Description:

Investment Proposal from an idea I pitched to my University Investing Society. It allowed me to demonstrate my passion for science communication as well as present an in-depth analysis on a unique situation.

Disclaimer:

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I have come across a very unique situation in the biotechnology space being led by some of the most well respected short sellers and biotechnology investors in the United States. **Ziopharm Oncology**, an immune-oncology company, has potentially market-leading cancer therapies at a fraction of the cost and time of today's treatments. However, ongoing mismanagement at the executive level and a Board of Directors have conspired to allow the management to not operate in the best interest of shareholders. This has caused the company to flounder and potentially miss co-investment opportunities with major pharmaceutical companies that would supercharge portfolio rollout.

For this reason, WaterMill Asset Management, a family office with a successful track record of investing in biotechnology companies, recently went activist pushing for 3 seats on the Board[1]. The mismanagement and disregard for the company by those responsible for stewarding shareholder capital has caused a group of patient, long-term shareholders to begin revealing all about the utter failings of Ziopharm and the incredible opportunities the underlying therapies could yield. This is a perfect opportunity in a complex situation that offers optionality on a uniquely valuable industry-changing pipeline of therapies; and, should new and capable stewards take charge who have meaningful personal capital at risk and a track record of delivering on biotechnology investments, a rerating higher and the value of those options will be reflected in the near-term.

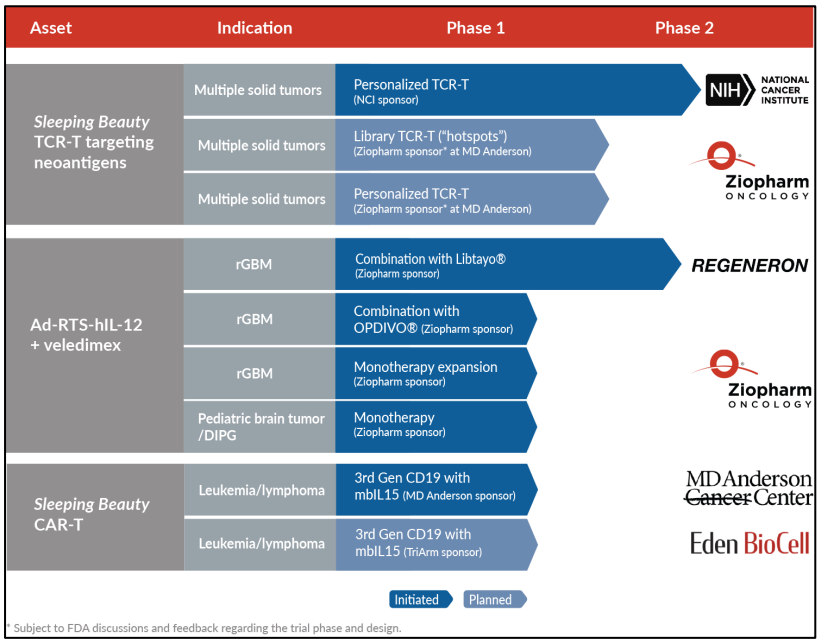
At $2.73 per share (c.$600 million market cap)[2] the option on TCR-T therapy can reasonably result in a $7 price per share. More optimistic estimates, accounting other therapies, could price $20 – 40 p.s.

Description

Ziopharm specializes in developing *non-viral* and *cytokine*-driven cell and gene therapies that aim to weaponize the body's immune system against cancer. Currently there are six trials initiated and three planned, but the most advanced are in phase 2 and includes: (i) Sleeping Beauty, a non-viral delivery platform, at a fraction of the cost and time of viral platforms encompassing:

- TCR-T targeting neoantigens for solid tumours, personalized and "hotspots", and
- CAR-T therapies for blood cancers;

(ii) Controlled IL-12 platform turning *"cold" tumours "hot"* by activating an immune response[3].



Source: Ziopharm website: Pipeline

Non-Viral

As opposed to viral, bringing the therapy into the cell which is slow and inaccurate, Ziopharm uses non-viral transposons which is a very specific DNA sequence within a gene.

Cytokine[3]

Cytokines are a large group of proteins, peptides or glycoproteins that are secreted by specific cells of immune system. Cytokines are a category of signalling molecules that mediate and regulate immunity, inflammation and haematopoiesis.

Cold/Hot Tumours[4]

Hot tumours are characterized by T cell infiltration and molecular signatures of immune activation, whereas cold tumours show striking features of T cell absence or exclusion. In general, the hot tumours present higher response rates to immunotherapy.

Therefore, various studies have focused on converting non-inflamed cold tumours into hot ones to achieve better response to immunotherapy.

