Fermiscan Holdings Limited

Company Overview

April 2007

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Executive summary

- Fermiscan (ASX code FER) is an Australian listed company with a market capitalisation (ordinary shares) of AUD $309 million
- Fermiscan recently raised AUD$22.5 million at AUD$1.50 per share to finance the commercial rollout of the Fermiscan test
- Fermiscan began a 2,000 patient validation trial in December 2006 with the support of major radiology and diagnostic groups
  - the trial is designed to assess the effectiveness of the Fermiscan breast cancer test in a screening situation by testing the hair of women referred to radiologists for mammograms. Results from the Fermiscan breast cancer test will be compared to mammogram results
  - Patient enrolment is progressing well, and it is anticipated the trial will be completed during the first half of 2007

Fermiscan is commercialising a world-first, innovative test for the early detection of breast cancer. The Fermiscan breast cancer test provides a simple, non-invasive screening method for breast cancer

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Executive summary

- Subject to the successful completion of the 2,000 patient validation trial, Fermiscan expects to commercialise its innovative test for the detection of breast cancer using “X-ray diffraction of hair” in the second half of 2007
- The distinct advantages of the Fermiscan breast cancer test are
    - it is non-invasive
    - it is suitable for women of any age
    - it may provide a system for early detection and monitoring of treatment
- Early detection is the key to survival
    - other benefits of early detection are increased treatment options and improved quality of life
- Fermiscan’s technology is protected by an international family of patents. The patents include further pathological states including prostate cancer and Alzheimer's disease
- The company is developing other applications of the technology to potentially provide diagnostics for these further pathological states
- Fermiscan recently announced licensing arrangements in six countries in South East Asia (Singapore, Malaysia, Indonesia, Thailand, Hong Kong and Vietnam)
- Fermiscan has commenced a feasibility study for the Japanese market

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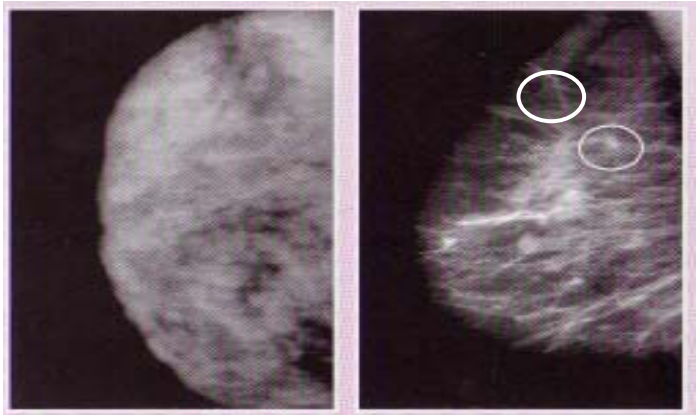
The market opportunity

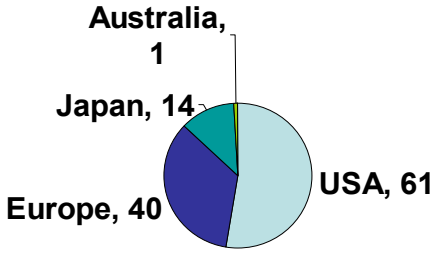
- Over 100 million women globally will have a screening mammogram in 2007
- Mammograms are regarded as the gold standard in detection of breast cancer albeit with limitations
- Women under fifty years are not recommended for mammography as
  - the denser breast tissue of younger women makes mammograms difficult to read; and
  - long term exposure to X-rays may increase the risk of developing breast cancer
- Most countries are showing positive growth rates in the number of mammograms conducted each year



Mammogram of a 33 year old woman

Mammogram of a 60 year old woman; cancer is circled.

Annual Number of Screening mammograms (Millions)



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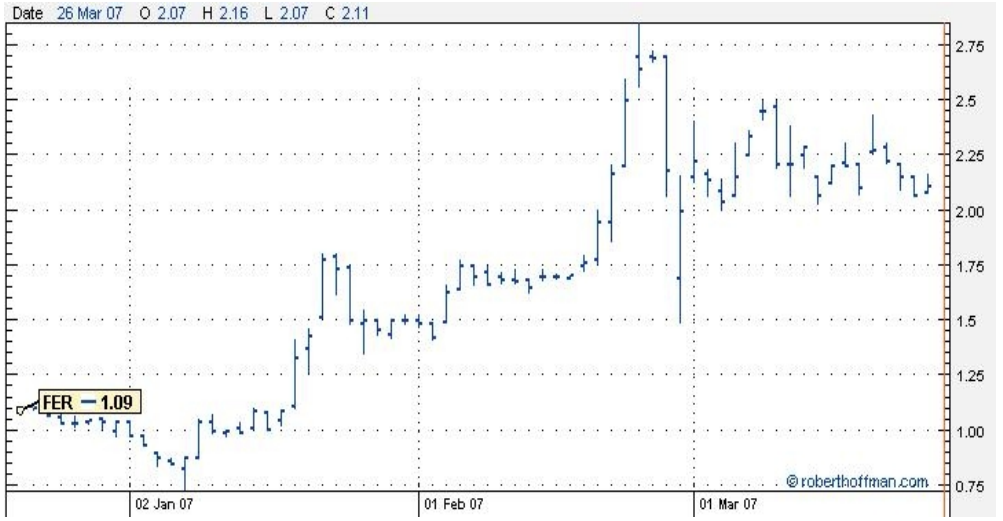
Capital structure

