NOVOGEN

Novogen Limited

An emerging oncology drug developer with two clinical-stage programs

ASX NRT

Nasdaq NVGN

April 2017

Forward-Looking Statements

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Corporate Overview | Novogen's Transformation

Enhanced Pipeline

GDC-0084 in-licensed from Genentech in October 2016

- Under development for Glioblastoma (primary brain cancer)
- Completed phase I human trial in 47 patients
- Phase II human trial to start in 2017
- Open IND with US FDA, strong IP protection, and premanufactured API

TRXE-002-1 developed from pre-existing Novogen research

- Under development for ovarian cancer
- Phase I human trial currently underway in Australia and US

Strengthened Team

New senior management with extensive international industry experience

Global Scientific Advisory Board of eminent cancer research specialists

Focused Strategy

Accessing the best global innovation available

- Bring in programs with some of the risky, time-consuming work already done
- Partner with big pharma for expensive and labour-intensive late-stage development and commercialisation

Management | Experienced New Management Team

Dr James Garner
Chief Executive Officer & Managing Director

Physician / MBA; Extensive pharma drug development experience

Dr Gordon Hirsch
Chief Medical Officer

Physician / MBA; Twenty years of pharmaceutical industry experience

Dr Peng Leong
Chief Business Officer

Eighteen years of business development and investment banking experience

Kate Hill
Company Secretary

Chartered accountant, and former audit partner at Deloitte

Expertise | Global Scientific Advisory Board

Professor Sir Murray Brennan

New York

Memorial Sloan Kettering Cancer Center

- Chairman Emeritus of Department of Surgery at MSKCC
- Former Vice President of American College of Surgeons

Dr Karen Ferrante

Boston

Takeda MILLENNIUM THE TAKEDA ONCOLOGY COMPANY

- Former Chief Medical Officer at Millennium
- Contributed to multiple novel cancer therapies including Velcade® (bortezomib)

Professor Peter Gunning

Sydney

UNSW AUSTRALIA

- Head of School of Medical Sciences at UNSW
- Extensively published cancer researcher and academic

Professor Alex Matter

Singapore

NOVARTIS PHARMACEUTICALS

- Former head of oncology research at Novartis
- Led team that discovered Gleevec® (imatinib), one of the first targeted therapies for cancer

Strategy | Accelerating Value Realisation

Identify Value

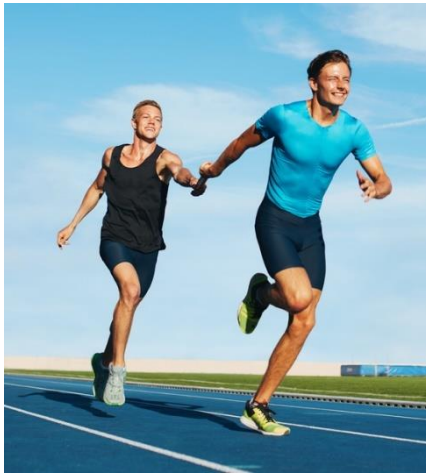
- Bring in under-valued assets from other pharmaceutical companies

Build Value

- Conduct focused clinical trials
- Identify optimal patient groups
- Understand safety and dosing
- Engage with external experts

