

A Sensitive and Simple Method for Detection of Occult Blood in Biological Samples

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Technology description

This invention provides a simple fluorometric method which avoids the disadvantages of guaiac-based and immunologic tests.

At least 1,000 times more sensitive than the currently available commercial kits, this fluorimetric method has been used to detect a single erythrocyte in a tissue section. In addition, this test can give quantitative assessments of blood loss.

Background

The ability to detect occult blood assists in the early diagnosis of a variety of conditions, for example, colorectal cancer. Several different kinds of tests for occult blood are commercially available. Several of these tests are based on the immunologic recognition of intact human hemoglobin. Such tests are limited by insensitivity to hemoglobin that is denatured, either in sample processing or by passing through the upper GI tract. Several other tests make use of the pseudoperoxidase activity of hemoglobin or free heme detected by guaiac, an oxidation-sensitive dye. Such tests suffer from a high rate of false positives. When these tests are used, patients are instructed to avoid eating red meat or turnips and to avoid the use of aspirin and other non-steroidal anti-inflammatory drugs or vitamin C for at least two days.

Despite the limitations of currently available fecal occult blood tests, annual screening is recommended by the United States Preventive Services Task Force, the World Health Organization, and the American Cancer Society.

Technology Description

This invention provides a simple fluorometric method which avoids the disadvantages of guaiac-based and immunologic tests. At least 1,000 times more sensitive than the currently available commercial kits, this fluorimetric method has been used to detect a single erythrocyte in a tissue section. In addition, this test can give quantitative assessments of blood loss.

Publications

[Journal of Cerebral Blood Flow and Metabolism](#)

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Application area

This simple and economical test:

Will reduce the likelihood of false positive and false negative results

Is at least 1,000 times more sensitive than the currently available commercial kits

Can detect a single erythrocyte in a tissue section

Can give quantitative assessments of blood loss

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