and Patrys' management is confident that they will be able to bring it to clinical trials by 2021. The company recently reported that it would focus on glioblastoma and triple negative breast cancer for its future clinical programs.

- **Market opportunity for oncology/cancer drugs is tremendous, estimated at over USD161 billion by 2021.** The recent trend is that the global oncology drug market is shifting its focus to personalized medicine, and huge investment poured into anti-cancer drug research worldwide is likely to discover new avenues for cancer treatments in the near future. According to one of the research reports, the global oncology/cancer drugs market is expected to garner around USD112 billion by 2020, with a compound annual growth rate (CAGR) of 7.1% during the period from 2014 to 2020. In another forecast by Zion Market Research, the global cancer drugs market could reach USD161.30 billion by year-end 2021, growing at a CAGR of approximately 7.4% between 2016 and 2021. Meanwhile, Transparency Market Research forecasts the **global monoclonal antibody market to be worth as much as USD245.8 billion by 2024**, representing a compound annual growth rate (CAGR) of 12.6% from 2016 to 2024, driven by cancer and autoimmune diseases.

- **Vigorous M&A activity in the antibody cancer therapy market suggests opportunity existed for Patrys to be an acquisition target or being pursed as a business partner through a licensing deal.** Antibody cancer therapy has become one of the most popular treatment options in the most recent decade. As a result, there were a number of multi-million-dollar or even multi-billion-dollar transactions in the last few years, involving some of the biggest names in the healthcare industry such as Amgen (AMGN), Merck (MRK), and Johnson & Johnson (JNJ) buying pre-clinical antibody

assets for cancer treatments potentially worth around USD13.3 billion (including upfront and milestone payments and others) in aggregate with total upfront payments of roughly USD540 million (see Exhibit 14). Hence, Patrys has the potential to be an acquisition target or pursued as a business partner to co-develop its assets.

- **In possession of assets capable of addressing multiple cancer types.** Patrys maintains a portfolio of assets that can potentially target a wide variety of cancer types, including breast cancer, colon cancer, pancreatic cancer, ovarian cancer, gliomas (brain cancer), and prostate cancer. This gives Patrys the flexibility to explore various markets and pick the ones most beneficial to the company financially and/or strategically.

- **Collaborations with tier-one academic institutes.** Patrys is in collaboration with several world-leading academic organizations on multiple fronts, including research and development, licensing, and technological support. These collaborations include research and development as well as in-licensing agreements with Yale School of Medicine and cooperation with Beth Israel Deaconess Medical Center (BIDMC) in the U.S. and Garvan Institute of Medical Research in Australia for the Deoxymab platform as well as the Walter and Eliza Hall Institute of Medical Research (WEHI), Australia's oldest medical research institute, for combining the PAT-DX1 program with WEHI's proprietary intellectual property. A new collaboration with BIDMC in Boston, Massachusetts has also been formed recently to focus on studies of PAT-DX1 in orthotopic, immune competent mouse model of triple-negative breast cancer (TNBC). Aside from academics, Patrys also partners with commercial companies such as Hefei Co-source Biomedical Co., Ltd. in China for out-licensing the exclusive development and commercialization rights to PAT-SC1 for all oncology indications in the Chinese market.

- **Opportunities with the IgM platform still open.** Patrys remains committed to continuing therapeutic immunoglobulin M (IgM) antibody development and realizing its therapeutic benefits by forging a partnership such that the company can use its own financial resources to further develop the Deoxymab platform. The partnership approach still enables Patrys to profit from the financial benefits potentially created by the IgM platform.

- **Patrys has an experienced and dedicated management team.** Patrys has very seasoned and knowledgeable executives in its board and management team. The board members and management executives are equipped with the expertise and extensive experience required to grow a junior biopharmaceutical company. In addition, the company has a scientific advisory board, which is comprised of well-qualified and visionary veterans of the industry. By working together closely, these two boards will be critical components for the ongoing success of the company.

- **Attractive valuation as Patrys' shares are significantly undervalued based on our valuation model**. Patrys' current market capitalization of AUD27.8 million is only about 18% of its estimated intrinsic value of AUD156 million, and our December 2020 target price of AUD0.15 represents a potential upside of approximately 477% over its share price as of the close on 7 December 2018.

II. COMPANY OVERVIEW

Company Description

Established in 2006, Patrys Limited ("Patrys") is a Melbourne-based biopharmaceutical company devoted to therapeutic antibody development and commercialization of novel antibody technologies to improve the clinical outcomes for the benefits of cancer patients. Patrys is principally engaged in progressing its Deoxymab platform and several natural human antibodies in its pipeline for the treatment of cancer cells found in brain, skin, blood, lung, breast, pancreas, gastrointestinal tract, ovary, prostate and colon. Patrys has been listed on the Australian Securities Exchange (ASX) under the ticker "PAB" since July 13, 2007. The company has operations in both Australia and the U.S.

Patrys' leading technology is its Deoxymab platform, a novel cell-penetrating anti-DNA antibody for cancer treatment. Pipeline products under this platform include Deoxymab 3E10 (PAX-DX1), PAX-DX1-NP, and Deoxymab 5C6. Meanwhile, Patrys' IgM technology has delivered drug candidates PAT-SM6, PAT-LM1 and PAT-SC1, which are antibodies derived from human cancer survivors, for the treatment of multiple cancers such as melanoma, multiple myeloma and gastric cancer.

"Patrys made significant progress with its Deoxymab assets, and in 2017 was able to report anti-cancer activity in a range of pre-clinical cancer models, selective targeting of tumours and synergy with a leading class of novel therapeutics, the PARP inhibitors. In 2018, the company has reported the ability of PAT-DX1 to reduce tumor growth and increase survival in a mouse model of glioblastoma."

- **Dr. James Campbell, Patrys' Chief Executive Officer**

Patrys had a total of approximately 1,071 million shares outstanding as of 30 September 2018, with a daily trading volume (average of last three months) of around 2.6 million shares. Total market capitalization of Patrys as of 7 December 2018 was AUD27.8 million.

Top shareholders

The table below shows the top-10 shareholders of Patrys, including insiders, and their respective shareholdings. These top-10 shareholders collectively held approximately 32.92% of the company's total outstanding shares of 1,070,513,402 as of 30 September 2018.

Exhibit 1: Patrys' Top-10 Shareholders and their Shareholdings (as of 30 September 2018)

No.	Name	Shareholding*	Percentage
1	Board of Directors	109,525,271	10.23%
	- John Read	7,721,911	0.72%
	- Michael Stork	98,773,814	9.23%
	- James Campbell	29,546	0.00%
	- Suzy Jones	3,000,000	0.28%
2	Dr. Dax Calder	83,000,000	7.75%
3	Kemast Investments Pty Ltd.	29,411,765	2.75%
4	Staffwear Pty Ltd.	23,096,474	2.16%
5	HSBC Custody Nominees (Australia) Limited	21,779,779	2.03%
6	Oncomab GmbH	20,250,000	1.89%
7	Marginata Pty Ltd.	20,000,000	1.87%
8	Yale University	16,116,324	1.51%
9	Mr. Mladen Marusic	14,741,361	1.38%
10	Mr. Xiaoke Xie	14,500,000	1.35%

Note: * Includes direct and indirect shareholdings

Source: Patrys Limited

Corporate strategies

Patrys is dedicated to the development and commercialization of innovative antibody technologies to enhance the clinical outcomes for cancer patients through its two proprietary technology platforms, namely Deoxymab and IgM. The **Deoxymab antibody platform** is uniquely positioned at the convergence of two transformative anti-cancer technologies – antibodies and DDR therapies. Patrys is developing Deoxymab 3E10 under this platform. **IgM antibody platform** has completed two clinical trials with PAT-SM6, with the investigational product showing safety profiles and signs of efficacy. Moreover, Patrys acquired from Debiopharm S.A. exclusive worldwide rights to PAT-SC1, a human IgM antibody targeting an isoform[1] of the CD55 gene. This product had previously been used in an investigator-led study, which showed that a single dose prior to gastrectomy[2] surgery conveyed a survival benefit when compared to historical control group.

Given the company's technological advantages and after evaluating needs in the medical market, Patrys has set **glioblastoma and triple negative breast cancer as the top-2 target indications**.

Patrys' key research and development strategy is to develop its proprietary technologies, which can be licensed to pharmaceutical or biotechnology partners for further development and ultimately launching products to the market. Patrys will seek to generate milestone payments and royalty revenue from licensing deals signed. The overall objective of all development programs that Patrys undertakes related to antibodies is to show safety and early indications of efficacy. For the next 12 months, Patrys has detailed plans

[1] Any of two or more functionally similar proteins that have a similar but not identical amino acid sequence and are either encoded by different genes or by RNA transcripts from the same gene which have had different exons removed

[2] Surgical removal of a part or the whole of the stomach

regarding the continued development of its assets in addition to ongoing efforts of exploring appropriate and promising partnership and collaboration opportunities.

By geography, Patrys' focus is on major markets such as the U.S., Europe, Japan, Canada, and Australia with the U.S., and China being the top-2 target markets. China is important to Patrys because one of its IgM assets, PAT-SC1, was licensed to Hefei Co-source Biomedical Co., Ltd., a Chinese biotechnology company, in September 2015 for the drug candidate's development and commercialization in the Chinese market. Meanwhile, Patrys will continue to explore deals for its portfolio of assets.

Research Collaborations with Academia and Partnerships with Commercial Companies

Patrys' novel position in the field of DNA damage response antibody therapeutics is increasingly being recognized, resulting in collaborations with several world-leading academic organizations, namely Yale School of Medicine, the Beth Israel Deaconess Medical Center, the Walter and Eliza Hall Institute of Medical Research (WEHI), and Garvan Institute of Medical Research on multiple fronts, including research and development, licensing, and technological support.

Of all these collaborations, the key ones for Patrys are the R&D and in-licensing support with Yale University, and Garvan Institute of Medical Research for the Deoxymab platform.

Patrys also co-operates with the WEHI, Australia's oldest medical research institute and a leading biomedical research institute in the country, for combining the PAT-DX1 program with WEHI's proprietary intellectual property. On 28 August 2018, Patrys and WEHI announced that they had been granted AUD100,000 State Government Victorian Medical Research Acceleration Fund as a financial support to the PAT-DX1 program aiming to develop new cancer treatments. The relevant research will be undertaken by Dr. Ruth Kluck, laboratory head in WEHI's Molecular Genetics of Cancer division, and Associate Professor Edwin Hawkins, laboratory head in the Immunology division at WEHI.

Dr. Kluck, with famed fellowships from the Wellcome Trust and the Australian Government's Australian Research Council, has been studying new approaches to cancer treatment since 2002 by investigating how cancer cells die. She is an expert on how Bax and Bak, two cell-killing proteins, help eliminate out-of-control cancer cells. Meanwhile, Associate Professor Hawkins, the runner up for the Centenary Institute Medical Innovation Award and recently awarded a National Health and Medical Research Council of Australia career development fellowship to begin in 2019, is internationally recognized for his achievements in the development of cutting-edge microscopy techniques. Specifically, he has developed imaging technology that follows the action of drugs in real time and monitors their responses over extended periods of time. His laboratory work is focused on investigating new treatments in blood cancers.

The collaboration will integrate Patrys' PAT-DX1 with WEHI's 7D10, a protein that interacts with the Bak cell-killing protein inside cells, to generate a bi-specific, novel antibody called 7D10-PAT-DX1. 7D10 can cause cell killing but is unable to pierce a cancer cell's outer membrane and bind to its targets by itself. However, PAT-DX1 can enter cancer cells and kill them, fostering defective DNA repair mechanism. Thus, the combined 7D10-PAT-DX1 antibody will be able to enter a cell, bind to its targets and help evade survival pathways typically employed by cancer. Associate Professor Hawkins' intra-vital microscopy technique allows following up and witnessing how cancer is affected by the 7D10-PAT-DX1 antibody. Patrys expects to report research findings in this regard in 2019.

Upon completing a pilot study which showed that PAT-DX1 has anti-tumor activity in an orthotopic, immune-competent mouse model for triple-negative breast cancer (TNBC), a particularly aggressive form of breast cancer, Patrys initiated a research and development collaboration that brings together experts from Yale School of Medicine in New Haven, Connecticut and Beth Israel Deaconess Medical Center (BIDMC) in Boston, Massachusetts. The research program is led by Dr. James Hansen in the Department of Therapeutic Radiology at Yale School of Medicine and Dr. Gerburg Wulf and Dr. Jaymin Patel at BIDMC to further investigate PAT-DX1 in BIDMC's orthotopic, immune-competent mouse model for TNBC.

