EDISON

Kazia Therapeutics

Pipeline update

GDC-0084 Phase II underway

Pharma & biotech

Kazia Therapeutics has initiated the dose optimisation lead-in component of the Phase II trial of GDC-0084 in glioblastoma, with initial data expected in Q119. Initial data from the Cantrixil ovarian cancer Phase I are due shortly. In January Kazia received a ~5% shareholding in Noxopharm (current market value ~A$4m) in return for collaborative support of that company's lead programme. We roll forward our DCF model and add in the Noxopharm shareholding, which increases our valuation to between A$73m and A$133m.

Year end	Revenue (A$m)	PBT* (A$m)	EPS* (c)	DPS* (c)	P/E (x)	Yield (%)
06/16	3.7	(11.6)	(28.4)	0.0	N/A	N/A
06/17	8.6	(10.9)	(22.8)	0.0	N/A	N/A
06/18e	13.2	(4.3)	(8.7)	0.0	N/A	N/A
06/19e	13.6	(7.2)	(14.4)	0.0	N/A	N/A

Note: *PBT and EPS are normalised, excluding exceptionals and share-based payments.

GDC-0084 Phase II lead-in underway

Kazia has initiated a Phase II study of its oral PI3K inhibitor GDC-0084 in recently diagnosed glioblastoma (GBM). Genentech's Phase I study of the drug was in sicker patients whose disease had relapsed after treatment, so Kazia's trial includes a lead-in component to test whether newly diagnosed patients can tolerate higher doses of the drug, before the randomised study begins. The open-label lead-in should provide an initial data readout in early 2019.

GDC-0084 is targeting an unmet need in GBM

The trial will test GDC-0084 in GBM patients who have an unmethylated O6-methylguanine methyltransferase (MGMT) promotor. This subgroup, which represents ~61% of GBM patients, is known to obtain little benefit from standard temozolomide chemotherapy. The clear unmet need in this patient group could open access to accelerated approval pathways and allow approval of GDC-0084 as early as 2023.

Phase I Cantrixil data this year

Kazia is expected to report the maximum tolerated dose (MTD) from the Phase I ovarian cancer study of Cantrixil in Q218. Potential efficacy signals from a 12-patient expansion cohort at the MTD are expected to readout later in 2018.

Valuation: Increased to A$73-133m in two scenarios

We have increased our indicative valuation range to A$73-133m or A$1.46-2.65 per share (vs A$69-127m, A$1.43-2.62 per share), under either post-Phase III approval or accelerated approval scenarios for GDC-0084. The valuation changes reflect rolling forward our DCF model and adding in the Noxopharm shareholding. Kazia had A$6.6m cash at 31 December 2017, and received an A$4.0m R&D rebate in February. We forecast current cash will be sufficient to fund operations into FY19, by which time preliminary Cantrixil data are likely to read out. We estimate the company may require A$6m of additional funding in FY19, part of which could be secured against the Noxopharm shareholding.

11 May 2018

Price	**A$0.72**
Market cap	**A$35m**
	A$/US$0.76
Net cash (A$m) at 31 December 2017	6.6
Shares in issue	48.4m
Free float	90%
Code	KZA
Primary exchange	ASX
Secondary exchange	NASDAQ

Share price performance

%	1m	3m	12m
Abs	(4.2)	53.3	32.7
Rel (local)	(2.9)	57.3	30.2
52-week high/low		A$0.78	A$0.34

Business description

Kazia Therapeutics is an ASX- and NASDAQ-listed biotechnology company. It is developing the PI3K/mTOR inhibitor GDC-0084 for brain cancer and Cantrixil for ovarian cancer. GDC-0084 was in-licensed from Genentech in 2016.

Next events

Cantrixil Phase I MTD identified	Q218
Cantrixil Phase I efficacy data	H218
GDC-0084 initial data readout	Q119

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Edison profile page

Kazia Therapeutics is a research client of Edison Investment Research Limited

Investment summary

Company description: Two novel classes of anti-cancer drugs

Kazia Therapeutics (formerly Novogen) is an Australian biotechnology company focused on oncology drug development. It is listed on both the ASX (ASX:KZA) and NASDAQ (NASDAQ:KZIA). The company is developing two classes of anti-cancer compounds: GDC-0084, a PI3K inhibitor licensed from Genentech and a third-generation benzopyran drug Cantrixil. A Phase II trial of GDC-0084 in GBM is underway, and a Phase I trial of Cantrixil in ovarian cancer is expected to report preliminary data in the current quarter. Kazia has de-emphasised its anti-tropomyosin (ATM) drug discovery programme, which is largely funded by a A$3m government grant. The company's product pipeline is summarised in Exhibit 1.

