

# Ingestible device

**Battery-Free device that can be fixed at a specific location**

**Enabling sensing of the digestive system and integrated treatment**

## Overview

The development of ingestible devices for testing and treatment in the body is underway. Because ingestible devices are small and have a limited power supply capacity, they have limitations in long-time operation and functional loading. In addition, because conventional devices are moved by the movement of the digestive system such as the small intestine, it is difficult to perform functions such as measurement and medication at a certain location for a long time.

The ingestible device of the present invention is a ring-shaped device with coil wiring that is embedded **in a small, folded state when ingested**, and **expands at a specific location to be fixed within the organ**. Since the coil diameter is increased by expansion, **efficient wireless power supply is possible** by dielectric coupling with a coil outside the body. In addition, since the device is fixed at a specific location in the digestive organ when the coil is expanded, **it is possible to measure time changes and administer medication at an appropriate location and time**.

## Product Application

- Diagnosis and treatment of the digestive system
- Healthcare devices (such as those for gut health)

## IP Data

IP No. : JP2025-201006  
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Admin No. : T25-061

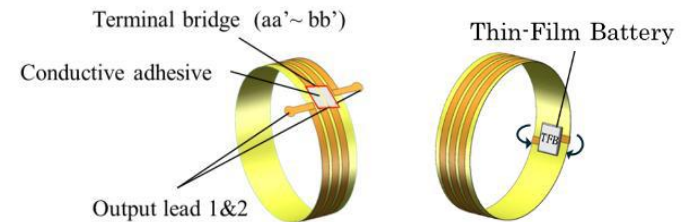


Figure: Ingestible device of the present invention

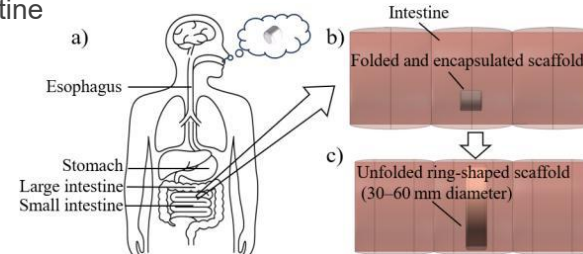
A coil containing wiring is folded and embedded in a material that dissolves in a specific environment (such as pH).

## Features · Outstandings

- Self-expanding ring with coil wiring (outer diameter 35 mm)



- Image of the product being taken into the body, expanded and fixed in the intestine



## Related Works

[1] Q. Wang, N.Tsuruoka, Y. Sakaguchi, F. Arai, Y. Haga, The 36th 2025 International Symposium on Micro-NanoMechatronics and Human Science (MHS2025), Nagoya(2025, November), MoA1-1-3

## Contact

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