- Listed on Australian Stock Exchange (ASX code: FER) since 25 October 2006
- Issued shares – 141,748,671 ordinary shares
- Outstanding options – 61 million options exercisable at 30 cents
- Cash at 10 March 2007 was AUD$25.7 million, with AUD$2.3 million receivable over the next 12 months. Fermiscan is debt free
- Monthly operating expenses (burn rate) for the December quarter – A$370,000 per month
- Share price AUD$2.18 at 27 March 2007
- Market capitalisation of AUD$309 million (issued shares before option exercise) and AUD$440 million after options

- Fundraising of AUD$22.5 million in February 2007 to be used for:
  - acquisition of synchrotron facilities
  - commercial rollout in Australia, Asia and globally

FER share price: from December 2006 to March 2007



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Top ten shareholders

as at 14 March 2007

Rank	Name	Number of ordinary shares	Percentage of issued capital
			%
1	Rellcain Pty Limited	46,241,750	32.62
2	Lindash Investments Pty Limited	25,773,200	18.18
3	Citicorp Nominees Pty Limited	7,525,414	5.31
4	National Nominees Limited	7,339,391	5.18
5	Willala Pastoral Co Pty Limited	7,000,000	4.94
6	ANZ Nominees	6,762,768	4.77
7	Westpac Custodian Nominees Limited	3,476,430	2.45
8	RP Prospects Pty Limited	2,450,000	1.73
9	Holdex Nominees Pty Ltd	1,200,000	0.85
10	David Colin Young	1,030,930	0.73
		108,799,883	76.76

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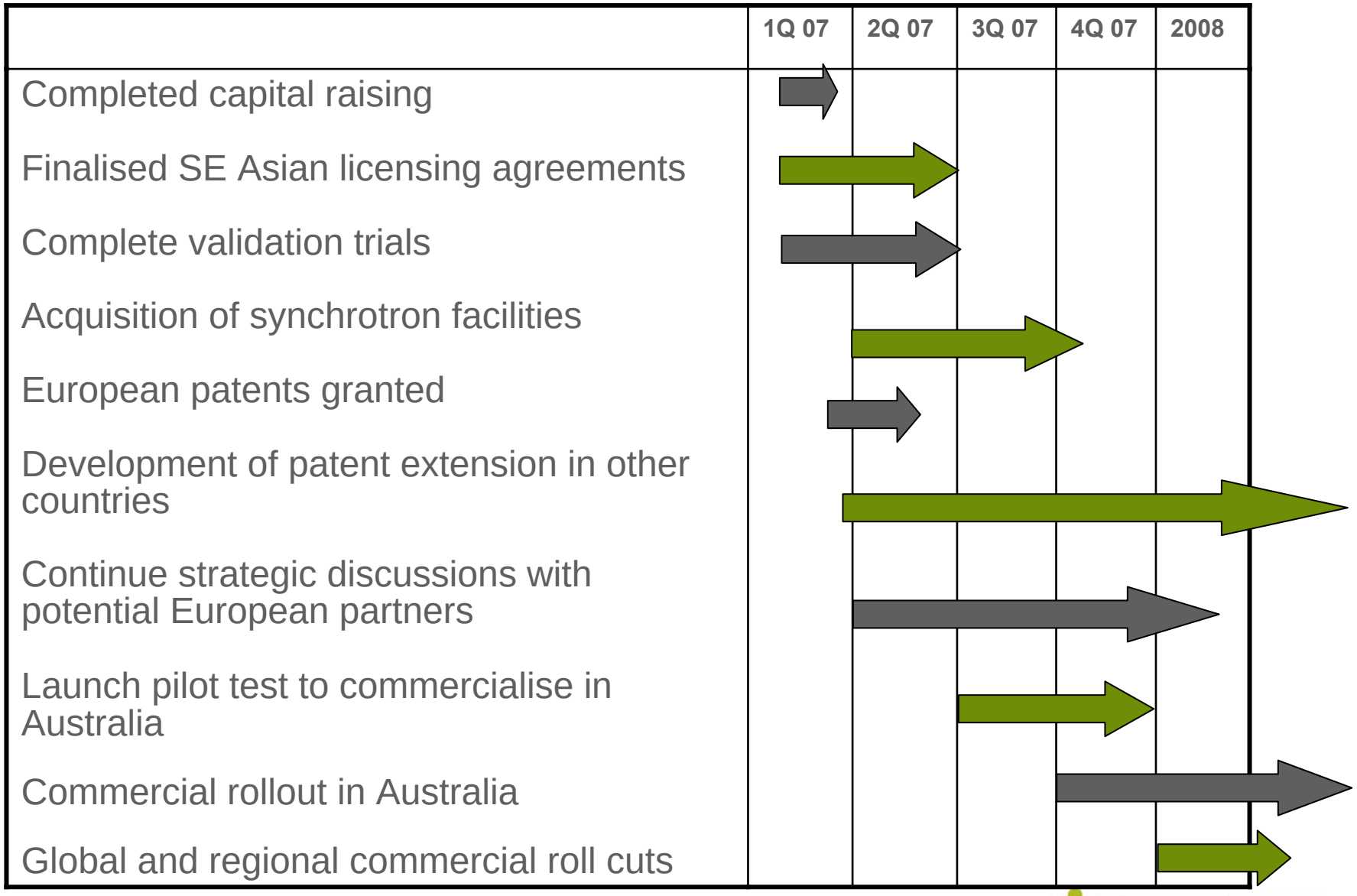
The business