Realise Value

- Partner with big pharma for late-stage development to bring to market



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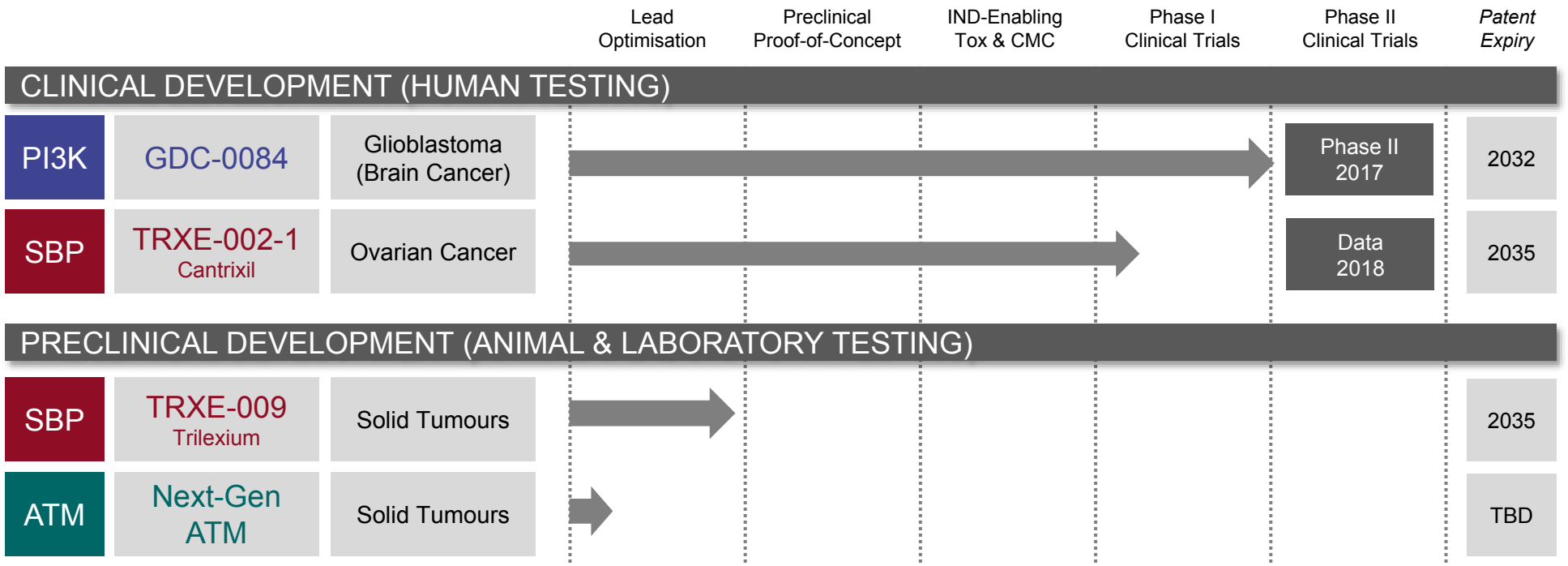
Proceeds of outbound licensing reinvested in earlier-stage assets

Reduce cycle time: 2-4 years to get to value inflection

Improve portfolio strength: access the best global innovation

Mitigate risk: bring in assets which already partially de-risked

Portfolio | Diversified Pipeline – Two Assets in Human Trials

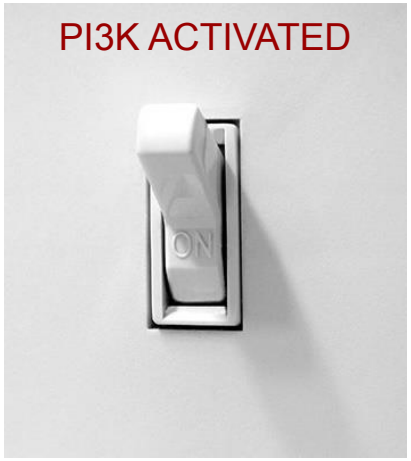


GDC-0084 | How it Works

PI3K

A central biochemical control mechanism in the growth of cells

PI3K ACTIVATED

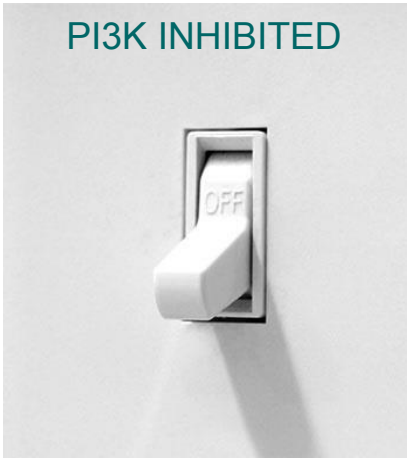


TUMOUR GROWTH

85 – 90% of glioblastoma cases have PI3K 'switched on'

>50% of patients at therapeutic doses (45-65mg) in phase I human trials achieved 'stable disease'

PI3K INHIBITED



TUMOUR INHIBITION

GDC-0084 **switches off** PI3K activation, arresting growth of tumour cells

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Comparators | US-based PI3K Companies

Other companies focused on the PI3K technology have achieved value recognition in the market

Infinity PHARMACEUTICALS	Single asset company with one PI3K inhibitor in phase I human trials	**US$ 122 million** Market Cap
TG Therapeutics	One PI3K inhibitor in phase II human trials, one other drug in phase III, and two in animal testing	**US$ 600 million** Market Cap
Calistoga Pharmaceuticals	One PI3K inhibitor in phase II human trials	Acquired by big pharma in 2011 for **US$ 375 million**