Exhibit 1: Kazia's product pipeline

Drug candidate	Indication	Stage	Next steps
GDC-0084	GBM	Phase II	Report initial data on GBM Phase II dose-optimisation lead-in component Q119.
Cantrixil	Ovarian cancer	Phase I	Preliminary Phase I data Q218. Potential efficacy signals from expansion cohort Q418.
Anti-tropomyosin	TBA	Discovery	

Source: Edison Investment Research

Valuation: A$73-133m, $1.46-2.65 per share

We value Kazia between A$73m and A$133m. Our base case valuation of A$73m assumes that GDC-0084 could be approved in 2026 after a confirmatory pivotal trial. Our alternative valuation of A$133m is for a scenario where GDC-0084 seeks potential accelerated approval in 2023 after the current Phase II trial is completed. Our base case valuation is equal to A$1.46/share, or A$1.47/share after diluting for options and convertible notes. Our valuation is based on a risk-adjusted NPV analysis, which includes net cash and our forecasts for GDC-0084 and Cantrixil, with probability of success of 10-25% to reflect the stage of development of each product.

Financials: Additional funds likely required in FY19

Kazia reported a profit of A$0.4m in H1 FY18 following the A$8m (mostly non-cash) legal settlement with Noxopharm. R&D expenditure for the period was A$4.7m, while SG&A (excluding D&A) was A$2.7m. We have increased forecast SG&A expenses (excluding D&A) by A$0.7m in both FY18 and FY19 but leave R&D expenditure unchanged at A$10.6m in FY18 and A$14.2m in FY19. Kazia had A$6.6m cash at 31 December 2017 and received an A$4.0m R&D rebate in February. We forecast current cash to be sufficient to fund operations into FY19, by which time preliminary Cantrixil data are likely to readout. We estimate the company may require A$6m of additional funding in FY19. Part of the FY19 funding requirement could be met by upfront payments if Cantrixil is out-licensed at the completion of the Phase I trial, while borrowing secured against the Noxopharm shareholding, or sale of the Noxopharm shares are another potential source of funds.

Sensitivities

The key sensitivities for Kazia will be funding risk and the success of its lead drugs in clinical trials. A key question will be whether GDC-0084 works sufficiently well as a single agent in GBM to justify filing for accelerated approval, or whether a confirmatory Phase III trial (possibly in combination with radiotherapy or temozolomide) will be required for approval. In our base case scenario, we assume that a confirmatory trial will be required to prove efficacy of GDC-0084, delaying potential launch until 2026 versus 2023 under an accelerated approval scenario. While Kazia initiated the lead-in component of the Phase II study of GDC-0084 in GBM, it would require additional funds of ~A$25m to complete the trial, which could result in significant dilution of existing shareholders.

Phase II trial of GDC-0084 in GBM underway

Kazia initiated a Phase II clinical study of GDC-0084 in March in patients with recently diagnosed GBM, an aggressive brain cancer. It had in-licensed the drug from Genentech in October 2016. GDC-0084 is an orally administered small molecule phosphoinositide 3-kinase (PI3K) inhibitor that targets an important growth signalling pathway in cancer cells. The drug was specifically developed to cross the blood-brain barrier and target GBM, which is an aggressive brain cancer with poor patient survival and for which there are few effective therapies.

Genentech conducted a Phase I trial of GDC-0084 in patients with advanced disease, which confirmed it readily crosses the blood-brain barrier and led to dose-dependent inhibition of tumour growth. Seven of the eight patients treated at the maximum tolerated dose of 45mg/day demonstrated levels of drug in the bloodstream that were associated with significant inhibition of tumour growth in preclinical models.

GBM: An aggressive brain cancer with few effective treatments

GBM is the most common and most aggressive primary malignant tumour of the brain and spinal cord. Approximately 11,500 patients are diagnosed with GBM each year in the US. GBM tumours are characterised by invasive and diffuse growth, which makes complete surgical removal difficult. Standard treatment for GBM entails surgical resection of the tumour followed by radiotherapy with concurrent chemotherapy with temozolomide (TMZ), followed by adjuvant chemotherapy with the same drug to treat the residual infiltrative component of the tumour. Despite this aggressive treatment the disease invariably returns, resulting in a five-year survival rate of only 5%.[1]

In February the US FDA granted GDC-0084 Orphan Drug Designation (ODD), which is accorded to drugs that are considered promising treatments for rare (orphan) diseases. ODD provides for a minimum of seven years of market exclusivity and provides opportunities for grant funding, protocol assistance and FDA fee waivers.

GDC-0084 Phase II begins with a dose optimisation lead-in

Genentech's Phase I study identified the MTD of GDC-0084 as 45mg/kg. This was conducted in very sick patients with late-stage disease and rapidly growing tumours whose disease had progressed despite having received one or more previous treatments.

In contrast, Kazia's Phase II study will be conducted in newly diagnosed (first-line) patients who have undergone surgery to remove the bulk of the tumour and a course of chemoradiotherapy to further reduce the tumour burden. As these recently-diagnosed patients are expected to be in better overall health, Kazia is testing whether they are able to tolerate higher doses of GDC-0084 in a lead-in study before it moves on to the randomised stage of the trial. The open-label dose optimisation lead-in will initially treat patients at 60mg/kg, the highest dose that Genentech tested in its study. Depending on the side effects observed, the dose could be either increased to 75mg/kg or decreased to 45mg/kg, the current MTD.