Phase 2 trials involve partnering with the National Cancer Institute, a trial sponsor, to assess Sleeping Beauty TCR-T for multiple solid tumours; and a combination between Controlled IL-12 platform and Regeneron's LIBTAYO for recurrent *Glioblastoma Multiforme* (GMB)[6].

Biotechnology Overview

> *The following is a very high level overview of the underlying science put in the most basic of layman's terms because I am very far from an expert in anything remotely related to the medical or biotechnology field. Thanks a group of medical professional contacts and analysts at the heart of the Ziopharm campaign, I was able to comprehend the underlying science and have done my best to distil it simply below.*

At present, Controlled IL-12 is at the periphery of my investment thesis, and thus I will go into less detail than TCR-T below.

Controlled IL-12

The Controlled IL-12 platform (full name: *Ad-RTS-hIL-12 + veledimex*) is designed to overcome cancer's ability to go undetected by the immune system, specifically brain and spine tumours. The bespoke nature of a *RheoSwitch Therapeutic System® (RTS®)* allows the IL-12 therapy to be dialled up, down, or off to adjust the intensity of a patient's immune response against the tumour[11]. IL-12 elicits a response so strong that the immune system does more harm to the patient than good. Ziopharm and others are focusing on re-engineering IL-12 to produce a specified response, like a switch that is capable of stopping if need be.

Due to the incredible complexity of brain tumour treatments, the expected size of the GMB therapies market will be $1.4 billion by 2025. Despite technological advances in surgery and radio-chemotherapy, GMB remains largely resistant to treatment with the standard treatment being surgery, followed by radiation and chemotherapy. Given the limitation of all current therapeutics (surgery, chemotherapy and/or radiation), development of novel approaches to treating glioblastoma remains a great unmet need. However, every major pharma company and many smaller firms are progressing through clinical trial phases using a varying array of unique approaches to compounds, none of which I can find are pursuing Ziopharm's IL-12[12]. Near-term, licensing IL-12 could help finance other Ziopharm trials.

Sleeping Beauty TCR-T Targeting Neoantigens

At present, Ziopharm's Sleeping Beauty TCR-T targeting neoantigens is more interesting from an embedded real option standpoint. Sleeping Beauty is among the most clinically-advanced non-viral cell therapy technologies. With it, Ziopharm is very rapidly manufacturing genetically modified chimeric antigen receptors (CARs) and T-cell receptors (TCRs) targeting specific tumour-derived antigens[13].

Phase 2 Clinical Trial[6]

A study that tests whether a new treatment works for a certain type of cancer or other disease (for example, whether it shrinks a tumour or improves blood test results). Phase 2 clinical trials may also provide more information about the safety of the new treatment and how the treatment affects the body.

Glioblastoma Multiforme[7]

Glioblastoma multiforme (GBM) is a fast-growing glioma that develops from star-shaped glial cells that support the health of the nerve cells within the brain. GBM is often referred to as a grade IV astrocytoma. These are the most invasive type of glial tumours, rapidly growing and commonly spreading into nearby brain tissue.

Ad-RTS-hIL-12 + veledimex[8]

An inducible adenoviral vector encoding human pro-inflammatory cytokine interleukin-12 (IL-12), which is under the transcriptional control of the RTS (Ad-RTS-hIL-12), with potential immunomodulating and antineoplastic activities.

RheoSwitch Therapeutic System®[9]

RTS® provides a gene expression control switch platform that confers tightly regulated, inducible gene that has been validated in clinical trials involving IL-12.

CAR-T cell therapy in general is a prominent oncology therapy being pursued by a long list of the top pharmaceutical companies and a whole host of biotechnology start-ups. From what I uncovered, every competitor in the market (Novartis' Kymriah and Gilead / Kite's Yescarta), and those going through trials, are applying viral therapies which are volatile and less precise in attacking cancers. I would best illustrate these viral therapies as dancing on a knife's edge and flirting terrifyingly close between runoff adverse effects and success. Once a viral therapy is administered in a patient, it is a wait and see approach as to what that knife's edge will reveal.

The imprecision of viral delivery has led to many adverse side effects, but two in particular are concerning. Cytokine Release Syndrome (CRS), called a cytokine storm, is a runaway effect of too many white blood cells being activated releasing inflammatory cytokines which leads to more white blood cells being activated; and Neurotoxicity which is damage to the brain or peripheral nervous system caused by exposure to natural or man-made toxic substances. Trials for Kymriah (Novartis) revealed that 49% of patients experienced *Grade 3 CRS or higher*, while life-threatening Neurologic Toxicity reaction occurred in 72% of patients[14]. As for Yescarta (Gilead / Kite), 13% of patients experienced at least Grade 3 CRS if not Grade 4, while 87% of patients had Neurologic Toxicity reactions[15]. For a more contextualized example: of the Yescarta trial patients that developed Neurologic Toxicities, 57% developed *encephalopathy*; brain damage. Using the general multiplication rule of probabilities I understand this as a 49.6% chance of brain damage (87% Neurotoxicity × 57% encephalopathy). The above illustration for Kymriah results in 24.5% probability of brain damage.

