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研究论文

红细胞标记抗体的化学发光免疫分析

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摘要 用红细胞代替辣根过氧化物酶作为双抗体夹心免疫分析中第二抗体的标记物, 建立了一种红细胞标记抗体的免疫化学发光测定乙型肝炎病毒表面抗原的新方法. 在免疫反应完成后, 结合了抗原-抗体免疫复合物的致敏红细胞在低渗溶液中溶血, 释放出血红蛋白. 基于血红蛋白对鲁米诺-H_2O_2体系化学发光具有催化作用的原理, 采用化学发光法测定血红蛋白含量. 测得的血红蛋白发光强度与待测抗原浓度呈线性关系. 采用这种方法可检测出0.5 ng/mL的乙型肝炎病毒表面抗原. 将该方法与酶联免疫吸附分析(ELISA)结合起来对乙型肝炎患者血清乙肝病毒表面抗原(HBsAg)进行检测, 两者符合率均为97%, 表明本法具有良好的灵敏度和特异性, 可用于临床标本测试.

关键词 红细胞标记抗体 化学发光免疫分析 乙型肝炎病毒表面抗原.

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Studies on a Chemiluminescent Immunoassay with the Erythrocyte-labeled Antibody

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Abstract A novel chemiluminescence immunoassay suitable for the determination of the hepatitis B virus' surface antigen(HBsAg) was studied. Instead of the enzyme-labeled antibody in enzyme-lined immunosorbent assay(ELISA), the erythrocyte-labeled monoclonal anti-HBsAg antibodies were utilized as the second antibody in this double antibody sandwich immunoassay. After the sandwich immunoreaction occurs, the sensitized erythrocyte, having combined with the immune complex made from antigen and the first antibody, suffers from hemolysis in low osmotic solution and releases hemoglobin(Hb). Hb can catalyze the chemiluminescent reaction of luminal by hydrogen peroxide. The intensity of the chemiluminescent reaction was linearly with the concentration of the hepatitis B virus' surface antigen(HBsAg) in the detected samples. This assay can be used to detect 0.5 ng/mL of HBsAg. The 30 healthy donors and 30 patients with hepatitis B were detected for HBsAg with this method and with routine ELISA as the standard. The coincidence rate of the two assays was 97%, which illustrates that the developed chemiluminescence immunoassay with erythrocyte-labeled antibody is suitable in clinical determination.

Key words Erythrocyte-labeled antibody Chemiluminescent immunoassay Hepatitis B virus' surface antigen

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