Once the MTD in first-line patients is identified, an expansion cohort of 10-12 patients will be treated at that dose. These patients will undergo intensive monitoring to better understand the pharmacokinetic and toxicity profile of the drug, including the effect on major organs including the heart.

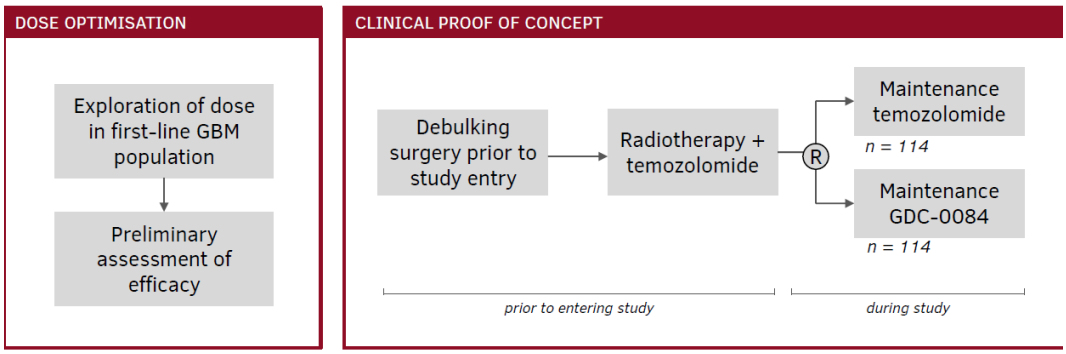
Patient monitoring will also include pharmacodynamic studies to confirm that the drug is having the desired pharmacological effects. These studies will likely include FDG-PET magnetic resonance

1 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.

imaging studies to determine whether the drug is affecting tumour metabolic activity in patients who have detectable tumours.

In parallel with the expansion cohort, Kazia will also investigate the effectiveness of alternative dosing regimens such as dosing every second day or four days on then three days off. These regimens could be considered as alternatives to dose reduction in patients who experience unacceptable drug toxicity at the MTD when it is administered every day. The trial design shown in Exhibit 2 was finalised in consultation with Kazia's clinical advisers after a constructive meeting with the US FDA in September. The randomised component of the Phase II study will compare maintenance therapy with GDC-0084 vs standard-of-care TMZ in recently diagnosed GBM patients who have undergone standard therapy of surgery to remove the bulk of the tumour and a course radiation therapy (XRT) combined with TMZ. After completing XRT, 228 patients will be randomised to receive maintenance therapy with either GDC-0084 or TMZ to treat residual tumour cells and delay recurrence of the disease. The study will target the 61% of GBM patients where tumour cells have an unmethylated MGMT promoter, as they receive only minimal benefit from treatment with TMZ and are in urgent need of more effective therapies.

Exhibit 2: Revised GDC-0084 Phase II design includes a lead-in study

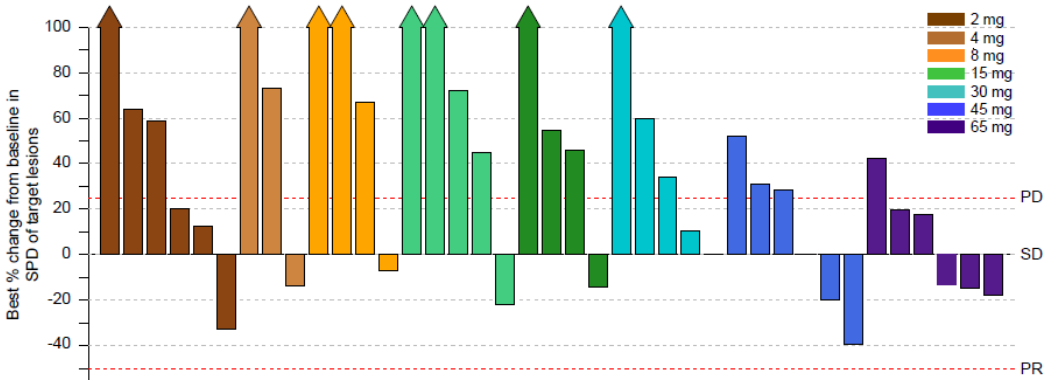


Source: Kazia 2017 AGM presentation

The open-label lead-in should provide an initial data readout in early 2019. As GDC-0084 is being used as an adjuvant therapy after the bulk of the tumour has been removed, many patients will not have measurable tumours at the start of the study, so they will not be able to be assessed for tumour response (shrinkage) according to the Response Assessment in Neuro-Oncology criteria. Therefore, the key criteria will be progression free survival (PFS) and overall survival (OS). FDG-PET responses will be assessed to see whether they are able to predict PFS or OS.

Exhibit 3 summarises the tumour responses for the patients in Genentech's Phase I study of GDC-0084, grouped by dose cohort. Although none of the patients reached the 50% reduction in tumour size that would qualify as a partial response, a dose response in tumour growth was apparent, with much less tumour growth in patients treated at 45mg (the MTD) or higher doses. The dose response shown in Exhibit 3 provides encouragement that a higher dose of GDC-0084 may improve efficacy, which would increase the overall chance of success in the Phase II study. In addition to the reduction in tumour growth, 26% of patients showed a metabolic partial response on FDG-PET.