CRS Grading Scale[15]

Grade 3 is a severe reaction requiring hospitalization for management of symptoms relating to organ dysfunction; on top of lower Grade 1 or Grade 2 symptoms such as fevers associated with neutropenia.

Grade 4 includes life-threatening complications such as hypotension and hypoxia requiring mechanical ventilation (as experienced dealing with Covid-19).

Encephalopathy[16]

Encephalopathy is a term that means brain disease, damage, or malfunction. Encephalopathy can present a very broad spectrum of symptoms that range from mild, such as some memory loss or subtle personality changes, to severe, such as dementia, seizures, coma, or death.

Where Ziopharm TCR-T differs is on approach and delivery. Miguel Forte, CEO of Bone Therapeutics described the difference as such: "CAR T-cell therapy can be compared to a policeman, with a photograph of the criminal, being able to identify them on the street. It is an artificial way of guiding those cells to the cancer when the cancer cells are in suspension. The difficulty with CAR is that it cannot always penetrate and deliver an effect in solid tumours. TCR therapy, which utilises the natural mechanisms that T cells use to recognise the antigen and therefore the cancer, is better suited to penetrate the tumour – ie, the policeman is able to go inside the building where a criminal is hiding.[18]" Ziopharm's Sleeping Beauty delivery platform uses transposons which are DNA plasmids, mobile genetic elements, able to change their location within the genome from a donor site to an acceptor site. In essence the biotechnology contains a molecular safety switch, a synthetic '*kill switch*', to prevent the runaway side effects seen in the viral therapies, specifically CRS and Neurotoxicity. Though not a foregone conclusion yet, Sleeping Beauty could speed up trial times, a huge hurdle in researching therapies, particularly blood cancers, thanks to less cumbersome protocols and reduced costs[19].

Precigen, Inc., formerly in collaboration with Ziopharm when named Intrexon, are pursuing non-viral Sleeping Beauty based therapies also, yet more focus is on CAR-T therapies. Precigen's TCR-T therapy entered combined Phase 1 / 2 trials in April 2020, yet no announcement on successes thus far[20]. Poseida Therapeutics is another competitor, though working with PiggyBac, a Sleeping Beauty alternative[21]. Poseida has an overall focus on CAR-T, though recently signed a collaboration agreement with TScan Therapeutics to investigate TCR-T therapies for COVID-19[22].

In reviewing Ziopharm's biotechnology and the immune-oncology space, I was very fortunate to have the direction of both some of the largest investors in the trade explain the company's unique position,

as well as two medical research professionals who provided comprehensive due diligence on the underlying therapies. One of the researchers provided a study showing that of the 92 new cancer therapies approved by the FDA between 2000 and 2016, 44 received approval without supporting evidence from randomized clinical trials and the median absolute increase in overall survival was only 2 months[23]. This surprising information gave me the conviction to analyze the real option payoff potential of Ziopharm's situation.

Governance Issues

This opportunity exists due to failings by both management and the Board of Directors of Ziopharm. The reason to be interested now is due to the actions taken by large shareholders to bring about change before the innovative technology is squandered completely. From the Consent Solicitation: "*Ziopharm **shareholders can no longer afford to trust** that the current Board will look after their best interests*[24]."

1. *Indefensible Underperformance*

Since the current Chairman of the Board, Scott Tarriff, joined Ziopharm's Board, the stock has declined 68%. Compared to the S&P 500, the Russell 3000, and the SPDR S&P Biotech ETF, that is gross underperformance and in-defensible over every time period.

Return	1 Year	3 Years	5 Years*
S&P 500 (SPX)	17%	37%	93%
Russell 3000 (RAY)	19%	38%	93%
SPDR S&P Biotech ETF (XBI)	42%	58%	110%
Ziopharm	**(43%)**	**(36%)**	**(68%)**

Source: Bloomberg LP; as of November 30, 2020
**5 years starting Sept. 28, 2015; Tarriff's Board confirmation*

Source: Bloomberg LP; as of November 30, 2020

2. *Problematic Connections and Lack of Quality in Board Members*

Scott Tarriff became Ziopharm's Chairman in 2018 and has a long history of shortcomings. Tarriff had multiple lawsuits brought against him and was ultimately forced to resign as CEO of Par Pharmaceuticals in 2006 for accounting irregularities[25]. Later, Par admitted to fabricating inventory and receivables. Before that, he had also been sued for threatening a whistleblower while at Bristol Myers Squibb, though not found guilty[26]. More recently, beginning in 2012 Tarriff sat on the Board of Synthetic Biologics, Inc. (NYSE: SYN) while the company's share price dropped from $77 to less than 40 cents[27] before his resignation November 12th [28].

