

- al. On the Correlation of the Spectroscopic and Thermal Energy Differences Between the Fluorescence and Phosphorescence Levels of Dye Molecules. *Journal of Chromatography*, 81 (1973) 353, 356, Elsevier Scientific Publishing Company, Amsterdam, Printed in The Netherlands, Marc Roth et al. Column Chromatography of Amino Acids with Fluorescence Detection. *Photochemistry and Photobiology*, 1965, vol. 4, pp. 1097, 1110, Pergamon Press Ltd., Printed in Great Britain, M. M. Rauhut et al. Structural Criteria for Chemiluminescence in Acyl Peroxide Decomposition Reactions. *Photochemistry and Photobiology*, 1965, vol. 4, pp. 111, 1121, Pergamon Press Ltd., Printed in Great Britain, Frank McCapra et al. Chemiluminescence Involving Peroxide Decompositions. *Proc. Nat. Acad. Sci. US* 72 (1975) pp. 619-622, Feb. 1975, James R. Benson et al. Phthalaaldehyde: Fluoregenic Detection of Primary Amines in the Picomole Range, Comparison with Fluorescamine and Ninhydrin. *Clin. Chemistry*, vol. 25, No. 7, 1970, p. 1350, Irwin Wieder, Correction to Fluorescence Immunossay Review. *Analytical Chemistry*, vol. 48, No. 7, Jun. 1976, pp. 545A-558A, Larry D. Bowers et al., Applications of Immobilized Enzymes. *Chemtech*. Apr. 1976, pp. 219-220, A. Brownstein et al. Heart Cut. *Analytical Chemistry*, vol. 48, No. 9, Aug. 1976, pp. 1403-1405, Richard Delumyea et al., Metal Catalysis of the Luminol Reaction in Chromatographic Solvent Systems. *Analytical Chemistry*, vol. 48, No. 8, Jul. 1976, pp. 1188-1192, Paul R. Michael et al. Comparisons Between the Luminol Light Standards and a New Method for Absolute Calibrations of Light Detectors. *Analytical Chemistry*, vol. 47, No. 2, Feb. 1975, John P. Auses et al. Chemiluminescent Enzyme Method for Glucose. *Analytical Chemistry*, vol. 47, No. 2, Feb. 1975, pp. 249-255, Csaba P. Keszthelyi et al. Electrogenated Chemiluminescence: Determination of the Absolute Luminescence Efficiency in Electrogenated Chemiluminescence; 9,10-Diphenylanthracene-Thianthrene and Other Systems. *Analytical Chemistry*, vol. 47, No. 2, Feb., 1975, R. Marshall Wilson et al., Computerized Kinetic Luminescence Spectrometry: Time-Resolved and Component-Resolved Phosphorescence Spectrometry. *Analytical Chimica Acta*, 68, (1974) 339-362, U. Isacsson et al. Chemiluminescence in Analytical Chemistry, Elsevier Publishing Co., Amsterdam, Printed in The Netherlands. *Analytical Letters*, 7 (8 & 9), 583-590 (1974), Michael P. Neary et al. A Chemiluminescence Detector for Transition Metals Separated by Ion Exchange. *Analytical Chemistry*, vol. 44, No. 13, Nov. 1974, pp. 2143-2149, W. Rudolf Seitz et al. Determination of Trace Amounts of Iron (II) Using Chemiluminescence Analysis. *Analytical Chemistry*, vol. 44, No. 6, May 1972, pp. 957-963, W. Rudolph Seitz et al., Determination of Trace Amount of Chromium (III) Using Chemiluminescence Analysis. *Analytical Chemistry*, vol. 46, No. 2, Feb., 1974, pp. 188A-202A, W. Rudolf Seitz et al., Chemiluminescence and Bioluminescence in Chemical Analysis. *Analytical Chemistry*, vol. 43, No. 11, Sep. 1971, pp. 1438-1441, Michel Heurtebise et al., Application of an Iodide-Specific Resin to the Determination of Iodine in Biological Fluids by Activation Analysis. *Analytical Chemistry*, vol. 40, No. 14, Dec. 1968, pp. 2194-2196, Joe A. Vison et al. Quantitative Determination of Organic Halides in Dimethyl Sulfoxide. *Analytical Chemistry*, vol. 36, No. 6, May 1964, pp. 1138-1140, Ralph Grunewald et al. Large Volume Activation Analysis of Organically Bound Iodine Using Isotopic Neutron Sources. *Analytical Chemistry*, vol. 47, No. 6, May 1975, pp. 915-916, Jack L. Lambert et al. Iodine and Iodine Determination in the Parts-per-Billion Range with Leuco Crystal Violet and N-Chlorosuccinimide Succinimide Reagents. *Analytical Letters*, 7(1), 79-88 (1974), Arleigh Hartkopf et al., Use of the Luminol Reaction for Metal Ion Detection in Liquid Chromatography. *Clinical Chemistry*, vol. 25, No. 9, 1979, pp. 1531-1546, Thomas P. Whitehead et al. Analytical Luminescence: Its Potential in the Clinical Laboratory. *Journal of Immunological Methods*, 26 (1979), 229-244, James T. Sundeen et al. A Quantitative Assay for Low Levels of IgM by Solid-Phase Immunofluorescence. *Journal of Immunological Methods*, 26 (1979), 307-313, pp. 307-313, R. D. Nargessi et al. Use of Antibodies Against the Label in Non-Separation Non-Isotopic Immunoassay: 'Indirect Quenching' Fluoroimmunoassay of Proteins. *Journal of Immunological Methods*, 35 (1979), 127-135, pp. 127-135, Luminescence Immunoassay (LIA): A Solid-Phase Immunoassay Monitored by Chemiluminescence. *Journal of Immunological Methods*, 25 (1979), 275-282, Hartmut R. Schroeder et al., Immunoassay for Serum Thyroxine Monitored by Chemiluminescence. *Journal of Immunological Methods*, 21, (1978) 179 181, J. J. Pratt et al. Chemiluminescence-Linked Immunoassay. *Applied and Environmental Microbiology*, Apr. 1978, pp. 813-816, vol. 35, No. 4, Carol A. Miller et al. Chemiluminescent Detection of Bacteria: Experimental and Theoretical Limits. *Luminescence of Liquid and Solid and its Practical Applications*, by Peter Pringsheim and Marcel Vogel, Interscience Publishers, Inc. N.Y., 1946. *Analytical Chemistry*, vol. 39, No. 11, Sep. 1967, pp. 1294-1297, Horacio A. Mottola et al. Use of Metal Ion Catalysis in Detection and Determination of Microamounts of Complexing Agents. *Primary Examiner*—Sidney Marantz
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ABSTRACT

A system for the detection of a biological analyte of interest is disclosed which comprises a microencapsu-