

ASX Listed  
OIL

# Annual General Meeting

## 21<sup>st</sup> November 2011



Unlocking the world of **Live Micro Imaging (LMI) technology**

# **Chairman's Address 21<sup>st</sup> Nov. 2011**

Angus Holt



Unlocking the world of **Live Micro Imaging (LMI) technology**



## Chairman's Address 2011

2011 saw Optiscan post its first ever profit reflecting the financial stability we have achieved in the past three years since the peak of the Global Credit or Financial Crisis.

Having achieved this financial stability and retained independence and a stable capital structure throughout, the Company must now evolve into a form that will allow its huge latent value to be unlocked. Of critical importance throughout the past three years has been the loyalty and dedication of our staff, such dedication has been instrumental in allowing us to achieve a position whereby we can pursue the next stage of the Company's evolution.

Before I move on to the future it is apparent that the level of understanding in the marketplace of our relationship and development activities with Zeiss is not as well understood as I would like. Strict confidentiality conditions restrict how expansive we can be in relation to our Zeiss developments. Peter Delaney will address the status of Zeiss in his presentation. I can say, however, that the Zeiss collaboration has been instrumental in providing Optiscan with significant income over the past 3 years, enabling the development of the second generation platform to progress to the stage where the technology platform is now proven.

Beyond Zeiss, Optiscan has independently developed its second generation technology for, among others, its well travelled and understood gastro-intestinal applications. We are now able to demonstrate integrated flexible endomicroscopy in the latest high definition endoscopes, with greater resolution, a larger field of view and near video frame rates. Further, we have developed bench top prototype probe based systems that would allow use of our technology without the need to be integrated into a mother endoscope in the same way as that done by our key competitor, Mauna Kea Technologies out of France. These probe based developments have also involved work on a further generation of miniaturisation technology that would produce higher specifications and miniaturisation beyond that seen in generation 2. These developments are still at an early stage but demonstrate our ability to build a technology pipeline well into the future.

Re-entry to the GI market is a major opportunity for Optiscan and consequently a major component of the aforementioned “huge latent value” within the Company.

Therefore in the near term the Company has significant money making opportunities within GI and neurosurgery. We also continue to field regular enquiries regarding our research product the FIVE-1 and continue to make sales.

The real issue for Optiscan now is to establish a path forward that will provide the basis for unlocking all this value. This issue is the driving force behind the appointment of Cappello Capital as strategic advisors in June. The process with Cappello has been thorough and exhaustive, a good example of which is the strategic review presentation as tabled with the ASX in late July. That strategic review presentation has provided an excellent basis from which to explore and develop the Company’s strategic opportunities to the point where a non-binding term sheet was recently signed over our leading opportunity. As the term sheet is not binding it is not appropriate to disclose any further detail as to the proposed terms of that particular strategic direction, suffice to say that its implementation would in my view not only provide the key to unlocking significant existing value but also provide scope for value creation going forward. Our objective around this term sheet is to move to a position of being binding subject to shareholder approvals by early 2012, at which time full disclosure will be both appropriate and made. Other opportunities continue to be explored and will be actively entertained.

In summary, I am enthusiastic that the strategic review process we have undertaken will produce an exciting result for shareholders and staff within months. We have a very real opportunity to be a major player in a major emerging medical field of live micro imaging, a field that is not going away. This field was pioneered by Optiscan (product via Pentax in 2006) and is presently shared only with Mauna Kea Technologies, a company with a market capitalisation well in excess of \$200m. While I may be accused of bias, I see the outcome of our strategic process resulting in a Company every bit as good as Mauna Kea, if not better.

Thank you, I will now pass the meeting to Peter Delaney, Director of Technology, to update you on our technology and clinical developments. Following Peter’s presentation I will then move to the statutory items of business and finally open the meeting for questions.

# **Director of Technology's AGM Address 21st Nov. 2011**

Peter Delaney



Unlocking the world of **Live Micro Imaging (LMI) technology**

# Overview

---

- Global Status of Endomicroscopy
- 2<sup>nd</sup> Generation Technology Update
- Setting the standard - A new level of performance
- Product Development
- Intellectual property

## **Director of Technology Address (Slide 1)**

### **Slide 2 - Overview**

“Endomicroscopy”, which is both a term and a field of medical practice invented and pioneered by Optiscan, has become well established with a substantial footprint in gastrointestinal medicine and numerous emerging applications such as neurosurgery. Interest continues to grow and there is a strong pull for the technology from new markets, such as China.

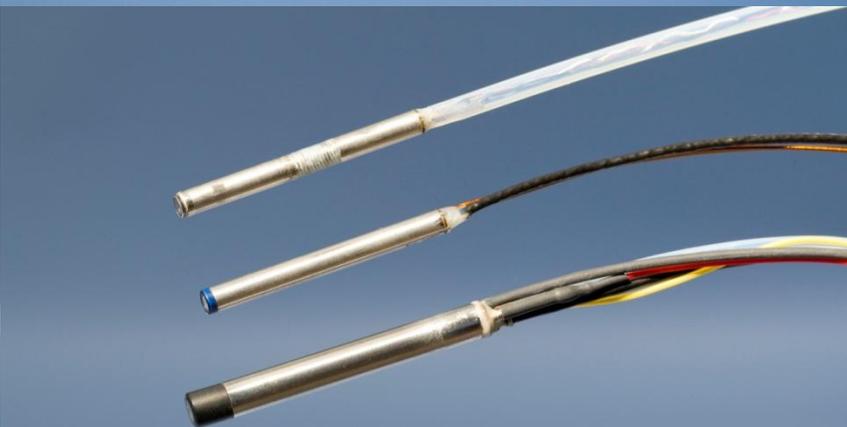
There is an expansive and still growing medical literature associated with the technique, and this all points to a technology poised to “break through” and offer substantial sales in the not too distant future.

