EDISON

Kazia Therapeutics

Re-initiation of coverage

Bringing a vetted drug class to the brain

Pharma & biotech

We are reinitiating on Kazia Therapeutics, which is entering late-stage trials for its lead product, paxalisib, for glioblastoma multiforme (GBM). The product is a PI3K inhibitor originally developed by Genentech to cross the blood-brain barrier. The drug is scheduled to be included in the ongoing GBM AGILE study, an innovative investigator-sponsored study testing multiple candidates against the disease, with the first paxalisib patients being enrolled by the end of 2020. We are reinitiating with a valuation of A$145m or A$1.54.

Year end	Revenue (A$m)	PBT* (A$m)	EPS* (A$)	DPS (A$)	P/E (x)	Yield (%)
06/19	1.6	(7.4)	(0.13)	0.00	N/A	N/A
06/20	1.1	(10.8)	(0.15)	0.00	N/A	N/A
06/21e	1.4	(11.4)	(0.12)	0.00	N/A	N/A
06/22e	1.5	(12.0)	(0.11)	0.00	N/A	N/A

Note: *PBT and EPS are normalized, excluding amortization of acquired intangibles, exceptional items and share-based payments.

A new type of PI3K inhibitor

Paxalisib belongs to the PI3K inhibitor class of drugs, which has had a varied history in drug development, with four approved drugs and many (50 or more) abandoned programs. The class has the promise of providing broad spectrum anti-cancer activity, but many drugs of this class have limiting safety and tolerability issues. While not benign, paxalisib has not showed any of these major safety issues, and interim data from the ongoing open label Phase II GBM study appear to show improvement in survival (median 17.7 months) compared to historical controls (13–15 months). Given the severe lack of options for patients with GBM (only two approved medications with only modest efficacy), any benefit from paxalisib would be significant for this disease.

A different type of pivotal study

Paxalisib has a unique clinical development pathway, because instead of the drug being examined in a pivotal study sponsored by the company, it will be included in the investigator-sponsored GBM AGILE study, which is investigating multiple drug candidates against a common GBM control. Typically, investigator-sponsored trials are insufficient to serve as pivotal studies, but the FDA has provided assurances that GBM AGILE can support approval in the event it shows positive results. This will allow Kazia to have a pivotal study that is beyond the scope of what it could afford to run independently. The company plans to include 200 patients on paxalisib, and enrolment is slated to begin before the end of 2020.

Valuation: Reinitiating at A$145m or A$1.54

We are reinitiating on Kazia, with new models and assumptions, at A$145m or A$1.54 per share. Paxalisib for GBM is our highest value program (A$115m) and we forecast US$450m peak sales. We expect the company to need A$45m in additional capital to reach approval of paxalisib in 2025.

28 August 2020

Price	**A$1.03**
Market cap	**A$97m**
	A$1.40/US$
Net cash (A$m) at 30 June 2020	8.76
Shares in issue	94.6m
Free float	52.5%
Code	KZA
Primary exchange	ASX
Secondary exchange	NASDAQ

Share price performance

%	1m	3m	12m
Abs	67.5	151.2	171.1
Rel (local)	63.7	134.3	182.0

52-week high/low	A$1.12	A$0.35

Business description

Kazia is a pharmaceutical company with lead asset paxalisib, a PI3K inhibitor licensed from Genentech that can cross the blood-brain barrier, which is entering a pivotal study for GBM. It is also being investigated for other brain cancers (DIPG and brain metastases), and the company has the legacy asset Cantrixil in Phase I for ovarian cancer.

Next events

DIPG Phase I results	H220
BCBM Phase II results	H220
Inclusion in GBM AGILE pivotal study	Before YE20
GBM Phase II results	End 2020 or early 2021

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Investment summary

Company description: Targeting brain cancer

Kazia is an Australian pharmaceutical company focused on the development of paxalisib, a brain-penetrant PI3K inhibitor for cancers of the brain. The company's lead program is for glioblastoma multiforme (GBM), which is currently in Phase II and planned to be included in the ongoing GBM AGILE Phase III study later in H220, which will serve as a pivotal study for approval. Additionally, the compound is being studied in investigator-sponsored trials for the pediatric brain cancer diffuse intrinsic pontine glioma (DIPG) and brain metastases from other cancers. Finally, Kazia has a legacy asset, Cantrixil, which is in Phase I studies for ovarian cancer and is seeking a partner for further development.

Valuation: Reinitiation at A$145m or A$1.54

We are reinitiating on Kazia with new models and assumptions, and we arrive at an initial valuation of A$145m or A$1.54 per share based on a risk adjusted NPV analysis. The highest value program is paxalisib for GBM (A$115m), which we forecast with US$450m peak sales at a 20% probability of success. We also model the drug for DIPG and breast cancer brain metastases (BCBMs), but assume that these indications will be dependent on success of the GBM program (combined A$9.3m valuation, 5% probability of success each). Finally, we model the Cantrixil product with a 10% probability of success, assuming Kazia seeks a partner for its development beyond Phase I (A$12.6m valuation).

Financials: Costs driven by R&D

The company reported R&D spending of A$9.5m and SG&A spending of A$3.7m for FY20 (ending June 2020). We forecast this pace of R&D spending to remain relatively constant in FY21 and FY22 (A$10.3m and A$10.8m). The company ended the fiscal year with A$8.76m in cash. We estimate a financing requirement of A$45m to reach approval of paxalisib in 2025, which we record as illustrative debt (A$25m in FY21, A$20m in FY23). This does not include costs for DIPG and BCBMs (as we expect these programs to progress only after GBM) or cantrixil (which the company has stated that it intends to partner for further research).

Sensitivities: Unique drug and trial risks

The PI3K inhibitor class to which paxalisib belongs has a long and varied history of clinical development, with a large number of failed drugs as well as four approved drugs. Many of these drugs (including the ones that were approved) have been dogged by safety and tolerability issues, but these are not universal. Although it is not benign, to date paxalisib has not had any alarming safety or tolerability issues, but it cannot be ensured that this will be true in larger studies. The benefit of developing a drug from such a well understood class is that we can have a higher degree of confidence (but no assurances) that the drug is active. GBM as a disease has also seen a significant amount of clinical investment with very few approved medications. Additionally, Kazia's clinical development pathway is non-traditional because instead of using a company-sponsored pivotal study to support approval, paxalisib will be included in a large multi-drug investigator-sponsored study, the GBM AGILE study, which will serve as a pivotal trial. This has the benefit of substantially decreasing the cost to the company (we estimate by approximately 50%), but with the downside that Kazia is not controlling the conduct of the study and the investigators may make choices while running the study that negatively affect its approvability.