Exhibit 3: GBM patients in Phase I trial showed a trend to better disease control at higher doses of GDC-0084



Source: Wen et al 2016 ASCO poster. Note: Maximum tolerated dose was identified as 45mg (blue bars).

Unmethylated MGMT promoter unlikely to affect GDC-0084

Kazia is trialling GDC-0084 as adjuvant therapy in newly diagnosed GBM patients where the promoter region of the MGMT gene is unmethylated. In a seminal study reported in 2005, Hegi et al[2] found that GBM patients with an unmethylated MGMT promoter received only minimal additional benefit when TMZ was added to radiotherapy in first-line treatment of newly diagnosed disease.

TMZ is an alkylating agent that adds a methyl group to purine bases of DNA, blocking DNA replication and leading to cell cycle arrest and apoptosis. MGMT can repair the DNA by removing the added methyl group, counteracting the cytotoxic effect of TMZ. Methylation of the MGMT promoter silences the gene, reducing MGMT activity in the cell and allowing TMZ to have its desired cytotoxic effect.

In contrast to TMZ, GDC-0084 blocks the PI3K signalling pathway, and does not interfere with DNA replication. Therefore, having an unmethylated MGMT promoter is not expected to interfere with the cancer-killing activity of GDC-0084. This is supported by preclinical studies performed by Genentech, which showed that GDC-0084 inhibited tumour growth in two different GBM tumour lines in which the MGMT promoter is unmethylated.

Accelerated approval could see GDC-0084 launched in 2023

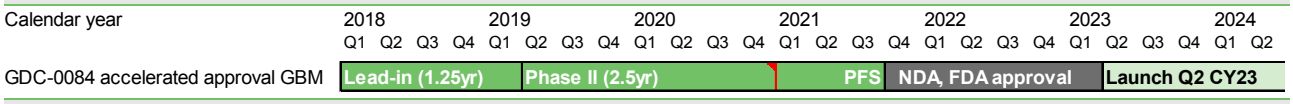
There are no effective therapies for GBM in those patients whose tumour cells have an unmethylated MGMT promoter. Therefore, if the Phase II trial shows a meaningful improvement in PFS or OS in these patients, there is a good prospect that it could be eligible to seek accelerated approval based on the Phase II data, rather than waiting for a standard approval after completing a confirmatory Phase III trial.

Because of this, we have evaluated timelines for an accelerated approval of GDC-0084 as well as approval following a Phase III trial, as we described in our report in December.

Exhibit 4 shows a potential scenario where GDC-0084 gains accelerated approval in GBM after demonstrating a statistically significant and clinically meaningful improvement in PFS, with a potential market launch in Q2 CY23.

2 Hegi et al *N Engl J Med* 2005;352(10):997-1003.

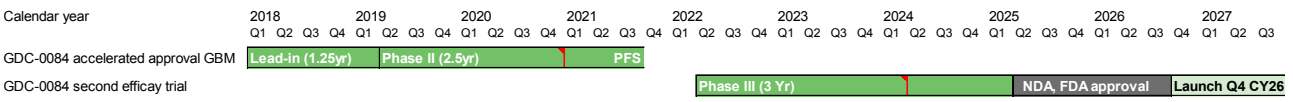
Exhibit 4: Assumed clinical trial and timeline for GDC-0084 accelerated approval



Source: Edison Investment Research

Under our second scenario, which assumes the results of the first Phase II trial indicate that GDC-0084 is efficacious against GBM, but that additional evidence from a second clinical trial is required before filing for approval, we forecast a potential market launch in Q4 CY26.

Exhibit 5: Assumed clinical trial and approval timeline for GDC-0084 under two-trial scenario



Source: Edison Investment Research

Background: PI3K and history of GDC-0084

PI3K is a promising target for GBM drug development

The PI3K signalling pathway plays a crucial role in cellular proliferation, metabolism, survival and apoptosis (programmed cell death). PI3K signalling is initiated by receptor tyrosine kinases or G-protein coupled receptors located at the cell surface, and by some oncogenic proteins such as Ras.

The PI3K pathway is frequently over-activated in cancer. The over-activation can occur through a variety of mechanisms including mutation and amplification of genes in the pathway, or by loss of function of the tumour suppressor PTEN, which is a negative regulator of PI3K signalling. Abnormal PI3K signalling is associated with over 80% of cases of the GBM.[3]

The first approved cancer drugs that target the PI3K pathway were the rapamycin analogues everolimus and temsirolimus, which inhibit mTORC1. The PI3K inhibitor idelalisib (Zydelig, Gilead Sciences) was first approved by the FDA in 2014 and is approved to treat several types of leukaemia and lymphoma. Idelalisib is a selective inhibitor of the delta isoform of PI3K (PI3Kδ). A second PI3K inhibitor copanlisib (Aliqopa, Bayer) was approved for treating lymphoma in September 2017. The approval of these two drugs provides validation for PI3K as a target for anticancer drug development.

