BAIT LOADED HYDROGEL PARTICLES PERFORM ONE STEP, IN SOLUTION SEQUESTRATION, CONCENTRATION AND PROTECTION FROM DEGRADATION OF LOW MOLECULAR WEIGHT, LOW ABUNDANCE DISEASE BIOMARKERS IN BLOOD AND URINE

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ABSTRACT

Disease-associated blood biomarkers exist in exceedingly low concentrations in the blood and urine and may be subjected to degradation during transportation and storage as a result of endogenous or exogenous proteinase activity. We have produced a NIPAm/NIPam core shell and varying compatibilizers with an affinity but not molecular size driving the affinity towards a variety of bioactive macromolecules. The low abundant biomarker plasmalogen growth factor (PIGF) was completely recovered from urine and concentrated within the nanoparticles. In a competitive assay, a concentration of 0.1 fM % was demonstrated that PI GF spiked in human urine and recovered with particles. The immunoassay was performed for a concentration factor of many hundred fold. The recovery of PIGF was demonstrated in a variety of protein and molecule concentrations which had a near linear correlation to the nanoparticles eluted and were recognized by the anti-PIGF antibody when spiked in human urine. Dose dependent capacity to sequester and concentrate a variety of protein and molecule concentrations which had a near linear correlation to the nanoparticles eluted and were recognized by the anti-PIGF antibody when spiked in human urine.

INTRODUCTION

VWF-based particles in a tube of blood harvest biomarkers, which are then destined to a smaller volume. A variety of biomarkers are concentrated and particle size is reduced, thereby improving the sensitivity of the immunoassay (e.g., Thromine University).

PROTECTION FROM DEGRADATION

Rapid, efficient, and effective capture of PIGF (PIGF) from human urine, was achieved by the NIPAm/NIPam particles which were incubated with the analyte containing solution. The plateau is dependent on the concentration of PIGF, as shown in the graph. Core shell particle eluate is linearly dependent on PIGF concentration.

SEQUESTRATION AND CONCENTRATION

HRSE PAGE analysis showing that core-shell particles (Lane 2, 5, and 8) are susceptible to proteolytic digestion. Core-shell particles were incubated with a variety of biological fluids containing the analyte and the core-shell particles were incubated with the analyte containing solution. The plateau is dependent on the concentration of the analyte. Core-shell particles were incubated with the analyte containing solution. The plateau is dependent on the concentration of the analyte.

RAPID UPTAKE

Western blot analysis revealed the number of PIGF in urine as measured by IELISA assay. The graph shows the number of PIGF in urine as measured by IELISA assay. The graph shows the number of PIGF in urine as measured by IELISA assay. The graph shows the number of PIGF in urine as measured by IELISA assay. The graph shows the number of PIGF in urine as measured by IELISA assay.

APPLICATION

Particles were incubated with a variety of urine samples and the particles were subjected to a variety of urine samples. The particles were subjected to a variety of urine samples. The particles were subjected to a variety of urine samples. The particles were subjected to a variety of urine samples. The particles were subjected to a variety of urine samples.

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