Company description: Entering late-stage for GBM

Kazia has existed in its current form since approximately 2016, when it shifted strategies from the previous incarnation of the company (under the name Novogen) of internal development towards focusing on in-licensing promising assets that have been deprioritized by larger pharmaceutical companies. This strategy has manifested itself through the company's in-licensing of its lead product paxalisib (also known as GDC-0084) from Genentech in 2016. Paxalisib is an inhibitor of phosphoinositide 3-kinase (PI3K) which, unlike the vast majority of other drugs in the class, can cross the blood-brain barrier (BBB). The drug also targets mammalian target of rapamycin (mTOR), a protein in the same pathway as PI3K and another frequent drug target. The lead program at the company is for GBM, which is in an open-label Phase II study that plans to read out in late 2020 or early 2021. The drug will also be included in the Phase III GBM AGILE study being performed by the Global Coalition for Adaptive Research (GCAR). AGILE is an adaptive trial designed to test multiple drugs concurrently (of which paxalisib will be one), and Kazia plans to use the data gathered in the study as the pivotal trial to support approval, a plan supported by FDA feedback. The company hopes for the first patients to be dosed as part of the study by the end of 2020. Additionally, the program received Fast Track Designation (FTD) from the FDA in August 2020, which affords it multiple privileges designed to speed up the approval process.

Beyond GBM, the molecule is being studied in a range of other brain cancers through investigator-sponsored studies (Exhibit 1), which include DIPG, a rare pediatric brain cancer, and three studies of brain metastases from other cancers.

In addition to paxalisib, Kazia is also developing Cantrixil, a benzopyran antineoplastic (of poorly defined mechanism), which is being examined in Phase I for ovarian cancer. The company is currently prioritizing paxalisib development over Cantrixil and the current plan is to seek a partner to support future development of Cantrixil.

Exhibit 1: Kazia pipeline

Drug	Indication	Stage	Sponsor	Notes
Paxalisib (GDC-0084)	GBM	Phase II	Company	Phase II interim analysis complete, final data around year end FY20
	GBM	Phase III (planned)	Global Coalition for Adaptive Research	Includes multiple study drugs, to be used at pivotal study. Study currently ongoing but inclusion of paxalisib planned to commence by end 2020
	DIPG	Phase I	St Jude's	Dose-ranging study, data provisionally expected in H220
	Brain metastases	Phase I	National Cancer Institute	Study of multiple genetically targeted therapies for brain metastases
	Breast cancer brain metastases	Phase II	Dana-Farber	In combination with Herceptin, single-arm, open-label, data provisionally expected in H220
	Brain metastases	Phase I	Memorial Sloan Kettering	For PIK3CA mutated brain mets, in combination with radiation therapy
Cantrixil	Ovarian cancer	Phase I	Company	Seeking partners for further development

Source: Kazia, clincaltrials.gov

Paxalisib

Paxalisib was licensed from Genentech in 2016. The deal included a US$5m upfront payment and a US$1m milestone payable with the first commercial sales, as well as undisclosed royalties. Concurrent with the licensing deal, Kazia also acquired the privately held company, Glioblast, to support the development of the drug. The Glioblast transaction also carries two milestones payable to the prior Glioblast shareholders: A$1.25m at completion of Phase II and an undisclosed milestone valued at A$3.4–4.2m. The drug is currently protected by patents (US8883799B2 among others) until 2032 in the US.

The drug is being developed for GBM, the most common, malignant primary brain cancer and the most common brain cancer in adults. Approximately 11,500 patients are diagnosed with GBM each year in the US.[1] GBM tumors are characterized by invasive and diffuse growth, which makes complete surgical removal difficult. Standard treatment for GBM entails surgical resection of the tumor followed by radiotherapy and concurrent chemotherapy with temozolomide (also known as TMZ, marketed as Temodar and generics), followed by adjuvant chemotherapy with the same drug to treat the residual infiltrative component of the tumor. Despite this aggressive treatment, the disease invariably returns, resulting in a five-year survival rate of only 5%.[2]

GBM has also been a difficult disease to develop drugs for. The only drug approved to date for first line disease is TMZ. Additionally, the medical device Optune (from Novocure) and the carmustine (a chemotherapy drug) eluting wafer Gliadel (Arbor Pharmaceuticals) are approved for the treatment of first-line GBM. Bevacizumab (Avastin and biosimilars) is approved in the US for recurring disease, but is not approved in Europe and other geographies for this indication. There has been some interest in developing checkpoint inhibitors such as drugs targeting PD-1 for the treatment of GBM, but these efforts were recently stymied by the recent failure of Opdivo (nivolumab, Bristol-Myers Squibb) in Phase III for recurrent GBM (CheckMate 143). The negative results can be explained by the immune-privileged nature of the brain, which may prevent effective utilization of immunotherapy for this indication. Opdivo is in a separate ongoing Phase III in combination with TMZ and radiation.

The multi-kinase inhibitor Stivarga (regorafenib, Bayer) has been included in the AGILE Phase II/III study (more information below) and previously showed positive results in Phase II. This drug has anti-VEGF activity similar to bevacizumab, among a range of other kinase targets associated with neogenesis.

Another promising drug is marizomib (Bristol-Myers Squibb), a proteasome inhibitor that showed a 45% overall response rate (CR+PR) in a Phase I dosing study. The drug's lead program is for DIPG, but it is currently being investigated for GBM in a Phase III study sponsored by the European Organisation for Research and Treatment of Cancer (EORTC).

Exhibit 2: Selection of late-stage GBM clinical programs

Drug	Company	Phase	Class	Notes
Opdivo (nivolumab)	Bristol-Myers Squibb	Phase III	PD-1 inhibitor	Separate Phase III study recently failed
Trans Sodium Crocetinate	Diffusion	Phase III	Oxygen diffusion enhancer	Failed to show PFS improvement in Phase II
Enzastaurin	Denovo	Phase III	PKC inhibitor	Previously discontinued, new company hopes to enhance with patient targeting
ADCTA	Safe Save	Phase III	Dendritic cell vaccine	Little information
DCVax	Northwest	Phase III	Dendritic cell vaccine	In Phase III testing since 2002
Marizomib	Bristol-Myers Squibb	Phase III	Proteasome inhibitor	Investigator-sponsored, successful in Phase I
Stivarga (regorafenib)	Bayer	Phase II/III	Multi-kinase inhibitor	Positive Phase II results

Source: EvauatePharma, clincialtrials.gov, company reports.

The PI3K class

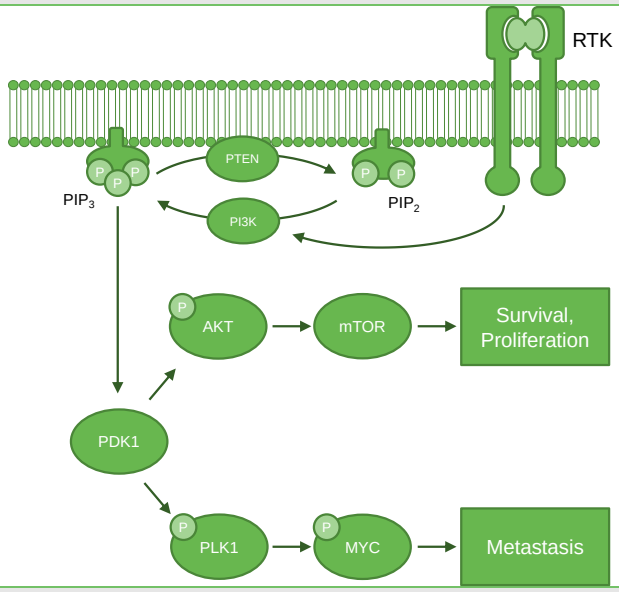
PI3K is a key effector of the receptor tyrosine kinase (RTK) pathway and is involved in many cellular signaling processes (including those mediated by other pathways). Its relevance to oncogenesis is linked to its role in transmitting growth signals (eg from growth factor receptors such as EGFR, HER2, etc), which can become aberrantly hyperactivated in a wide range of cancers.

