

**The report of launch joint clinical research on HIROTSU BIO SCIENCE's
cancer screening test "N-NOSE" using nematodes.**

We report here that HIROTSU BIO SCIENCE INC. (Head office: Minato-ku, Tokyo, President & CEO: Takaaki Hirotsu; hereafter referred to as HIROTSU BIO) and Incorporated administrative agency Shikoku Cancer Center (Hospital Director: Akira Kurita; hereafter referred to as Shikoku Cancer Center) have launched joint clinical research for "N-NOSE" cancer screening test using nematodes.

"N-NOSE" is a highly accurate, comprehensive cancer screening method utilizing the amazing sensing capability of living organism. "N-NOSE" using urine sample is painless, and is simple and comprehensive screening test for detection of cancer. "N-NOSE" has also many advantages such as low cost, high sensitivity, and detectability of early-stage cancer. So far we have conducted clinical research focused on only digestive organ cancer, however, we will be able to correct approximately 1,000 of cancer samples per a year in cooperation with Shikoku Cancer Center playing roles as a key clinical network of cancer policy. The cooperation will enable us to research various types of cancer including orphan cancer. In the Shikoku Cancer Center, the ratio of patients under 50 years of age are relatively high (19.6%). Thus, by the cooperation with the Shikoku Cancer Center, we can expect to develop the novel screening test for breast and cervical cancer which is demanded to be detected in early stage.

Current clinical research of "N-NOSE" shows high accuracy that the sensitivity is 93.8 % (HIROTSU BIO's press release on Dec. 14, 2018). We thus believe the social implementation of "N-NOSE" will lead to many advantages such as dramatic increase in a medical examination rate of the cancer screening test, increase of chance to detect the early-stage cancer, dramatic decrease in the number of deaths by cancer, and large reduction in medical costs.

[Biological diagnosis]

Technique of diagnosis that utilize the ability of living organisms, but not artificial devices. In N-NOSE, cancer-specific odor is detected by olfaction of nematode that exceeds the sensitivity of artificial devices. N-NOSE may be useful to detect early stage cancer that is small in size, as well as those that express low-level of other cancer markers.

[Practical use of N-NOSE]

Currently, N-NOSE is still in research phase. We do not yet offer this test for public people. We are making effort to launch N-NOSE as soon as possible, so please understand our situation.

Inquiry Recipient

HIROTSU BIO SCIENCE INC.

2F Forum Bldg., 2-24-11 Minamiaoyama, Minato-ku, Tokyo 107-0062, Japan

E-mail: press@hbio.jp