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Oh et al.

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(54) **MICROFLUIDIC MAGNETOPHORETIC DEVICE AND METHODS FOR USING THE SAME**

(58) **Field of Classification Search** 435/308.1;
436/501, 518, 526, 514; 422/68.1, 100, 102,
422/101, 103; 210/222, 695; 204/557, 664;
209/213, 214, 223.1
See application file for complete search history.

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C12Q 1/70 (2006.01)

(52) **U.S. Cl.** **422/527; 422/502; 422/504; 422/68.1; 436/501; 436/518; 436/526; 436/514; 435/308.1**

(57) **ABSTRACT**

A microfluidic device may employ one or more sorting stations for separating target species from other species in a sample. The separation is driven by magnetophoresis. A sorting station generally includes separate buffer and sample streams. A magnetic field gradient applied to the sorting station deflects the flow path of magnetic particles (which selectively label the target species) from a sample stream into a buffer stream. The buffer stream leaving the sorting station is used to detect or further process purified target species labeled with the magnetic particles.

20 Claims, 20 Drawing Sheets

