



US 20040206626A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2004/0206626 A1**

**Ross et al.**

(43) **Pub. Date: Oct. 21, 2004**

(54) **MICELLAR GRADIENT FOCUSING**

(52) **U.S. Cl. .... 204/459; 204/610**

(76) **Inventors: David J. Ross, Silver Spring, MD (US); Peter B. Howell, Gaithersburg, MD (US); Wyatt N. Vreeland, Washington, DC (US)**

(57) **ABSTRACT**

A method and device are provided for affinity gradient focusing for directing at least one analyte in a solution containing a pseudostationary phase and located in a channel such as a capillary or a microchannel. The method includes establishing a steady-state spatial gradient in a retention factor of the pseudostationary phase for the at least one analyte. The analyte is caused to be moved within the channel whereby the concentration of the at least one analyte changes at one or more positions along the gradient. The pseudostationary phase is charged and the analyte is either neutral or charged or alternatively, the pseudostationary phase is neutral and the analyte is charged. The device may include a fluid channel, a pseudostationary phase having a retention factor gradient, an electrical current source and a pump system for establishing the bulk flow in the solution in the channel.

Correspondence Address:  
**STITES & HARBISON PLLC**  
**1199 NORTH FAIRFAX STREET**  
**SUITE 900**  
**ALEXANDRIA, VA 22314 (US)**

(21) **Appl. No.: 10/864,485**

(22) **Filed: Jun. 10, 2004**

**Publication Classification**

(51) **Int. Cl.<sup>7</sup> ..... G01L 1/20; C07K 1/26**

**16**