- Scaleable business - significant economies as volumes grow
- Profitable business - based on the following assumptions which are achievable in 2008
  - 300,000 tests per annum with a retail price of A$249, including GST of 10%
  - distribution and operating expenses are estimated at A$40 per test
  - fixed costs are estimated at A$40 per test
  - 10% contingency cost allowance per test
  - Current negotiations for investment in synchrotron capacity should enable up to 1 million tests per annum; and
  - licensing arrangements require minimal up front investment by Fermiscan
- Commercial rollout in Australia & initial license territories by the end of 2007
  - no further approvals are required in Australia
  - the Fermiscan breast cancer test will be launched as a “Pilot” in Australia in the second half of 2007
- Further clinical evaluation of prostate, Alzheimer’s, other cancer and pathological states provides further “upside” opportunity

Proposed business rollout timeline



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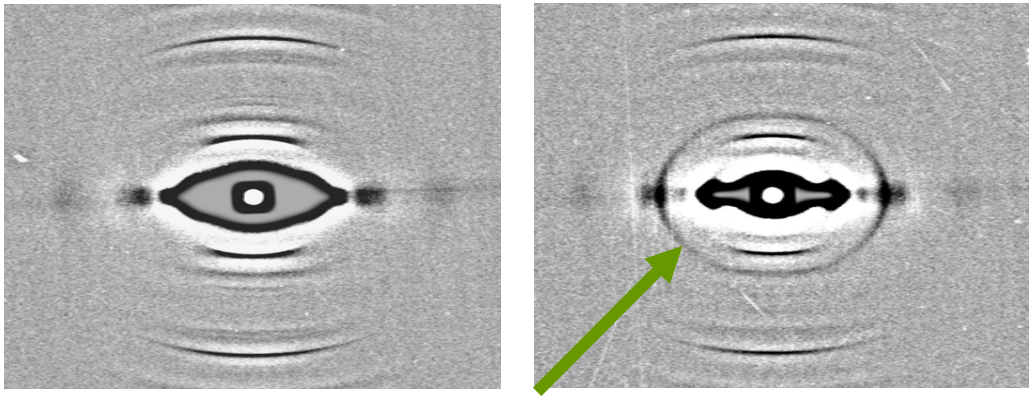
The Fermiscan breast cancer test

- The test requires a single hair at least 30mm long (either scalp or pubic) which must not have been dyed or chemically treated within the last 6 weeks
- Pathological states are associated with changes in cellular and/or tissue biochemistry (e.g. hair)
- Synchrotron X-ray diffraction can identify altered molecular structures in hair and therefore can detect the presence of disease
- Because hair grows, the structural alterations can be preserved in the hair fibre and retain an individual's biomedical history
- Hair fibres from individuals with breast cancer have an altered molecular structure which appears as a "ring" in the analysis as shown below



- The key aspects of the test are protected by an international family of patents.

