

After incubation, the liposome conjugated with antibody was purified by passing through a sepharose 4B column.

The immunoassay procedure was carried out by using the reagents of RIAUSURE kit with the liposome conjugated antibody replacing the I^{125} labelled antibody. Triton X-100 solution was added to the test tube after the biological assay and before the addition of TCPO/ H_2O_2 solution. Light was generated by positive sample and detected by Pico-Lite luminator with a red filter.

The preferred energy source for carrying out the method of the present invention is that generated by the reaction of a peroxide and an oxalate/oxamide selected from the group comprising
 bis(2,4,6-trichlorophenyl)oxalate,
 bis(3-trifluoro methyl-4-nitrophenyl)oxalate,
 bis(2-formyl-4-nitrophenyl)oxalate,
 bis(2,6-dichloro-4-nitrophenyl)oxalate,
 N,N'-bis(2,4,5-trichlorophenyl)-N,N'-bis(trifluoromethyl sulfonyl)oxamide,
 N,N'-bis(2,4-dichlorophenyl)-N,N'-bis(trifluoromethyl sulfonyl)oxamide,
 N,N'-bis(2-methoxy ethyl)-N,N'-bis(trifluoromethyl sulfonyl)oxamide,
 and N,N'-bis(4-nitro phenyl)-N,N-bis(trifluoro methyl sulfonyl)oxamide.

Although the above examples illustrate various modifications of the present invention, other variations will suggest themselves to those skilled in the art in the light of the above disclosure. It is to be understood, therefore, that changes may be made in the particular embodiments described above which are within the full intended scope of the inventions as defined in appended claims.

We claim:

1. A system for the detection of a biological analyte of interest which comprises a microencapsulated fluorescer material which has been conjugated to an immunological specie specific to the biological analyte of interest, a means of disrupting the capsule containing the fluorescer and an energy source other than electromagnetic radiation which is capable of activating the fluorescer.

2. A system for the detection of a biological analyte of interest according to claim 1 which comprises a microencapsulated fluorescer which has been conjugated to an immunological specie specific to the biological analyte of interest, a means of disrupting the capsule containing the fluorescer and an excess of an energy source other than electro-magnetic radiation which is capable of activating the fluorescer.

3. A method for the qualitative detection of a biological analyte of interest comprising:

- (a) labeling an immunological specie specific to the analyte of interest with a microencapsulated fluorescer material which is biologically compatible with such specie;
- (b) contacting the specie labeled by the microencapsulated fluorescer and the biological analyte of interest to form a specie labeled by a microencapsulated fluorescer/biological analyte complex;
- (c) separating the specie labeled by a microencapsulated fluorescer/biological analyte complex;
- (d) disrupting the capsule containing the fluorescer label thus freeing it to solution;

- (e) contacting the freed fluorescer with an energy source other than electro-magnetic radiation which is capable of activating the fluorescer label; and
- (f) determining the presence of chemiluminescent light emitted.

4. A quantitative method for measuring the amount of a biological analyte of interest comprising:

- (a) labeling an immunological specie specific to the analyte of interest with a microencapsulated fluorescer material which is biologically compatible with such specie;
- (b) contacting the specie labeled by the microencapsulated fluorescer and the biological analyte of interest to form a specie labeled by a microencapsulated fluorescer/biological analyte complex;
- (c) separating the specie labeled by a microencapsulated fluorescer/biological analyte complex;
- (d) disrupting the capsule containing the fluorescer label thus freeing it to solution;
- (e) contacting the freed fluorescer with an energy source other than electro-magnetic radiation which is capable of activating the fluorescer label; and
- (f) measuring the quanta of chemiluminescent light emitted.

5. The method of claim 3 wherein the microencapsulated fluorescer material of (a) is chemically conjugated to the immunological specie specific to the biological of interest.

6. The method of claim 5 wherein the chemical conjugation of the encapsulated fluorescer material to the immunological specie specific to the biological of interest is carried out in such a way as to prevent substantial biological damage to the attached specie.

7. The method of claim 3 wherein the microencapsulated fluorescer material utilized has a spectral emission of from about 350 millimicrons to about 1000 millimicrons.

8. The method of claim 3 wherein the microencapsulated fluorescer material utilized has a spectral emission above the emission wavelength of the immunological specie specific to the biological of interest, the energy source, or any solvent system utilized.

9. The method of claim 3 wherein the microencapsulated fluorescer material utilized has been formed in such a manner as to produce a microcapsule having a high concentration of fluorescer material.

10. The method of claim 3 wherein the microencapsulated fluorescer material utilized has a microcapsule structure having one or more reactive groups to enable the microcapsule's conjugation with an immunological specie specific to the analyte of interest.

11. The method of claim 3 wherein the microencapsulated fluorescer material utilized possesses a microcapsule of uniform colloidal size whose structure has a membrane which is easily disrupted to free the fluorescer material.

12. The method of claim 3 wherein the microencapsulated fluorescer material utilized is selected from the group consisting of 5,12-dihydro quinoxalo (2,3,6) phenazine, magnesium and zinc metallo porphyrins, neutral red, magdalla red, acridine red, acridine orange, dianisyl ethynyl tetracene, phenazine, rhodamine, 3,4,9,10 perylene tetracarboxylic dianhydride, and derivatives thereof.

13. The method of claim 3 wherein the energy source of (e) which is contacted with the freed fluorescer material is present in excess of the amount required to activate all of the freed fluorescer material.