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Introduction

The future medical sensor is simple and noninvasive analysis, continuous measurement and recording function which could be realized with super small sensor network system are thought to be important. Therefore we develop a prototypic sensor which has high versatility (small physical sensor and glucose sensor) and make consecutive analysis possible. In this study, the small multifunction biosensors for oral cavity and a small intestine will be introduced.

Results and Discussion

Multidetection biosensor with wireless communication: Small multifunctional sensor was designed with 0.18 μm CMOS process. **Figure 1** shows a schematic represents of a kind of constructed sensor devices. This sensor carries not only enzyme reaction electrode but thermometer, and an antenna which can communicate with extra-body receiver devices. Some data will be announced at the meeting.

Biosensor for small intestine specific use: As a swallowable prototypic biosensor, we developed mediator fixed glucose sensor for the detection in small intestine. **Figure 2** shows the current response of glucose sensor for detection in artificial intestinal juice. Enzyme activity was protected with enteric coat treatment from acidic gastric juice. In future, it will be fused to wireless signal devices (like **Fig. 1**) in order to monitor some factors in small intestine.

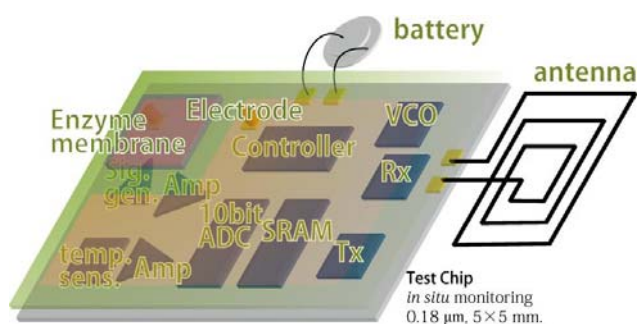


Fig.1 Scheme of constructing swallowable sensor.

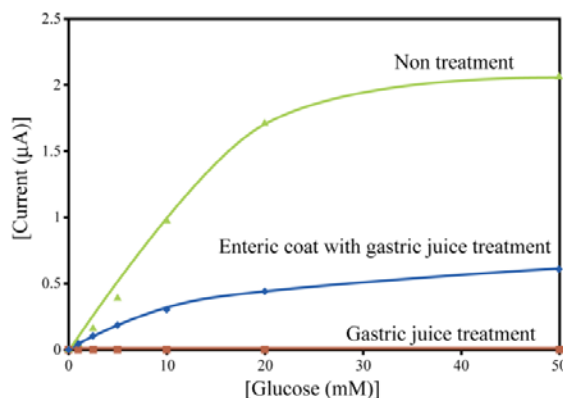


Fig.2 Current response of enteric coat glucose sensor.