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Scientific research to date

Human clinical studies

503 human hair samples were specifically collected for breast cancer detection[1]

- all positive samples were correctly identified. The hair samples taken from women with breast cancer had the “ring” in the X-ray diffraction pattern
- some false positives were identified but it has been reported[2] that some individuals were subsequently diagnosed with breast cancer and therefore not all of these may be false positives

The results of 503 human hair samples studied for the detection of breast cancer[1]

Sample status	Sample origin	Number of samples	Synchrotron diffraction results		Sensitivity %	Specificity %
			False negative	False positive		
Positive for breast cancer by surgery or mammography	Australia and South Pacific	100	0		100	
	Europe	58	0		100	
	North America	52	0		100	
Assumed negative for breast cancer by mammography	Australia and South Pacific	118		13		89
	Europe	88		13		85
	North America	87		21		76
	Total	503	0	47	100	84

1 International Journal of Cancer 114: 969-972, 2005
2 Journal National Cancer Institute. 95: 170-171, 2003

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The mouse data can be used to create a timeline for the detection of breast cancer

- X-ray diffraction data was collected at measured intervals from the root end of the mouse whiskers
- Mouse whiskers grow approximately 1.3mm in 8 weeks[1]
- The “ring” was visible in the whisker at 0.2mm from the root end[1] i.e. between 1 and 2 weeks after the cells were implanted and very early in the growth of the malignant neoplasm
- X-ray diffraction of hair may therefore detect the presence of breast cancer earlier than any other current screening technique

1 International Journal of Cancer 114: 969-972, 2005

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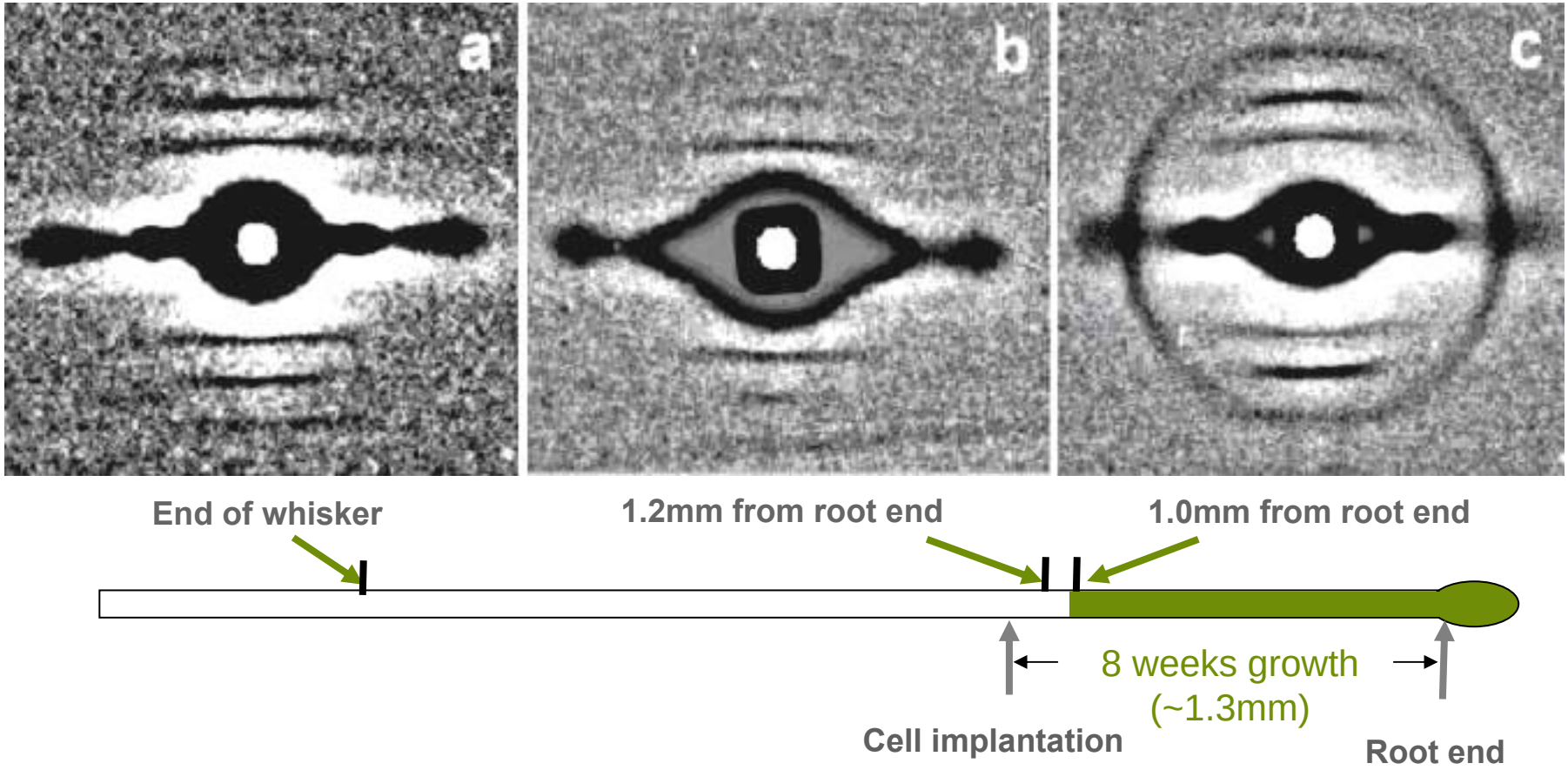
Creating a timeline for the detection of breast cancer