So clearly the key for Optiscan now lies in bringing new products to market to meet this growing need.

As your chairman has outlined, our tight fiscal management has brought financial stability whilst maintaining a talented staff covering all of our developmental areas of expertise and core operational capabilities.

Geared to sales of our research products and development income, this has been a period of steady and highly focused development.

While it has not afforded the luxury of accelerated development of products for re-entry into our most developed market – GI endoscopy – we have made important progress in this field nonetheless, with core new inventions and related IP that offer a market leading position when market re-entry is enabled through strategic initiatives.



### **Slide 3 – Second Generation Technology Recap**

As reported previously, the platform for all of Optiscan's future products is its so called "second generation" technology platform.

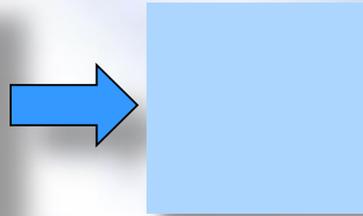
This offers new features driven by clinical experience and significantly extends functional capabilities and performance compared to our first generation systems

Better integration with clinical environments offers an improved workflow in established applications and also a shorter learning curve for new users

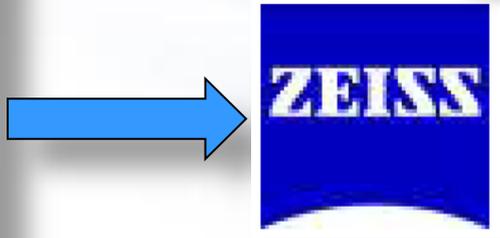
It enables a smaller footprint unit as shown here, and a smaller scanner for smaller endoscopes.

Despite the additional miniaturisation, the scanner offers the best image we have ever achieved, with new features like wide format HD images that can fill a full HD flat screen display and faster scanning at interactive near video rates

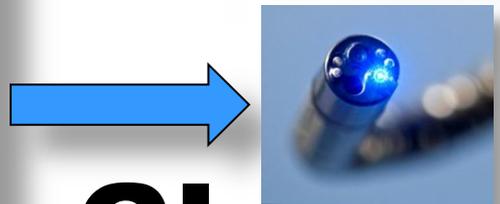
# New Generation Devices



Commissioned  
Prototypes

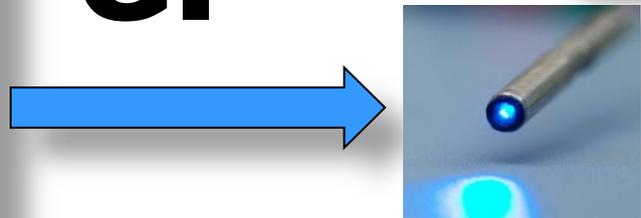


Nuerosurgery  
ENT  
Spinal surgery



“Integrated Type”  
HD + Confocal

**GI**



“Probe Type”  
endomicroscopy

#### **Slide 4 – New Second Generation Devices**

But to be more specific, there are four key devices that have been or are being based on the platform. I will introduce these briefly here then provide some detail on each in turn.

Firstly, we have brought prototype systems based on our second generation platform to bear through partnership with institutions that have commissioned custom systems via funding for latest technologies.

These have been fully externally funded advanced prototype developments for Optiscan, offering a collaborative approach to testing the platform in real applications with leading institutions.

The first true product development aimed at a near term product release is underway for Carl Zeiss Meditec Ag, of Germany and the first product will be a probe for imaging of tumours of the brain during neurosurgical procedures.

GI endoscopy remains the biggest market opportunity and re-entry into this market remains a key strategic objective for Optiscan.

Development work to this end is in two arms.

- We have been able to demonstrate the technical feasibility of accommodating the new smaller 2nd Gen scanner within the latest HD endoscopes from multiple manufacturers. For example, we have recently been commissioned through another collaborative funding application to construct a clinical prototype HD colonoscope based on an Olympus platform, and this is expected to be delivered to the end user in coming months (early calendar 2012).
- I will also provide an update on our development plans and prototype device for an even smaller scanner implementation that allows the endomicroscope as a whole to pass through the working channel, or biopsy port, of standard endoscopes.

# First Commissioned Gen 2 Prototype

---

- Optiscan was recently commissioned by the University of Melbourne, Faculty of Veterinary Science to construct an experimental 10mm endoscope based on 2<sup>nd</sup> Generation technology integrated into an Olympus endoscopy platform
- The system was funded by the University and the Victorian Department of Business and Innovation as part of the Victorian Science Agenda
- The new equipment forms part of the Melbourne node of the Victorian Biomedical Imaging Capability and the National Imaging Facility, an NCRIS\* funded Federal research initiative

\* NCRIS = National Collaborative Research Infrastructure Strategy

## **Slide 5 – First Commissioned Gen 2 Prototypes**

Firstly I would like to cover a system recently commissioned by the University of Melbourne that has resulted in significant practical and clinical validation of the second generation platform as a whole.

The system was sought by the University of Melbourne, Faculty of Veterinary Science with a brief to provide, among other things, a flexible endoscope suitable for endoscopy in dogs and larger animals. The system was agreed to be based on an Olympus endoscopy platform.