Dr. James Hansen and Dr. Jiangbing Zhou in the Department of Neurosurgery and Biomedical Engineering at Yale School of Medicine are experts in cell-penetrating antibodies, and Dr. Hansen is the inventor of the Deoxymab technology. Dr. Wulf has significant experience in the development and testing of new drug combinations that may improve clinical outcomes in TNBC. Dr. Patel's translational research in the field of breast cancer spans nanoparticle technology, genomic instability, DNA damage repair (DDR), tumor targeting and personalized medicine.

In addition, on 8 October 2018, Patrys announced the award of Australian Academy of Technology and Engineering (ATSE) Global Connections Bridging Grant, which is supported by the Australian Federal Government, in the amount of AUD50,000. This project involves the deployment of resources at Patrys and Yale University PET Center, using preclinical rodent models to clinical translation, as the latter has top-of-the-line positron emission tomography (PET) scanners for imaging various diseases, including cancer. The research will be led by Dr. Bernadette Marquez Nostra, Assistant Professor of Radiology and Biomedical Imaging at Yale University, in collaboration with Dr. Jiangbing Zhou and Dr. James Hansen.

The Global Connections Bridging Grant will fund the development of 'proof-of-concept' testing of PAT-DX1, which will act as a PET imaging agent to detect metastatic triple negative breast cancer in animal models. The study will partner Patrys' PAT-DX1 with Zirconium-89 (^{89}Zr), which serves as an imaging companion to therapy based on PAT-DX1. The Hansen and Zhou labs at Yale have previously demonstrated that PAT-DX1 conjugated to nanoparticles localizes at both primary tumors and metastases. With the availability of the PET scanners through this cooperation, the distribution of PAT-DX1 in the body can be tracked by linking it with a radionuclide (^{89}Zr) and imaging the radiolabeled PAT-DX1 to detect cancer cells.

Aside from academia, Patrys also partners with commercial companies such as Hefei Co-source Biomedical Co., Ltd. in China for out-licensing the development and commercialization rights to PAT-SC1 for all oncology indications in the Chinese market.

Patrys actively presents its Deoxymab technology at prestigious global professional conferences. For example, Patrys presented new scientific data regarding its lead drug candidate, PAT-DX1, at this year's American Association for Cancer Research (AACR) Annual Meeting in Chicago, Illinois reiterating previous findings that PAT-DX1 localizes to various types of tumors due to its attraction to DNA released by dying cancer cells, penetrates into cell nuclei, inhibits DNA repairs, and kills cancer cells with defects in homology-directed repair (HDR). Furthermore, PAT-DX1 treatment reduced tumor growth and improved survival in an animal model of difficult to treat glioblastoma (brain cancer). The ability of PAT-DX1 to modulate the activity of other anti-cancer agents such as PARP inhibitors has been observed, and the exact mechanisms of these interactions are being further investigated.

The AACR annual meeting is the most important conference for pre-clinical cancer research globally and attracts thousands of pharmaceutical industry professionals and academic scientists as well as clinicians

from around the world. It is an outstanding forum to update the research community on the exciting progress made with the PAT-DX1 program and research alliances initiated.

Cash Reserve for Future Business

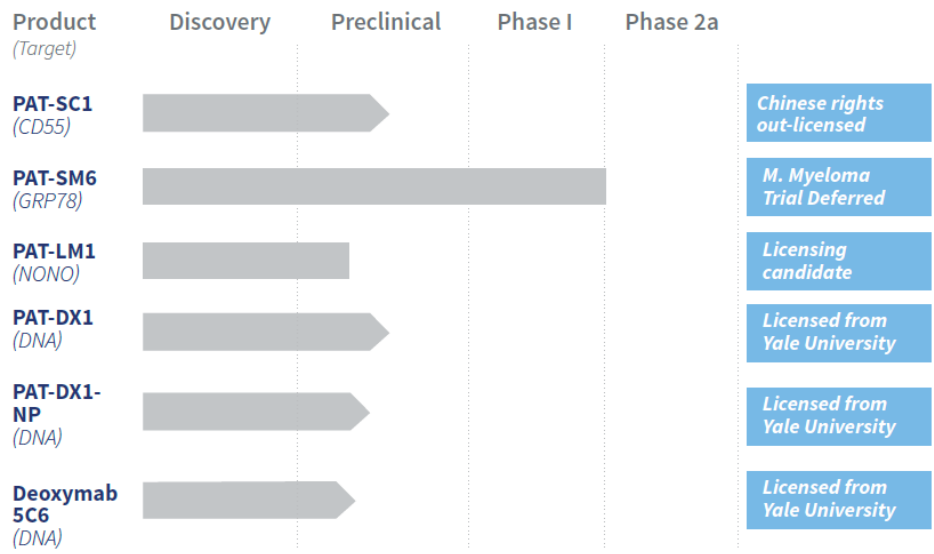
As at 30 September 2018, Patrys had cash and cash equivalents amounted to AUD3.67 million with another AUD2 million on deposit with maturity greater than three months. Notably, net cash outflows from operating activities during the September 2018 quarter were about AUD942,000, below the company's forecast by approximately 14% or AUD158,000. It is worth mentioning that the company announced the completion of an AUD2.4 million rights issue in February 2018 and the successful placement to strategic institutional and sophisticated investors of AUD4.6 million in May 2018. We believe these funds could support Patrys to run its operations for at least the next 2-3 years based on its expected net cash burn rate, assumed fundraising and projected cash expenditures.

Patrys disclosed on 25 October 2018 that it had come to terms with its insurers with respect to the failed manufacturing runs for PAT-SM6 in 2014 and 2015. As a result, the company will be paid an additional AUD3 million for settlement with no admission of liability from the insurers. This sum of money will further enhance Patrys' financial position and can comfortably advance the development of its pipeline products (primarily in the Deoxymab platform) particularly in view of the company's heightened scrutiny of expenditure.

Product Pipeline

Patrys has multiple assets in its development pipeline. The company's overall strategy is to accelerate the research and development of the assets derived from the Deoxymab platform (including Deoxymab 3E10 and Deoxymab 5C6), while deferring the IgM assets (especially PAT-SM6 and PAT-LM1) for better resource allocation and leveraging the latest technological advancements.

Exhibit 2: Status of Patrys' Pipeline Products



Source: Patrys Limited

Patrys has nine families of patents in the Deoxymab 3E10/5C6 family of products. Six of these patent families are listed in Appendix B of this report. In the meantime, the applications for the other three families of patents are still at the provisional stage, and their details are not yet made public. Three patents have already been successfully registered in China, Japan and the U.S. with pending applications in other jurisdictions.

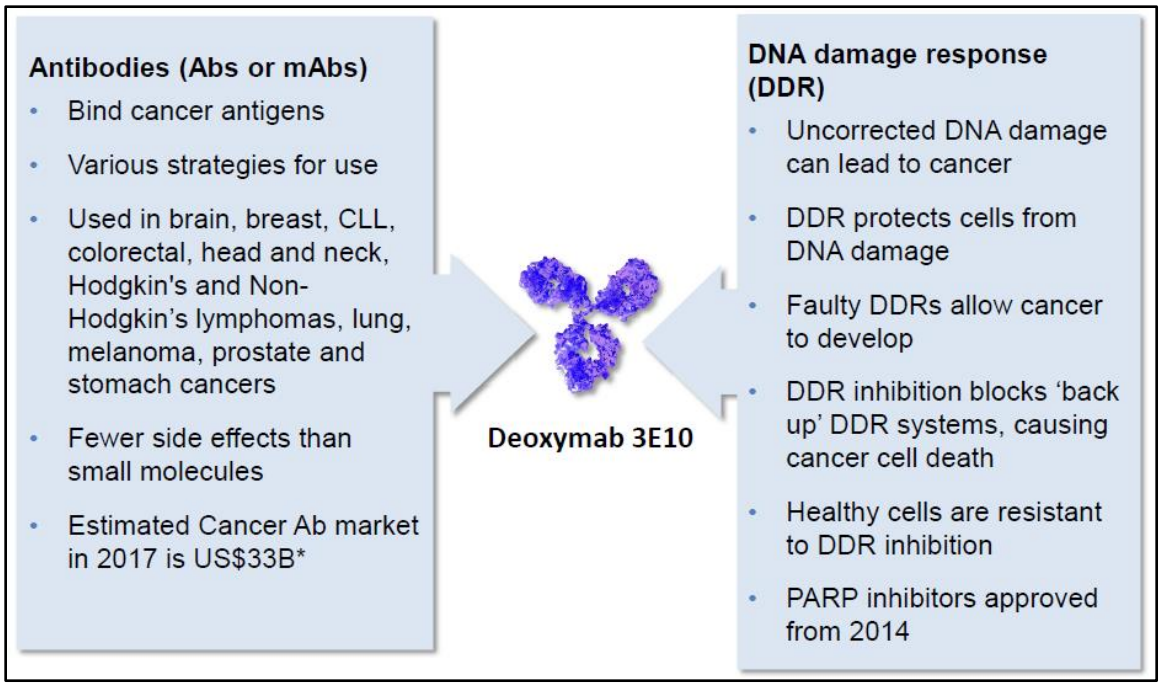
III. REVIEW OF TECHNOLOGY AND ASSET PORTFOLIO

The Deoxymab and IgM antibody platforms upon which Patrys is leveraging for growth have their own unique attributes potentially capable of becoming anti-cancer therapies.

The Deoxymab Platform

The Deoxymab platform is unique, as it sits at the convergence of two anti-cancer therapies – antibodies and DNA damage response (DDR) – to kill a wide variety of cancers.

Exhibit 3: Deoxymab at the Convergence of Two Transformative Anti-cancer Technologies



Source: Patrys Limited

Deoxymab 3E10 is a DNA damage response (DDR) antibody that was first identified in a mouse model of lupus[3]. Of particular interest is that whilst most antibodies bind to cell surface markers, Deoxymab 3E10 penetrates into the cell nuclei and binds directly to the 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.

[3] A systemic autoimmune disease that occurs when one's immune system attacks his/her own tissues and organs

Deoxymab 3E10 has the potential as a single therapeutic agent, and has been shown to significantly enhance the efficacy of both chemo- and radiotherapies. Furthermore, Deoxymab 3E10 can be conjugated to nanoparticles to target the delivery of chemotherapeutics to tumors.

Patrys has developed a humanized form of Deoxymab 3E10, PAT-DX1, with improved activity over the original version of 3E10, and is progressing this together with a nanoparticle-conjugated form (PAT-DX1-NP) towards clinical trials. In a range of pre-clinical cancer models, PAT-DX1 has shown significant ability to kill cancer cells in animal models, human tumor explants and xenograft[4] models. PAT-DX1 has also been shown to work synergistically with the approved PARP inhibitor, olaparib (trade name LYNPARZA®). In the first calendar quarter of 2018 Patrys reported that PAT-DX1 reduced the tumor size and crossed the blood brain barrier in an orthotopic mouse model of glioblastoma based on a human tissue explant. This study also showed a notable increase in the median survival period for mice treated with PAT-DX1. Patrys believes that PAT-DX1 may have application across a wide range of malignancies such as gliomas, melanomas, prostate, breast, pancreatic and ovarian cancers.

The versatility of Patrys' approach to Deoxymab's development has resulted in the ability to develop a variant for use as a standalone monotherapy in addition to the conjugation of Deoxymab 3E10 to nanoparticles to allow for targeted delivery of chemotherapeutic agents to tumors. This approach provides multiple options that no other competitors are currently adopting, and greatly increases Patrys' chances for success.

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

Deoxymab 3E10 (Target: DNA)

Patrys' lead assets are the Deoxymab cell-penetrating antibodies, which have been cost-effectively progressed through pre-clinical development.

Deoxymab 3E10 is an antibody that works to block the DNA Damage Repair (DDR) pathway. As such it **combines the known safety and commercial profile of therapeutic antibodies with a novel mechanism of action akin to that of PARP inhibitors**, but, unlike PARP inhibitors, Deoxymab prevents double-strand DNA repair as well. Specifically, by binding to cut strands of DNA in the nucleus, Deoxymab 3E10 stops the action of DDR enzymes, which would usually repair damaged DNA.