The ring associated with breast cancer appeared within days after cell implantation which was very early in the growth of the tumour

Based on data in the International Journal of Cancer 114: 969-972, 2005

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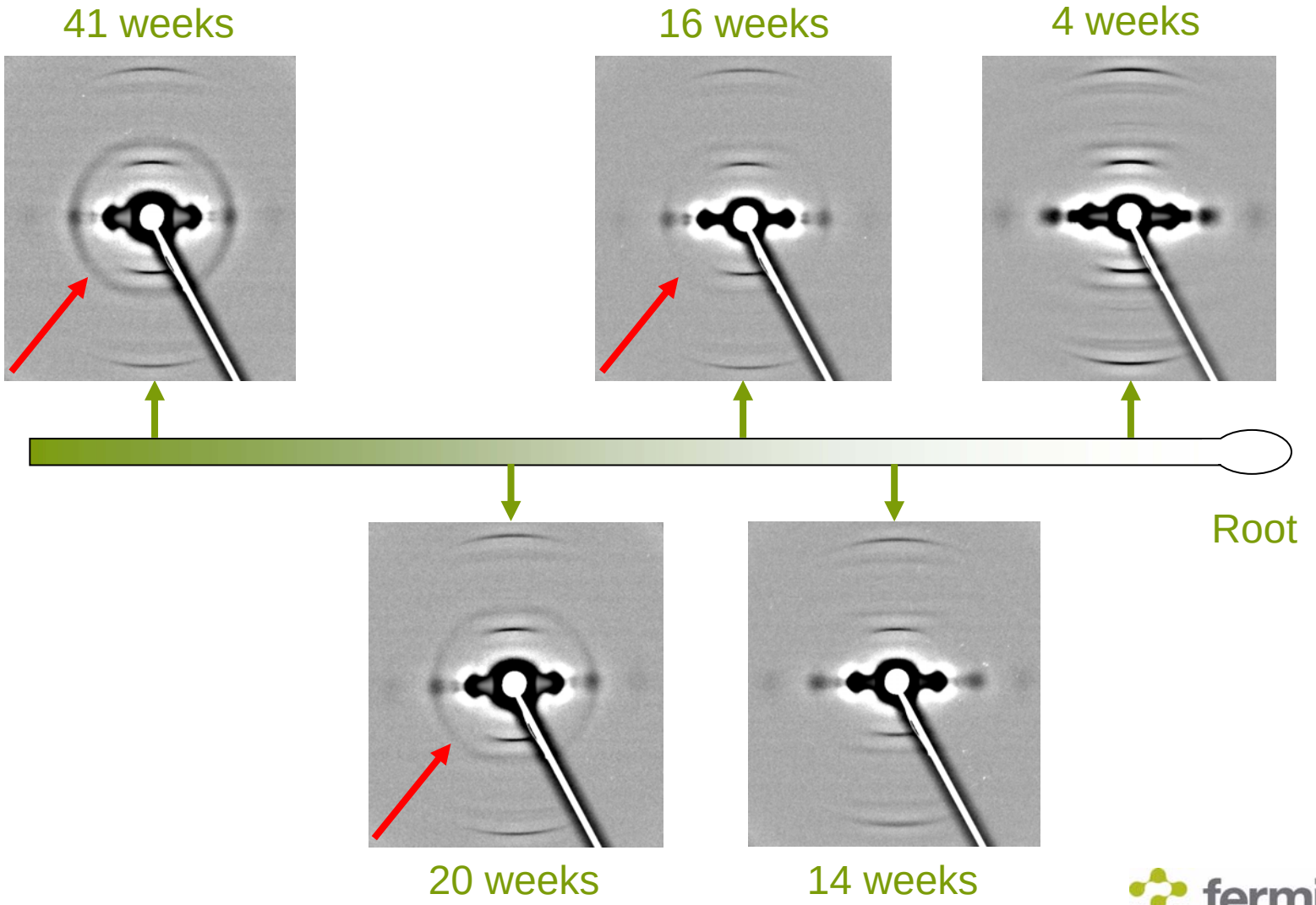
Monitoring potential?