GDC-0084 | What Makes it Different

One PI3K inhibitor is already a marketed drug, providing validation for the approach

GILEAD

Others PI3K inhibitors are in human trials against a wide range of cancer types

GDC-0084 inhibits all the four main types of PI3K, whereas Zydelig mainly targets just one type

GDC-0084 is able to cross the blood-brain barrier, which most PI3K inhibitors cannot

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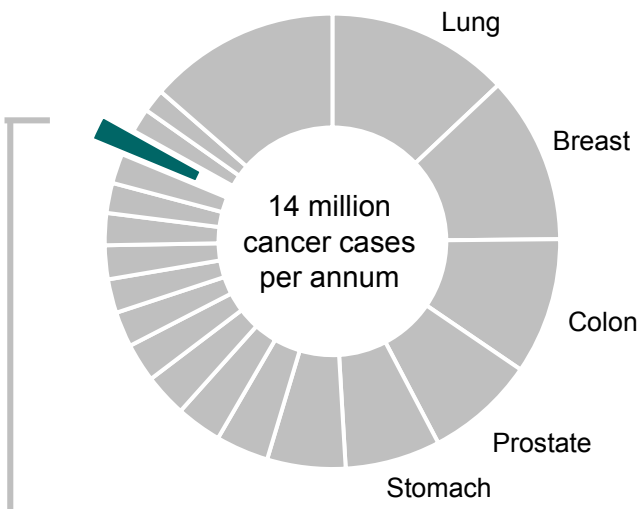
GDC-0084 | Unmet Need in Brain Cancer



Glioblastoma Multiforme

133,000 cases per annum worldwide

Indicative Market Opportunity

US$ 1 billion

No clear cause

or strong risk factors

3-4 months

untreated survival

12-15 months

average survival with treatment

Any age, but most common in

60s

Five-year survival

3 – 5%

(breast cancer: 90%)

Most common drug treatment is temozolomide (Temodar®), used after surgery and radiotherapy

Ineffective in approximately two-thirds of patients

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GDC-0084 | Promising Human Trial Data

Safety

- Phase I safety trial conducted by Genentech
- 47 patients enrolled with advanced brain cancer
- Most common adverse events were mouth ulcers and increase in blood sugar (common effects of PI3K inhibitors)
- No evidence of liver, bone marrow, kidney toxicity, or mood disturbances
- Data presented at American Society for Clinical Oncology annual meeting in Chicago, June 2016

Efficacy Signals

	GDC-0084	Comparison
Arresting Tumour Growth	**40%** Achieved 'stable disease'	**21-52%** in studies of Avastin in similar patients
Potentially Delaying Progression	**21%** Remained on study for >3 months	Median progression-free survival of **1 month**
Slowing Tumour Activity	**26%** Showed 'metabolic partial response'	Potentially better predictor of clinical response than MRI

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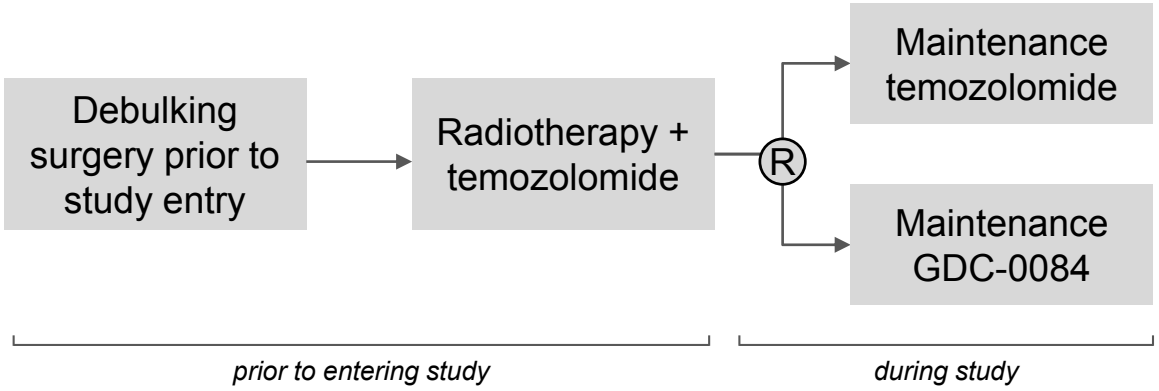
GDC-0084 | Phase II Study Starting 2H 2017