To express discontent, a majority of shareholders withheld support for three directors at this year's annual meeting. Rather than receive this clear message, Ziopharm allowed these members to retain their seats, even against stated company policy: "*it is the Company's policy that any nominee for director in an uncontested election who does not receive a majority of*

Nominee	For	Withheld	Broker Non-Votes
Christopher Bowden	75,339,585	60,176,423	51,853,062
Scott Braunstein	48,049,034	87,466,974	51,853,062
Laurence J.N. Cooper	81,443,534	54,072,474	51,853,062
Elan Z. Ezickson	59,072,371	76,443,637	51,853,062
Heidi Hagen	80,011,888	55,504,120	51,853,062
Douglas W. Pagán	59,240,566	76,275,442	51,853,062
Scott Tarriff	72,264,334	63,251,674	51,853,062

Source: Ziopharm Oncology, Inc. Form 8-K: Proposal 1 – Election of Directors: June 29, 2020

the votes cast shall submit his or her offer of resignation to the Company's Board"[29]. The result of the shareholder vote should have resulted in the resignations of Scott Braunstien, Elan Ezickson, and Douglas Pagán back in June.

Pagán did, however, resigned in September and was replaced by J. Kevin Buchi, Chairman of Dicerna Pharmaceuticals, where Pagán is CFO[30] – hiring the incumbent's boss is a problematic connection when looking for independence in a Board member. Buchi drove TetraLogic (OTC: TLOG) into the ground as CEO from August 2013 to December 2016 as the company's share price went from $7 to sub one penny[31].

Likewise, Scott Braunstein finally resigned this November and the Board pushed for Mary Thistle, a replacement heavily connected with the current Board. Thistle sits on the Board of Advisors of Life Science Cares with Ezickson and Pagán[32] – so much for a professionally managed "national search" for a new Board member[33]. Beyond the fact that this connection went undisclosed by Ziopharm and the interlinked professional pasts of Thistle, Tarriff and Chris Bowden (Board member whose position is not being contested in the Consent Solicitation) at Bristol Myers Squibb[34], Thistle is a director of Homology Medicines (NASDAQ: FIXX) which has suffered a nearly 40% drawdown[35] since Thistle's appointment in March 2018[36].

FY 2019 (7)	Shuffle: July to Nov. 2020 (8)	Current State Nov. 2020 (8)
Scott Tarriff, Chairman, *Sept. 2015*	--	Scott Tarriff, Chairman
Laurence Cooper, CEO, *Oct. 2018*	--	Laurence Cooper, CEO
Chris Bowden, *Oct. 2019*	--	Chris Bowden
Heidi Hagen, *June 2019*	--	Heidi Hagen
Elan Ezickson, *Sept. 2019*	--	Elan Ezickson
Doug Pagán, *Sept. 2018*	Kevin Buchi, *Sept. 2020*	Kevin Buchi
Scott Braunstein, *Sept. 2018*	Mary Thistle, *Nov. 2020*	Mary Thistle
	James Huang, *July 2020*	James Huang

The quality of the current Board is clear: abysmal. In 2018 Ziopharm pursued a self-directed Board "*refresh*"[37], nevertheless that delivered the low quality incumbents seen today and proved that the Board cannot be trusted to nominate its own directors. Despite publically stating a search firm was contracted to find suitable replacements and receiving recommendations by large shareholders in this autumn's shakeup, this self-serving Board ignored the help and landed on two heavily-linked substitutes, just like 2018. The actions taken in opposition to sound advice for the betterment of shareholders threatens Board independence and effective oversight of the company for the betterment of shareholders.

3. *Misaligned Incentives and Interests*

The current Board holds just a 1.3% interest in Ziopharm, nearly all of which is held by the CEO, Dr. Laurence Cooper. Excluding Cooper, no member has ever made an open market purchase of shares[38], meaning they have not felt the severe loss shareholders have been suffering. Even more depressing is that the Chairman, Tarriff, holds only 4,186 shares, or c.$12,000, as of April 2020[39].

Executives also received a raise in their base salaries in 2019 compared to 2018[40], despite the share price dropping by 55%[41]. At the same time, the Board awarded restricted shares and options to executives totalling $4.8 million[42].