In March 2016, Gilead halted six combination trials of idelalisib in newly diagnosed patients due to serious side effects including deaths from infections. Idelalisib inhibits PI3Kδ, and this affects the immune system. In contrast, GDC-0084 most strongly inhibits PI3Kα and also inhibits mTOR, and has not caused similar toxic side effects in clinical trials.

As far as we are aware, Kazia is the only company that is developing a PI3K inhibitor in GBM. Novartis has previously trialled its pan-PI3K inhibitor buparlisib (BKM120) in a 76-patient Phase II study in GBM in combination with Avastin. The tumour response rate in that study was 6% (1/17) in patients who had undergone prior Avastin therapy and 36% (18/50) in patients who had not previously been treated with Avastin. However, in a Phase III study in breast cancer the drug was found to be effective but was considered too toxic to warrant further development, and buparlisib is not listed in Novartis's current research pipeline. Novartis is instead studying the PI3Kα inhibitor alpelisib (BYL719) in a Phase III study in breast cancer patients with mutations in the PIK3CA gene, but is not trialling alpelisib GBM.

3 The Cancer Genome Atlas Research Network. Comprehensive genomic characterization defines human GBM genes and core pathways. Nature 2008, 455, 1061−1068.

Cantrixil Phase I is expected to identify MTD in Q218

The Phase I study of Kazia's third-generation benzopyran drug Cantrixil in ovarian cancer, which began in December 2016, is expected to report the MTD in Q2 CY18. Once the MTD has been identified, an expansion cohort of 12 additional ovarian cancer patients will be treated at the MTD.

While the primary purpose of the trial is to demonstrate safety and tolerability, patients will also be assessed for tumour responses. A readout of potential efficacy signals is expected later in CY18. The US FDA has granted Cantrixil orphan drug status for ovarian cancer.

Cantrixil is being administered as an intraperitoneal (IP) therapy delivered directly into the abdominal cavity. IP administration delivers higher concentration of the drug to the site of the tumour for longer periods, and studies of advanced ovarian cancer patients have shown a survival benefit for IP delivery compared to intravenous administration of chemotherapy drugs.

Researchers at Yale University have shown that Cantrixil is active in a stringent, clinically relevant rodent model of human ovarian cancer. Cantrixil is the first drug to show uniformly high potency against the Yale library of ovarian cancer stem cells collected from tumours that had stopped responding to chemotherapy.

High unmet need in ovarian cancer

Ovarian cancer accounts for 22,400 new cases and 14,100 deaths in the US each year, with a five-year survival rate of 47%. Worldwide there are an estimated 239,000 new cases and 152,000 deaths annually according to the International Agency for Research on Cancer with the highest rates coming from developed countries. The majority of those diagnosed already have distant metastases, which is associated with a 28.9% five-year survival rate (see Exhibit 6).

Exhibit 6: Ovarian cancer statistics

Stage	% of cases	Five-year survival
Localised (confined to primary site)	15	92.5%
Regional (spread to regional lymph nodes)	20	73.0%
Distant (metastatic)	60	28.9%
Unknown	6	25.1%

Source: National Cancer Institute, Surveillance, Epidemiology and End Results Program

Patients who present with ovarian cancer are typically treated with surgery followed by a platinum based chemotherapy (such as paclitaxel and carboplatin). Unfortunately, around 70% of patients relapse in the first three years following therapy[4], although this figure is expected to improve, especially among the 10% of ovarian cancer patients with BRCA mutations, with the approval of the PARP inhibitor niraparib by the FDA as a maintenance therapy. PARP inhibitors are also used in those with BRCA mutations in later lines of therapy.

The situation is dire for patients who are platinum refractory or who become platinum resistant (a condition that eventually occurs in all surviving platinum-sensitive patients following repeated platinum courses). The current standard of care for platinum resistant or refractory patients is either PEGylated lysosomal doxorubicin (FDA approved in 1999) or topotecan (FDA approved in 1996), both of which typically have shown a response rate of 10-15%, PFS of approximately 3.5 months and overall survival of 12 months in large trials[5]. This segment of the ovarian cancer population continues to be an unmet medical need and would likely be a key target for Cantrixil.

[4] Newly diagnosed and relapsed epithelial ovarian carcinoma, *Annals of Oncology* 24 (Supplement 6): vi24–vi32, 2013

[5] Luvero et al., Treatment options in recurrent ovarian cancer: latest evidence and clinical potential. *Therapeutic Advances in Medical Oncology*. 2014 Sep;6(5):229-39.

Kazia acquires Noxopharm shares in exchange for info and IP

In December Kazia reached agreement with Noxopharm (ASX:NOX) to provide certain technical information to support the development of Noxopharm's lead programme, and released Noxopharm from future claims by Kazia against the intellectual property associated with that programme.

In exchange, Kazia was issued ~4.9% of Noxopharm's stock (5.3m shares) and 3m unlisted options over NOX stock that expire in January 2020 and are exercisable at A$0.80 per share. The securities had an estimated market value of ~A$6.5m when they were issued in January, and the shares are subject to voluntary escrow until June.