[1] Faleh A and Juweid M (2017) Chapter 8: Epidemiology and Outcome of Glioblastoma. In: De Vleeschouwer S, editor. *Glioblastoma* [Internet]. Codon Publications

[2] CBTRUS Statistical Report: Primary Brain and Central Nervous System Tumors Diagnosed in the United States in 2008-2012. Ostrom et al *Neuro-Oncology* 17:iv1–iv62, 2015.

Many characteristics of cancer such as hyperproliferation, resistance to apoptosis and metastasis can be linked to the constitutive activation of this signaling cascade. Moreover, this pathway is implicated in both solid and hematologic tumor types.

Exhibit 3: PI3K signaling pathway



Source: Edison Investment Research

PI3K inhibitors as a class have seen some of the most intense development activity in oncology of any group of molecules. There have been a number of drugs approved in the PI3K inhibitor class (Exhibit 4). Historically, perceptions of this drug class have been marred by concerns over safety. This class can be potent inhibitors of immune cell proliferation, which can lead to opportunistic infections, as well as a range of other potentially fatal complications. These adverse effects appear to be both features of the class and drug specific. The first approved PI3K drug, Zydelig (idelalisib), famously had six ongoing clinical trials halted in 2016 when it was revealed that it was associated with high death rates. Subsequently approved PI3K inhibitors Aliqopa (copanlisib, Bayer) and Copiktra (duvelisib, Verastem) were also associated with fatal complications.

However, the story has somewhat changed with the approval of Piqray (alpelisib, Novartis) in 2019. Unlike the other drugs in this class, Piqray is approved for the treatment of breast cancer (as opposed to hematologic cancers) and shows a much better safety and tolerability profile. This fact demonstrates that fatal complications are not an absolute class feature. It has been postulated that some of the most negative class features of these drugs are associated with inhibiting PI3Kδ.[3] Unlike many other isoforms of PI3K, PI3Kδ is expressed predominantly in hematopoietic cells and its inhibition may be associated with opportunistic infections and inflammatory adverse events (AEs; such as colitis and pneumonitis), as well as being essential for efficacy in hematologic cancers. Indeed, Piqray, which does not target this isoform, is better tolerated. However, PI3Kδ inhibition alone cannot account for the variation in safety profiles seen with these drugs. Aliqopa is a pan-PI3K inhibitor and thus inhibits PI3Kδ as well and has indeed been associated with a risk of fatal infection, but has much lower rates of the inflammatory complications more frequently associated with Zydelig and Copiktra.

[3] Curigliano G and Shah RR (2019) Safety and Tolerability of Phosphatidylinositol-3-Kinase (PI3K) Inhibitors in Oncology. *Drug Saf* 42, 247-262.

Exhibit 4: Approved PI3K inhibitors

Drug	Company	Approved	Indication	Isoforms	Safety
Zydelig (idelalisib)	Gilead	2014	CLL, FL, SLL	δ	Black box for fatal infections, hepatotoxicity, and GI complications
Aliqopa (copanlisib)	Bayer	2017	FL	α,β,γ,δ	Warnings for fatal infections, hyperglycemia, and cytopenias
Copiktra (duvelisib)	Verastem	2018	CLL, FL	γ,δ	Black box for fatal infections and fatal GI, skin and lung complications
Piqray (alpelisib)	Novartis	2019	HR+ HER2- breast cancer	α	Generally more tolerable, but with high rates of diarrhea, rash and hyperglycemia

Source: Drug labels. Note: CLL=chronic lymphocytic leukemia, FL= follicular lymphoma, SLL=small lymphocytic leukemia.

The safety issues with this class of drug have contributed to some of the difficulties in developing new molecules. There are a large number of discontinued programs, including many from major drug developers.[4] According to EvaluatePharma, approximately 50 such programs have been discontinued after entering the clinic. It should be noted that neither Kazia nor Genentech has reported any major safety issues with paxalisib to date (more information below). However, due to the history of this class, safety is likely to remain at the forefront of investors' minds when evaluating the viability of the project.

Paxalisib is not the first PI3K inhibitor that has targeted GBM. Buparlisib (BKM120) developed by Novartis was examined in a Phase II GBM study but failed to show efficacy.[5] The drug had off-target effects on tubulin, which limited its dosing. The focus of the drug was later shifted to other solid tumors, and it was subsequently divested (to Adlai Nortye) in 2018. Another PI3K inhibitor that has been examined in GBM is PX-866 (Cascadian), which entered Phase II but failed to meet its primary endpoints and was discontinued.[6] Voxtalisib (Exelixis/Sanofi) was tested in Phase I studies against high-grade glioma,[7] but not pursued further for this indication and later abandoned. Finally, AZD-8055 (AstraZeneca) was tested in patients with recurrent glioma in a Phase I investigator-sponsored trial, but there was no further follow-up. The above list is not exhaustive and there may be other PI3K drug candidates that were not successful in GBM.

The design and clinical history of paxalisib

The main differentiating factor between paxalisib and most other PI3K inhibitors is that it can penetrate the BBB and therefore has the potential to treat cancer in the brain. The BBB is not a discrete structure but rather the network of cardiovascular endothelium that lines the blood vessels of the brain, which control what type of molecules can exit the blood and enter the mass of brain tissue. The BBB is effective at preventing a wide range of toxins, drugs and other small molecules from entering the brain. More lipophilic small molecules can diffuse across the cell membrane of endothelial cells, but many of these are scavenged by P-glycoprotein (PGP or multidrug resistance protein). The protein binds a wide range of drug-like molecules and actively transports them out of BBB endothelial cells. Interpersonal variation in the expression levels of this protein is a major factor determining how susceptible different people are to treatment with central nervous system (CNS) targeted drugs. PGP is one of several efflux transporters that ferry molecules out of the brain, each of which recognizes different sets of structural motifs on small molecules and prevents these classes from crossing the barrier. The design of drugs to target the CNS involves generating

[4] Rodon J and Tabernero J (2017) Improving the Armamentarium of PI3K Inhibitors with Isoform-Selective Agents: A new Light in the Darkness. *Cancer Discov* 7, 666-669.

[5] Wen PY, et al. (2019) Buparlisib in Patients with Recurrent Glioblastoma Harboring Phosphatidylinositol 3-Kinase Pathway Activation: An Open-Label, Multicenter, Multi-Arm, Phase II Trial. *J Clin Oncol* 37, 741-750.

[6] Pitz MW, et al. (2015) Phase II study of PX-866 in recurrent glioblastoma. *Neuro Oncol* 17, 1270-1274.