Named Executive Officer	2018 Base Salary ($)	2019 Base Salary ($)	Percentage Increase from 2018
Laurence James Neil Cooper	500,000	573,000	14.6
David M. Mauney	400,000	440,000	10.0
Satyavrat Shukla	—	390,000(1)	—
Robert Hadfield	350,000(2)	370,000	5.7
Kevin G. Lafond	283,250	290,000	2.4

Source: Ziopharm Oncology, Inc. SCHEDULE 14A: Notice Of Annual Meeting Of Stockholders: June 29, 2020

Name and Principal Position	Year	Salary ($)	Bonus ($)	Stock Awards ($)(1)	Option Awards ($)(1)	All Other Compensation ($)	Total ($)
Laurence James Neil Cooper, M.D., Ph.D.	2019	573,000	1,031,400	755,476	862,707	94,991(2)	3,317,574
Chief Executive Officer	2018	500,000	1,000,000(3)	—	—	89,239	1,589,239
	2017	500,000	875,000	1,140,720	—	78,524	2,894,244
David M. Mauney, M.D.	2019	440,000	182,160	356,182	406,739	63,850(4)	1,448,931
President	2018	400,000	197,000	—	—	11,756	608,756
	2017	103,077	36,158	—	2,156,550	2,189	2,297,974
Satyavrat Shukla(5)	2019	174,500	100,000	—	1,545,520	2,198(6)	1,822,218
Chief Financial Officer							
Robert Hadfield	2019	370,000	136,160	263,361	300,741	11,560(7)	1,081,822
Executive Vice President,	2018	254,647	113,000	—	459,390	9,054	836,091
General Counsel and Secretary							
Kevin G. Lafond	2019	290,000	99,470	83,153	239,490	13,101(8)	843,123
Sr. Vice President – Finance, Chief	2018	283,250	104,138	—	—	11,610	398,998
Accounting Officer and Treasurer	2017	275,000	84,219	219,420	—	2,585	581,224

Source: Ziopharm Oncology, Inc. SCHEDULE 14A: Notice Of Annual Meeting Of Stockholders: June 29, 2020

The Board of Directors sets the incentive plan for management and it appears that the goals tied to performance are easily reachable in order to excessively reward executives at the expense of shareholders. "*The board of directors determined that each executive achieved 100% of his individual goals. When factoring in the board's determination that we had achieved 90% of the corporate goals…*". Contrary to this excerpt, TCR and CAR-T clinical trial enrolment was not achieved. The Board opted to not provide details, but instead management gave vague statements like "advancements in each of the programs were impressive in other areas." Meanwhile, the Board paid $1.8 million in director fees[43].

Name	Fees Earned or Paid in Cash ($)	Option Awards (1) ($)	Stock Awards (1) ($)	Total ($)
Christopher Bowden, M.D.(2)	11,413	401,718	—	413,131
Scott Braunstein, M.D.	67,054	—	150,002	217,056
James A. Cannon(3)	32,184	—	—	32,184
Elan Ezickson	62,560	—	150,002	212,562
Heidi Hagen(4)	32,395	312,300	150,002	494,697
Douglas Pagán	70,000	74,999	75,001	220,000
Scott Tarriff	100,533	149,997	—	250,530

Source: Ziopharm Oncology, Inc. SCHEDULE 14A: Notice Of Annual Meeting Of Stockholders: June 29, 2020

Furthermore, Braunstien, while on the Ziopharm Board also served on four other companies' Boards, and was CEO of Marinus Pharmaceuticals[44]. All this caused ISS to flag him as being "overboarded" in June 2020[45]. More questionably, he happens to be an operating partner at Aisling Capital[46] which holds an interest in Poseida Therapeutics[47]. This looks like a clear conflict of interest as Poseida is developing a direct competitor to Ziopharm's CAR-T therapy but using the delivery alternative PiggyBac, as opposed to Sleeping Beauty[48].

4. *Dilutive Actions*

Since 2017, the Board has diluted existing shareholders by 55% via frequent public offerings and PIPEs[49]. May 2017 saw a capital raise with Guggenheim for $50 million[50]. Then, more recently, there was a $90 million raise with Jefferies in February 2020[51] after several statements made by management that the company had sufficient cash to complete readouts of all three core programs.

The first statement mentioning not having a need for additional funds was when reporting 2019 Q2 results, as the press release notes: "*We are grateful that through the support of key shareholders who exercised their existing warrants several years prior to expiration, we added $45 million to our treasury* ***to provide us with cash into the first half of 2021****, which we expect will allow us to see data readouts in the three programs*"[52]. These key shareholders included MSD Partners, White Rock and Discovery, who will be mentioned in more detail later in this paper. Then at a J.P Morgan Healthcare Conference on January 16th, 202, just 20 days before the Jefferies announcement, these same sentiments about sufficient funding were echoed[53].