Phase II study design to target first-line patients, following surgery and radiotherapy



Patients in United States, Australia and other countries, under oversight of US Food & Drug Administration under an open IND

Will target patients who are resistant to temozolomide (approximately two-thirds of glioblastoma patients)

Commencement:	Duration:	Number of patients:
2H 2017 (Jul – Dec 2017)	approx. **2.5 years**	approx. **200** (100 per arm)

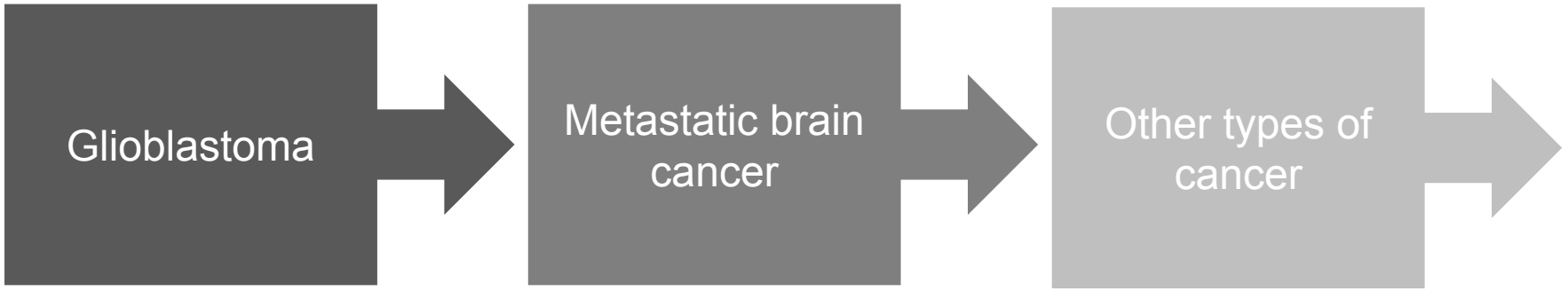
Regulatory Strategy

- Study will be designed to provide robust evidence of clinical efficacy using progression-free survival (PFS) as primary endpoint
- FDA provides a mechanism for promising drugs in diseases with high unmet need to receive 'accelerated approval' prior to completion of a definitive phase III study. Avastin (bevacizumab) was approved for recurrent GBM in this way
- Novogen hopes to discuss potential for accelerated approval with FDA after completion of phase II

GDC-0084 | Longer-Term Expansion Opportunities

Novogen's Core Focus

Potential Opportunity for Future Partners



- Best opportunity to run a focused clinical program
- Fastest path to market

- Up to 10 times as many patients as glioblastoma
- Potential to expand use of GDC-0084 after a successful launch in glioblastoma

- 'Blue sky' potential
- PI3K inhibitors have potential to treat many types of cancer

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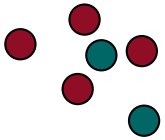
TRXE-002-1 (Cantrixil) | How it Works

Tumor

cancer stem cells
daughter cells

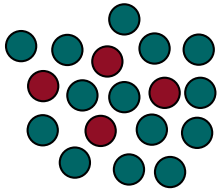
Ovarian cancer tumours contain a mixture of different cell types

Chemo-therapy



Chemotherapy is not very active against 'cancer stem cells'