The current CEO of Noxopharm, Dr Graham Kelly, was formerly chairman and CEO of Kazia (then known as Novogen), and resigned from the company in July 2015.

Based on the NOX share price of A$0.83 on 4 May, the current market value of the 5.3m NOX shares is A$4.4m. Once the escrow agreement expires in June, Kazia would have the option of raising funds through the sale of the shareholding or through a loan secured against the shares.

Anti-tropomyosin programme de-emphasised

In February 2017, Kazia was awarded a grant of up to A$3m over three years by the Australian government to develop next-generation anti-tropomyosin (ATM) therapies for cancer treatment. Kazia is the lead partner in the collaboration that also involves the University of New South Wales and the privately held CRO, ICP Firefly. Kazia was expected to contribute A$1m and the University of New South Wales to contribute A$0.3m to funding the project.

For the time being Kazia has suspended investment into discovery research, including the next-generation ATM programme, as it focuses its resources on GDC-0084 and Cantrixil.

Out-licensed preclinical benzopyran programme to HBLS

As part of its strategy to focus on clinical development programmes, in November Kazia out-licensed its preclinical benzopyran and ad-het programmes, including Trilexium, to Heaton-Brown Life Sciences (HBLS). Kazia retains a commercial interest in the preclinical assets, through a 10% shareholding in HBLS plus milestone and royalty payments linked to successful development. Kazia retains all rights relating to Cantrixil, and the agreement prevents the development of Trilexium as a therapy for ovarian cancer.

HBLS is a private company established by Dr Andrew Heaton and Dr David Brown, who are both former employees of Kazia and co-founders of the Triaxial technology that underpinned the third generation-benzopyran and ad-het programmes. We do not know whether HBLS has the necessary financial resources to pursue clinical development of the benzopyran programme.

Valuation

We have revised our valuation of Kazia to include the current market value of the Noxopharm shareholding, and have rolled forward the DCF model in time, including switching to end FY18e cash balance. When calculating value per share we have taken in to account the A$1.25m of shares that will be payable to the Glioblast vendors when the first patient is dosed in the Phase II trial.

We have valued GDC-0084 under two different development scenarios for GBM – in addition to our base case valuation, which assumes market launch in 2026 following completion of a Phase III trial, we have valued GDC-0084 assuming accelerated approval with a launch in 2023.

As a result of these changes, our base case valuation of Kazia has increased to A$73m (previously A$69m) or A$1.46/share undiluted (vs A$1.43 per consolidated share) and A$1.47/share after diluting for options and convertible notes. Note that the per-share value does not account for the Glioblast milestone payment (A$1.25m of shares) potentially payable in FY21 on successful completion of Phase II. Kazia is also listed on NASDAQ under the code KZIA, with each NASDAQ-listed ADR representing 10 ordinary shares. Our undiluted base case valuation equals US$11.10 per ADR at current exchange rates.

Our base case valuation assumes a 40% likelihood that GDC-0084 is out-licensed to a marketing partner in 2021 after reporting positive PFS data from the Phase II trial, in a deal that includes US$20m upfront and US$120m in clinical and regulatory milestone payments. We also assume that Kazia pays a royalty of 10% of net sales to Genentech and that global sales for GBM reach US$1,050m in 2030.

Our valuation is based on a risk-adjusted discounted cash flow model. Our cash flow forecasts extend to 2035, but do not include any terminal valuation and apply a 12.5% discount rate. In calculating the diluted NPV/share, we assume that the A$0.5m remaining balance of the Triaxial convertible note is converted to 1.9m shares on completion of Phase II trials in 2021 (the A$1.5m convertible note was issued as part of the purchase of Triaxial and its third-generation benzopyran technology, A$0.9m was converted in H117, A$0.14m was extinguished as part of the settlement with Noxopharm).

Exhibit 7 shows our base case market assumptions for GDC-0084 and Cantrixil and the contribution of product royalties and milestone payments to the rNPV, which have not changed since our last note. We have offset the risk-adjusted trial cost against milestone revenue for each drug, rather than against royalty revenue. This understates the contribution of the milestone payments to the rNPV and overstates the contribution of royalties.

Exhibit 7: Kazia base case valuation (assumes confirmatory GDC-0084 pivotal trial required)

	Likelihood (%)	rNPV (A$m)	rNPV/ share (A$)	Assumptions
GDC-0084; GBM	25%	16.0	$0.32	Global peak sales* of US$1,050m from GBM (11,500 US cases/year, 61% unmethylated MGMT promoter, 80% penetration); pricing of US$50k. Global sales 2x US sales; launch 2026; assumes receives 15% royalty on sales, pays away 10% of royalty to Genentech.
GDC-0084; brain metastases in HER2+ breast cancer	20%	6.7	$0.13	Global peak sales of US$570m (233,000 US breast cancer cases/year, 37% HER2+, 7% develop brain metastases, 50% penetration); pricing of US$50k. Global sales 2x US sales; launch 2026; assumes receives 15% royalty on sales, pays away 10% of royalty to Genentech.
Ovarian and other abdominal cancers: Cantrixil	10%	25.9	$0.52	Global peak sales of US$680m from ovarian cancer (14,300 US deaths/year, 30% penetration) and bowel cancer (50,300 US deaths, 25% develop malignant ascites, 20% penetration); pricing of US$50k. Global sales 2x US sales; launch 2025; assumes receives 15% royalty on sales, pays away 5% of revenue to Yale.
GDC-0084 milestones		9.4	$0.19	Assumes potential licensing upfronts and milestones total US$140m (US$127m net of payments to Glioblast and Genentech; US$38m after risk adjustment).
Cantrixil milestones		17.0	$0.34	Assumes potential licensing upfronts and milestones total US$140m (US$23m after risk adjustment); assumes 5% of upfront and milestone payment paid away to Yale.
SG&A		-9.4	-$0.19	
Portfolio total		**65.6**	**$1.31**	
Noxopharm shares market value		4.1	$0.08	
Cash (30 June 2018)		3.6	$0.07	
Enterprise total		**73.3**	**$1.46**	