Management and the Board failed in being transparent about the upcoming capital raise which was even worse for the large shareholders who exercised their warrants early to support the company. Speaking with one of these shareholders, it was made clear Ziopharm never made mention to their capital raise plans when requesting the extra funds from exercising warrants.

More recently, the Board proposed an increase to the authorized number of shares despite the uproar by shareholders surrounding the Jefferies raise. Thankfully shareholder's voted this proposed dilutive amendment down[54].

Proposal 5 – Approval of the Amendment to the Company's Charter to Increase the Authorized Number of Shares of Common Stock from 250,000,000 Shares to 445,000,000 Shares

The Company's stockholders did not approve Proposal 5. The votes cast were as follows:

For	Against	Abstain	Broker Non-Votes
85,930,579	100,034,157	1,404,334	—

Source: Ziopharm Oncology, Inc. Form 8-K: June 29, 2020

5. *Poor Transparency: Expectation Setting and Capital Allocation*

When addressing shareholders, management always proclaim the company is nearing a deal with a partner which could validate the company's underlying biotechnologies and monetization prospects. On conference calls management have said, "*…they look forward to announcing our collaboration…"*[55] and "*…we're in active discussions and we'll have more to say when this solidifies."*[56], yet these remarks have proven empty. WaterMill, more details on them later, found that Cooper, the CEO, had told shareholders to "*stay tuned*" on potential partnerships ten times over the last five years[57].

Ziopharm continues to go about their capital spending in the dark, despite the voiced concerns of shareholders. The Board will not commit to a transparent capital allocation policy, while management are allowed to go about their decision making without the need to explain themselves, as made clear while reading Ziopharm filings. Some questions I cannot answer, nor management or the Board seem willing to comment on are:

- Why does Ziopharm continue to commit so much capital to IL-12 with still no reward to show for it?
    - Would not monetizing the platform support further investment into the ultimate therapy?
- What are the results of the three core therapies and where does the progress of trials stand?

Investors have been led to believe Sleeping Beauty TCR-T dosing was forthcoming for years now. However, on the most recent earnings call management changed their tune, implying they must first follow NIH obligations and rebuild the pool of eligible patients. Likewise, on IL-12, despite the discovery of turning cold tumours hot, monetization has failed beyond the empty words of: "*[we] look forward to announcing our collaboration…".* IL-12 is an opportunity for value creation. Lastly, on Sleeping Beauty CAR-T, management has promised positive results for v2.0 would be announced soon, yet shareholders remain in the dark.

The overarching theme, whether it be capital allocation or clinical trials, is the utter lack of transparency. The company does not report on progress of their therapies' trials despite the empty rhetoric of saying they are committed to provide transparency.

6. *Financial Controls*

If all the above governance failings were not enough, it's time to sprinkle in a dash of accounting irregularities to be chalked up to poor financial controls.

In the company's previous four account publications, that's equivalent to a full year now, management states: "We have identified a material weakness in our internal control over financial reporting for the year ended December 31, 2019…"[58]. A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis[59].

Despite the above issues first being disclosed in 2019, the Board has yet to rectify the material weakness.

Management's Report on Internal Control over Financial Reporting

As of December 31, 2019 and September 30, 2020, management identified a material weakness in the design and effectiveness of our internal control over financial reporting. We did not design and maintain effective controls relating to the monitoring and oversight of expensing third party clinical trial costs. Specifically, our internal controls were not designed effectively to provide reasonable assurance regarding the accurate and timely evaluation of the amount of third-party costs to record.

Based on this evaluation, management concluded that our internal control over financial reporting was not effective at September 30, 2020 because of the material weakness described above.

Despite the existence of the material weakness described above, our financial statements as of September 30, 2020, are presented fairly, in all material respects, in conformity with accounting principles generally accepted in the United States of America.

Source: Ziopharm Oncology, Inc. Form 10-Q For the quarterly period ended September 30, 2020: November 5, 2020

7. *Unfriendly Governance Practices towards Shareholders*

Ziopharm does not have majority voting standard for uncontested director elections. This means that uncontested incumbents can retain their position with a single vote '*For*', even if shareholders express their dissatisfaction in a director by withholding their votes, even if a majority[60]. Additionally, an exclusive forum provision was introduced in Ziopharm's bylaws in September requiring shareholders to go to specified courts if they want to make fiduciary duty or other intra-corporate claims against the company and its directors[61].