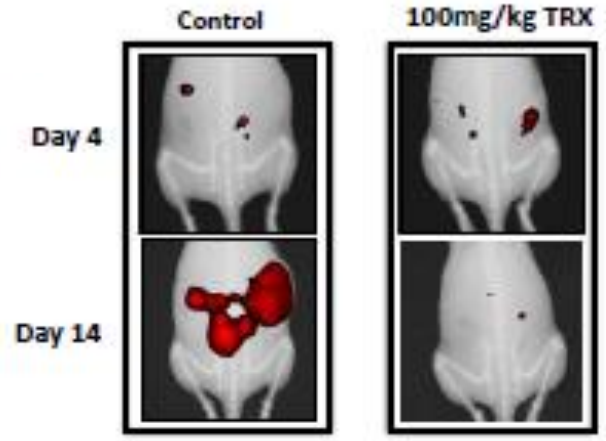
Recurrence



Cancer stem cells important to tumour recurrence and resistance

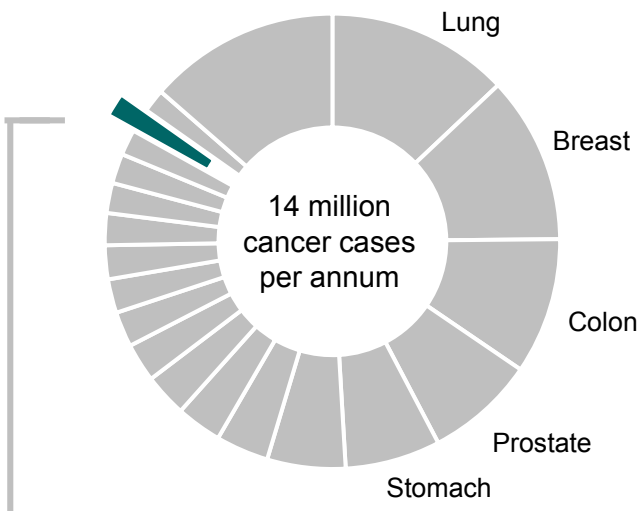
TRXE-002-1 is active against both regular cancer cells and cancer stem cells, and may therefore help to prevent recurrence

Mouse Model



Yale | *Data courtesy of Prof Gil Mor, Yale University*

TRXE-002-1 | Unmet Need in Ovarian Cancer



Ovarian Cancer

239,000 cases per annum worldwide

Indicative Market Opportunity

US$ 1.5 billion

Cause of death for **1 in 100** women

>60% of patients have disease spread at diagnosis

10% of cases are primarily genetic in origin

80% of patients are over 50 years of age

Five-year survival **45%** (breast cancer: 90%)

Chemotherapy only curative in ~20% of ovarian cancers

More than half of patients with advanced disease will recur within 1-4 years

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TRXE-002-1 | Significant Progress in 12 Months

✓ **Key Milestone**: Target of IND application in August 2016 was announced in May 2016

✓ **Key Milestone**: Target of First Patient In by end of 2016 was announced in Feb 2016

Feb – Jul 2016

- Conduct of IND-enabling CMC and toxicology studies

Aug – Sep 2016

- Review of Investigational New Drug (IND) Application by US FDA, with successful approval after 30 day review period

Oct – Nov 2016

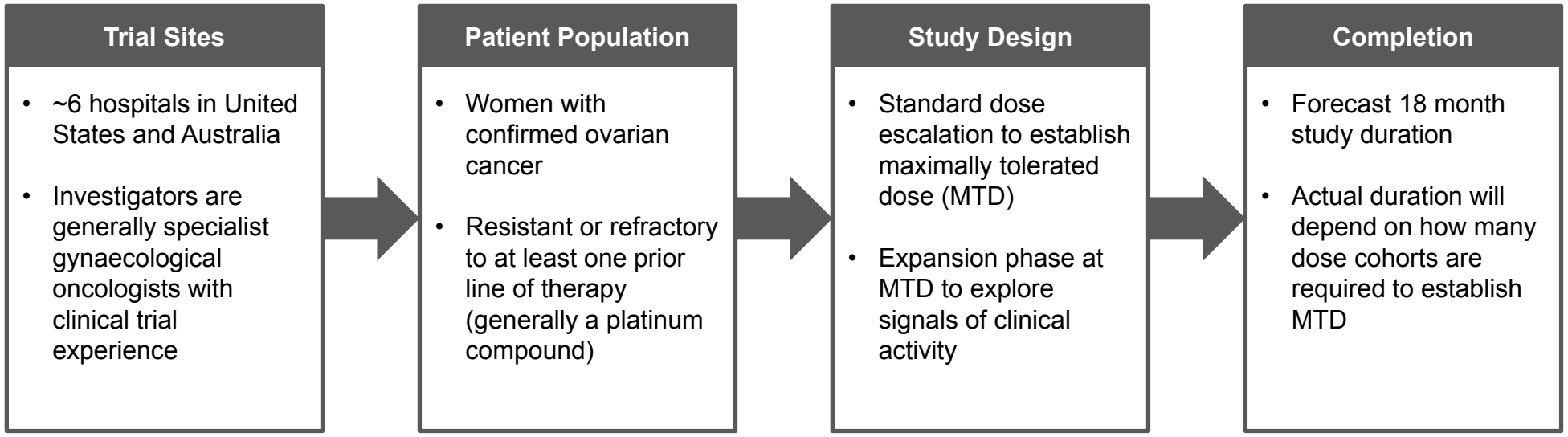
- Activation of clinical sites
- Shipping of study drug to warehouses and sites
- Preliminary identification of eligible patients