Source: Patrys Limited

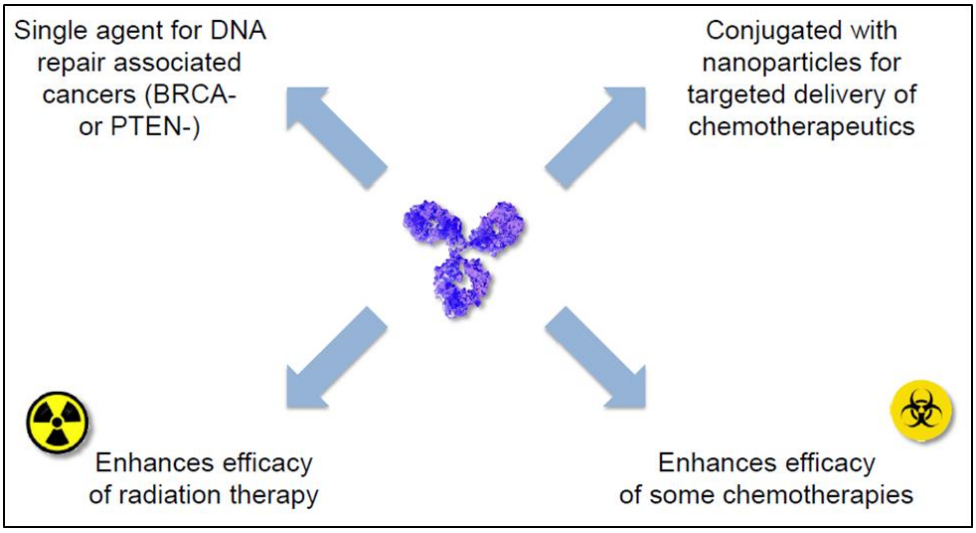
[4] A tissue graft or organ transplant from a donor of a different species from the recipient

As such, we believe that Deoxymab 3E10 **has the potential to enhance the efficacy of radiotherapy, DNA-damaging chemotherapy, and as a single agent in PTEN- or BRCA- cancers**.

Deoxymab 3E10 penetrates live cell nuclei by binding to DNA or its precursors outside of cells and then following them into cell nuclei through a nucleoside transporter. Once in the nucleus, Deoxymab 3E10 interferes with the DNA repair processes, but the degree of inhibition of DNA repair caused by Deoxymab 3E10 is modest and is not enough to kill a normal cell with robust mechanisms to manage insults to DNA. However, many cancer cells are exquisitely sensitive to DNA damage because their DNA repair mechanisms are already impaired. When these cancer cells encounter Deoxymab 3E10, they accumulate more DNA damage than they can handle and ultimately die. Deoxymab 3E10 is therefore selectively toxic to cancer cells that have deficiencies in DNA repair, which include a wide range of malignancies such as gliomas, melanomas, prostate, breast, ovarian cancers and many others. When combined with DNA-damaging agents such as chemotherapy or radiation, Deoxymab 3E10 has an even greater effect on these cancer cells.

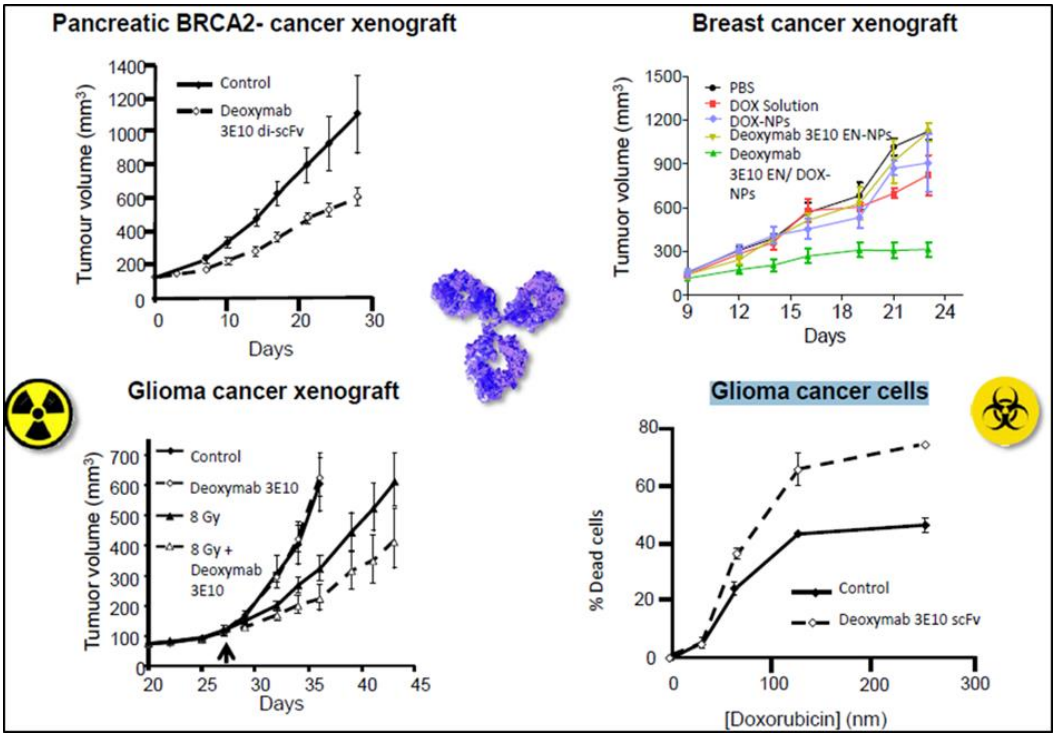
Deoxymab 3E10 combines the advantages of both antibodies and PARP inhibitors and has the potential to create a specific market in cancer therapy.

Exhibit 4: Deoxymab 3E10 has Multiple Development Paths



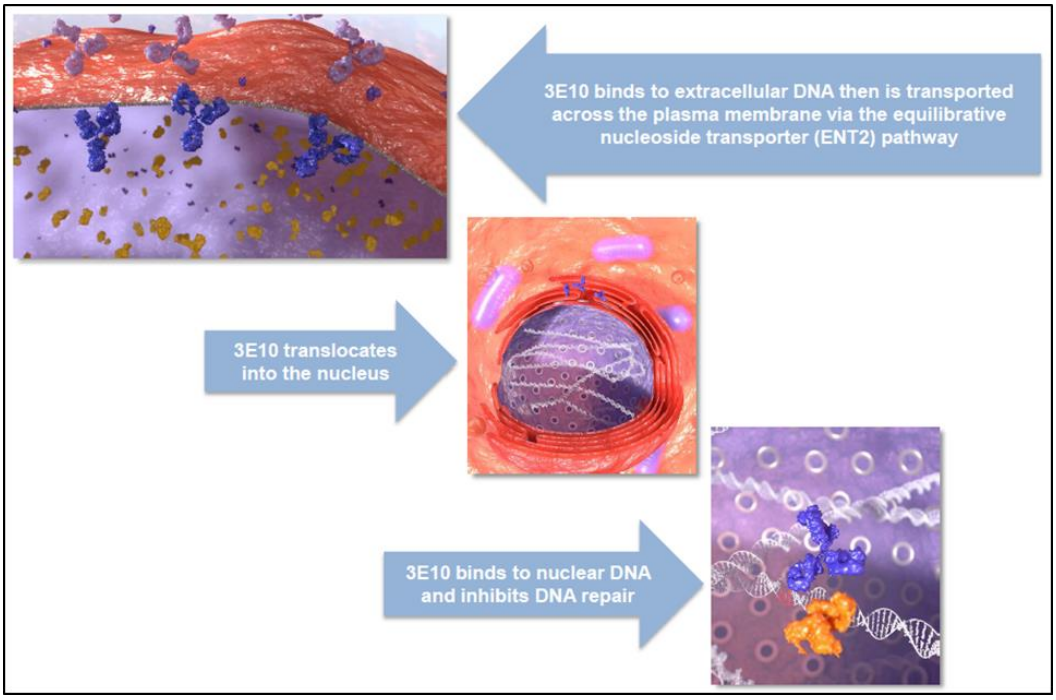
Source: Patrys Limited

Exhibit 5: Deoxymab 3E10 is supported by Strong Pre-clinical Science Studies on Pancreatic BRCA2-Cancer, Breast Cancer and Glioma Cancer



Source: Patrys Limited

Exhibit 6: Novel Mechanism of Action of Deoxymab 3E10



Source: Patrys Limited

PAT-DX1 (Target: DNA)

Both PAT-DX1, the humanized form of Deoxymab 3E10 with improved activity over the original version of 3E10, and PAT-DX1-NP, the nanoparticle-conjugated form, have the potential to proceed towards clinical trials. In a range of pre-clinical cancer models, PAT-DX1 has demonstrated significant ability to kill cancer cells in animal models, human tumor explants and xenograft models. Moreover, PAT-DX1 has also been demonstrated to work synergistically with the approved poly ADP ribose polymerase (PARP) inhibitor, olaparib. Patrys believes that PAT-DX1 may have positive impact across a wide variety of malignancies, including gliomas, breast, melanomas, pancreatic, prostate and ovarian cancers.

PAT-DX1, the humanized and optimized Deoxymab 3E10 in terms of efficacy, manufacturability and novelty, is chosen from a large number of humanized 3E10 variants. The selection of PAT-DX1 was based on its performance in a suite of *in vitro* assays where it surpassed other variants in its ability to penetrate into cells' nuclei and also kill cancer cells. Subsequently, PAT-DX1 outperformed native mouse forms of the Deoxymab 3E10 antibody in the screening assays. It is currently in pre-clinical development.

PAT-DX1 is optimized for efficacy, manufacturability and novelty. It produced positive results in multiple pre-clinical studies. It features the following important and favorable attributes, making it the ideal candidate for Patrys to proceed to clinical development:

- Kills colon cancer cells that lack key DNA repair enzymes (BRCA2);
- Active against primary human glioblastoma explants from patients;
- Efficacy indicated in an animal model of triple negative breast cancer;
- Synergizes with PARP inhibitor;
- Crosses blood brain barrier, reduces tumor size and increases survival in orthotopic glioblastoma model, and
- Targets and kills glioblastoma cancer stem cells.

The *in vitro* assays were conducted in collaboration with the lead inventor of the Deoxymab technology, Dr. James Hansen at Yale University in the U.S. The confirmation of PAT-DX1 as the lead candidate allows Patrys to move forward with the production of this antibody to be used in a range of animal models of cancer.

PAT-DX1 conjugated to Nanoparticles – PAT-DX1-NP (Target: DNA)

In June 2017, Patrys licensed from Yale University the worldwide rights to develop and commercialize technology pertaining to the linking of the novel anti-DNA antibody PAT-DX1 to nanoparticles. PAT-DX1 linked to nanoparticles has been designated PAT-DX1-NP. The nanoparticles can be loaded with standard chemotherapeutic or other drugs, and in pre-clinical models, the combination demonstrated a notable increase in efficacy.

This new approach builds on one of the central attributes of PAT-DX1 – the fact that it is attracted to the extracellular DNA (eDNA) that is associated with dying cancer cells. Using this targeting mechanism, the PAT-DX1-nanoparticle conjugate is preferentially attracted to tumor tissues and delivers its payload (the chemotherapy) to where it is most needed. This drives a virtuous cycle, as increased cancer cell death attracts even more of the conjugated PAT-DX1-nanoparticles to the tumor, significantly enhancing treatment efficacy in animal models.

The intellectual property of PAT-DX1-nanoparticle conjugation is the subject of a patent application filed by Yale University, which, if granted, will extend the patent protection to 2036. Patrys announced that PAT-DX1-NP can localize to a range of tumors with differing underlying pathologies, in particular, lymph node metastases in a breast cancer animal model, and NPs can be loaded with chemotherapeutic or other drugs to boost efficacy. More recently, both PAT-DX1 and PAT-DX1-NP were shown to be able to target and kill brain cancer stem cells by crossing the blood brain barrier in a mouse model of glioblastoma.

The synergistic nature of the **PAT-DX1 and PAT-DX1-NP programs allows both to be developed concurrently, leading to development cost savings**.

On 29 January 2018, Patrys announced pre-clinical data for its drug candidate PAT-DX1-NP. As part of the tumor localization study recently completed at Yale University, Dr. James Hansen and Dr. Jiangbing Zhou made the discovery that PAT-DX1-NPs appeared to localize not only to primary xenograft tumors but also axillary lymph node metastases. The PAT-DX1-NPs showed improved targeting of the primary tumors in mice with breast cancer, which was consistent with previous studies with murine 3E10 and PAT-DX1 in breast and glioblastoma tumor models. It is remarkable to observe that the PAT-DX1-NPs seemed to also target nearby axillary lymph node metastases due to the working mechanism of targeting extracellular DNA released by dying cancer cells. This is also the first direct evidence of this effect in an animal study. Therefore, **PAT-DX1-NP has the potential not only to target primary tumors but also aim at cancer cells elsewhere in the body, including lymph nodes and distant metastases**. Currently, Patrys is focused on proceeding with the broader PAT-DX1 program towards clinical trials, and any diagnostic or imaging programs will only be conducted through alliances. It would mean that the ultimate antibody launched could have broad utility, treating both primary and secondary tumors potentially even before the latter ones have been identified.

Linking PAT-DX1 to nanoparticles enables the preferential targeting of nanoparticles to tumor tissues, and previous use of murine 3E10-NP exhibited enhanced efficacy of drug therapy. **More targeted delivery may result in lower doses of chemotherapies to be used in treating cancer**. Patrys' market position in the field of DNA damage response (DDR) therapeutics is strengthening, following confirmation of PAT-DX1's activity against a range of cancer types and its displayed synergy when administering with the PARP inhibitor olaparib.