Funding was by the University and the Victorian Department of Business and Innovation as part of the Victorian Science Agenda and the system now forms part of the Melbourne node of the Victorian Biomedical Imaging Capability and the National Imaging Facility, which is a Federal initiative funded by National Collaborative Research Infrastructure Strategy (NCRIS).

# Canine Endoscopy



Images courtesy of researchers at University of Melbourne, Faculty of Veterinary Science.

(as part of the Melbourne node of the Victorian Biomedical Imaging Capability and the National Imaging Facility, an NCRIS funded Federal research initiative)

## **Slide 6 – First Commissioned Gen 2 Prototypes**

These images from a dog esophagus demonstrate the endoscopic view (left) from this tiny endoscope and the high quality fast scanned image of the cellular lining of the tissue on the right.

However, as well as speed improvements, refinement of the new generation system has enabled higher resolution, full HD widescreen scan modes revealing greater cellular detail from the living gut than has ever been achieved in endomicroscopy.

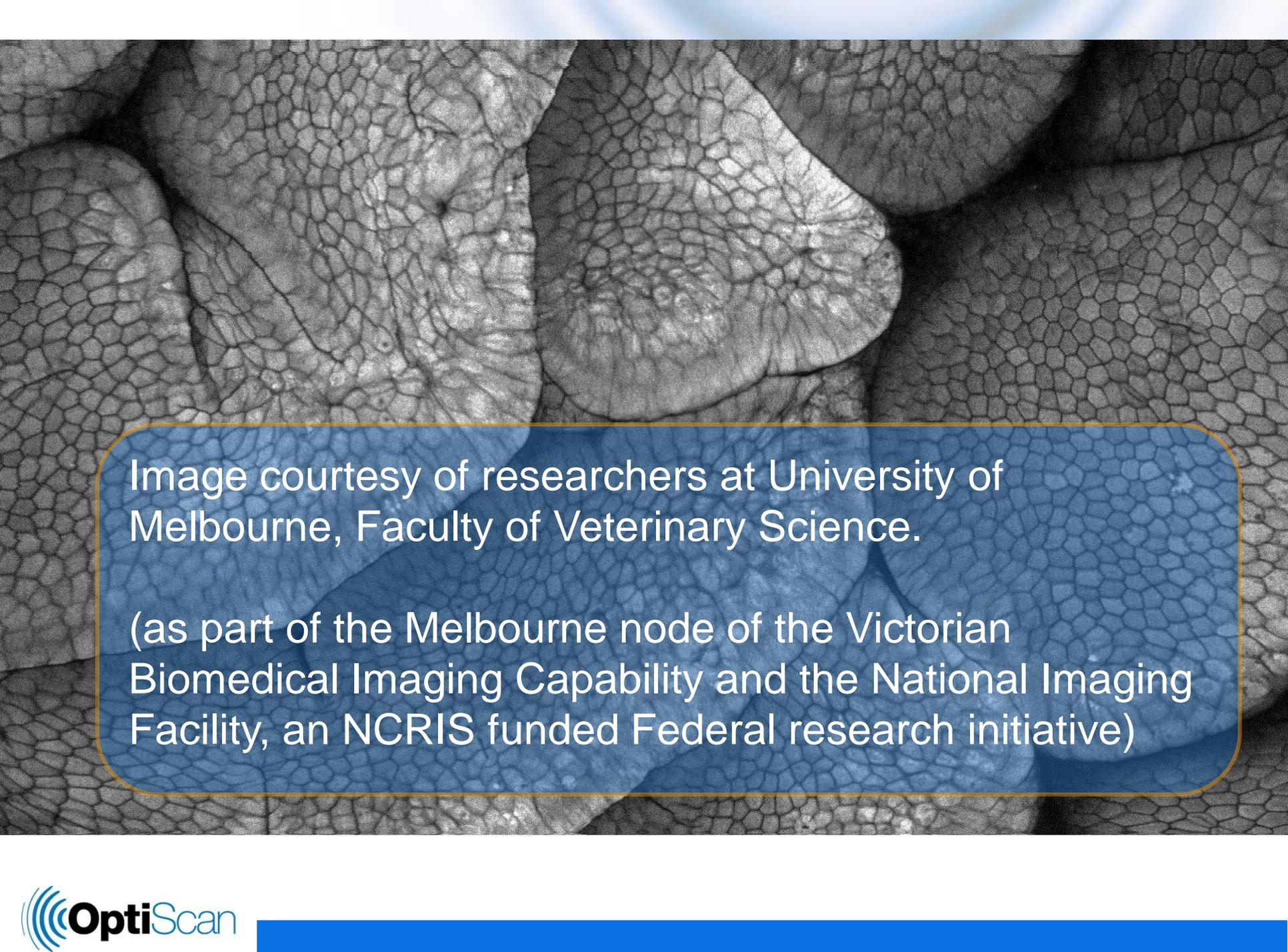
A grayscale microscopic image showing a complex, textured surface of biological tissue, possibly skin or a membrane, with a blue semi-transparent overlay box containing text. The texture consists of irregular, interconnected cells or fibers.

Image courtesy of researchers at University of Melbourne, Faculty of Veterinary Science.

(as part of the Melbourne node of the Victorian Biomedical Imaging Capability and the National Imaging Facility, an NCRIS funded Federal research initiative)

## **Slide 7 – Canine Endoscopy**

For example, this image from the stomach of a dog, using dye staining protocols borrowed from past human endomicroscopy methods, reveals a level of detail not previously seen.