Human timeline studies

- Hair samples were acquired from 2 women described as recovering from breast cancer
- Both were reported to have had surgery followed by two courses of chemotherapy
- It is understood that the hair specimens provided fell out during the second course of chemotherapy
- Diffraction data was collected at specific locations along the hair fibres commencing at the root end (most recent growth)
- Based on the average growth rate of human hair, a biomedical history relating to their cancer could be established
- The data presented in the following 2 slides demonstrate that:
  - X-ray diffraction of hair can potentially be used to monitor the effect of treatments for breast cancer
  - X-ray diffraction of hair can provide a monitoring process of the disease

Monitoring potential?

Case study 1



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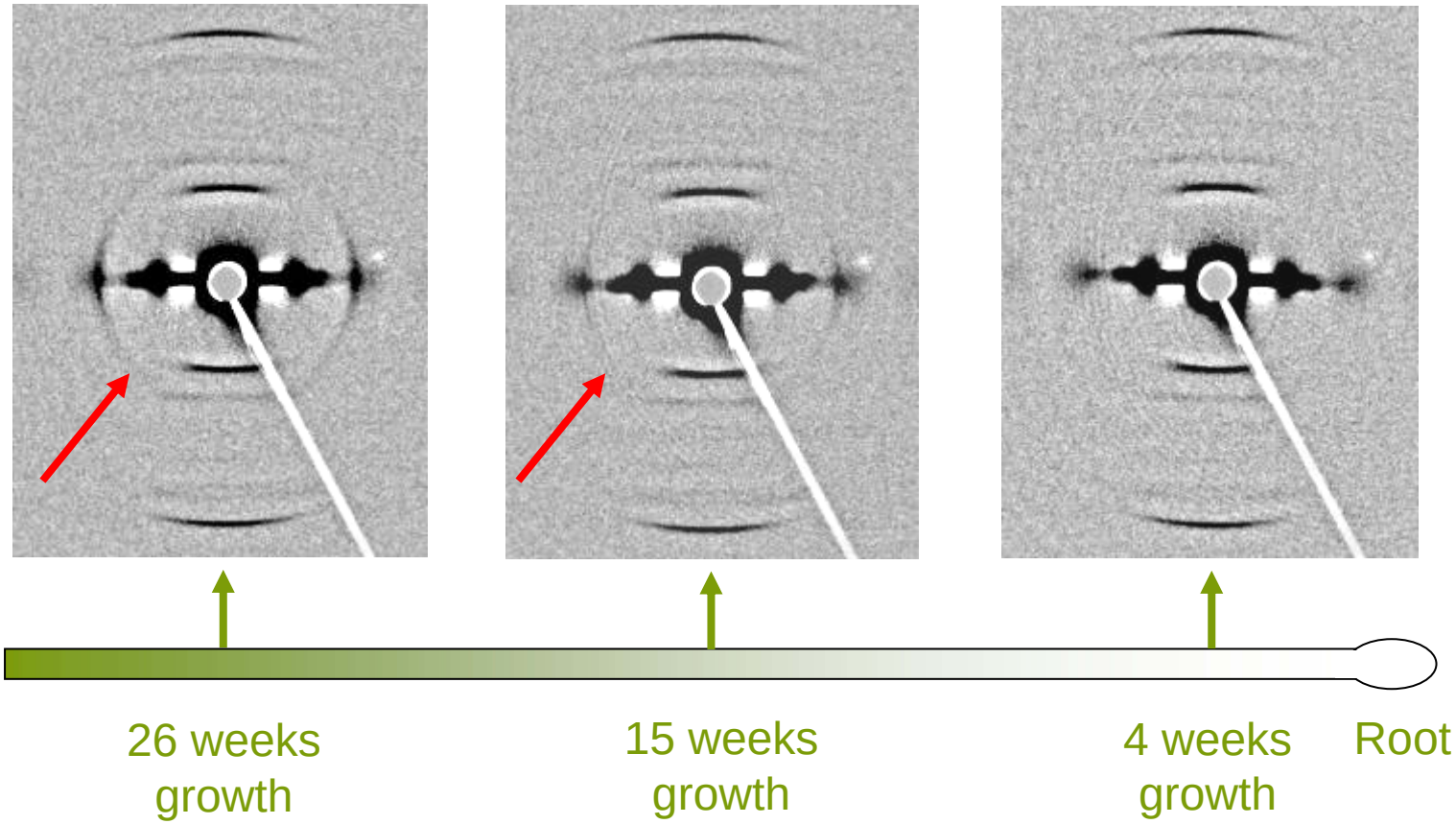
Monitoring potential?