Patrys' management has stated that this discovery is consistent with the company's understanding of the behavior of PAT-DX1 and believes that if PAT-DX1-NP localizes to metastases as well as primary tumors, the implications are significant, likely driving further development of this asset. With evidence of utility against a variety of cancer types confirmed, Patrys will expand the PAT-DX1-NP program to trial the delivery of nanoparticles embedded with chemotherapeutics.

Recently, Patrys has announced further pre-clinical data on PAT-DX1 and PAT-DX1-NP, which include the following:

- **Crosses Blood Brain Barrier to Reduce Brain Tumor Size (February 2018)**

  PAT-DX1 administered by tail vein injection crossed the blood brain barrier and meaningfully reduced tumor size in an orthotopic animal model of glioblastoma using human tumor explants. Glioblastoma tumors in mice treated with PAT-DX1 were found more than 40% smaller than those in mice in the control arm after an evaluation of brain sections.

Being able to cross the blood brain barrier as the PAT-DX1 does is a significant achievement in the delivery of therapeutics because it is known that only a few molecular classes, including protein and antibody, can transit across the barrier from the blood to the brain.

- **Significantly Improves Survival in Animal Model of Glioblastoma (March 2018)**

  PAT-DX1 administered by tail vein injection also demonstrated notable improvement in survival in an orthotopic animal model of MGMT-unmethylated glioblastoma derived from human tumor explants.

  A study to evaluate the performance of the PARP inhibitor olaparib and a combination of olaparib and PAT-DX1 in the same model of glioblastoma was carried out. The findings were that PAT-DX1 alone was superior to using olaparib alone. Moreover, taking olaparib in addition to PAT-DX1 did not yield any remarkable improvement in efficacy over using PAT-DX1 individually. These results seem to suggest the limited ability of olaparib to cross the blood brain barrier and reinforce the need for methods in neuro oncology to help deliver therapeutics such as olaparib across the blood brain barrier to treat malignancies of the central nervous system.

  For better therapeutic outcome, Patrys is developing PAT-DX1-NP, with nanoparticles conjugating to PAT-DX1. This variant has exhibited enhanced targeting to brain tumors in a mouse model of glioblastoma. These PAT-DX1-NPs can be loaded with **therapeutics that otherwise would have limited access to brain tumors**. As a result, PAT-DX1 has the potential to be used against brain tumors both as a single agent and as a delivery medium to help transport drug-loaded nanoparticles across the blood brain barrier.

- **Targets and Kills Brain Cancer Stem Cells (May 2018)**

  Recent studies confirmed that PAT-DX1 and PAT-DX1-NP target tumor spheres derived from human glioblastoma cancer stem cells (CSCs). To be more specific, PAT-DX1-NP targets not only cells on the surface of spheres but cells inside them. Importantly, follow-on experiments showed that unconjugated PAT-DX1 significantly reduced the growth and viability of the CSC tumor spheres. CSCs are tumor-forming cancer cells found within tumors that have the potential to give rise to all cell types found in a particular cancer sample. Typically, CSCs have the characteristics of being isolated from primary human tumors, grown in culture and differentiated into complete tumors when implanted into model systems.

- **Completed Pilot Study on Triple Negative Breast Cancer (May 2018)**

  After the successful completion of the PAT-DX1 orthotopic glioblastoma study in March at Yale University, Patrys completed a pilot study which showed that PAT-DX1 has anti-tumor activity in an orthotopic, immune-competent mouse model of triple negative breast cancer (TNBC), a particularly aggressive form of breast cancer.

- **Announced Preliminary Pharmacokinetics data (July 2018)**

  Dr. James Hansen and Dr. Jiangbing Zhou of the Yale School of Medicine have confirmed that PAT-DX1 localizes into xenograft of triple negative breast cancer (TNBC) tumors in mice as a single agent. In addition, preliminary pharmacokinetic analysis indicates that PAT-DX1 displayed considerable

tumor penetration 8 hours after its administration. More complete pharmacokinetic profiling of PAT-DX1 in TNBC is ongoing.

These significant discoveries are encouraging such that Patrys is continuing with its pre-clinical work to optimize dosing and scheduling of PAT-DX1 in a range of cancer types. At the same time, the company is progressing pre-manufacturing activities.

Patrys has recently selected the target indications for its PAT-DX1 clinical development program, and the decision paves the way for the company to progress PAT-DX1 to the clinic as a novel asset for treatment of cancers. Although PAT-DX1 has the potential to treat a wide variety of cancers with impaired DNA damage repair (DDR) status, Patrys has decided to prioritize its efforts on two most attractive indications, namely triple negative breast cancer (TNBC) and glioblastoma, based on supportive data available to-date and following a review of clinical needs and market opportunities.

In initiating its development plan, Patrys has prudently selected a service provider for cell line development with direct experience of working with cell-penetrating antibodies such as PAT-DX1 because a stable cell line is an essential component of the development pathway for antibody therapeutics. As a stable cell line is the foundation upon which future studies and regulatory processes will be built, it is of utmost importance. Details of the cell line development program are currently being finalized.

Despite the initial target indications having been chosen, Patrys will continue to support pre-clinical studies in other tumor models through alliances with the academia to enhance its broader understanding of the potential of PAT-DX1 and PAT-DX1-NP. Moreover, the company will continue the pursuit of expanding the scope of applications of the PAT-DX1 technology through various funding sources such as grants and non-dilutive sources of capital.

Deoxymab 5C6 (Target: DNA)

Deoxymab 5C6 is another lupus autoantibody[5] that penetrates live cell nuclei. Similar to Deoxymab 3E10, it is highly toxic to cancer cells with DNA repair deficiencies and has the potential to be used in cancer therapy.

The IgM Platform

The IgM platform works by **using the body's first line of defense as part of the innate immune response**. In completed trials, the IgM platform exhibited safety and signs of efficacy. Specifically, the IgM platform demonstrated anti-tumour activity in both mice and humans with the following potential advantages:

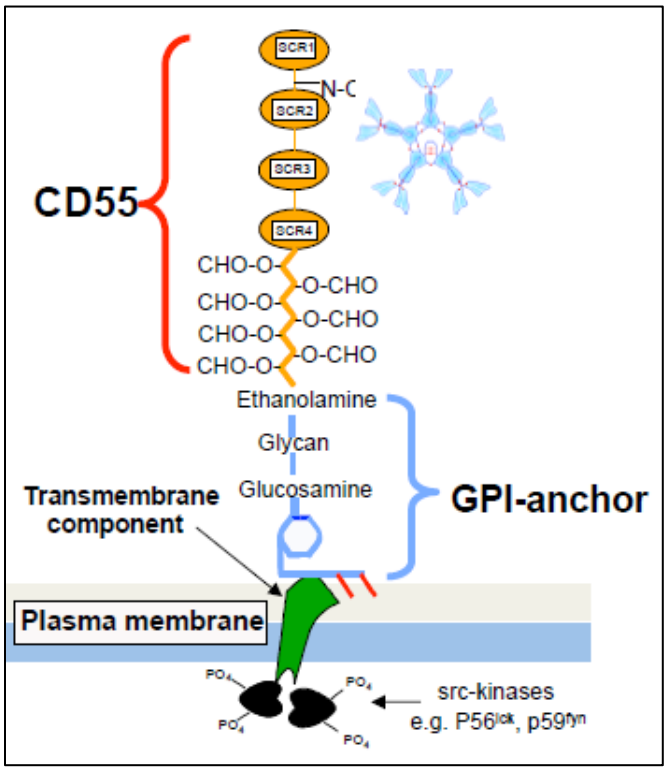
- Excellent safety profile in humans;
- Reduced side effects, and
- Combination with existing chemotherapy treatments potentially without any added toxicological effects.

[5] An antibody produced by the immune system that is directed against one or more of the individual's own proteins. Many autoimmune diseases are caused by such autoantibodies

PAT-SC1 (Target: CD55 gene)

PAT-SC1 is Patrys' most mature IgM platform product, as it has been **shown to provide a survival benefit to treated gastric cancer patients for over 10 years**. In September 2015, PAT-SC1 was licensed to Hefei Co-source Biomedical Co., Ltd., a Chinese biotechnology company, for its exclusive development and commercialization in the Chinese market for all oncology indications. Hefei Co-source is currently pursuing Chinese hamster ovary (CHO) cell line[6] development work. Patrys retains the rights to develop and commercialize PAT-SC1 outside China.

Exhibit 7: Mechanism of CD55 Gene



Source: Patrys Limited

PAT-SM6 (Target: GRP78 gene)

PAT-SM6 is a natural human antibody isolated from a stomach cancer patient, and it selectively binds to multiple types of cancer cells, including solid tumors such as melanoma, breast, colon and pancreatic, as well as blood-based cancers such as multiple myeloma. PAT-SM6 has completed phase I/IIa clinical trial and been granted the Orphan Drug status in both the U.S. and Europe. A phase IIa study of PAT-SM6 in combination with Amgen's Carfilzomib[7] was planned but deferred because of problems with manufacturing.

[6] Chinese hamster ovary (CHO) cells are an epithelial cell line derived from the ovary of the Chinese hamster, often used in biological and medical research and commercially in the production of therapeutic proteins

[7] An anti-cancer drug acts as a selective proteasome inhibitor.

PAT-LM1 (Target: NONO gene)

PAT-LM1 is based on a human antibody harvested from a human lung cancer survivor, and PAT-LM1 has exhibited promising prospects in initial laboratory and animal testing, particularly for colon, lung, breast, ovary, pancreatic and a variety of hematologic cancers[8]. In August 2018, Patrys announced the grant of a European patent for PAT-LM1. The European patent is derived from one of a series of patent applications that have been submitted to cover the PAT-LM1 antibody. The claims in this patent cover this antibody *per se* as well as its use in treating and diagnosing cancer. To-date, 14 patents across three PAT-LM1 families have been granted in jurisdictions including the U.S. and Europe.

On the Lookout for Out-licensing Deals

Patrys will continue to explore out-licensing deals with regard to all IgM assets. Patrys is open to all deal structures. No specific milestones are required to be hit before licensing deals can be made, giving Patrys fewer hurdles to overcome.

IV. INDUSTRY ANALYSIS

Cedrus Investments published an industry report titled "Antibody-Based Therapy is Poised to be the Fastest-Growing Segment of New Cancer Drug Development" on 25 September 2014, with discussions of industry outlook. A summary of key industry analysis of that report with updates where necessary is included below.

Market growth of cancer drugs and treatments is significant as global cancer prevalence rate is projected to trend higher. With an increasing proportion of the world's population changing lifestyles and diets resulting in insufficient physical activity and obesity, among other risk factors, the global cancer prevalence rate is likely to continue climbing, heightening the demand for cancer drugs and treatments. Estimates from the GLOBOCAN Project 2012 published in December 2013 by the World Health Organization (WHO) of the United Nations are that the number of cancer incidence worldwide will double between 2002 and 2030 to 21.68 million. Hence, total expenditure on cancer treatments is seen to grow rapidly because the costs of many treatments are expected to rise as well.

Monoclonal antibody (mAb) sales are growing fast and new mAbs may become a major source of forthcoming blockbuster drugs. Monoclonal antibody-based therapies are a rapidly-growing class of cancer treatments. Today, monoclonal antibody represents one of the most successful therapeutic drug classes, and this class continues to attract billions of dollars in R&D investment. Based on market research data, global sales of monoclonal antibody drugs were as much as USD90 billion in 2016. In addition, monoclonal antibodies have emerged as a major source of new blockbuster drugs.

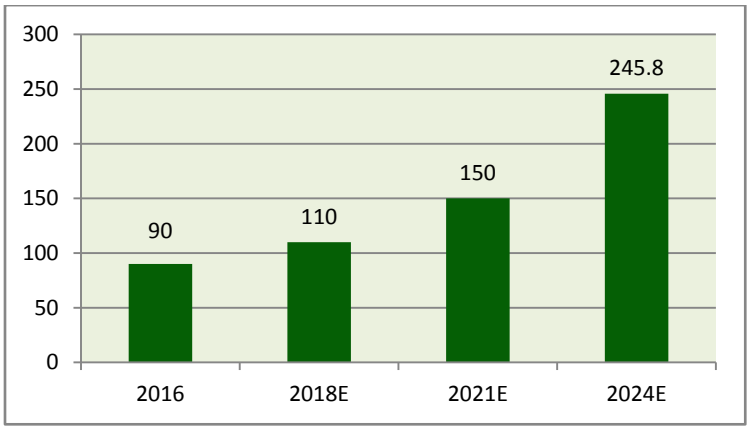
Global Monoclonal Antibody Therapeutics Market

Monoclonal antibodies are used to treat various kinds of severe and chronic conditions such as cancer, rheumatoid arthritis, Crohn's diseases, psoriasis, osteoporosis, systemic lupus erythematous and others. They target only the affected areas, destroy the diseased cells, and restore the immune system.