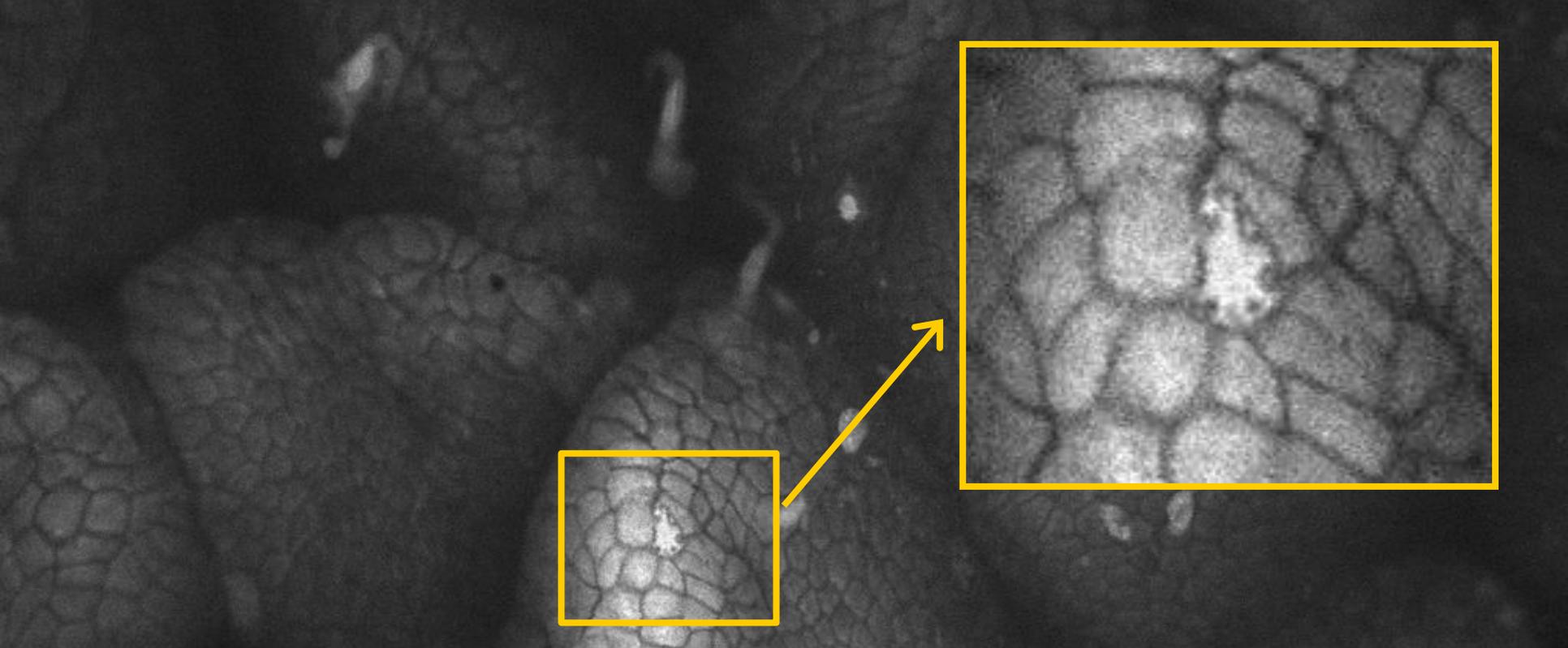


Image courtesy of researchers at University of Melbourne, Faculty of Veterinary Science.

(as part of the Melbourne node of the Victorian Biomedical Imaging Capability and the National Imaging Facility, an NCRIS funded Federal research initiative)

