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Studies of Body Fluids with Optical Fiber Sensors*

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For monitoring of various kinds of constituents in biological fluids, many different types of sensors have been developed. Most of them have been based on the ability of materials immobilized directly onto electrodes to react specifically with an analyte. In this study we have performed a fundamental study of a glucose sensor utilized an optical fiber based on a spectroscopic detection system. We prepared two types of the membranes. One was the membrane for a pH sensor. The others was the membrane for a glucose sensor containing glucose oxidase and bromothymol blue. The sensor responded to pH change due to the gluconic acid resulting from glucose.

From the results of the two types of sensor, it is considered that the optical fiber sensors are effective for biochemical analysis of body fluids. There is a possibility that the optical fiber sensor may be applicable to the analytical method in vivo.

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