[8] Cancers that begin in blood-forming tissue, such as the bone marrow, or in the cells of the immune system, including leukemia2, lymphoma3, and multiple myeloma

According to Research and Markets, 2018 global monoclonal antibody product sales are expected to worth USD110 billion, and the figure is estimated to surge to nearly USD150 billion by 2021[9], while Transparency Market Research projects that the worldwide market for monoclonal antibody therapeutics to be as large as USD245.8 billion by 2024, representing a compound annual growth rate (CAGR) of 12.6% from 2016 to 2024 fueled by cancer and autoimmune diseases[10].

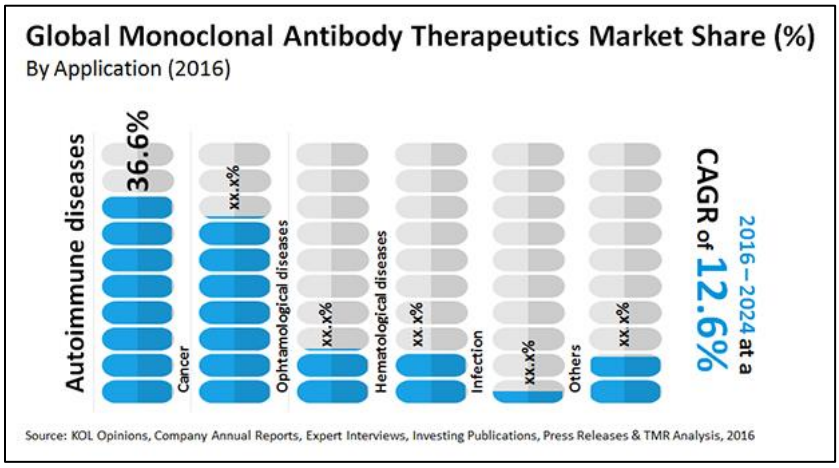
Exhibit 8: Global Monoclonal Antibody Product Sales Forecasts (USD Billion)



Source: Research and Markets, Transparency Market Research

The rising incidences of cancer across the globe are expected to drive the growth of the monoclonal antibody therapeutics market worldwide in coming years. According to the World Health Organization, the number of cancer cases witnessed worldwide is projected to jump by 70% over the next few years. Forecast data indicate that 60% of the new cases will be from Asia, Africa, and Latin America. Meanwhile, R&D activities on monoclonal antibodies are on the rise, especially across Europe and the U.S. Hence, commercialization of new drugs will contribute to the sustained growth of this segment of the market.

Exhibit 9: Global Monoclonal Antibody Therapeutics Market Share by Application (%)



Source: KOL Opinions, Company Annual Reports, Expert Interviews, Investing Publications, Press Releases and TMR Analysis, 2016

[9] https://www.researchandmarkets.com/research/b3gj4m/the_development
[10] https://www.transparencymarketresearch.com/pressrelease/monoclonal-antibody-therapeutics-market.htm

The key players operating in the global monoclonal antibody therapeutics market are GlaxoSmithKline (GSK), Bayer AG, Pfizer (PFE), F. Hoffmann-La Roche Ltd., Sanofi (SNY), Merck (MRK), AbbVie (ABBV), Novartis AG (NVS), Amgen (AMGN), Bristol-Myers Squibb (BMY), Johnson & Johnson (JNJ), and Biogen (BIIB) among others. We believe these big players will focus on strategic mergers and acquisitions to strengthen their market position.

Global Cancer Market Size

Besides growing incidences of cancer, growing popularity of advance therapies (biological and targeted drug therapies), and commercialization of follow-on-biologics of patent-expired leading drugs are the other driving forces behind heightened demand for cancer drugs. On the other hand, high drug development costs, risks of failure and adverse effects associated with cancer drugs therapies, as well as stringent regulatory requirements are limiting the growth of the market to a certain extent.

According to the basis of the different therapeutic areas, the cancer drug market is segmented into immunotherapy, targeted therapy, chemotherapy, hormone therapy and others. Breast cancer, blood cancer, gastrointestinal cancer, prostate cancer, skin cancer, lung cancer and others are the key cancer types of the global cancer drug market. Biological drugs based on monoclonal antibodies have emerged as the preferred option for treating various cancer types, especially for blood cancer (leukemia). By geography, North America, Europe and Asia-Pacific are the key regional segments of the cancer drug market worldwide.

According to the research report titled “World Oncology Consult Market Worth US$111.9 Billion by 2020 - Analysis, Technologies & Forecasts Report 2014-2022” published by Research and Markets, the global oncology drugs market is expected to reach US$111.9 billion by 2020. Patent expirations of key cancer/oncology drugs such as Herceptin, Erbitux, Rituxan and Avastin are expected to boost the growth of the cancer biosimilar market by 2020. Going further, the biological therapies are projected to dominate the market by 2020 due to their high efficacy, target-specific action and less toxicity.

In accordance with another research report titled “Cancer Drugs Market by Therapy (Immunotherapy, Targeted Therapy, Chemotherapy, Hormone Therapy and Others) for Breast Cancer, Blood Cancer, Gastrointestinal Cancer, Prostate Cancer, Skin Cancer, Lung Cancer and Other Cancer: Global Industry Perspective, Comprehensive Analysis and Forecast, 2015 - 2021” published by Zion Market Research, global cancer drugs market was estimated at approximately USD112.90 billion in 2015 and is forecast to generate revenue of around USD161.30 billion by year-end 2021, growing at a CAGR of around 7.4% between 2016 and 2021.

North America to Remain Leading Geography due to Affordable Healthcare

In terms of geography, the global market is divided into several regions: North America, Europe, Asia Pacific, Latin America, and the Middle East and Africa. Demand for cancer drugs is seen to be the highest in North America, especially in the U.S., while Asia Pacific is expected to be the region with moderate growth during the forecast period. For the Middle East and Africa and the Latin America regions, consumption of cancer drugs is projected to register modest growth in coming years.

The vast pool of geriatrics, well-established reimbursement policies, affordable healthcare, and growing awareness of diseases are the contributing factors for notable market expansion in North America.

Meanwhile, Europe is expected to thrive due to increasing research and development in developing novel products.

Asia Pacific is foreseen to record steady growth, as the region has a huge population base with vast scope of unmet medical needs coupled with governments in developing countries are paying more attention to the health of their people.

Active Antibody Cancer Therapy Market

Antibody cancer therapy has become one of the most popular anti-cancer therapies since the last decade. Participants involving some of the biggest names in this market have been proactive in striking deals to purchase pre-clinical cancer antibodies in recent years to fill their pipelines and expedite development. Some deals may be worth multi-billion U.S. dollars.

Given the novelty of Patrys' Deoxymab platform, it is possible that this technology may get a partner before drug candidates using this technology progress to clinic trials.

Based on management's opinion and our review, at present, Patrys is the only company using antibodies to target DDR. Nonetheless, Patrys has competition. An Australian-based biotechnology company, Noxopharm Limited (ASX: NOX), is also conducting research and development in the DDR space, although not with antibodies. Meanwhile, there are now four PARP inhibitors that have gained FDA approvals:

- AstraZeneca's (AZN) Lynparza, approved in December 2014, was initially indicated for BRCA-mutated advanced ovarian cancer as a fourth-line treatment;
- Clovis Oncology's (CLVS) Rubraca®, approved in December 2016, for BRCA-mutated advanced ovarian cancer as a third-line treatment, and
- Tesaro's (TSRO) Zejula®, granted approval in March 2017, for ovarian cancer as a maintenance therapy for platinum-based chemotherapy regardless of the BRCA status of the tumor.
- Pfizer's Talazoparib, granted approval in October 2018, for BRCA-mutated HER2-negative locally advanced or metastatic breast cancer.

In addition, more PARP inhibitors are expected to enter the market soon. For example,

- Pamiparib (BGB-290) from the Chinese/American biotechnology company called BeiGene Limited (BGNE) is in Phase 1 clinical trials. A better brain penetration profile than its peers' is its key competitive edge.

V. STRATEGIC ANALYSIS (SWOT)

Strengths

1. Patrys has Exceptional Technology Advantages

The biotechnology and bio-pharmaceutical sectors are highly competitive and subject to rapid and dramatic technological changes. The development of therapeutics is very difficult and demanding; therefore, companies in possession of technology advantages are poised to be competitive and successful. Patrys has two distinctive technology platforms for cancer therapies. The newer Deoxymab platform offers a unique connection of two widely used and transformative approaches in cancer therapy, namely antibody and DDR. With the support of its research partner, Yale University, we believe Patrys has a competitive edge over its peers. The IgM platform complements Deoxymab by using natural human antibodies in combination with existing chemotherapy or radiotherapy treatments to kill cancer cells, potentially without added toxicology effects.

2. Patrys has Talents

Patrys has proficient board executives equipped with the right experience to lead a growing biotechnology company. The company also benefits from the extensive research and development experience and scientific expertise of its management team led by the CEO, Dr. James Campbell, who has over 20 years of biotechnology research, management and leadership experience with drug development companies in Australia and elsewhere. The scientific advisory board of Patrys, comprised of innovative and visionary members with diversified backgrounds, should provide invaluable technical advice to the management. These two groups of experts working together should be a critical component of the company's ongoing success.

3. ASX Listing Status

Patrys is listed on the Australian Securities Exchange (ASX), which is a highly reputable and an international stock exchange as well as home to some of the world's leading technology companies. It assures investors good corporate governance of the listed companies and companies' great access to capital. ASX is among the global leaders in raising capital, consistently ranking among the top-five exchanges worldwide. Moreover, biotechnology is an important sector of the ASX.

4. Strong IP Position

Patrys has been active in seeking patent protection for the Deoxymab's portfolio of products, with patents for 5 families related to 3E10 and 1 family related to 5C6 antibodies granted, and details about three additional provisional patents have not yet been disclosed. Three patents in this portfolio have been granted in China, the U.S. and Japan, and Patrys' management expects more to follow as the patents mature. Meanwhile, there are 27 granted patents for the IgM portfolio, with the first few of these patents expiring in 2024. With other modes of protection such as the orphan status, there are still ample of opportunities to realize returns from the IgM assets. These patents give Patrys a strong IP position in exploring future opportunities and securing financial benefits.

5. Multiple Development Pathways for Deoxymab

A multiple-pathways approach to Deoxymab's development includes the ability to develop a variant for use as a standalone monotherapy, in addition to the conjugation of Deoxymab to nanoparticles to allow for targeted delivery of chemotherapeutic agents. With multifaceted development options, which are not pursuing by peers, Patrys greatly enhances its chances of success.

Weaknesses

1. In need of Capital to Scale and Sustain Research and Development as well as Operations

Although we are optimistic that Patrys is developing innovative technologies for cancer treatments, but turning those technologies into products requires ample of financial resources. Since Patrys does not have a revenue-generating asset in its portfolio yet and due to the inherent nature of its business – lengthy time it takes to bring a product or drug to the market – Patrys will need to raise capital (primarily through equity financing) or form partnerships to advance its research and development programs and fund its daily operations. Patrys successfully raised AUD2.4 million in February 2018 and a further AUD4.6 million in May 2018. Money raised from these and future funding activities could support Patrys to run its operations for at least the next 2-3 years. However, there is no guarantee that Patrys will be able to raise additional capital when it is required or in financial terms to the satisfaction of Patrys. If Patrys fails to obtain funding when needed, it may lead to delays of their development programs and scaling down or even discontinuation of its operations in extreme cases. Based on the company's current progress, we project that Patrys is at least three years away from having a product that can generate positive cash flow and profit to finance its organic growth.

2. Still Waiting for the First Commercialized Product

No antibody from either technology platform has been commercialized at this stage. We believe it would take several more years with positive development before the research and development efforts will come to fruition. Nonetheless, the company has made progress in the research for cancer treatments. Given the promising prospects of the cancer therapy market and the company's novel technology, Patrys' antibodies will potentially be in high demand once they are on the market, boosting Patrys' financial performance as a result.

3. Dependence on Third-party Collaborators

Patrys relies upon independent third-party service providers and third-party collaborators, including academic institutions, to complete the development and commercialization of its products. If any of these parties experience problems related to their operations, financial viability or other issues, Patrys' product development efforts could be negatively impacted, ultimately impairing its chances for success.

4. Patrys' Share Performance is Correlated with Development Outcomes

Patrys' product pipeline is dominated by drugs that are in pre-clinical stage or just entering clinical trials. The company has already reported very significant positive results, indicating efficacy and safety of the lead products under the Deoxymab and IgM platforms. Ongoing and newly-launched trials will produce a series of new results in the next few years. However, development results can be either positive or negative, and

both of which usually cause vigorous share price volatility. Patrys' share price may slide on negative trial data, so it is suitable for investors with strong appetite for risks.