There is firm belief that Ziopharm has the potential to be a leader in immune-oncology by leveraging its multi-platform approach in developing cell and gene therapies to effectively assess and treat patients with cancer. The lack of a sense of urgency and awareness of the cost of capital can be fixed by executive and Board-level changes. The unfriendliness towards shareholders will disappear when stewards who hold meaningful ownership interests in Ziopharm are in charge. The Board's apparent inability or unwillingness to address these persistent issues plaguing the company make it clear that the Board must be immediately reconstituted to restore shareholder confidence that directors will provide the critical oversight function needed to foster success in an early clinical stage immunotherapy company[62]. Enter WaterMill Asset Management.

WaterMill's Campaign

All the above shortcomings and turmoil has drawn the ire of a group of large shareholders with exemplary track records in biotechnology and corporate turnarounds. WaterMill Asset Management is a family office with more than $100 million in assets led by Robert Postma. WaterMill launched a Consent Solicitation to reconstitute the Board of Directors by electing Postma and two other candidates, in place of four incumbent directors[63].

Current State Nov. 2020 (8)	WaterMill Proposal (7)
Scott Tarriff, Chairman	Robert Postma
Laurence Cooper, CEO	--
Chris Bowden	--
Heidi Hagen	--
Elan Ezickson	Jaime Vieser
Kevin Buchi	Holger Weis
Mary Thistle	*Removed seat*
James Huang	--

- **Robert Postma**: Principal and founder of WaterMill with four decades of investing experience across bonds and fixed income and in biotech. Through the 3.3% stake in Ziopharm, Postma brings extensive knowledge of company assets, governance, financials, as well as sound capital allocation skills. WaterMill also owns nearly 950 thousand Ziopharm warrants.
- **Jaime Vieser**: Manager of private investment firm Brushwood LLC, previously Vieser co-founded and was CIO of Castle Hill Asset Management. Vieser has extensive restructuring and financial experience in biotech investing with valuable relationships in industry and banking. Vieser holds c.$2.2 million worth of shares and has been a long-term investor in Ziopharm.
- **Holger Weis**: Formerly an executive at Ernst & Young, Weis also has two decades of experience in strategy and executive-level roles at various life sciences companies. Currently he is the CFO of PhenoTarget Biosciences and owns c.127,000 shares of Ziopharm either directly or through cash settled call options.

WaterMill's plan[64] is to fix the long list of governance issues:

- *Ensuring Transparent Investor Communication*: an easy fix by being forthright to shareholders, which they are;
- *Prioritizing Accretive Deals and Licensing Partnerships*: the three candidates put forward by WaterMill have a long track record in biotech investing and, with a meaningful piece of their wealth in Ziopharm shares, they will look to create value for shareholders;
- *Fixing Lingering Material Weakness and Internal Financial Controls*: an issue expected to be at the top of a '*to do list*' of any Board, WaterMill's candidates, specifically Weis as an audit and accounting expert formerly at EY, will fix these issues and with transparency;
    - if successfully elected, the recommendation to reconstitute the Audit Committee will be put forward and Weis will be tasked to chair the committee;
- *Reduce Cash Burn*: an existential risk, with $135 million on the balance sheet, stopping the heavy spending on director compensation, R&D and SG&A is a top priority; and
- *Realign Management Incentives*: incentives should be based on whether or not shareholder value has increased, again more easily felt should management and directors hold meaningful levels of their wealth in the company's equity.

Additionally, WaterMill are proposing a strategic review if it's three candidates are successfully elected[65]. The plan would include: valuation assessments of each of the company's portfolio assets and the amount of capital needed to reach inflection or monetization points; capital allocation methodology; pipeline progress considering partnerships – both therapy and financial – using new members' relationships; a top-to-bottom personnel review; and, benchmarking executive and director compensation levels.

This proposal has been supported by other major shareholders who have been vocal about the Ziopharm's executive level and governance failings. This group includes: Michael Dell's family office, MSD Capital Management (7.1%); Level One Partners (5.0%); Rob Citrone of Discovery (5.0%); and renowned short seller, Thomas Barton's White Rock (2.9%)[66]. WaterMill states they control 3.3%, equating to c.23.3% across major shareholders publically stating they back the plan.

A recent positive note is that Institutional Shareholder Services (ISS)[67] and Glass Lewis[68], leading independent proxy voting advisory firms, announced their support for WaterMill's nominees. An endorsement by ISS is typically followed by passive fund managers that hold a company's shares in

ETFs or indices. Thus, it is reasonable to expect Vanguard (7.1%) and BlackRock (7.0%)[69] to vote with WaterMill, in total c.37.4%.

Understanding Valuation

Carrying on from the problems born out of poor oversight and the mismanagement plaguing Ziopharm; R&D costs are up 62% yoy, SG&A costs are up 32% yoy, and both executive and director compensation is far too high. Should these elevated expenses persist, I reasonably estimate Ziopharm's $135 million in cash (zero debt) will run out in 18 to 24 months.