Source: Edison Investment Research. Note: *Peak sales in actual dollars in forecast year. We assume that the addressable markets grow at 4% per year. Launch dates listed are calendar years (in some cases the launch will be in the following financial year to the calendar year stated).

We have also valued Kazia under an alternative accelerated approval scenario for GDC-0084, which assumes a market launch in 2023 and that Kazia receives a higher 20% royalty rate and a larger US$40m upfront payment because the data are ready for filing, with other deal terms the same as for the post-Phase III approval base case scenario. Exhibit 8 shows that accelerated

approval for GDC-0084 would increase our valuation for Kazia to A$133m (previously A$127m) or A$2.65/share (undiluted).

Exhibit 8: Kazia valuation in GDC-0084 accelerated approval scenario

	Likelihood (%)	rNPV (A$m)	rNPV/ share (A$)	Assumptions
GDC-0084 – GBM	25%	60.3	$1.20	As per Exhibit 7, except 2023 launch (vs 2026) and 20% gross royalty on sales (vs 15%).
GDC-0084 – brain metastases in HER2+ breast cancer	20%	13.3	$0.27	As per Exhibit 7, except 20% gross royalty on sales (vs 15%).
GDC-0084 milestones		18.3	$0.37	Assumes potential licensing upfronts and milestones total US$160m (US$147m net of payments to Glioblast and Genentech; US$48m after risk adjustment). Milestones received earlier than base case (final milestone in 2023 vs 2026).
GDC-0084 total		**91.9**	**$1.83**	
Remainder of portfolio		33.5	$0.67	
Portfolio total		**125.4**	**$2.50**	
Noxopharm shares market value		4.1	$0.08	
Cash (30 June 2018)		3.6	$0.07	
Enterprise total		**133.1**	**$2.65**	

Source: Edison Investment Research. Note: Launch dates listed are calendar years.

Sensitivities

The key sensitivity for Kazia will be the success of its two lead drugs in clinical trials. A crucial question regarding GDC-0084 will be whether it works sufficiently well as a single agent in adjuvant therapy to justify accelerated approval. If it needs to be used concurrently with radiotherapy or with TMZ to deliver sufficient efficacy in GBM then one or more additional efficacy trials may be required, as outlined in our base case scenario, delaying potential launch until 2026 vs 2023 under an accelerated approval scenario. There is also a significant risk that GDC-0084 may not provide sufficient survival benefit to justify approval either as a single agent or combination therapy.

While Kazia has initiated the lead-in component of the Phase II study of GDC-0084 in GBM, we estimate that it would require additional funds of ~A$25m to complete the randomised Phase II component of the trial. This could result in significant dilution of existing shareholders given the current market capitalisation of ~A$35m.

Our valuation includes revenues from the development of two drugs in four disease indications, as well as (risk-adjusted) upfront and milestone payments for two licensing deals. While each of these targeted indications is supported by the current preclinical efficacy studies and evidence of a dose response in the GDC-0084 Phase I trial, the company may not ultimately pursue development of the drugs for all of these indications. On the other hand, ongoing preclinical efficacy studies could identify additional disease indications that should be investigated in clinical trials. While we believe the drug development timelines used in our forecasts are achievable, at this early stage it is hard to accurately predict how long it will take to get the drugs to market.

Financials

Kazia reported a profit of A$0.4m in H1 FY18 following the A$8m (mostly non-cash) legal settlement with Noxopharm. R&D expenditure for the period was A$4.7m, while SG&A (excluding D&A) was A$2.7m. We have revised our financial forecasts to include the Noxopharm settlement, and have increased SG&A (excluding D&A) by A$0.7m in both FY18 and FY19 to A$5.0m and A$4.9m, respectively). Our forecast R&D expenditure is unchanged at A$10.6m in FY18 and A$14.2m in FY19. Kazia had A$6.6m cash at 31 December 2017 and received an A$4.0m R&D rebate from the Australian government in February. We forecast cash to be sufficient to fund operations into FY19, by which time preliminary Cantrixil data are likely to readout. We estimate that the company may require A$6m of additional funding in FY19, which we show as illustrative long-term debt. Part of

the FY19 funding requirement could be met by upfront payments if Cantrixil is out-licensed at the completion of the Phase I trial, while borrowing secured against the Noxopharm shareholding, or sale of the Noxopharm shares are other potential sources of funds. Note that we include unrisked clinical trial costs in our financial forecasts to show the potential funding requirement if the clinical trial programme is conducted in line with our expectations (trial costs risk-adjusted for NPV calculation).