Opportunities

1. New platform

As the Deoxymab platform is uniquely positioned at the convergence of antibodies and DDR, which are the groundbreaking therapies for cancer patients, Patrys can benefit financially not only from products developed from this platform but also for being a potential acquisition target because big pharmaceutical companies have been active in pursuing pre-clinical anti-cancer assets to fill their drug pipelines (see Exhibit 10).

2. Key Markets Awaiting to be Explored

In 2015, North America and Europe combined accounted for 62.7% of the global monoclonal antibody therapeutics market, a research study by Transparency Market Research showed. According to multiple market studies, North America is likely leading other regions in this market in terms of growth going forward, followed by Europe. A growing population of the elderly, well-established reimbursement policies, affordable healthcare, and increasing awareness of diseases are cited as the growth drivers for the North American market, while Europe is striving to develop novel drugs with rising research and development budgets. Since Patrys is focused on North America and Europe for marketing their antibodies, this positive outlook bodes well for the company.

In addition, the potential in the Chinese market should not be underestimated. China is now the second-largest pharmaceutical market worldwide, and the country's healthcare system is being overhauled in a bid to lift the standards of care to be provided to its constituents. Specifically, the China Food and Drug Administration (CFDA) has proposed initiatives to ease and expedite the approvals of drugs, including those from overseas. Patrys is well positioned to take advantage of these changes, as it has forged a strategic alliance with Hefei Co-source Biomedical Co., Ltd. for the development and commercialization of its PAT-SC1 in China.

3. Enormous Opportunity pertaining to the IgM Platform is still Open

Patrys is still committed to developing therapeutic antibodies from its IgM technology platform. To avoid putting strains on its resources, the company plans to develop its IgM assets with external funding, likely through a partnership. This strategy allows Patrys to develop antibodies from the Deoxymab platform with its own resources, and at the same time enables the company to realize the potential financial benefits inherent to its IgM assets.

4. Innovative Technological Development

Patrys' product portfolio includes candidates that are in pre-clinical development subject to further tests before they can be progressed to clinical trials with humans. However, success in one of Patrys' assets will have a profound impact company-wide. Revenue generated will not only enhance the bottom line but also likely serves as a cash cow supporting the development and commercialization of other products in Patrys'

pipeline. This potential achievement could have positive ripple effects, as successful experience can be shared across technology platforms.

Risks

Based on our discussions with the company's management, we have identified the following key challenges and risks pertaining to Patrys' market position and its operations. Some of these are common risks shared by all biotechnology companies whereas others are company specific.

1. Risks Specific to Patrys include:

- ***Patrys needs to out-license its antibody assets to generate significant revenue.*** However, out-licensing is a prolonged process, involving numerous complicating factors such as clinical trial outcomes, manufacturing challenges and production ramp-up issues, competition from other drugs, and the needs of the specific geographical markets Patrys is targeting.

- ***Competition among peers and from other therapies is fierce*.** In addition to the enormous effort made in developing antibody-based therapies by competitors, ongoing and vast investments have been made in other therapies. Early success achieved by the competition can change the competitive landscape of the market completely. Impact of patents and patent infringement litigation are among the other risk factors.

- ***Risk of delays and continuity of operations***
  Patrys may experience delays in achieving some or all of its milestones during the development process, including but not limited to completion of trials, securing regulatory approvals, manufacturing hurdles, and impediment of marketing its products or reaching out-licensing agreements. The company's performance is also highly dependent on, amongst other things, its technology, key personnel and IT systems. Any disruption or problem related to any of these integral parts of the company could be hazardous.

2. Some Common Risks include:

- ***Market factors are not strong predictors*.** In several industries like natural resources, long-term supply and demand can be analyzed and projected, and relevant data can be utilized to determine the expected returns on investment and estimate the magnitude of risks and rewards. However, regarding to companies developing cancer therapies, there are no market factors that can be used to bracket the upside and downside returns, as everything comes down to the efficacy and safety of a drug, which may not be predicted with a high degree of accuracy at the time an investment is made. Bringing a drug successfully to the market could generate handsome profits to investors. Conversely, unexpected challenges and failure can result in total loss of investment.

- ***Costs of drug discovery and development are escalating*.** The very high costs incurred in the completion of the development and regulatory approval processes can result in very high initial prices for new drugs, hindering their market acceptance and dampening revenue generation. Hence, companies are required to balance the need for recovering development expenses with revenue generation by deciding the price point of a drug that will be accepted by reimbursement agencies and consumers.

- ***Risks associated with pricing of new drugs are mounting, as government and payer scrutiny intensifies.*** The skyrocketing of drug prices has drawn the attention of policymakers worldwide. In addition, during the State of the Union speech, U.S. President Trump stated that fixing high drug prices will be one of his top priorities for 2018. For example, in May, President Trump and Secretary of Health and Human Services announced a plan to lower prescription drug prices by increasing competition like expediting the approvals of low-cost generics and give the government new tools to negotiate lower prices for more drugs. Moreover, healthcare policies and practices enforced in the European Union and Asia may affect drug developers' ability to set prices for new cancer therapies at will. To curb the spike in healthcare expenditure partially arising from the rapid growth of the aging population, policymakers and healthcare providers around the globe have been scrutinizing drug prices.

- ***Regulatory risks related to the approval of clinical trial results and new drugs are still high.*** Research, development, manufacturing and sale of Patrys' products are subject to a number of regulations prescribed by government authorities in both Australia and overseas. Generally, there is a high rate of failure for drug candidates proceeding through pre-clinical and clinical trials. Moreover, even if Patrys views the trial results to be positive, the FDA or other regulatory authorities may disagree. However, approval rate for monoclonal antibodies is generally better than that for other small-molecule drugs due to their safety advantages.

- ***Intellectual property protection is the key to protect Patrys' interests***. Patrys' ability to leverage its innovation and expertise depends upon its capability to protect its intellectual property, including maintaining patent protection for its product candidates and their respective targets. Patrys has patents granted and patent applications filed, covering a range of antibodies, cell lines, molecular targets, potential drug candidates and platform technologies, pending approvals. All of the IgM related patents have now been granted. For the newer Deoxymab platform, Patrys filed patent applications later than those for the IgM platform, but to-date three patents have been successfully registered in China, the U.S. and Japan. The prospects of attaining patent protection for products developed by Patrys are highly uncertain, and the process involves complex and continually evolving factual and legal related issues; therefore, Patrys may incur significant costs in defending its intellectual property rights.

- ***Currency risks always exist for operations involving multiple currencies.*** Revenue generated and expenditure incurred in overseas jurisdictions are subject to exchange rate fluctuations, which can be vigorous at times. Besides Australia, Patrys has operations in the U.S., and the company major markets are all outside Australia. Hence, the company is vulnerable to foreign exchange risks.

VI. FUTURE PRIORITIES

Patrys made remarkable achievements in 2017 against its goals, including the completion of *in silico* design and optimization of Deoxymab 3E10, pre-clinical testing of multiple Deoxymab 3E10 candidates, selecting PAT-DX1 as the lead candidate for the Deoxymab 3E10 program, and ongoing collaborations with its business partners (for PAT-SC1 and others).

In the first half of calendar 2018, Patrys continued to meet important milestone targets and made considerable progress. They included presenting pre-clinical data showing significantly higher tumor localization of its drug candidate PAT-DX1-NP (PAT-DX1 conjugated to nanoparticles) in animal model of breast cancer in January 2018, proving PAT-DX1's ability to cross the blood brain barrier and reduce brain tumor size in February 2018, illustrating the performance of PAT-DX1 alone is superior to the PARP inhibitor olaparib, and the combination of PAT-DX1 with olaparib did not yield any notable improvement over PAT-DX1 alone for brain cancer in animal model in March 2018, and demonstrating the dynamics of PAT-DX1-NP in killing brain cancer stem cells in May 2018. In addition, the company announced that glioblastoma and triple negative breast cancer would be the focus points of future clinical programs.

The company has identified the following short and long-term business milestones to be achieved in an effort to enhance its shareholder value.

Exhibit 10: Future Priorities of Patrys

Targets	Timeline
PAT-DX1 + radiation – brain cancer animal data	Q4 2018/Q1 2019
PAT-DX1 – solid cancer (TBC) animal data	Q1 2019
PAT-DX1 + temozolomide (chemotherapy drug) for brain cancer animal model	Q1 2019
Partnering of IgM assets	H1 2019
Additional studies in relevant animal models of cancer	Ongoing
Development of PAT-DX1 manufacturing	Ongoing
New intellectual property filings and potential patent grants	Ongoing
Collaborations	Ongoing

Source: Patrys Limited, Cedrus analysis

Given Patrys has had excellent record in delivering positive results and accomplishments against its pre-determined targets and timelines under the leadership of the current management team during 2017 and 2018, we are confident that the company can repeat its excellence in 2019 and going forward.

VII. FINANCIAL FORECASTS

Recent Fundraising

Patrys announced on 15 January 2018 the non-renounceable 2:11 rights issue at 1.7 cents per share and raised approximately AUD2.4 million before costs, further strengthening the company's financial position. The issued price represents a 23% discount to the 30-day volume weighted average price (VWAP) of 2.21 cents per share. This rights issue is fully underwritten of which the company's major shareholder and non-executive director, Mr. Michael Stork, together with his related party sub-underwrote AUD200,000 of the rights issue.

On 21 May 2018, Patrys further announced the raising of a total of AUD4.6 million (before costs and up from the AUD3.5 million stated on 16 May 2018 due to additional subscriptions by two strategic investors) by a share placement supported by institutional and sophisticated investors as well as strategic investors. The single tranche placement of 135,294,117 new, fully-paid ordinary shares in Patrys was priced at 3.4 cents representing a 10.5% discount to the 30-day VWAP of 3.8 cents per share. Funds raised will be applied to accelerating the development of the novel Deoxymab platform and supporting business development efforts, as well as corporate activities.

Financial Highlights and Cedrus' Short-term Forecasts

On 24 August 2018, Patrys released its annual report for the fiscal year ended 30 June 2018 (FY2018). Patrys reported a 2.1% yearly drop in consolidated revenue (including licensing income, R&D tax incentive income, interest income, other income and government grants) to AUD520,525, and an increase in loss after income tax expense attributable to owners of the company of approximately 136% to AUD2,497,252. The widening loss was due mainly to zero other income received in FY2018 versus the receipt of net other income of AUD823,611 (supplier refunds partially offset by foreign exchange loss) in FY2017 and to a much lesser extent an increase in R&D expenses and administration & management expenses in FY2018.

Based on past financial performance, known future transactions and certain assumptions, we have made projections on key financial statement items and ratios pertaining to Patrys for the next 3 years (see exhibits below for details). An equity fundraising of AUD2.5 million is also assumed to take place in FY2021 to fund the company's expanded operations.

Profitability

Patrys is in the research and development stage and not expected to generate revenue from product sales and will incur losses through the forecast period to FY2021. Therefore, profitability analysis is not applicable at this point.

Exhibit 11: Management Effectiveness

	2015A	2016A	2017A	2018A	2019F	2020F	2021F
Return on Assets (NI/TA)	-177%	-24.8%	-33.3%	-31.4%	-33.8%	-38.0%	-66.5%
Return on Equity (NI/Equity)	-213%	-29.0%	-39.5%	-34.3%	-37.6%	-42.4%	-82.9%

Source: Company's annual reports and Cedrus estimates

Exhibit 12: Income Statement

		2015A	2016A	2017A	2018A	2019F	2020F	2021F
Revenue*	A$ mil.	2.22	0.87	0.53	0.52	0.57	0.63	0.69
Revenue Growth (yoy)	%	193%	-61%	-39%	-2%	10%	21%	21%
EBIT	A$ mil.	-3.10	-1.08	-1.06	-2.50	-2.81	-3.17	-3.57
Net Income	A$ mil.	-8.47	-1.06	-1.05	-2.50	-2.81	-3.17	-3.57
Basic Earnings/Share		(1.22¢)	(0.15¢)	(0.14¢)	(0.27¢)	(0.13¢)	(0.13¢)	(0.13¢)

Note: *Revenue is solely related to tax refund on R&D expenses and items not related to product sales

Source: Company's annual reports and Cedrus estimates

Exhibit 13: Balance Sheet

		2015A	2016A	2017A	2018A	2019F	2020F	2021F
Total Assets	A$ mil.	4.77	4.26	3.16	7.97	8.33	5.37	4.52
Total Debt	A$ mil.	3.97	0.62	0.50	0.68	0.85	1.06	1.31
Total Debt/Equity	%	20%	17%	19%	9%	11%	24%	41%
Total Cash	A$ mil.	4.65	3.22	1.91	4.61	4.79	1.62	0.55
Current Ratio	X	6.3	6.0	5.2	11.1	9.3	4.5	2.9
Book Value Per Share	A$	0.01	0.004	0.003	0.007	0.008	0.005	0.004

Source: Company's annual reports and Cedrus estimates

After the successful fundraising in early calendar 2018, Patrys held cash reserves of approximately AUD3.67 million with an additional AUD2 million on deposit with maturity in excess of three months as at 30 September 2018. We believe Patrys' current cash balance coupled with assumed fundraising can fund its operations for at least the next 2-3 years.