[7] Wen PY, et al. (2015) Phase I dose-escalation study of the PI3K/mTOR inhibitor voxtalisib (SAR245409, XL765) plus temozolomide with or without radiotherapy in patients with high-grade glioma. *Neuro Oncol* 17, 1275-1283.

a sufficiently lipophilic molecule that does not interact strongly with any of these classes of efflux transporters. Paxalisib was specifically designed with these factors in mind in order to achieve high concentrations in the central nervous system.[8] Paxalisib was shown in preclinical studies to cross the BBB freely and demonstrate a pharmacodynamic effect in normal mouse brain tissue, as well as efficacy in an intracranial mouse GBM tumor model.

Paxalisib is a potent pan-PI3K inhibitor, meaning it inhibits all the isoforms of class I PI3K enzymes α,β,γ,δ. Additionally, the drug was engineered to inhibit the protein mTOR, an additional oncogene in the same pathway as PI3K and with overlapping relevance to tumor neogenesis (see Exhibit 3). Dual PI3K/mTOR inhibitors could be considered a class of drug in their own right, as many such molecules have been developed, including gedatolisib from Pfizer (and potentially others), which is currently in Phase II for breast cancer.

Genentech Phase I

The drug was initially tested in the clinic by Genentech in a Phase I of patients with advanced glioma.[9] The dose-ranging study examined doses of drug from 2mg to 65gm and found a maximum tolerated dose (MTD) at 45mg. The dose-limiting toxicity (DLT) seen in the 65mg arm was two cases of grade 3 mucosal inflammation. This AE was also seen in a significant portion of patients in the 45mg arm (4/8 patients, one at grade 3), although it was not dose limiting. Other common AE were fatigue (30% of all patients), hyperglycemia (28%), nausea (23%) and rash (17%), but these were all predominantly mild to moderate. This AE profile is consistent with the drug class but, importantly, is not characterized by signs of the potentially fatal adverse effects seen in some other examples, such as opportunistic infections or severe GI or liver toxicity.

The efficacy results for all the patients on the study are presented in Exhibit 5. A dose-response relationship is apparent, with increasing rates of tumor inhibition at higher concentrations. The best responses (based on RANO[10] response assessment criteria) were 3/6 with stable disease in the 45mg arm and 5/6 in the 65mg arm. Although none of the patients on the study achieved a partial response (PR, defined as a 50% reduction in tumor burden) or better, the dose-response correlation observed is indicative of clinical activity.

Although Genentech divested the drug shortly after performing this study, there are several reasons to consider the molecule worthy of further investigation. First, the patient population in this study was heavily pre-treated, with patients having a median of three prior therapies, and 70% of the patients included on the study were diagnosed with grade 4 disease. This is a very sick population, with survival typically measured in months. Also, glioma has historically been a notoriously difficult disease to treat, with very limited treatment options. For comparison, TMZ had 2% complete responses (CRs) and 6% PRs when tested after the first relapse, as well as 43% stable disease.[11] These results are statistically comparable to those seen in the Genentech study after the third relapse. It is worth noting that TMZ is not approved for treatment of the disease in this setting (although there are a number of regimens for its use as a salvage treatment), but instead as an adjuvant therapy in the first line. Similarly, paxalisib might have a more pronounced impact in a less heavily treated setting as well, which is consistent with the direction that Kazia took the drug in further studies.

[8] Heffron TP, et al. (2016) Discovery of Clinical Development Candidate GDC-0084, a Brain Penetrant Inhibitor of PI3K and mTOR. *ACS Med Chem Let* 7, 351-356.

[9] Wen PY, et al. (2020) First-in-Human Phase I Study to Evaluate the Brain-Penetrant PI3K/mTOR Inhibitor GDC-0084 in Patients with Progressive or Recurrent High-Grade Glioma. *Clin Cancer Res* 26, 1820-1828.

[10] RANO = Response Assessment in Neuro-Oncology, Wen et al, 2010. J Clin Oncol 28:1963-1972

[11] Brada M, et al. (2001) Multicenter phase II trial of temozolomide in patients with glioblastoma multiforme at first relapse. *Ann Oncol* 12, 259-261.

Exhibit 5: Dose response of GDC-0084 in Phase I

Source: Wen et al. 2015.[7] Note: MTD was identified as 45mg (blue bars) in the study. The upper red dotted line marks the 25% increase in tumor size (sum of product diameters) that is the maximum cut-off for stable disease according to the RANO criteria.

Ongoing Phase IIa

Using the knowledge gained from the Genentech Phase I study, Kazia designed a Phase IIa study to address several unanswered questions. First, the company shifted gears and instead of targeting a heavily pre-treated population as in the Phase I, it opted to enroll newly diagnosed patients. The drug was recontextualized from a rescue treatment to an adjuvant treatment following initial resection, radiation treatment and treatment with TMZ. This move is somewhat contrary to the classic clinical algorithm, in which a drug is developed initially to treat the sickest patients, but is well reasoned. As cancer progresses, it often becomes both harder to treat as it becomes more heavily mutated and heterogeneous, and additionally, the patients become less resilient and intolerant to aggressive treatment. This revised approach opens the potential to both use more aggressive dosing in these new patients and to see better responses. Moreover, due to the lack of available treatments for the disease, there exists significant unmet medical need even in these newly diagnosed patients. A final change in strategy from the Genentech Phase I is that instead of enrolling patients with glioma of all types, the Phase IIa exclusively enrolled newly diagnosed GBM patients. This may provide more conclusive results by using a more homogeneous patient population and the results may be more comparable to other studies, as the majority of the research in the space has been devoted to GBM.

This study also specifically targeted the population of patients that lack methylation of the MGMT promoter (as confirmed through genomic analysis), which predicts that patients in this population are not good candidates for alkylation chemotherapies such as TMZ. Although TMZ is included in the protocol as part of the standard of care, these patients should effectively be resistant to it. Based on a 2017 meta-analysis of MGMT status in GBM aggregating 34 independent studies,1,808 (50%) of the pooled 3,598 patients whose methylation status was known were unmethylated, although there is a high degree of variability between individual studies.[12]

The first part of the Phase IIa was a dose-ranging study (with a classic 3+3 protocol design[13]). The goal of this portion of the study was to reinvestigate the MTD in this new patient group. The study enrolled nine patients into the dosing study and found a new higher MTD of 60mg following mucositis and hyperglycemia DLTs at 75mg. This is encouraging because the drug will be more likely to demonstrate treatment effects at this higher dosing level, which is being used in the second part (the expansion cohort) of the study. The most severe AEs in this stage were rash, mucositis

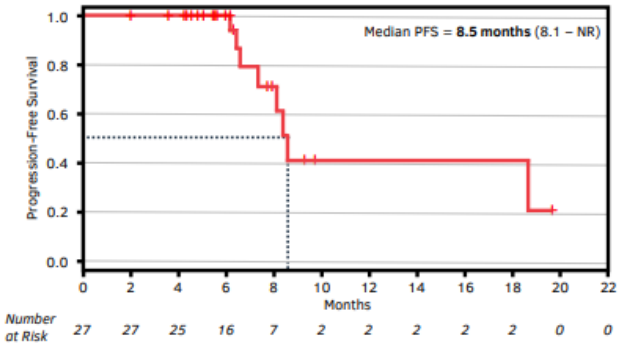
[12] Binabaj MM, et al. (2018) The prognostic value of MGMT promoter methylation in glioblastoma: A meta-analysis of clinical trials. *J Cell Physiol* 233, 378-386.