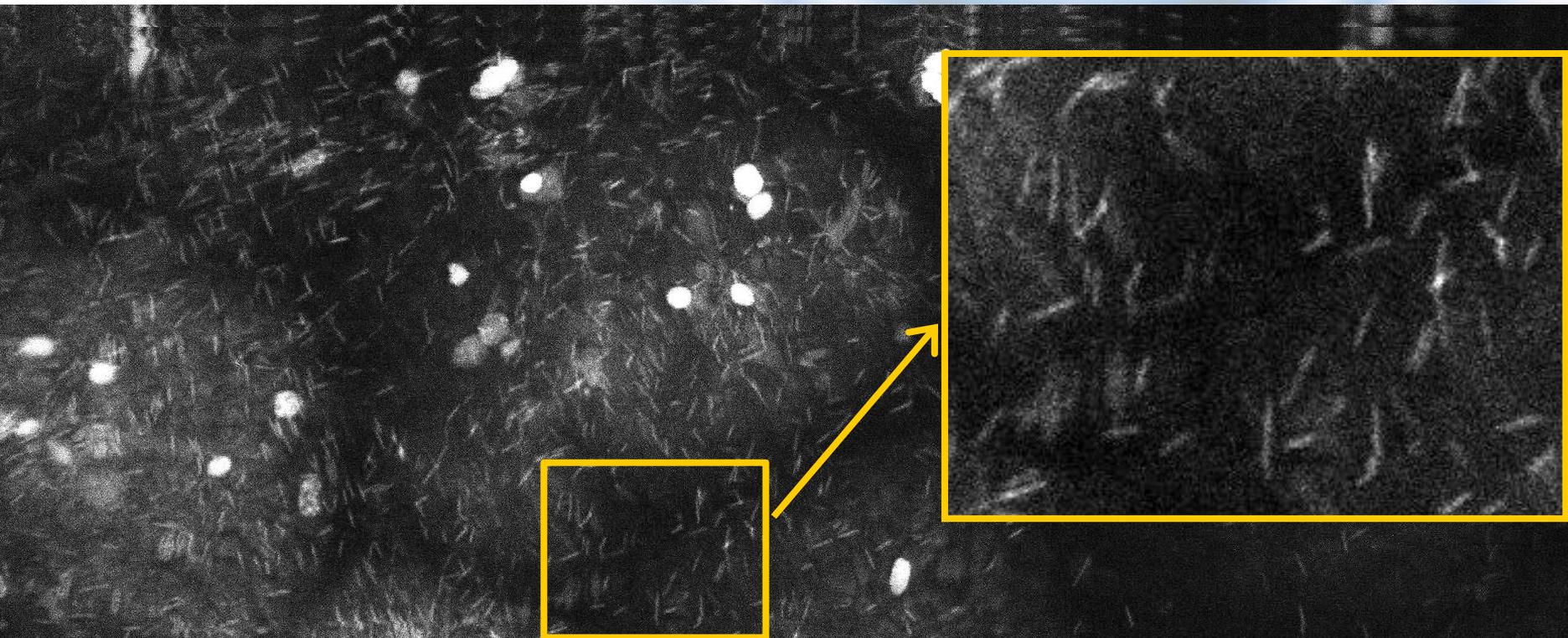


Image courtesy of researchers at University of Melbourne, Faculty of Veterinary Science.

(as part of the Melbourne node of the Victorian Biomedical Imaging Capability and the National Imaging Facility, an NCRIS funded Federal research initiative)

## **Slide 9 – Images 2**

Nearby, taking a closer look reveals details within a single cell that is distinct from its neighbours and signalling a key event in cellular turnover in the gut. Not only is this cell easily differentiable even in the wide format image, but zooming in we see that the resolution of the instrument is worthy of substantial further digital zoom revealing tiny structures smaller than the nucleus of a single cell. Such images were consistently obtained by researcher at the faculty of veterinary science within a couple of endoscopies' experience.

# Veterinary Prototype

---

- Flexible endoscope leveraging smaller scanner dimensions
- Enables procedures in med-large animals with comparable workflow to human endoscopies
- Training for human-patient endoscopists planned for this site
- Important validation for second generation platform

### **Slide 11 – Veterinary Prototype**

So, as well as being an extremely high performance system for the user's intended applications in medium to large animal endoscopy, these procedures have provided important validation of the new platform.

The scope required was small at 10mm diameter (compared to 13-14mm diameter for the old Pentax product), leveraging the smaller dimensions of the 2<sup>nd</sup> generation scanner.

However, the most striking result is the image quality, which despite improvement in speed, field of view and widescreen formatting, is significantly superior to our first generation technology and produced truly stunning images.

These results give us much cause for optimism regarding the success of products based on this platform.

The collaboration with this institution offers additional opportunities going forward, as the school also conducts endoscopy training for human patient practitioners, increasing exposure of new endomicroscopists to our new platform.



# Neurosurgery Product

---

- Exciting results from clinical studies
- Several publications accepted and more in the pipeline
- Award winning presentations at major neurosurgical conferences

## **Slide 12 – Neurosurgery Product**

The next product development to be based on the second generation technology is for neurosurgery.

The larger studies sponsored by Zeiss in neurosurgery were brought to conclusion during the period.

Substantial patient numbers provided extensive libraries of images showcasing the capabilities of a prototype neurosurgical system.

Even before final recruitment, this trial had provided sufficiently positive results as to enable Carl Zeiss Meditec to commit to a product development phase, with a new agreement signed last December.

There have also been several publications in high profile neurosurgical journals with significant further work in the publication pipeline.

Conference presentations also received much attention including “top abstract” awards at major conferences in the field of Neurosurgery.

Strong interest is growing in the Neurosurgical community and Zeiss has begun to expand the scope of trial activity to other sites.



# Neurosurgery Product

- Expanded Clinical Study Concluded
- Product Requirements Agreed
- Design work required to implement product
- Short clinical validation trial anticipated
- Final product launch timing will be subject to Zeiss plans

### **Slide 13 – Neurosurgery Product**

In summary, with the conclusion of the expanded investigative clinical trials, we have moved earnestly into the product development phase for a Zeiss product. The product requirements are agreed and design work to implement a product based on the second generation framework is underway.

We are currently planning to produce several pre-production prototypes for a small clinical validation study to establish the usability of new features enabled by the second generation platform, and this is concurrent with final engineering and documentation of the system ahead of regulatory submissions.

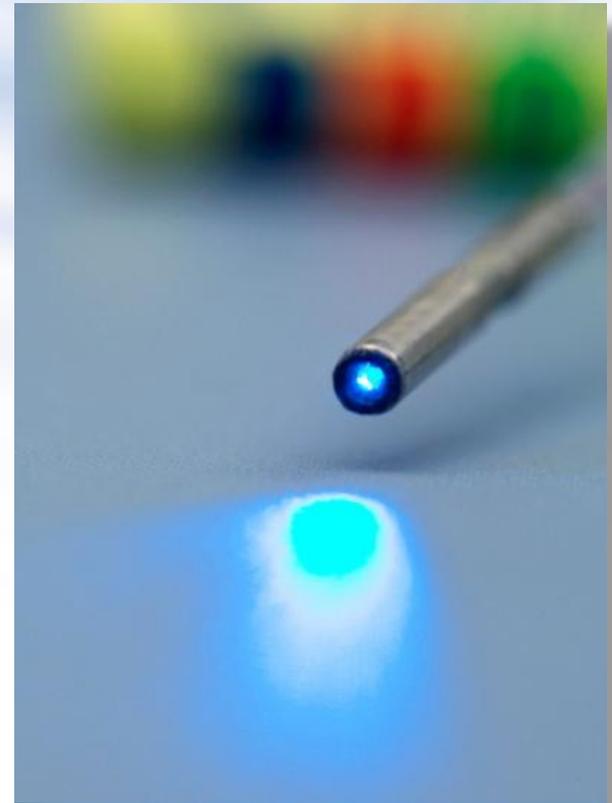
The details of timing for this work are confidential, and are the subject of Zeiss's plans for product release and launch.