VIII. VALUATION

We set our valuation on Patrys at AUD156 million (with December 2020 price target of AUD0.15) based on a market approach analysis of announced transactions on comparable assets by analysing their total considerations as well as upfront payments.

Exhibit 14: Transactions Involving Assets Comparable to those of Patrys'

No	Date	Technology	Seller	Buyer	Potential Total Value (USD Mln)	Up Front Payment (USD Mln)
1	Feb'14	Nanobody platform	Ablynx	Merck	6,500	27
2	Jan'15	Checkpoint regulators: GITR, OX40, LAG-3 and TIM-3	Agenus	Incyte	410	60
3	Oct'15	Anti-TGF-beta Mab	Xoma	Novartis	480	37
4	Jan'16	Cell-penetrating alphabodies (expanded in 2017)	Complix	Merck	280	N/A
5	May'16	Bi-specific Ab, alternative to CAR-T	Macro-Genics	Janssen	740	75
6	Jul'16	4 early stage Abs	Jounce	Celgene	2,600	261
7	Jun'17	Intracellular delivery platform	Feldan/Elasmogen	Amgen	N/A	N/A
8	Nov'17	Bi-specific antibody platform	Zymeworks	J&J	332	50
9	Feb'18	Method of infecting and using viruses to kill cancer cells	Viralytics	Merck & Co	394	N/A
10	Apr'18	Bi-specific antibody platform	Compugen	Astra Zeneca	210	10
11	Apr'18	Checkpoint inhibitor: OSE-172, a SIRP alpha antagonist	OSE Immunotherapeutics	Boehringer Ingelheim	1,400	18.4
				Mean:	**1,335**	**67**

Note: N/A = Not available

Source: Various reports

Due to Patrys' business nature and stage of development, price to earnings (P/E) multiple and discounted cash flow (DCF) analysis based on cash flow forecasts are both not suitable for valuing the company at this stage. Moreover, Patrys is not profitable currently and in the near term, so P/E multiple is not applicable. Furthermore, as Patrys is still a number of years away from marketing its first product (PAT-DX1 under the Deoxymab platform), projecting revenue and related costs are rather remote. Consequently, a DCF analysis is not appropriate as well.

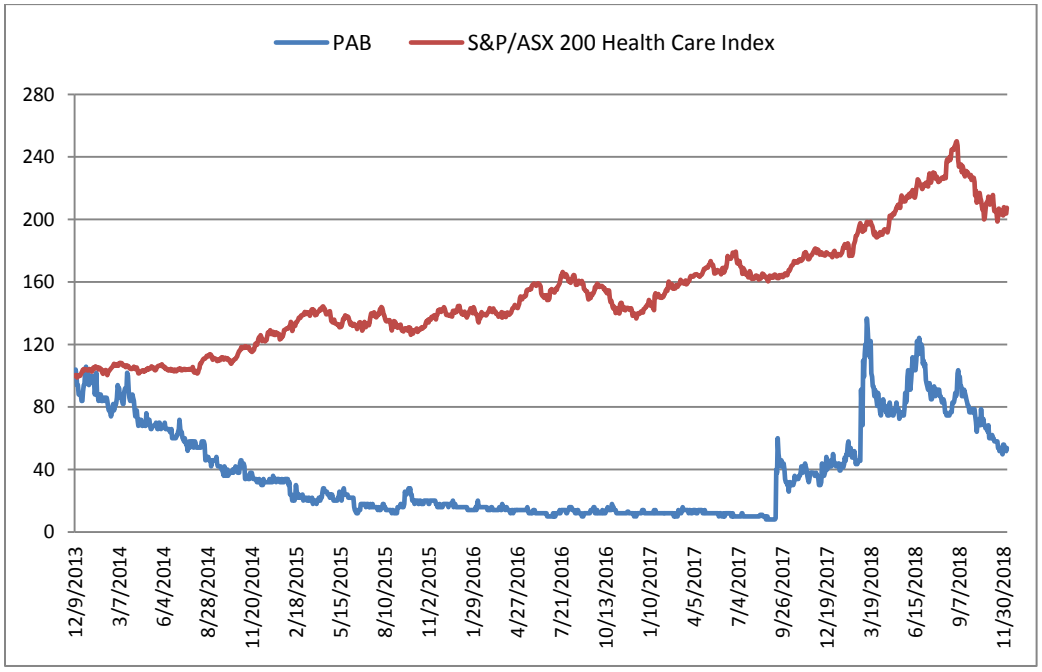
In valuing Patrys using market approach analysis, we have made the following assumptions:

- Success rate is assumed at 5.1%, the same figure as found out from a study by Biotechnology Innovation Organization (BIO)[11], the world's largest biotechnology trade association, for oncology-specific drugs from completing pre-clinical trials, starting Phase 1 to getting regulatory approval.
- Commercial potential of Patrys' other pipeline products besides PAT-DX1 and PAT-DX1-NP is not considered at this point due to their current development status.

Share Price Performance

Despite large adjustments after its IPO in 2007, Patrys' share price has rejuvenated since hitting its multi-year lows in late August 2017, seemingly fuelled by a series of highly positive developments of the Deoxymab 3E10 platform as mentioned above. During the last 12 months, Patrys' share price has surged about 72% or more than a six-fold increase from its multi-year low recorded on 25 August 2017. As Patrys continues to advance the development of its Deoxymab assets, it is likely that more strong positive catalysts will emerge and drive Patrys' share price higher.

Exhibit 15: 5-Year Performance (Normalized) Chart – Patrys' Share Price vs S&P/ASX 200 Health Care Index



Source: Bloomberg

[11] "Clinical Development Success Rates 2006-2015", Biotechnology Innovation Organization

IX. CONCLUSION AND RECOMMENDATION

Patrys has two therapeutic antibody platforms:

1) Deoxymab, which is uniquely positioned at the convergence of two transformative anti-cancer technologies, namely antibody and DDR therapy, and
2) IgM, which has completed trials, showing safety and signals of efficacy. One of its pipeline products from this platform (PAT-SC1) is partnered with Hefei Co-source Biomedical Co., Ltd., a Chinese biotechnology company, for further development and commercialization in the Chinese market.

Deoxymab 3E10 is a DNA damage response (DDR) therapeutic antibody and a unique platform. PAT-DX1, Patrys' lead product in this platform, has harnessed the ability to penetrate cell nuclei and bind to DNA. Once inside the nucleus, Deoxymab interferes with DNA repair processes, but the degree of inhibition of DNA repair caused by Deoxymab is modest and insufficient to kill normal cells that have robust mechanisms to manage insults to DNA. Conversely, cancer cells are more sensitive to DNA damage and once they encounter Deoxymab, further DNA damage occurs and cancer cells ultimately die. Deoxymab is therefore selectively toxic only to cancer cells that have deficiencies in DNA repair, which includes a wide range of malignancies such as gliomas, melanomas, prostate, breast, and ovarian cancers and others. When combined with DNA-damaging agents such as chemotherapy or radiotherapy, Deoxymab has an even greater effect on these cancer cells.

While there are a number of DDR competitors, Deoxymab has few comparable peers. Forthcoming promising Phase 1 clinical trial results would validate the effectiveness of the Deoxymab platform and potentially lead it to become an important cancer therapy. Of course, when Deoxymab progresses to Phase 2 trials, it will be administered alongside conventional therapy for ethical reasons, and collateral research is needed to further assess the effectiveness of the technology.

A humanized form of Deoxymab 3E10 with improved activity has been developed by Patrys and is named PAT-DX1. Patrys is progressing PAT-DX1 together with a nanoparticle-conjugated form called PAT-DX1-NP towards the clinic. In a range of pre-clinical cancer models, PAT-DX1 has shown remarkable ability to kill cancer cells in cell models, human tumor explants and xenograft models. In addition, PAT-DX1 has displayed synergies in working with the approved PARP inhibitor, olaparib. It is believed that PAT-DX1 may have applications across a variety of malignancies, including gliomas, melanomas, prostate, breast, pancreatic and ovarian cancers.

Patrys out-licensed in 2015 its leading pipeline project from the IgM platform, PAT-SC1 (a human IgM antibody targeting an isoform of the CD55 gene), to Hefei Co-source Biomedical Co., Ltd. This Chinese partner is currently pursuing Chinese hamster ovary (CHO) cell line development work. Moreover, PAT-SC1 has been granted the orphan drug designation by the U.S. Food and Drug Administration (FDA) for use in gastric cancer. Importantly, at present, there is no other known clinical product targeting the CD55 gene on the market.

Since its IPO on 13 July 2007, Patrys' share prices have largely been weighed on by problems associated with the company's development of the manufacturing capacity for its unique IgM-based products, significantly eroding Patrys' valuation.

Exhibit 16: Comparing Patrys' Share Prices with the S&P/ASX 200 Healthcare Index since Patrys' IPO

Source: Bloomberg

However, with the management's new research and development strategy of focusing on the newer Deoxymab technology platform, which combines the unique mechanism of antibody and DDR for tackling cancer cells, and the impressive progress PAT-DX1 and PAT-DX1-NP has shown recently as well as the planned initiation of human clinical trials, the Deoxymab platform has exhibited signs of making noticeable strides in realizing its inherent value, potentially generating notable income to the company in the long run and boosting the company's valuation and share price as well. Patrys' share price has reacted favorably to this development, soaring more than 6x since hitting the multi-year lows on 25 August 2017.

Even with the recent rebound, we believe the performance of Patrys' shares so far has not accurately reflected the company's true inherent value in view of the potential of its antibody-based cancer therapy. Hence, in our opinion, Patrys' shares are undervalued, and the company presents a unique opportunity for long-term investors who have the patience and an appetite for high investment risks looking for potentially high returns and are tolerant with vigorous price fluctuations. We believe the performance of Patrys' shares will improve once investors in general gain more confidence in the company's business prospects upon mounting evidence of potential success in upcoming clinical trials, getting closer to bring Patrys' therapeutic antibodies to the market as well as likely increased ownership of the company's shares by institutional investors or insiders.

Patrys' current market capitalization of AUD27.8 million is only approximately 18% of our estimated intrinsic value of AUD156 million, while our December 2020 price target of AUD0.15 represents a potential upside of around 477% relative to its closing price as of 7 December 2018.

APPENDIX A: BOARD MEMEBERS, MANAGEMENT AND SCIENTIFIC ADVISORY BOARD

Elite Board Members

Mr. John Read, *BSc (Hons), MBA, FAICD*
Chairman

Mr. Read is an experienced Chairman and Director in public, private and government organizations. Through his extensive career in venture capital, private equity and commercialization, Mr. Read has gained a depth of experience in the formation and growth of emerging companies with an emphasis on commercial entities that provide broad societal benefits. He is currently the Chairman of CVC Limited (ASX: CVC) and previously Chairman of Eildon Capital Limited (ASX: EDC) from 2013 to 2016, Pro-Pac Packaging Limited (ASX: PPG) from 2005 to 2010, The Environmental Group Limited (ASX: EGL) from 2001 to 2012 and The Central Coast Water Corporation from 2011 to 2014.

Dr. James Campbell, *BSc (Hons), PhD, MBA, GAICD*
Managing Director and Chief Executive Officer

Dr. Campbell has more than 25 years of international biotechnology research, management and leadership experience and has been involved in the creation and/or transformation of multiple successful Australian and international biotechnology companies. Dr. Campbell was previously the CFO and COO of ChemGenex Pharmaceuticals Limited (ASX:CXS), where, as a member of the executive team he helped transform a research-based company with a market capitalization of $10M to a company with completed clinical trials and regulatory dossiers submitted to the FDA and EMA. In 2011 ChemGenex was sold to Cephalon for $230M. Dr. Campbell was a foundation executive of Evolve Biosystems, and has assisted private biotechnology companies in Australia, New Zealand and the USA with successful capital raising and partnering negotiations. Dr. Campbell sits on the IP and Commercialization Advisory Committee of the CRC for Mental Health, and sits on the Advisory Board of Deakin University's Centre for Innovation in Mental and Physical Health and Clinical Treatment (IMPACT). Dr. Campbell is a Non-Executive Director of both Invion Limited (ASX:IVX) and Prescient Therapeutics Limited (ASX:PTX).

Mr. Michael Stork, *BBA*
Non-Executive Director

Mr. Stork is the Managing Director of Stork Holdings Ltd., an Investment Holding company active in the Canadian technology startup sector.