[13] Three-patient cohorts are used. If none of the three patients in a cohort experiences a dose-limiting toxicity (DLT), three additional patients will be added at the next higher dose level. However, if one of the first three patients experiences a DLT, three more patients will be treated at the same dose level. Dose escalation continues until at least two patients within a cohort of three (or six) experience DLTs.

and hyperglycemia, consistent with earlier results, and reinforcing the more attractive risk profile compared to other PI3K inhibitors.

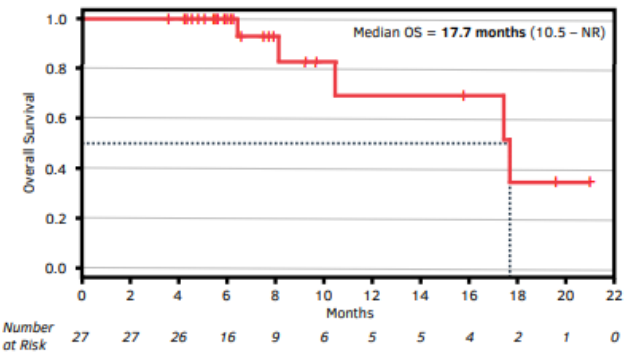
Following identification of the new MTD, Kazia proceeded to the expansion cohort (n=21), a two-arm, open-label study. The study will examine the role of any food effects in the administration of the drug by administering it in either the fed or fasted state between the two arms. This study phase is currently ongoing, but Kazia recently presented an interim analysis at the 2020 American Association for Cancer Research (AACR) virtual meeting (Exhibits 6 and 7). The company reported a median progression-free survival (PFS) of 8.5 months and an overall survival of 17.7 months for the entire study population (n=27 evaluable).

Exhibit 6: PFS from Phase II study of paxalisib



Source: Kazia

Exhibit 7: OS from Phase II study of paxalisib



Source: Kazia

The data from this interim analysis compare favourably to historical controls in patients with unmethylated MGMT (Exhibit 8). A word of caution should always be given when drawing conclusions using historical controls as these comparisons lack statistical rigor and there may be imbalances in the patient populations. However, these data provide the clearest picture to date that the drug has the potential to provide a benefit in these patients.

Exhibit 8: Overall survival and PFS in GBM with unmethylated MGMT promoter treated with radiotherapy plus TMZ

	Median overall survival (months)	Median PFS (months)	PFS at 6 months	Two-year survival rate
Hegi et al NEJM 2005	12.7	5.3	40%	14%
Nabors et al, Neuro-Oncology 2015	13.4	4.1	N/A	N/A
Gilbert et al, JCO, 2013	14.0	5.7	N/A	N/A
AVAGLIO ASCO, 2013	14.6	5.8	N/A	N/A
RTOG-0825, ASCO, 2013	14.3	N/A	N/A	N/A
Average	**13.8**	**5.2**		

Source: Edison Investment Research; Hegi et al *N Engl J Med* 2005;352(10):997-1003; Nabors et al. *Neuro-Oncology* 2015 17(5):708-717; Gilbert et al. *J Clin Oncol* 2013 31(32):4085-4091. Note: RTOG = Radiation Therapy Oncology Group

Recruitment for the Phase IIa study completed in February 2020 (n=21). The study has a planned completion date in December 2020, so we expect top-line final data from the study in early 2021. The company also has a planned presentation of additional interim results at the Society for Neuro-Oncology meeting in November 2020.

The AGILE study

In December 2019, it was announced that Kazia had been asked to submit paxalisib for inclusion in the GBM AGILE study. The AGILE study is a Phase II/III program sponsored by GCAR, a consortium of academic neurologists and neuroscientists. The study is designed to test a range of different treatments for GBM against a common control group. It is innovative in many of its features including the ability to expand its criteria to include additional new treatments, such as paxalisib. The study is currently ongoing, but Kazia is currently still preparing to include paxalisib and start enrolling patients later this year. It stated that up to 200 patients may be enrolled in the

paxalisib arm. The precise protocol is a matter for discussion with the trial coordinators, but we assume that the drug will be used in the same context as the ongoing Phase II study (as an adjuvant following resection, radiation and TMZ).

Kazia plans to use the results from the AGILE study as the pivotal clinical trial data to support approval of paxalisib. Based on feedback from the FDA, it is confident that AGILE can be used to support approval. There are several risks and benefits to this approach. First, using it as the pivotal trial should substantially reduce the financial burden on the company. Kazia still has some financial obligations associated with the study, which are undisclosed, but we expect them to be smaller than hiring a contract research organization (CRO) for the same purpose. For the purposes of our valuation, we assume that the costs to the company for the AGILE study will be approximately US$22m, roughly half of what we would expect for a similar cohort otherwise. However, the trade-off is that Kazia will have substantially less control over the conduct of the trial. Although the study could potentially be used as a pivotal study, the approval of paxalisib in particular is not the expressed purpose of the trial, and it cannot be ensured that the trial's sponsors will make decisions regarding the drug that are in the best interests of approval. Decisions could be made that would prevent using the trial as a pivotal study even if the results are positive. Moreover, Kazia does not have control over the timeline for inclusion in the study. Based on our estimates, we expect the study to take around three years to provide pivotal results for paxalisib, but it cannot be ensured that the sponsors will enroll patients into this arm at a sufficient pace to meet these timelines. That being said, we believe that inclusion in the study is a major opportunity for Kazia because we expect that otherwise it would not be able to support running a pivotal trial at its current market capitalization without a major development partner, a process that carries its own sets of risks and uncertainties.

In August 2020, it was announced that the program had received a FTD from the FDA. This status is designed to improve the pace at which drugs are approved for certain areas of significant unmet need by increasing engagement with the FDA. Kazia will be entitled to more frequent meetings and communication with the agency to discuss its clinical development plan. Additionally, the product may be evaluated in a rolling review process, in which individual portions of the NDA can be submitted to the FDA as they are produced (as opposed to submitting them all as a single package), and feedback on these portions will be provided. Both of these privileges are expected to remove some of the potential friction involved in the regulatory process. Finally, products that are selected for FTD are also eligible for accelerated approval and priority review.

Other paxalisib programs

In addition to the lead program in GBM, paxalisib is being tested in a number of investigator-sponsored trials for other cancers of the CNS. The drug is currently in a Phase I dosing study (n=41) for diffuse intrinsic pontine glioma (DIPG) being run by St Jude Children's Research Hospital. DIPG is a pediatric primary cancer of the brain and one of the most difficult to treat. Between 150 and 300 patients are diagnosed with DIPG in the US each year, and their five-year survival rate is 2%.[14] The company plans to present interim data from the study in H220. Additionally, it was announced in August 2020 that Kazia had received rare pediatric disease designation for the program. This would entitle it to a priority review voucher (PRV) if the drug is approved for this indication, but it would have to be approved by the end of September 2022 to receive the award. Additionally, it was announced in August 2020 that the drug received an orphan designation for this program from the FDA, which would entitle it to seven years of market exclusivity in the US following an approval for DIPG (although with our current timeline, patent exclusivity should be sufficient to support that duration of exclusivity).