Dec 2016 onwards

- Recruitment of ovarian cancer patients into study

Data Anticipated **1H 2018**

TRXE-002-1 | Human Clinical Trials Started in December 2016



Study performed under Investigational New Drug (IND) application with United States Food & Drug Administration (FDA) – provides careful validation and supports eventual product approval in United States

In addition to standard efficacy measures (via CT scan), study will measure exploratory biomarkers to seek signals of clinical activity

Laboratory Research | Reprioritisation of ATM Projects

ATM-3507 (Anisina)

Program Terminated – April 2017

- Under development since 2013
- Novel approach to targeting the structural components of cancer cells, based on research from UNSW
- Animal studies showed unfavourable balance of activity and toxicity
- Funding and resources internally reallocated to other programs

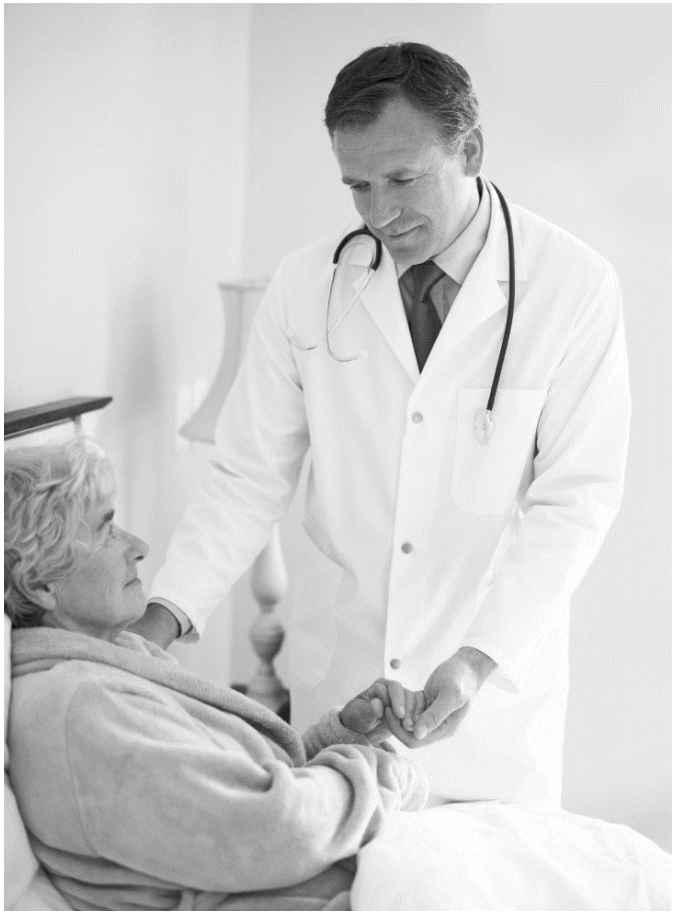
Next-Generation ATM Program

Competitive CRC-P Grant Awarded – Feb 2017

- New approach to targeting structural components of cancer cells
- Aims to avoid challenges seen with older programs
- First drug development program to be awarded competitive CRC-P Grant by Federal Government
- Grant provides $3 million of funding over three years, on top of $1 million from Novogen

Milestones | Rich Series of Value-Driving Activities in 2017

GDC-0084 (phase II study in brain cancer)	
Transfer of IND with US FDA	✓
Transfer of responsibility for intellectual property	✓
Completion of manufacture of capsules for trial	
Consultation with FDA to confirm approach	
Submission and approval of regulatory filings for study	
Submission and approval of hospital ethics applications	
Commencement of enrolment of patients (‘First Patient In’)	
TRXE-002-1 (phase I study in ovarian cancer)	
Completion of dose escalation phase	
Granting of patents in US, EU, and other territories	
Reporting of phase I data in 1H 2018	
Next- Generation ATM Program	
Commencement of work under grant	



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