In a small-scale patient study, we demonstrated a higher degree of efficacy in terms of staging very early stage breast cancers.

Pathologists have reported a significant benefit to having a more accurate alternative to currently used proliferative markers.

LA TROBE UNIVERSITY

AlleSense is a spin out company from La Trobe University

Partners

LA TROBE INSTITUTE FOR MOLECULAR SCIENCE

Peter Mac
Peter MacCallum Cancer Centre Victoria Australia

The Royal Melbourne Hospital

Olivia Newton-John Cancer Research Institute

Garvan Institute

MCN
Melbourne Centre for Nanofabrication

MEDTECH ACTUATOR

ANFF

Opportunity

The platform technology has a number of potential applications. We have targeted markets relating to general consumable, cancer diagnostics, and digital pathology applications.

Consumable: H&E staining currently constitutes the largest market share by volume within the staining market. The reagent for H&E staining, Hematoxylin, is used in both laboratory and textile applications.

In 2016 the global market for Hematoxylin was valued at US$ 1.5 billion. H&E is still expected to grow at a CAGR of 7.4% from 2017-2025. The AlleSense technology provides a potential alternative to current H&E staining.

$5B H&E slide global market value	$3.24B Human tissue cancer diagnostics	$883M Global digital pathology market

It is estimated that only in the US alone there are more than 1 billion H&E slides prepared annually and that the associated global market value is in excess of US$5 billion.

Cancer Diagnosis: The technology also has demonstrated potential as a regulated product for cancer diagnostics. A ground up approach based on cancer incidence statistics, estimated number of biopsies taken in the diagnosis of cancer, and observed market pricing, was used to estimate the market size. The total human tissue diagnostics market addressable by this technology is estimated at US$3.24 billion in 2020. “Difficult to diagnose” cancer cases which require complex pathology are estimated to be 50% of the total market in dollar value.

Digital: The global digital pathology market size was valued at USD 882.7 million in 2020 and is expected to expand at a compound annual growth rate (CAGR) of 6.8% from 2021 to 2028. Increased focus on improving workflow efficiency and demand for faster diagnostic tools for chronic diseases, such as cancer, have been key factors driving the growth.

Competition

The technology is truly differentiated from competitors and provides superior accuracy and speed when compared to existing immunohistochemical and standard pathology technologies.

Regulatory strategy & IP

The AlleSense team has protected the technology with a patent portfolio consisting of 5 patent national phase families, covering the composition and methods of use, together with key digital, diagnostic, multistage microscopy and reflection-fluorescence applications.

The AlleSense team engaged Hydrix to provide advice on regulatory and reimbursement strategies for key cancer diagnostic and consumable applications, including class I, II and III applications.

Partnership details

We are looking to engage with organisations in the medical imaging and microscopy sector interested in learning more about the technology and working with us on commercialising our invention. If your organisation is interested in working with us on this technology please contact us.

www.allesense.com

allesense@latrobe.edu.au

AlleSense

EXECUTIVE SUMMARY

AlleSense

Innovative imaging solutions

The AlleSense Team

The AlleSense team at La Trobe University have created a cutting edge imaging technology, using advanced manufacturing to provide imaging, microscopy, and digital solutions.

Brian Abbey
Professor of Chemistry & Physics La Trobe University
PhD Chemistry (University of Cambridge)
14 yrs experience in developing imaging technology

Eugeniu Balaur
Senior Research Fellow
La Trobe University
Dr-Eng. in Materials Science and Engineering
15+ yrs experience in micro/nanofabrication

Natalia Alvarez
Senior Manager, Business Development and Commercialisation
La Trobe University
15+ yrs experience in Technology Transfer and Commercialisation

Darcelle Thompson
Manager, Business Development and Commercialization,
La Trobe University
15+ years in commercialisation and business development

Problem

There is a need for new imaging technologies that enable reliable, label-free, imaging of cells and tissues. Current approaches to histology often require extended sample preparation and may have only limited efficacy. New technologies in this area have the potential to advance our understanding and detection of disease. For example, outcomes for cancer patients, critically depend on catching the disease at the very earliest stages.

The technology has been proven in the context of breast cancer detection, where current errors in the diagnosis of very early-stage breast cancers can exceed 70%.[1]

[1] Elmore et al. JAMA. 2015; 313(11): 1122–1132

AlleSense technology offers a proven solution applicable to all users of optical microscopy. We are currently working on our next challenge, translation to production at scale. We are confident we can manufacture the technology cost effectively and enter the market at a competitive price point. Our immediate activity is to validate process approaches and finalise product design performance and quality

Solution

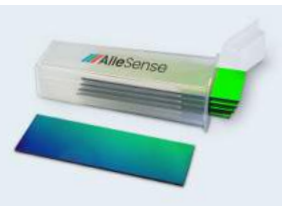
AlleSense

The AlleSense team at La Trobe University have developed a unique and novel solution to label-free imaging, a technology that can be universally applied to enhance contrast from all transparent specimens using a specially coated microscope slide.

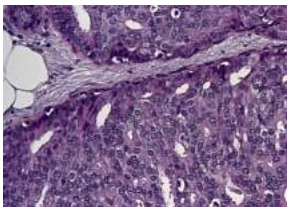
Using the AlleSense slides, massive contrast enhancement occurs instantly, removing the need for any time-consuming sample preparation, staining, or labeling whilst still delivering higher quality images.

AlleSense technology:

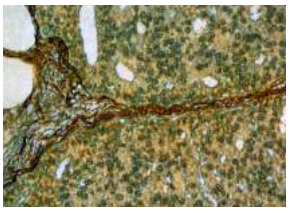
- ***Significant reduction in sample preparation time***
- ***Reduces time to diagnosis***
- ***Provides high-contrast, full-colour imaging***
- ***Potential for higher efficacy digital pathology***



Standard slide size



H&E



AlleSense

AlleSense imaging technology has the potential to revolutionise imaging, microscopy, and digital applications via our patented modification of the conventional glass microscope slide.