[14] The DIPG/DMG Resource Network

The drug is also in three separate investigator-sponsored trials examining it for efficacy in brain metastases. Unlike the other programs described so far, the neoplasms in these studies are not brain cancers but distant metastases from other tumor sites. Brain metastases are a major complication of cancer because many drugs have difficulty passing the BBB and thus many therapies that work in other tumor sites do not work for brain metastases. In particular, this is a major issue for metastatic breast cancer, which commonly recurs and metastasizes to the brain (also known as breast cancer brain metastasis, BCBM). BCBM is the subject of the Phase II study (n=47) sponsored by Dana-Farber, which is expected to provide interim results in H220. This study is investigating HER2+ breast cancers specifically, which account for approximately 20% of all breast cancers.

Cantrixil

Kazia's second asset in clinical development, Cantrixil, is a third-generation benzopyran drug currently in development to target ovarian cancer (OC). Cantrixil was the product of an in-house discovery program conducted by Kazia's predecessor company, Novogen, and a collaboration with a team at Yale University. Following the transition from Novogen to Kazia, Cantrixil was moved into a Phase I clinical study for late-stage OC and the data are expected by year end. Given Kazia's current priorities in advancing paxalisib and the rapidly evolving treatment environment for OC, we expect the company to seek a development partner for the product before further advancing it in clinical studies. The drug is protected by patents in the US until 2035 (US20160340329A1).

Ovarian cancer: The silent killer

OC is expected to account for 21,750 new cases and 13,940 deaths in the US in 2020.[15] While worldwide incidence rates vary due to reporting discrepancies, OC remains the seventh most common malignancy among women. While it is rarer than some other cancers, it is particularly deadly since diagnosis occurs in the late stages due to the lack of disease-specific symptoms. A stage I tumor that is confined to the ovary has a relative five-year survival rate above 90%. However, most patients are diagnosed with stage III or stage IV tumors, which have a five-year survival rate of 35% and 20%, respectively.[16] Treatment plans typically involve surgical resection of the tumor, followed by a platinum-based (paclitaxel or carboplatin) regimen. However, about 80% of women with advanced OC are expected to have tumor recurrence and become resistant to platinum-based therapies.[17]

The space is evolving rapidly with the addition of new targeted therapies for the disease. Poly-ADP ribose polymerase (PARP) inhibitors, such as Zejula (niraparib) and Lynparza (olaparib) have recently changed the algorithm for the treatment of certain genetic subclasses of OC. Additionally, the recent CDK4/6 inhibitors such as Ibrance (Palbociclib, Pfizer) have proved efficacious in breast cancer and are currently being tested for ovarian cancer. Finally, an assortment of checkpoint inhibitors such as Keytruda (pembrolizumab, Merck), are in late-stage clinical trials for platinum-resistant ovarian cancer.

Clinical program

In December 2016, a Phase I dose-escalation study of intraperitoneal Cantrixil was initiated. Part A (n=42) of the study was designed to evaluate safety and tolerability of weekly administration and to

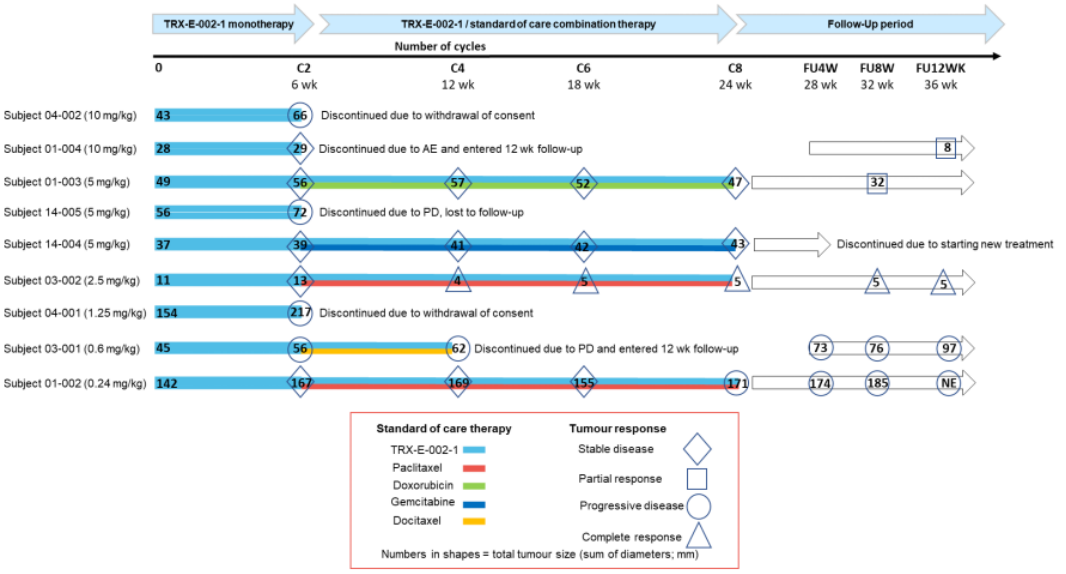
[15] SEER database, National Cancer Institute.

[16] Chornokur G, et al. (2013) Global Ovarian Cancer Health Disparities. *Gynecol Oncol* 129, 258-264.

[17] Luvero D, et al. (2014) Treatment Options in Recurrent Ovarian Cancer: Latest Evidence and Clinical Potential. *Ther Adv Med Oncol* 6, 229-239.

determine the MTD, while Part B (n=12) was used to explore signals of clinical efficacy. Women recruited for the study presented with persistent or recurrent ovarian cancer, fallopian tube cancer or primary peritoneal cancer. A total of 11 patients were treated at doses ranging from 0.24mg/kg to 20mg/kg and nine patients received at least three doses (one full treatment cycle). On 17 April 2020, Kazia provided an update on the Part A of the study at AACR meeting. The MTD was established at 5mg/kg and the main reported side effects were gastrointestinal in nature, including abdominal pain and fatigue. The company stated that preliminary data showed five of nine patients assessed for efficacy had achieved stable disease after two cycles (six weeks) of Cantrixil monotherapy (Exhibit 9). The five patients with stable disease were then treated with a combination of Cantrixil and a range of chemotherapy agents for six cycles (18 weeks). The chemotherapy agents used were paclitaxel, doxorubicin, gemcitabine and docetaxel.

Exhibit 9: Tumor evaluation of Cantrixil dose-escalation cohorts



Source: Kazia Therapeutics

The Phase I study has reported one CR to date, subject 03-002 who received 2.5mg/kg of drug and was also treated with paclitaxel. Additionally, two of the nine patients in Part A reported a PR at the time of the last update. The PFS for Part A was 5.5 months.