If operations are not yet translating into recognizable financial performance from an accounting standpoint, meaning earnings cannot yet be seen, the best way to think about valuation is to use real options as the valuation framework.

Real Options in Security Analysis

The Ellsberg Paradox, in the context of investing, suggests: people prefer to take risk in situations that have a lower expected value, but where that expected value can be calculated with certainty – rather than where the expected value is guaranteed to be higher, but by how much exactly is unknown (an aversion to ambiguity)[70]. This thinking is a good way of pairing an intrinsic understanding of discounted cash flow models with the real business-world since options are embedded everywhere with unknown outcomes. Given unknown outcomes, how can a valuation framework adapt to account for investment is a new technology or process today? The above is from Fred Liu, CFA, who reminded me of Michael Mauboussin's seminal note on real options from 1999.

DCFs are great at valuing a mature business striving to optimize their already developed product, by applying linear, gradual changes. Technology and science-related industries derive a large amount of their value from uncertainty. The option to create a new product or service using existing internal capabilities that, if successful, will significantly alter the business' trajectory – think iPhone; more on that later – is best viewed through options theory, Black-Scholes being the best known[71].

Real options display:

- *Flexibility*: to defer, abandon, expand, contract investment;
- *Contingency*: future investment contingent on today's successful investment; and
- *Volatility*: counterintuitively, investment with greater uncertainty have higher option value.

"Emerging businesses are best valued using real options, as the focus is on the "next big thing." As the strategic landscape evolves, so too must the tools to evaluate it."[72] The extract from Mauboussin's paper continues by analysing the three elements most relevant:

- Smart management team focused on creating, identifying, and exercising real options;
- Market leading businesses, which tend to get the best look at strategic opportunities and can offer economies of scale and scope; and
- Finally, uncertain markets are where options are most valuable

Fred Liu, goes on to contend: "if [a] pharmaceutical company invests in R&D for a new drug, but has an unknown outcome by definition, does that mean that R&D spend doesn't have value today?[73]" I reason Ziopharm does have value thanks to historic spend on R&D and the advancements in immune-oncology they've made. Yet the unique governance situation has caused the value of the embedded options to be depressed and with tides of change affecting the timing and magnitude of monetization the WaterMill catalyst make the ambiguity of return more palatable.

Valuing Ziopharm

Ziopharm should soon have smart management and strong leadership from WaterMill's slate of Board candidates. The company's underlying technology has the potential for market leading biotechnology, or at least an '*options*' to crystalize the biotechnology. Finally, biotech and pharmaceutical development are inherently uncertain making the market highly uncertain.

I do not ascribe any value to the planned therapies, nor to those initiated undergoing phase 1 trials (*see page 1, Pipeline*). If any should come to fruition that would be an added bonus, though I expect not for several years. However, Ziopharm's CAR-T therapy currently in phase 1 and being developed in China and the US could be a $1 to 5 billion '*bonus*' since it is a direct competitor (more directly competing than TCR-T) to the previously mentioned Kymriah and Yescarta which have FDA approval.

Controlled IL-12, the second most promising and advanced therapy in their portfolio could be worth $1 to 3 billion. Despite having successfully established safety of ability to dose IL-12, and purported interest by collaborating partners since January 2017, attempts at monetization have failed while a great deal of capital continues to be committed to the platform with no progress to show for it. There is potential value in IL-12 should deals be struck with collaborators that have PD1, PDL1, CTLA4 checkpoint inhibitors in solid tumour types, yet no meaningful progress on this front leaves me to value IL-12 at zero.

The place where I see monetization the most quickly and clearly – thus value – is in TCR-T targeting neoantigens. The platform is supported by the National Cancer Institute and led by Dr. Rosenberg who has successfully been able to use the TCR-T therapy to cure previously believed to be incurable metastatic solid tumours at c.20-25% success rate. Rollout of further dosing trials is slated to commence in the first quarter of 2021, possibly January. This therapy could be analogous to Apple's iPhone in that it is ground-breaking in its utility and unimaginable just a handful of years prior. Some of the large shareholders have claimed that Ziopharm could be worth close to $10 billion. However I believe a more near-term value, based off the option of '*to-be-proven'* progress by a reconstituted Board (not guaranteed yet), could be closer to **$1.5 billion or $7 per share**.

A reconstituted Board of Directors, empowered by their significant share holdings and intently focused due to lost time and opportunity, makes me confident in seeing significant progress in developing partnership arrangements and begin monetizing Ziopharm's portfolio. In the meantime, the current precarious situation of un-monetized therapies and an active consent solicitation battle provides the perfect timing to enter a business that has leading biotechnology and significant upside optionality.

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