# Gen 2 for GI Endoscopy

---



“Integrated Type”



“Probe Type”

## **Slide 14 – Second Generation for GI Endoscopy**

Now I would like to run you through the technical progress associated with our strategy for realising the value from our most developed market, gastrointestinal endoscopy.

As mentioned earlier, this is a two pronged approach divided broadly between “integrated type” (whereby our scanner is built permanently into an otherwise normal GI endoscope at the time of manufacture) and “probe type” ( whereby the scanner is self contained and is inserted through the working channel - or “biopsy port” - of a completely unmodified endoscope).

Historically, Optiscan’s first generation scanner technology was too large for channel insertion, leaving the company with only one strategic option – pursue a relationship with an endoscope manufacturer to bring an integrated type product to market. This was the approach that was taken with Hoya/Pentax.

Optiscan’s second generation scanner technology is much smaller, and has opened a development path to probe type devices. While there remain performance advantages to an integrated approach (such as keeping the biopsy port free for taking biopsies targeted while imaging with the endomicroscopic image) and ease of stabilisation on the tissue, the commercial path offered by partnership with an endoscope manufacturer is less attractive.

# Integrated scope prototypes include all major platforms and HD



## **Slide 15 – Integrated Type Flexible Endoscope Prototypes**

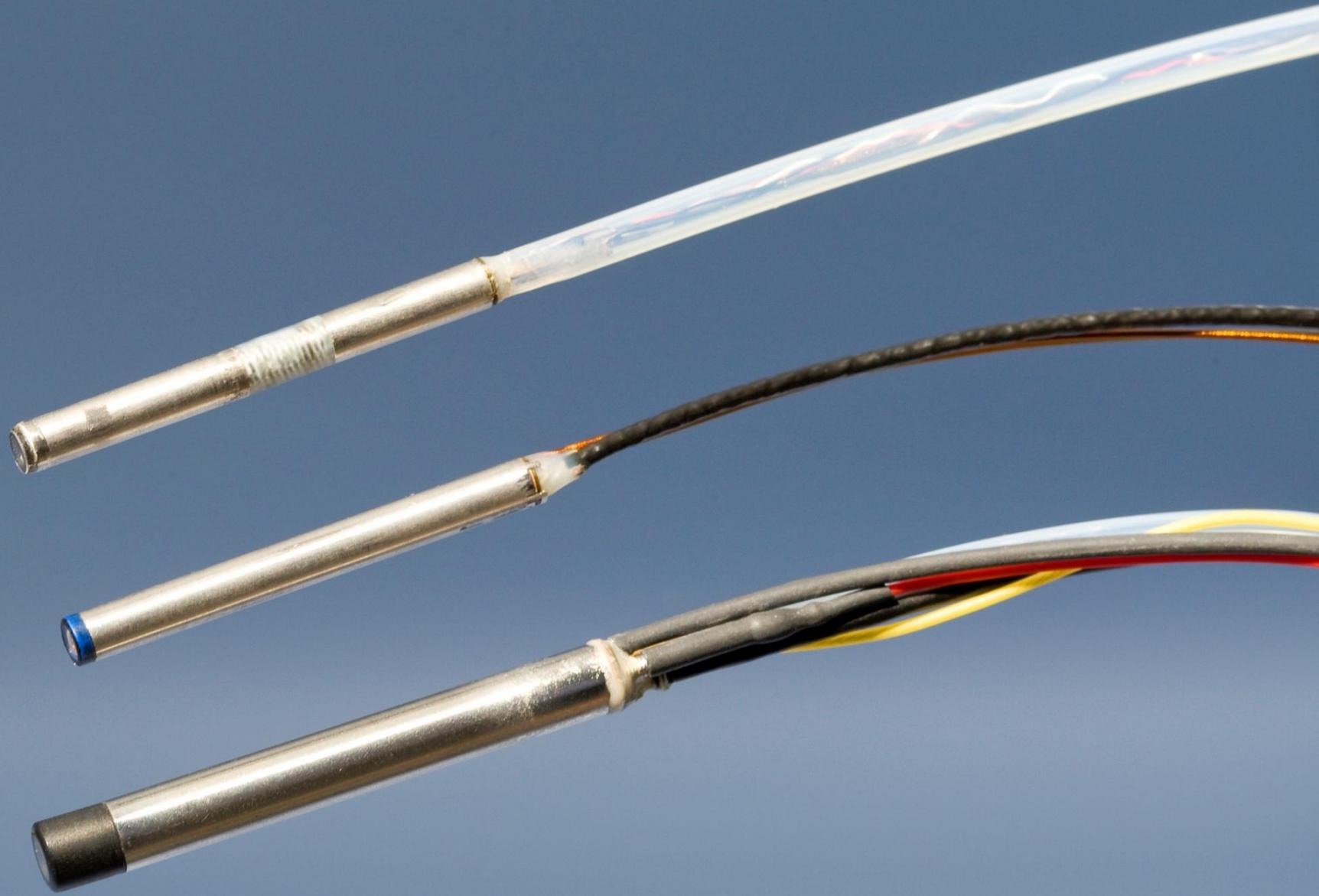
At this point in time, Optiscan has constructed integrated type devices based on all major endoscopy brands, including combination with HD endoscopes, a feature strongly requested by users.