Part B of the Phase I study recruited 13 patients for the expansion cohort who were treated with Cantrixil monotherapy at 5mg/kg (the MTD). Concurrent with the above poster presentation, Kazia provided some limited top-line results on Part B, which had recently completed. There was one CR and two PRs in the 20 evaluable patients included in the analysis, which we assume are the same patients from Part A. The company stated that it plans to publish the final data with more results from Part B, including PFS, in Q420.

Sensitivities

Kasia faces a somewhat unique set of risks compared to other pharmaceutical companies. It faces the typical clinical and regulatory risks associated with drug development, but they are in many ways unique to its particular case. First, Kazia is developing paxalisib from a well understood class of molecules, so it is starting with a greater degree of understanding regarding the potential profile of the drug. However, many drug candidates from this class of molecules were not successful in the clinic. This was often for safety reasons, and to date the AE profile of paxalisib looks compatible with its intended use, and more benign than the drugs already approved, but this may change when increased numbers of patients are tested. The clinical risks to the company are also complicated by

the fact that it will not be running its own pivotal study. We expect that the decision to use the AGILE study as its pivotal trial will allow Kazia to limit costs significantly, but it has fundamentally given up control over the most important part of the drug's development. While we believe the study is likely to provide data in accordance with the FDA's requirements for approval based on agency feedback to participants, this cannot be ensured and Kazia will lack visibility on many aspects of the process.

Kazia also faces marketing risks if the drug is approved although, given the lack of options for GBM patients, we expect these risks to be limited. The difficulty in marketing the product will largely be a function of how robust the clinical data are. A strong efficacy response would likely revolutionize the treatment of the disease and relatively little marketing effort would be needed. On the other hand, marginal responses may require significant investment in marketing.

Finally, Kazia faces financing risk. It is entering late-stage trials and currently has A$8.76m in cash. We expect it to require A$45m in additional capital to reach approval of paxalisib, which may cause significant dilution if it seeks it on the capital markets.

Valuation

We are reinitiating on Kazia with new models and assumptions, and arrive at an initial valuation of A$145m or A$1.54 per share based on a risk-adjusted NPV analysis of the company's programs. Our valuations are based on free cash flows that we forecast for each program if developed internally or with a licensee, although we may update our valuation in the future if any programs are licensed to reflect the terms of that specific deal. Our valuation assumptions for each product are outlined in Exhibit 10. For each product, we model commercialization in the US and Europe (EU + UK). We assume 40% lower prices in Europe. Additionally, we assume a 30% discount on gross sales. We assume that patients included on the AGILE trial will cost approximately US$50,000 each – half the cost per patient for other indications – because of the contribution form the AGILE study coordinators. In total, we expect the study to cost US$22m.

Exhibit 10: Valuation assumptions

Drug	Indication	Stage	Assumptions
Paxalisib	GBM	Phase II	Target population: MGMT unmethylated, first-line GBM patients, approximately 15,000 in the US and Europe combined per year. R&D: 200 patients included in Phase III AGILE study at US$50,000 each + $4m a year overhead. COGS: 5% + 10% royalty payable to Genentech. Includes milestones payable to Glioblast and Genentech (approximately US$5m). SG&A: US$10m fixed and 10% variable costs of selling. Peak penetration: 25% assuming other market entrants. Pricing: based on Piqray (US$150k currently), includes 2% growth per year. Probability of success: 20% based on clinical stage, data to date and other considerations.
	DIPG	Phase I	Target population: all DIPG patients, approximately 800 in the US and Europe combined per year. R&D: 40 patients in future trials at US$100k each + US$2m overhead. COGS: same as GBM. SG&A: US$5m fixed, 10% variable. Peak penetration: 75% based on rare disease status, lack of options. Pricing: same as GBM, adjusted for later launch. Probability of success: 5%, dependent on initial success of GBM.
	BCBMs	Phase II	Target population: relapsed and refractory HER2+ BC patients with brain metastases, approximately 8,000 in the US and Europe combined per year. R&D: 600 patients in future trials at US$100k each + US$2m overhead for next Phase II, US$4m overhead for Phase III. COGS: same as GBM. SG&A: US$10m fixed, 10% variable. Peak penetration: 25% assuming other market entrants. Pricing: same as GBM, adjusted for later launch. Probability of success: 5%, dependent on initial success of GBM.
Cantrixil	OC	Phase I	Target population: late-stage relapsed and refractory ovarian cancer, approximately 12,000 in the US and Europe combined per year. R&D: 350 patients in future trials at US$100k each, US$2m overhead for Phase II, US$4m overhead for Phase III. COGS: 5%. SG&A: US$10m fixed + 10% variable. Peak penetration: 15% based on availability of other options. Pricing: based on Lynparza (US$106000 currently), includes 2% price growth per year. Probability of success: 10% based on clinical stage and need to secure a partner for future development.

Source: Kazia, Edison Investment Research

Our probability of success for Paxalisib in GBM is 20%, which is based on trends in the data published to date, and we may increase it as more data become available, eg from the completion

of ongoing Phase II studies. Our probabilities of success for DIPG and BCBMs are lower at 5% because we assume that the success of these programs is contingent at least in part on whether activity is observed in the GBM study. Cantrixil has a probability of success of 10% based on the above factors, as well as the fact that Kazia is planning on seeking a partnership to advance the program, which carries its own risks. All programs are modelled through their patent life, which assumes that products can obtain a full five years of patent term extensions.

Exhibit 11: Valuation of Kazia

Development program	Indication	Clinical stage	Prob. of success	Launch year	Patent/exclusivity protection	Launch pricing ($/course)	Peak sales (US$m)	rNPV (A$m)
Paxalisib	GBM	Phase II	20%	2025	2037	169,000	450	114.56
	DIPG	Phase I	5%	2028	2037	179,000	47	1.31
	BCBMs	Phase II	5%	2029	2037	183,000	249	8.12
Cantrixil	OC	Phase I	10%	2027	2040	124,000	174	12.60
Total								136.59
Net cash and equivalents (FY20) (A$m)								8.76
Total firm value (A$m)								145.35
Total basic shares (m)								94.6
Value per basic share (A$)								1.54
Dilutive options (m)								2.43
Total diluted shares								97.02
Value per diluted share								1.51

Source: Kazia reports, Edison Investment Research.

Financials

Kazia's expenses are driven primarily by R&D, which accounts for approximately two-thirds of its operational costs. It reported R&D spending of A$9.5m and SG&A spending of A$3.7m for FY20 (ending June 2020). We forecast this pace of R&D spending to remain relatively constant in FY21 and FY22 (forecast reported R&D of A$10.3m and A$10.8m). Its revenue is predominantly R&D tax rebates (A$1.0m in FY20).

Kazia reported its FY20 year-end cash balance at A$8.76m after raising $12.1m net through multiple offerings during the year. We expect it to require $45m additional financing to bring paxalisib to market, which we record as illustrative debt: $25m in FY21 and $20m in FY23. This financing requirement is only for the lead indication of GBM, as we expect the company to advance the drug for DIPG and BCBMs only after demonstrating efficacy in GBM. If the company were to concurrently advance the drug for these indications at the same time as GBM, this would increase this financing requirement by $55m and, similarly, if the company were to advance Cantrixil without a partner, we expect this would increase our financing requirement by $50m.