Exhibit 9: Financial summary

A$'000s	2015	2016	2017	2018e	2019e
Year end 30 June	AASB	AASB	AASB	AASB	AASB
PROFIT & LOSS					
Sales, royalties, milestones	0	0	0	0	9,250
Other (includes R&D tax rebate)	1,637	3,665	8,563	13,199	4,309
Revenue	1,637	3,665	8,563	13,199	13,559
R&D expenses	(5,935)	(9,894)	(11,136)	(10,632)	(14,211)
SG&A expenses	(3,269)	(4,343)	(7,580)	(5,008)	(4,899)
Other	0	0	0	0	0
EBITDA	(7,567)	(10,572)	(10,153)	(2,441)	(5,551)
Operating Profit (before GW and except.)	(7,572)	(10,671)	(10,271)	(2,841)	(5,839)
Intangible Amortisation	(570)	(1,320)	(82)	(1,592)	(1,433)
Exceptionals	1,116	(569)	0	0	0
Operating Profit	(7,026)	(12,560)	(10,353)	(4,433)	(7,272)
Net Interest	(280)	406	(516)	145	36
Profit Before Tax (norm)	(8,422)	(11,586)	(10,869)	(4,288)	(7,236)
Profit Before Tax (reported)	(7,306)	(12,154)	(10,869)	(4,288)	(7,236)
Tax benefit	0	0	199	0	0
Profit After Tax (norm)	(8,422)	(11,586)	(10,670)	(4,288)	(7,236)
Profit After Tax (reported)	(7,306)	(12,154)	(10,670)	(4,288)	(7,236)
Average Number of Shares Outstanding (m)	23.8	42.7	46.8	49.2	50.2
EPS - normalised (c)	(29.94)	(28.44)	(22.81)	(8.71)	(14.42)
EPS - diluted	(29.94)	(28.44)	(22.81)	(8.71)	(14.42)
Dividend per share (A$)	0.0	0.0	0.0	0.0	0.0
BALANCE SHEET					
Fixed Assets	1,491	1,427	16,430	23,563	21,943
Intangible Assets	1,390	822	15,918	14,327	12,894
Tangible Assets	85	592	490	1,440	1,252
Investments	16	13	22	7,797	7,797
Current Assets	44,649	34,090	19,480	8,439	7,832
Stocks	0	0	0	0	0
Debtors	151	199	4,263	4,115	4,438
Cash	44,371	33,453	14,455	3,561	2,631
Other	127	438	763	763	763
Current Liabilities	(1,777)	(1,432)	(5,384)	(5,384)	(3,974)
Creditors	(1,619)	(1,300)	(1,873)	(1,873)	(463)
Short term borrowings	0	0	0	0	0
Other	(159)	(132)	(3,512)	(3,512)	(3,512)
Long Term Liabilities	0	(154)	(5,188)	(5,188)	(11,188)
Long term borrowings	0	0	0	0	(6,000)
Other long term liabilities	0	(154)	(5,188)	(5,188)	(5,188)
Net Assets	44,362	33,931	25,338	21,430	14,612
CASH FLOW					
Operating Cash Flow	(5,759)	(12,383)	(11,683)	(9,688)	(6,866)
Net Interest	0	405	248	145	36
Tax	0	0	0	0	0
Capex	(97)	(525)	(20)	(1,350)	(100)
Acquisitions/disposals	8	3	(7,097)	0	0
Equity Financing	47,415	782	(18)	0	0
Dividends	0	0	0	0	0
Other	0	0	0	0	0
Net Cash Flow	41,566	(11,719)	(18,570)	(10,894)	(6,930)
Opening net debt/(cash)	205	(44,371)	(33,453)	(14,455)	(3,561)
HP finance leases initiated	0	0	0	0	0
Other	3,011	800	(429)	0	0
Closing net debt/(cash)	(44,371)	(33,453)	(14,455)	(3,561)	3,369

Source: Kazia Therapeutics accounts, Edison Investment Research

Contact details	Revenue by geography
Level 24 Three International Towers 300 Barangaroo Ave Sydney, NSW Australia Tel: +61 2 9472 4101 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 commercialisation. 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.	Iain has held senior positions in Sandoz, Fisons, Hoffmann-La Roche and Celltech Group and also undertaken a number of start-ups and turnarounds on behalf of banks and private equity groups. His track record includes multiple financing transactions having raised in excess of £300m, both publicly and privately, as well as extensive experience of divestments and strategic restructurings. He has over 20 years' experience in cross-border management as a chairman and CEO. He is chairman of e-Therapeutics (LSE:ETX), Redx Pharma (LON:REDX) and Biomer Technology.

Principal shareholders at June 2017	(%)
HSBC Custody Nominees	35.6
Hishenk	5.6

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