

# # Owlstone



## Company

Owlstone

## Competition:

Autumn 2013  
(Cancer)

## Innovation:

LuCID (Lung Cancer Indicator  
Detection)

## University:

£1,094,772

awarded for Phase 1 & 2  
development stages

## Overall Value:

£82m

Estimated saving per annum

## Product availability:

2017

## SUMMARY

The LuCID (Lung Cancer Indicator Detection) project will allow Owlstone's existing chemical detection technology to be used to diagnose lung cancer, by measuring the trace chemicals present in the breath of lung cancer patients. By diagnosing cases earlier, and allowing more effective and less expensive treatments, LuCID will save 3200 lives and £82m each year.

# Case study: Owlstone



## OVERVIEW

Owlstone was founded in 2004, as a spin-out from the Engineering Department at the University of Cambridge, to commercialise the miniature chemical detection system that co-founder Andrew Koehl had developed during his PhD. In the wake of the 9/11 attacks, the company's focus was originally on defence and security applications. However, it became clear that the underlying technology would be equally useful in medical applications involving the detection of biomarkers: tell-tale chemicals in breath and/or bodily fluids that indicate the presence of particular diseases. The LuCID (lung cancer indicator detection) project applies this technology to the detection of lung cancer by measuring chemicals in patients' breath.

Every year, there are around 45,000 new cases of lung cancer in the UK. When diagnosed at Stage I, 35% of patients will live at least a further five years, while for those diagnosed at Stage IV, the five-year survival rate is close to zero. However, at present just 15% of new cases are diagnosed at Stage I. By increasing this to 25% of cases, LuCID aims to save 3200 lives every year. During phase I of the project, 12 lung cancer markers were identified and measured in simulated human breath samples. Phase II will work with Papworth and Glenfield hospitals to verify the effectiveness of the test using a cohort of lung cancer patients and controls.

## PATIENT PERSPECTIVE

LuCID promises the twin benefits of a more pleasant clinical experience and improved health outcomes. Current lung cancer screening techniques, such as chest x-ray, CT-scan and bronchoscopy, are not without risks, and bronchoscopy in particular is a highly invasive medical procedure, involving a tube being fed through the nose or mouth, down the windpipe and into the lungs. By contrast, a breath test is a straightforward, minimally-invasive procedure that can be quickly and easily carried out.

## ECONOMIC IMPACT

Cancer Research UK estimates the average cost of treating patients diagnosed with Stage IV lung cancer to be £13,078, while treatment for patients diagnosed at Stage I will cost just £7,952 on average. Increasing the proportion of patients diagnosed at Stage I from 14.5% to 25% will lead to a corresponding reduction in treatment costs of £82m per year. For Owlstone, adoption of the breath test into a national screening program would lead to around 1.3 million tests being carried out each year, at an estimated cost of £15 per test.

"If you could change only one thing in the fight against cancer, it would be to detect the disease earlier where existing treatments are already proven to save lives. Owlstone's technology has the potential to deliver a quick and easy-to-use breath test, and SBRI Healthcare funding is allowing us to turn that potential into a reality." Billy Boyle, Owlstone Co-Founder

**Visit:** [www.owlstonenanotech.com](http://www.owlstonenanotech.com)

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