Exhibit 12: Financial summary

$'000s	2019	2020e	2021e	2022e
30-June	IFRS	IFRS	IFRS	IFRS
INCOME STATEMENT				
Revenue	1,565.0	1,060.9	1,404.8	1,521.8
Cost of Sales	0.0	0.0	0.0	0.0
Gross Profit	1,565.0	1,060.9	1,404.8	1,521.8
R&D	6,475.6	9,494.3	10,285.0	10,845.0
SG&A	3,785.6	3,689.9	3,899.9	3,977.9
EBITDA	(7,365.3)	(10,776.8)	(11,433.6)	(11,954.7)
Normalized operating profit	(7,365.4)	(10,776.8)	(11,433.6)	(11,954.7)
Amortization of acquired intangibles	(1,084.3)	(1,084.3)	(1,084.3)	(1,084.3)
Exceptionals	(1,872.3)	(642.4)	0.0	0.0
Share-based payments	(246.4)	(262.1)	(262.1)	(262.1)
Reported operating profit	(10,568.5)	(12,765.7)	(12,780.1)	(13,301.1)
Net Interest	0.0	0.0	0.0	0.0
Joint ventures & associates (post tax)	0.0	0.0	0.0	0.0
Exceptionals	0.0	0.0	0.0	0.0
Profit Before Tax (norm)	(7,365.4)	(10,776.8)	(11,433.6)	(11,954.7)
Profit Before Tax (reported)	(10,568.5)	(12,765.7)	(12,780.1)	(13,301.1)
Reported tax	298.2	298.2	487.7	507.6
Profit After Tax (norm)	(7,365.4)	(10,776.8)	(11,433.6)	(11,954.7)
Profit After Tax (reported)	(10,270.3)	(12,467.5)	(12,292.3)	(12,793.5)
Minority interests	0.0	0.0	0.0	0.0
Discontinued operations	0.0	0.0	0.0	0.0
Net income (normalized)	(7,365.4)	(10,776.8)	(11,433.6)	(11,954.7)
Net income (reported)	(10,270.3)	(12,467.5)	(12,292.3)	(12,793.5)
Basic average number of shares outstanding (m)	58	73	99	104
EPS - basic normalized ($)	(0.13)	(0.15)	(0.12)	(0.11)
EPS - diluted normalized ($)	(0.13)	(0.15)	(0.12)	(0.11)
EPS - basic reported ($)	(0.18)	(0.17)	(0.12)	(0.12)
Dividend ($)	0.00	0.00	0.00	0.00
BALANCE SHEET				
Fixed Assets	13,662.3	12,410.1	11,325.8	10,241.5
Intangible Assets	13,494.5	12,410.1	11,325.8	10,241.5
Tangible Assets	0.0	0.0	0.0	0.0
Investments & other	167.8	0.0	0.0	0.0
Current Assets	7,514.2	10,653.6	22,646.7	10,849.3
Stocks	0.0	0.0	0.0	0.0
Debtors	1,710.7	1,352.3	923.7	1,000.6
Cash & cash equivalents	5,433.9	8,764.0	21,185.7	9,311.4
Other	369.6	537.3	537.3	537.3
Current Liabilities	(1,900.3)	(5,067.5)	(3,494.2)	(3,651.5)
Creditors	(1,763.9)	(3,488.9)	(3,165.6)	(3,323.0)
Tax and social security	0.0	0.0	0.0	0.0
Short term borrowings	0.0	0.0	0.0	0.0
Other	(136.4)	(1,578.5)	(328.5)	(328.5)
Long Term Liabilities	(5,081.4)	(3,870.7)	(28,382.9)	(27,875.3)
Long term borrowings	0.0	0.0	(25,000.0)	(25,000.0)
Other long-term liabilities	(5,081.4)	(3,870.7)	(3,382.9)	(2,875.3)
Net Assets	14,194.8	14,125.6	2,095.3	(10,436.0)
Minority interests	0.0	0.0	0.0	0.0
Shareholders' equity	14,194.8	14,125.6	2,095.3	(10,436.0)
CASH FLOW				
Op Cash Flow before WC and tax	(7,365.3)	(10,776.8)	(11,433.6)	(11,954.7)
Working capital	352.9	1,669.1	(1,632.5)	(427.2)
Exceptional & other	298.2	298.2	487.7	507.6
Tax	0.0	0.0	0.0	0.0
Net operating cash flow	(6,714.2)	(8,809.5)	(12,578.4)	(11,874.3)
Capex	0.0	0.0	0.0	0.0
Acquisitions/disposals	0.0	0.0	0.0	0.0
Net interest	0.0	0.0	0.0	0.0
Equity financing	3,815.7	12,139.7	0.0	0.0
Dividends	0.0	0.0	0.0	0.0
Other	2,359.1	0.0	0.0	0.0
Net Cash Flow	(539.4)	3,330.2	(12,578.4)	(11,874.3)
Opening net debt/(cash)	(5,956.2)	(5,433.9)	(8,764.0)	3,814.3
FX	17.1	0.0	0.0	0.0
Other non-cash movements	0.0	0.0	0.0	0.0
Closing net debt/(cash)	(5,433.9)	(8,764.0)	3,814.3	15,688.6

Source: Kazia reports, Edison Investment Research.

Contact details	Revenue by geography
Three International Towers Level 24, 300 Barangaroo Avenue Sydney NSW 2000 Australia www.kaziatherapeutics.com/	N/A

Management team

CEO: Dr James Garner	Chairman: Iain Ross
Dr Garner is an experienced life sciences executive who has previously worked with companies ranging from small biotechs to multinational pharmaceutical companies such as Biogen and Takeda. His career has focused on regional and global development of new medicines from preclinical to commercialization. Dr Garner is a physician by training and holds an MBA from the University of Queensland. He began his career in hospital medicine and worked for a number of years as a corporate strategy consultant with Bain & Company before entering the pharmaceutical industry. Prior to joining Kazia in 2016, he led R&D strategy for Sanofi in Asia-Pacific and was based in Singapore. Dr Garner is a member of the Australian Institute of Company Directors.	Mr Ross is an experienced multinational pharmaceutical and biotechnology executive and is currently chairman of Redx Pharma (LON:REDX), Silence Therapeutics (LON:SLN) and Biomer Technology. During his career, he has held senior positions at multinational companies Sandoz, Hoffman La Roche and Celltech Group, and been a chairman, CEO and director of several biotech companies. He is a qualified chartered director and former vice chairman of the Council of Royal Holloway, London University. Mr Ross was appointed as a director of Kazia in July 2015 and is considered to be an independent director. He is a member of the Audit, Risk and Governance Committee and a member of the Remuneration and Nominations Committee.

Principal shareholders	(%)
Platinum Asset Management	9.60
Willoughby Capital	7.63
Anson Funds Management	5.81
Hishenk	1.96
Kilinwata Investments	1.95
Transform Wealth	1.12
Morgan Stanley	1.11

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