



Capsule

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## INGESTIBLE SENSOR STUDIES GUT BACTERIA

 SCIENCE & ENVIRONMENT

### **A new capsule packed with sensors has been developed to study the health of gut bacteria**

Recent research has begun to shed light on the relationship between the bacteria in our gut (the microbiome) and various illnesses. Now, a new ‘pill’ has completed development that could allow scientists to better study gut health. The ‘pill’, which was developed by researchers at [RMIT](#) and [Monash](#) Universities, is actually a swallowable capsule containing gas sensors, a microprocessor and a wireless high-frequency transmitter. The sensors can measure the concentration of intestinal gases. These gases, given off by gut bacteria, contain valuable insight on the condition of various bacteria in the gut.

According to lead investigator, RMIT’s Professor Kouros Kalantar-Zadeh, the current non-invasive methods of measuring intestinal gases are not reliable. “We know gut microorganisms produce gases as a by-product of their metabolism, but we understand very little about how that affects our health,” he said. The capsules could also help researchers determine how particular foods affect the gut. Initial human trials of the capsule have already found an unknown immune response in the stomach. They also demonstrated that a high-fibre diet leads to high concentrations of oxygen in the colon. Kalantar-Zadeh added that, “This new information could help us better understand how debilitating diseases like colon cancer occur.”

After safe and successful human trials, the research team is seeking to commercialise the capsule technology. The team suggests that the ingestible sensor could similarly function as a diagnostic tool for many different gut disorders. The team are consequently partnering with product

development company [Planet Innovation](#) to establish a new company, raise funds and bring the product to market. We have already covered innovative uses of sensors in medical practice. These have included [smart socks](#) that help treat venous disease and also a sensor-equipped [tattoo](#) that can monitor health. Could ingestible sensors lead to better diagnosis of gut ailments?

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