Case study 2



Scientific research summary

- The results demonstrate that X-ray diffraction of hair offers an alternative screening test for breast cancer
- The “ring” correlating to the presence of breast cancer appears at an early stage in tumor growth
- In studies of over 1300 blinded hair samples from individuals with varying pathological states, all samples known to be positive for breast cancer were identified
- The “ring” correlating to the presence of breast cancer is not observed for any other pathological state studied
- Additional studies have been published on colon cancer and Alzheimer's disease and results show promise for X-ray diffraction as a potential diagnostic test
- Preliminary studies have been conducted on hair from individuals with prostate and lung cancer and melanoma
- X-ray diffraction of hair is non-invasive and totally “patient friendly”

Note: This research received support from the Commonwealth of Australia through the Access to the Major Research Facilities Program and the Australian Synchrotron Research Program

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Conclusion

- The Fermiscan breast cancer test will change the manner in which breast cancer is detected because it is non-invasive and it is suitable for women of all ages
- The test has the potential to significantly improve treatment and health outcomes due to early detection of breast cancer
- The market opportunity is in excess of 100 million women globally
- The business model is scalable and profitable with minimal up front investments
- The TGA has advised the test does not fall within their code or regulatory requirements therefore their approval is not required to launch
- Fermiscan has the support of key radiology groups, National Breast Cancer Council, National Breast Cancer Foundation and integrates strong clinical governance in its trials and commercialisation
- Licensing tie-ups in Asia should enable relatively quick regional rollout
- Further “upside” opportunity exists in the ability to expand the application of the technology to test for other pathological states such as prostate cancer and Alzheimer’s disease

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How does a synchrotron work?

There are 40 synchrotrons located around the world

The Advanced Photo Source - Argonne National Laboratories, Illinois, USA

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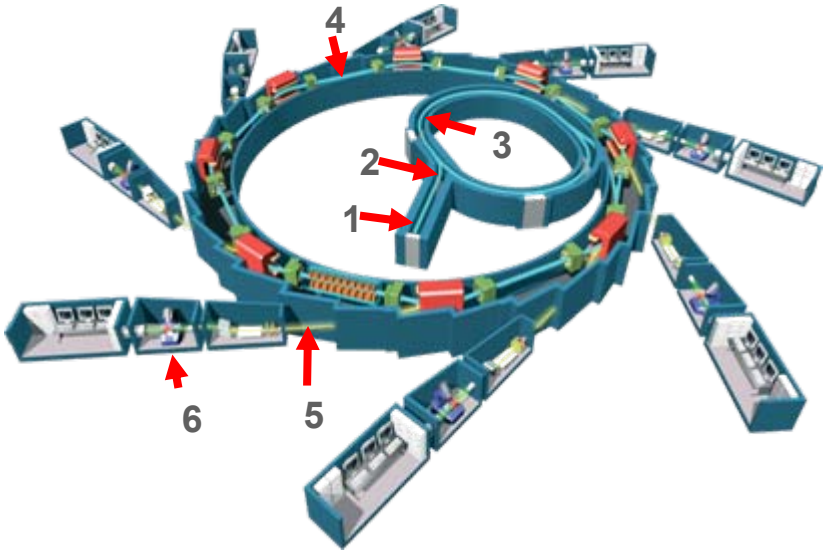
How does a synchrotron work?

- Electrons are produced and accelerated to near the speed of light and are held in a storage ring in a circular orbit using large magnetic fields
- Under the influence of these magnetic fields the electrons emit light, which includes X-rays. The synchrotron X-rays are channeled down beam lines to experimental workstations where they can be used
- Synchrotrons are an unrivalled source of X-rays that are millions of times more intense than conventional X-ray sources
- There are 40 synchrotrons located around the world
- Synchrotrons are utilised in many areas such as biosciences, mining, agriculture, forensics, medical research and medical imaging



1. **Electron generation**
2. **Linear accelerator**
3. **Booster ring**
4. **Storage ring**
5. **X-ray beam**
6. **Experimental work station**