We are often asked the question “why have we not yet released these devices to market?”

The simple reason is that while we are technically proficient at producing such devices for demonstration of the second generation platform’s advantages, we are not a manufacturer of mainstream flexible endoscopes and have no plans to become one in the foreseeable future.

The devices we have constructed are of strategic importance in demonstrating the brand independence of our new platform, working with users of non Hoya/Pentax brand products, and stimulating discussion with the endoscope manufacturers regarding a possible strategic partnership to bring such a device to market.

However, at this juncture, no such partnership has offered any appealing options for our re-entry into this very important market, so although it is considered one of Optiscan’s potential strategic paths, we are cautious since it abandons significant control to the endoscope manufacturer in terms of market development, product regulatory position and future changes of device specifications with further technical progress.



## **Slide 16 - Probe Type Flexible Endoscope Prototypes**

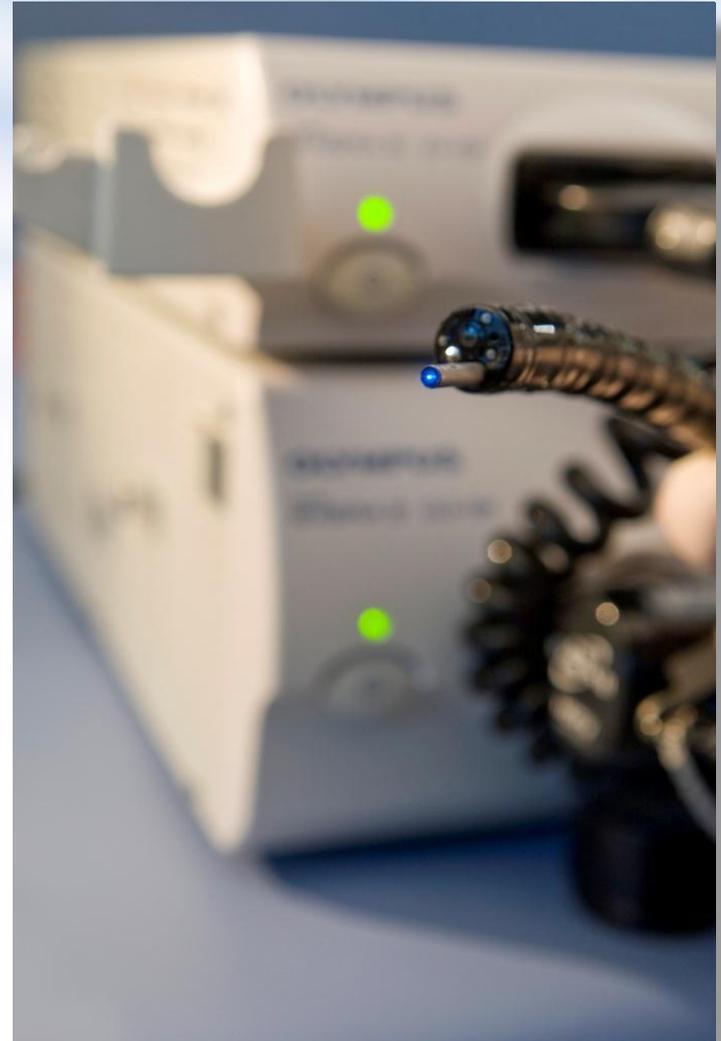
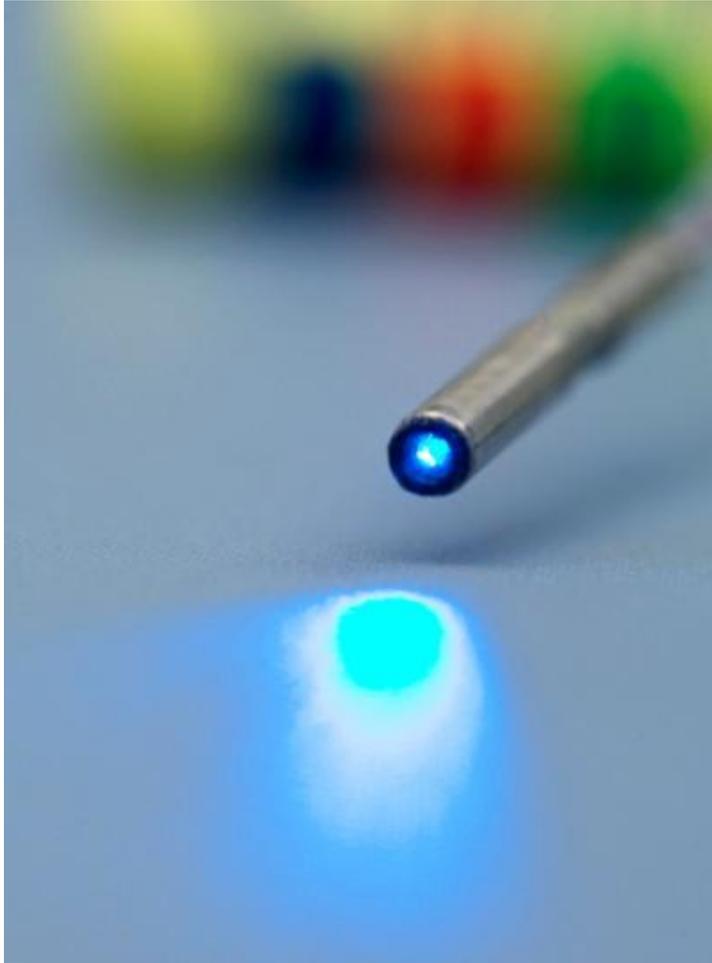
Rather, we believe the soundest strategy for unlocking the value in the GI market for Optiscan's shareholders lies in pursuit of probe based solutions that can be used as an accessory to unmodified endoscopes.

