

is designed to allow insertion into the reader. The optical signal passes through a portion of this seal between the end of the fiber and the splitter.

In this disclosure there is described only the preferred embodiments of the invention and but a few examples of its versatility. It is to be understood that the invention is capable of use in various other combinations and environments and is capable of changes or modifications within the scope of the inventive concept as expressed herein. Thus, for example, those skilled in the art will recognize, or be able to ascertain, using no more than routine experimentation, numerous equivalents to the specific substances and procedures described herein. Such equivalents are considered to be within the scope of this invention, and are covered by the following claims.

What is claimed is:

1. A method of detecting and/or treating a disease in a patient comprising:

A) contacting an ingestible medical device with a bodily fluid by administering said device to a patient, said device having an exterior surface and an interior surface and comprising:

a) a microarray of miniature test sites configured to fluidically communicate with the bodily fluid of the patient, wherein said microarray comprises a plurality of the test sites on a continuous surface, each site of said plurality comprising a polypeptide bioactive agent immobilized thereon to effect an interaction with a disease marker suspected to be present in the bodily fluid;

b) a reservoir comprising a therapeutic agent;

c) an optical microarray scanning device that is configured to optically detect signals from the plurality of test sites on the continuous surface, wherein the signals are indicative of a physical parameter indicative of the disease marker based on an interaction between the disease marker and said polypeptide bioactive agents at said plurality of test sites;

d) a biometric recognition device that is configured to compare said physical parameter data with an analyte interaction profile;

e) a therapeutic agent releasing device that is configured to control release of at least one therapeutic agent from said reservoir;

f) an interface device that is configured to facilitate communication between said microarray scanning device and said biometric recognition device; and

g) a biocompatible polymer coating, coated on the exterior surface of said ingestible medical device, facilitating said device to pass through an intestinal tract; and

B) operating said ingestible medical device to obtain the physical parameter indicative of the presence of said disease; and optionally

C) releasing said therapeutic agent to said patient.

2. The method of claim 1, wherein the biocompatible polymer coating has channels.

3. The method of claim 1, wherein the biocompatible polymer coating is porous.

4. The method of claim 1, wherein the microarray comprises microbeads.

5. The method of claim 1, wherein the plurality of bioactive agents are monoclonal antibodies.

6. The method of claim 1, wherein the plurality of bioactive agents are immunoglobulins.

7. The method of claim 1, wherein the plurality of bioactive agents are fluorescently labeled.

8. The method of claim 1, wherein the plurality of bioactive agents are fluorescently labeled with a nanocrystal.

9. The method of claim 1, wherein the disease marker is a nucleic acid.

10. The method of claim 1, wherein the disease marker is a polypeptide.

11. The method of claim 10, wherein the disease marker is an immunoglobulin.

12. The method of claim 1, wherein one or more of the microarray scanning device, biometric recognition device, therapeutic device and interface device comprise silicon germanium.

13. The method of claim 1, wherein the microarray scanning device comprises fiber optic elements.

14. The method of claim 1, wherein the analyte interaction profile is stored in the biometric recognition device.

15. The method of claim 1, wherein the analyte interaction profile is stored on an external device separate from the medical device.

16. The method of claim 1, wherein the reservoir is configured to release said at least one therapeutic agent from said medical device.

17. The method of claim 1, wherein the interface device comprises a personal area network.

18. The method of claim 1, further comprising an energy source to power the medical device.

19. The method of claim 18, wherein the energy source is provided by a personal area network.

20. The method of claim 1, wherein the communications are monitored by an external computer.

21. The method of claim 20, wherein the external computer directs release of the therapeutic agent.

22. The method of claim 1, further comprising comparing said physical parameter to the analyte interaction profile to facilitate detection of said disease.

23. The method of claim 1, wherein the disease marker is a biological analyte.

24. The method of claim 1, wherein the plurality of bioactive agents comprise the same bioactive agents.

25. The method of claim 1, wherein the plurality of bioactive agents comprise different bioactive agents.

26. The method of claim 1, wherein the therapeutic agent is specific to a toxin or disease.

27. The method of claim 1, wherein the therapeutic agent is selected based on the detected disease marker.

28. The method of claim 1 wherein the releasing of the therapeutic agent is based on a detected concentration of the disease marker.

29. The method of claim 1, wherein the microarray is configured to automatically interact with a gastric fluid when ingested by the subject.

30. The method of claim 29, wherein the medical device is configured to transmit information of said interaction to an external source.

31. The method of claim 1, wherein the plurality of the test sites are simultaneously exposed to a sample suspected to contain the disease marker upon ingestion by the subject.

32. The method of claim 1, wherein the microarray scanning device is a camera.