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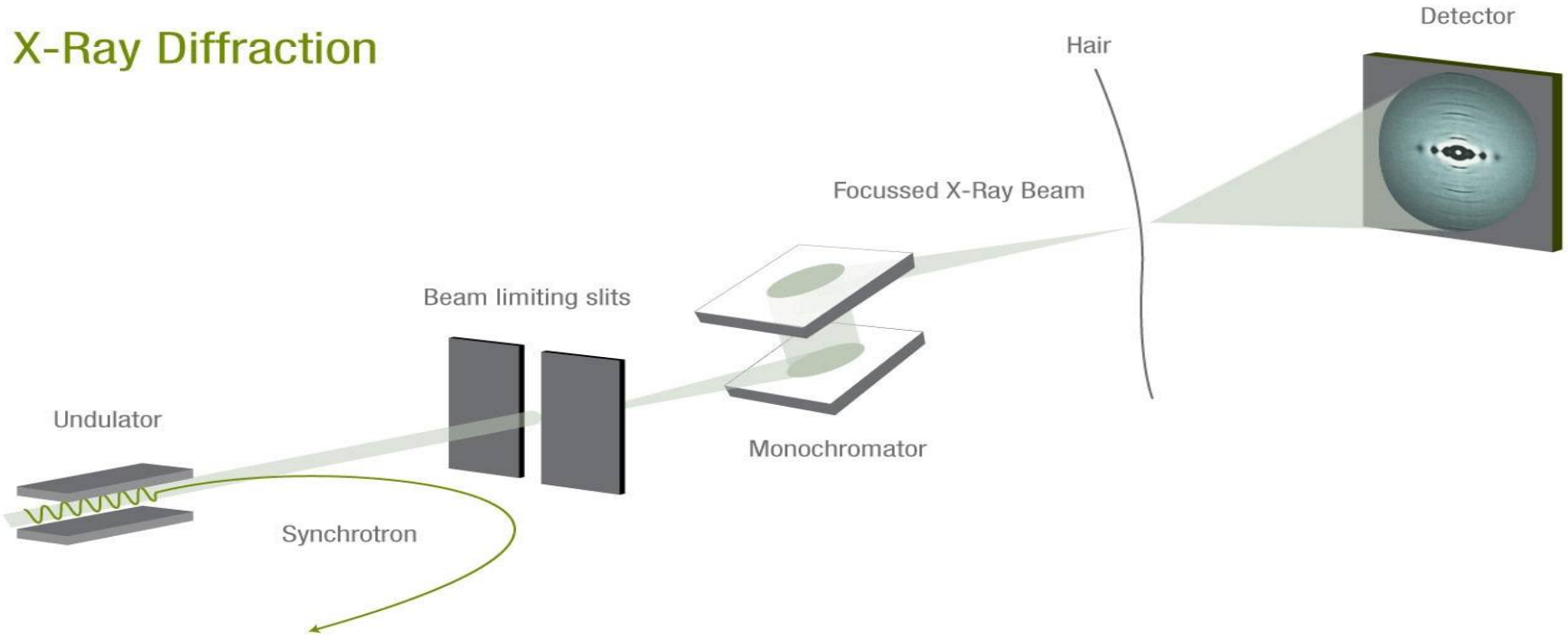
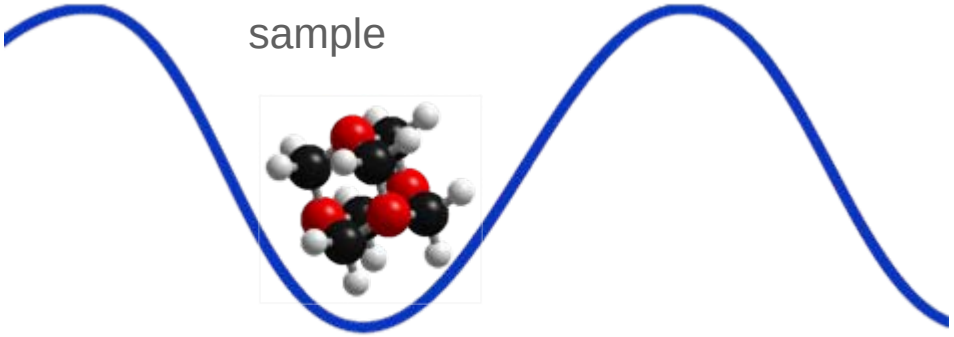
Synchrotron X-ray diffraction

- X-ray beams, generated by a synchrotron, are diffracted by crystalline material
- Hair has a crystalline component known as **α**-keratin. The molecular structures within **α**-keratin cause specific diffraction patterns of the X-rays to be produced
- Synchrotron X-ray diffraction patterns can be used to determine the structure of molecules
- Synchrotron X-ray diffraction of hair provides information about the molecular structures in hair. Synchrotron X-rays have short wavelengths that are in the same order as the spacing of molecular structures
- Synchrotron X-rays have the necessary power to penetrate molecular structures

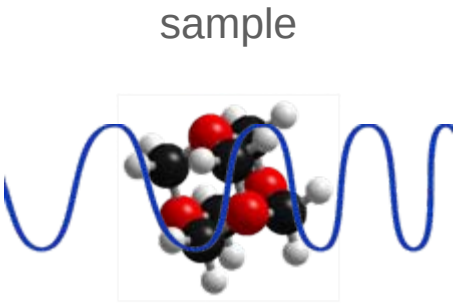


Why synchrotron X-rays?

- X-rays have short wavelengths that are in the same order as the spacing of molecular structures
- X-rays have the necessary power to penetrate molecular structures
- Synchrotrons are an unrivalled source of X-rays that are millions of times more intense than conventional X-ray sources



Visible light



X-rays

Courtesy of the Australian Synchrotron Project