Shown here are our first generation scanner at the bottom and our new generation scanner in the centre (for integrated type endoscopes and rigid surgical endoscopes).

At the top is one of our prototype probe types based on small variations from the new scanner in the centre.

# **“Probe Type” Endomicroscopy - *Platform independence***

---



### **Slide 17 - Probe Type Platform Independence**

This probe can be passed via the channel of a standard endoscope, as shown here in this image sequence, in this case passing via the channel of an unmodified Olympus HD colonoscope.

We have shown this approach to be feasible in a form that maintains our renowned high resolution large format image. This is distinct from lesser approaches that are more easily miniaturised to pass an endoscope channel, but at the expense of severe image resolution and functional compromises.

Such a device would provide a commercial path to the entire endoscopy market without being limited to the market share of any particular brand of endoscope.

No co-development would be required and as such Optiscan would be free to exploit appropriate distribution and marketing partnerships only.

# Probe Type Edomicroscopy

---

- Two methods have been invented to enable Optiscan's high resolution approach in a probe
- First method has been demonstrated in a basic prototype as in previous pictures
- Second method will ultimately provide higher performance and greater miniaturisation
- Key components have been designed and procured for proof of principle of second method
- Acceleration of this development remains a key goal for consideration of strategic options

## **Slide 18 - Probe Type Technology**

In terms of the technical progress towards this product, two major inventions have enabled our path forward.

The first has been demonstrated in the basic prototype shown earlier.

The second, will ultimately provide greater performance and miniaturisation, but requires more development effort than the first.

However, even with conservative development expenditure, we have been able to steadily progress this latter approach during the period and have designed and procured key components for ongoing development.

Expediting this development work, as well as securing a path for marketing a probe device into the GI market remains a key goal in consideration of the options arising from our strategic initiatives.

# Patents and IP

---

- Several patents were granted in several regions during the period.
- A detailed listing is available for reference in the annual report
- Despite increased activity in the endomicroscopy space, Optiscan's technical leadership remains robustly protected

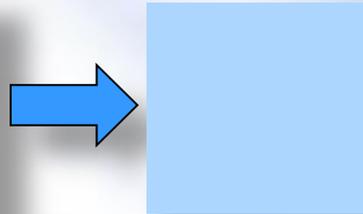
### **Slide 19 – Patents and IP**

During the period, several key patents that have been in examination for some time were ultimately granted in Japan, the United States and Europe.

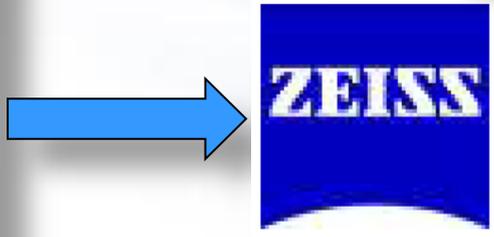
A detailed listing of the status at the end of the period was included in the annual report.

Despite increased global activity in the endomicroscopy space, we believe Optiscan's devices to be unmatched in performance and that technical leadership remains robustly protected.

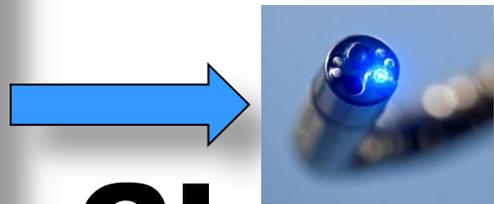
# New Generation Devices



Commissioned  
Prototypes  
eg Veterinary

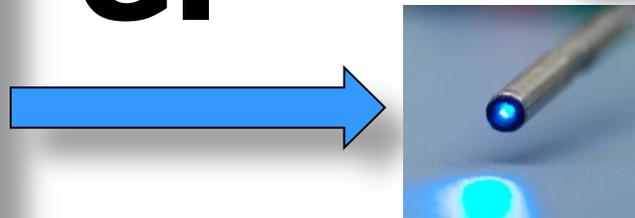


Nuerosurgery  
ENT  
Spinal surgery



“Integrated Type”  
HD + Confocal

**GI**



“Probe Type”  
endomicroscopy

## **Slide 20 - Summary**

So to summarise our technical progress towards products based on Optiscan second generation technology:

- We have demonstrated the superior 'real world' performance of our new technology via a system commissioned for Veterinary applications;
- We have entered the advanced product development phase under new agreements with Carl Zeiss Medtec for neurosurgery;
- We have demonstrated the versatility of our new scanner approach in integrated type endomicroscopy devices based on a diversity of brands of endoscopes

And

- We have progressed important new inventions enabling probe based endomicroscopy, expedited development and marketing of which is a key component of the strategic initiatives outlined by Angus earlier.

## **Slide 21 – Closing Slide**

Thank you for your attention and I will now pass back to Angus for the formal business of the meeting.

Thank you

[www.optiscan.com](http://www.optiscan.com)



Unlocking the world of **Live Micro Imaging (LMI) technology**