Mr. Stork was until early this year active on the Board of Governors of the University of Waterloo and is the Chairman of the Waterloo Accelerator Centre, a technology company incubator affiliated with the University. He is currently the Chairman of Spartan Biosciences Inc., an Ottawa-based DNA analytics company, the Chairman of Dejero Labs Inc., a Waterloo-based broadcast technology company, and active on the Boards of several other leading Canadian technology startup companies.

Ms. Suzy Jones
Non-Executive Director

Ms. Jones is Founder and Managing Partner of DNA Ink LLC, a life sciences advisory firm in San Francisco with clients in the United States and Europe. DNA Ink provides corporate strategic guidance to its clients that supports corporate growth. Prior to starting her own firm, Ms. Jones spent 20 years at Genentech where she served in many roles, including Interim Head of Partnering, Head of Business Development, Senior Project Manager and Research Associate. She managed several products teams during this time, including Rituxan, the first monoclonal antibody launched to treat cancer. Ms. Jones has very extensive networks within the pharmaceutical and biotech companies and VC community in North America. Ms. Jones is a Non-Executive Director of Calithera Biosciences, Inc. (Nasdaq:CALA), a clinical-stage pharmaceutical company focused on discovering and developing novel small molecule drugs directed against tumor metabolism and tumor immunology targets for the treatment of cancer.

Management Team's Caliber

Dr. James Campbell, *BSc (Hons), PhD, MBA, GAICD*
Chief Executive Officer

Please see details above.

Ms. Melanie Leydin, *B Bus (Acc. Corp. Law)*
Company Secretary

Ms. Leydin holds a Bachelor of Business, majoring in Accounting and Corporate Law. She is a member of the Institute of Chartered Accountants and is a Registered Company Auditor. She graduated from Swinburne University in 1997, became a Chartered Accountant in 1999 and since February 2000 has been the principal of chartered accounting firm, Leydin Freyer. The practice provides outsourced company secretarial and accounting services to public and private companies specializing in the Resources, technology, bioscience and biotechnology sectors. Ms. Leydin has over 25 years of experience in the accounting profession and has extensive experience in relation to public company responsibilities, including ASX and ASIC compliance, control and implementation of corporate governance, statutory financial reporting, reorganization of companies and shareholder relations.

Dr. Deanne Greenwood, *BSc (Hons), PhD, MBA, GAICD*
Vice President, Business Development & Intellectual Property

Dr. Greenwood joined Patrys in 2008 and has held various roles in the company. Dr. Greenwood's efforts are focused on commercialization of the IgM and Deoxymab assets and management of the intellectual property portfolio. Dr. Greenwood has extensive experience in drug development, relationship management, contracts and grants. Dr. Greenwood led the negotiations with Hefei Co-source Biomedical Co. Ltd., a Chinese company which has taken an exclusive license to PAT-SC1. Prior to joining Patrys, Dr. Greenwood spent 10-years in academia conducting immunology research in the areas of vaccine development and autoimmunity, with the last four years at the Centre for Animal Biotechnology, The University of Melbourne. Dr. Greenwood has a PhD degree in Immunology from the Monash University, Masters of Business Administration (Technology) from La Trobe University and is a graduate of the Australian Institute of Company Directors. Dr. Greenwood is a co-author on 12 publications on immunological related topics.

Ms. Valentina Dubljevic, *MBB, BSc, GAICD*
Vice President, Scientific & Clinical Development

Ms. Dubljevic joined Patrys in June 2012 and is responsible for the pre-clinical and clinical development of Patrys' products. Ms. Dubljevic brings more than 20 years of scientific and commercial experience in the areas of anti-cancer therapies, vaccine development, and diagnostics. Prior to joining Patrys, she worked at the Monash University conducting research on malaria vaccine development; at Cytopia Limited developing small molecule anti-cancer drugs and at Monash Institute of Medical Research (MIMR) developing antibody therapies for cancer. She has extensive experience related to the drug development, management of pre-clinical studies, manufacturing, regulatory and clinical operations, contracts and project management and has co-authored multiple scientific papers and grants. Ms. Dubljevic holds a Bachelor of Biomedical Science degree from Griffith University, Brisbane, a Masters in Biotechnology and Business degree from RMIT and is a graduate of the Australian Institute of Company Directors (GAICD).

Scientific Advisory Board

Patrys has strong technical expertise from its highly experienced and bespoke Scientific Advisory Board, including key members like Dr. Pamela Klein and Dr. Allen Ebens.

Dr. Pamela M. Klein, *B.Sc., M.D.*
Dr. Pamela M. Klein completed her medical training at Stritch School of Medicine, Loyola University in Chicago, followed by internal medicine training at Cedars-Sinai, Los Angeles, prior to spending 7 years working at the U.S. National Cancer Institute. Dr. Klein then moved to Genentech where, as Vice President, Development she led the development of a large portfolio of drugs, including all the HER (Herceptin, Tarceva, Perjeta), Apoptosis (antibodies and small molecules) and Hematology compounds. After Genentech Dr. Klein was appointed to the position of Chief Medical Officer of Intellikine where she built the clinical development capability and brought multiple early compounds from laboratory to clinic prior to Intellikine being acquired by Millennium/Takeda. Currently, Dr. Klein currently serves as an advisor to a range of different biotech and investment companies, with roles on Scientific Advisory Boards and Corporate Boards as well as broader advisory roles.

Dr. Allen Ebens, *B.Sc., Ph.D.*
Dr. Allen Ebens completed a Ph.D. at UCLA and Post-doctoral training at UCSF before joining Exelixis as a scientist in the Discovery Biology group. After 6 years with Exelixis, Dr. Ebens moved to Genentech where he worked in Research Oncology for 11 years developing therapeutics from concept to clinic across multiple therapeutic platforms including antibodies, small molecule drugs, and antibody-drug conjugates. Dr. Ebens was recruited from Genentech to establish Research Oncology at Juno Therapeutics/Celgene Corporation (CELG), and has served more recently as Senior Director of Immune Oncology at NGM Biopharmaceuticals. Dr. Ebens is currently Chief Scientific Officer of Trucode Gene Repair. Over a twenty-year career, Dr. Ebens' contributions include significant contributions to the scientific literature as well as advancement of five discovery projects to clinical development.

In addition to technical support from the Scientific Advisory Board, Patrys also acquires research expertise through partnerships with highly reputable academia such as the Yale University.

Professionals from the Yale University include highly-experienced researchers such as Dr. James E. Hansen, MD (Principal Investigator), who is the Assistant Professor of the Department of Therapeutic Radiology at Yale School of Medicine in the U.S. and the lead inventor on patents pertaining to the use of Deoxymab against cancer. Dr. Hansen is a physician-scientist and a practicing radiation oncologist, specializing in the treatments of cancers in brain, head and neck, lung, skin, and the lymphatic system. Dr. Hansen has over 14 years of experience working with Deoxymab 3E10 and other cell-penetrating antibodies

APPENDIX B: INTELLECTUAL PROPERTY

Patrys has been active in seeking patent protection for the Deoxymab portfolio. Three patents in this portfolio have been successfully registered in China, the U.S. and Japan, and the management expects more to follow as the patents mature.

Patrys' Deoxymab assets

Exhibit 17: Intellectual Property Summary for the Deoxymab Portfolio

Family/Patent Title	Country	Application No.	Publication No.	Filing Date	Publish Date	Status
Family 1: *Cell-penetrating anti-DNA antibodies and uses thereof to inhibit DNA repair*	United States	9701740	2014-0050723	1-Apr-2011	2-Apr-2012	Registered
	Japan	6178785	2014513069	1-Apr-2011	2-Apr-2012	Registered
	China	201280025431.2	CN103874710	1-Apr-2011	2-Apr-2012	Registered
	Europe	12722943.3	2694555	1-Apr-2011	2-Apr-2012	Under examination
	United States (continuation of US14/009,327)	15/615,416	Not yet published	1 April 2011	2-Apr-2012	Pending
Family 2: *Multivalent fragments of antibody 3E10 and methods of use thereof*	United States	15/507,324	2017-0291961	28-Aug-2014	27-Aug-2015	Pending
	Japan	2017511183	2017-534571	28-Aug-2014	27-Aug-2015	Pending
	Hong Kong	17112548.3	Not yet published	28-Aug-2014	27-Aug-2015	Pending
	Europe	15760023.0	3194450	28-Aug-2014	27-Aug-2015	Pending
Family 3: *Cell penetrating nucleolytic antibody based cancer therapy*	United States	14/750,683	2015-0376279	25-Jun-2014	25-Jun-2015	Pending
Family 4: *Antibody-mediated autocatalytic, targeted delivery of nanocarriers to tumors*	PCT	PCT/US2017/037754	WO2017/218825	15-Jun-2016	15-Jun-2017	Pending

Family 5A: *Binding Proteins 1*	PCT	PCT/US2018/042532	Not yet published	17-Jul-2017	N/A	Pending
Family 5B: *Binding Proteins 2*	PCT	PCT/US2018/042534	Not yet published	17-Jul-2017	N/A	Pending

Note: Families 1, 2, 4, 5A and 5B are related to 3E10 and Family 3 related to the 5C6 antibody; PCT = Patent Corporation Treaty; N/A = Not available

Source: Patrys Limited

Patrys' IgM assets

There are 27 granted patents for the IgM portfolio. The first few of these patents will expire in 2024. We believe that with other modes of protection like the orphan status, there is still ample of opportunities for Patrys to realize the inherent value from these IgM assets.

Exhibit 18: Intellectual Property Summary for the IgM Portfolio

Family/ Patent Title	Country	Application No.	Publication No.	Filing Date	Status	Expiry Date
PAT-LM1: *Neoplasm specific antibodies and uses thereof*	Europe (divisional of EP04720676.8)	EP10180738.6	EP2390269	14-Mar-2003	Registered	15-Mar-2024
	United States	US10/549052	US7947812	14-Mar-2003	Registered	15-Mar-2024
	United States (continuation of US10/549052)	US13/111685	US8562995	14-Mar-2003	Registered	15-Mar-2024
PAT-LM1: *LM-antibodies, functional fragments, LM-1 target antigen, and methods for making and using same*	Europe	EP09794069.6	EP2303924	16-Jun-2008	Registered	15-Jun-2029
	France	2303924	2303924	16-Jun-2008	Registered	15-Jun-2029
	Germany	2303924	602009040023.1	16-Jun-2008	Registered	15-Jun-2029
	United Kingdom	2303924	2303924	16-Jun-2008	Registered	15-Jun-2029
	Spain	2303924	2303924	16-Jun-2008	Registered	15-Jun-2029
	United States Divisional Application of US12/484476	US14/211283	US9783599	16-Jun-2008	Registered	15-Jun-2029
PAT-LM1: *Pat-LM1 epitopes and methods for using same*	Europe	12844591.3	2771351	28-Oct-2011	Registered	29-Oct-2032
	France	2771351	2771351	28-Oct-2011	Registered	29-Oct-2032
	Germany	2771351	2771351	28-Oct-2011	Registered	29-Oct-2032
	United Kingdom	2771351	2771351	28-Oct-2011	Registered	29-Oct-2032
	United States	US14/351545	US9265817	28-Oct-2011	Registered	29-Oct-2032

PAT-SM6: *Adenocarcinoma specific antibody SAM-6, and uses thereof*	United States	US10/579290	US8163552	14-Nov-2003	Registered	12-Nov-2024
	United States (continuation of US10/579290)	US13/428832	US8741296	14-Nov-2003	Registered	12-Nov-2024
PAT-SM6: *Human monoclonal antibody having fat-reducing effect*	Europe	EP04802719.7	EP1682580	14-Nov-2003	Registered	12-Nov-2024
	France	1682580	1682580	14-Nov-2003	Registered	12-Nov-2024
	Germany	1682580	502004014177.3	14-Nov-2003	Registered	12-Nov-2024
	United Kingdom	1682580	1682580	14-Nov-2003	Registered	12-Nov-2024
	Japan	JP2006-543353	JP4980068	14-Nov-2003	Registered	12-Nov-2024
	United States	US10/578856	US8124080	14-Nov-2003	Registered	12-Nov-2024
	United States (continuation of US10/578856)	US13/406191	US9273125	14-Nov-2003	Registered	12-Nov-2024
PAT-SM6: *Novel glycosylated peptide target in neoplastic cells*	Europe	EP07874550.2	EP2101813	27-Nov-2006	Registered	20-Nov-2027
	France	2101813	2101813	27-Nov-2006	Registered	20-Nov-2027
	Germany	602007035964.3	602007035964.3	27-Nov-2006	Registered	20-Nov-2027
	United Kingdom	2101813	2101813	27-Nov-2006	Registered	20-Nov-2027

Source: Patrys Limited

IMPORTANT DISCLOSURES

STOCK OWNERSHIP AND CONFLICT OF INTEREST DISCLOSURE

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