Wet-interfacing technologies for non-invasive physiological chemical sensing

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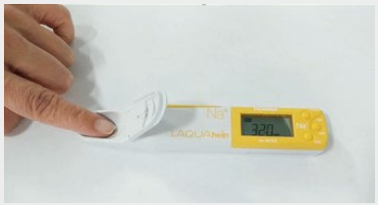
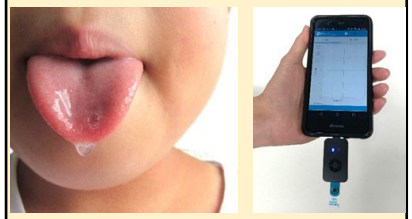
Illustration

Research and development of new devices through the fusion of organic/polymer and electronics

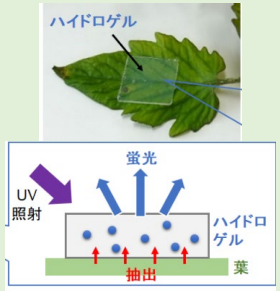
①Hydrogel touchpad for sweat analysis



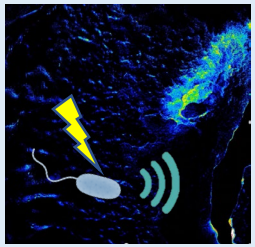
② Portable saliva sensor



③Non-destructive Chemical sensors for plants



④Electrochemical measurement/control of bacterial communications



Content：

Non-invasive chemical sensors for daily health management have been developed with the aim of realizing preventive medical care. At the same time, similar technologies have been applied to agriculture for daily management of crop growth and disease infection. In both cases, non-invasive / non-destructive sensing of the chemical information has been a challenge in recent years. In our laboratory, we are developing fundamental technology that enables non-invasive / non-destructive chemical sensing of physiological information by connecting living organisms and sensors using wet materials (hydrogel, etc.) as shown in the illustrations. Furthermore, for microorganisms that coexist with humans and plants, we are also investigating electrical connection technique between electrodes and microorganisms, with the aim of measuring and controlling their activities. We think that these technologies are essential for understanding real physiological information.

Appealing point: We are conducting R&D through industry-academia collaboration aiming at various applications of sensors.

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