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[54] **HIGHLY REFLECTIVE BIOGRATINGS**

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[75] Inventors: **Eric K. Gustafson**, Palo Alto; **John Lee**, Cupertino; **Yuh-Geng Tsay**, Los Altos Hills, all of Calif.

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[73] Assignee: **Adeza Biomedical Corporation**, Sunnyvale, Calif.

Primary Examiner—Lyle A. Alexander
Attorney, Agent, or Firm—Skjerven, Morrill, MacPherson, Franklin & Friel; Laura Terlizzi

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Related U.S. Application Data

[57] ABSTRACT

[63] Continuation of Ser. No. 963,249, Oct. 19, 1992, abandoned, which is a continuation of Ser. No. 525,828, May 17, 1990, abandoned.

A reflective biograting consists of an optically flat layer of a transparent composition such as silicon dioxide having a first and second surface, alternating zones of active and inactive binding reagent on the first surface, and a reflective metal layer having a thickness of at least above 1000 Å. The reflective metal layer can be supported on an optically flat surface of a wafer, and the reflective metal can be aluminum, silver, gold, chromium, nickel, titanium or platinum coating on a polished wafer. Preferably, the silicon dioxide layer is formed either by direct sputtering of silicon dioxide or by coating an alkali metal silicate solution on the surface of the reflective metal, optionally containing an aminoalkylsilane and a water-soluble hydroxylated polymer such as a dextran. Alternatively, the reflective support comprises one or more reflective layer units, each reflective layer unit comprising an optically flat layer of silicon, and preferably polysilicon, on a layer of silicon dioxide. Each layer of silicon has a thickness within the range of from 150 to 750 Å, from 850 to 1300 Å, or from 1700 to 2150 Å, and preferably within the range of from 200 to 600 Å. Each layer of silicon dioxide has a thickness within the range of from 800 to 1200 Å. The reflective support is supported on the substantially flat surface of an insoluble support.

[51] Int. Cl.⁶ **G01N 33/545**

[52] U.S. Cl. **422/82.11**; 422/58; 436/164; 436/805; 436/531

[58] Field of Search 428/433, 434; 435/7; 436/527, 807, 519, 531, 164, 805; 422/58, 82.11

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9 Claims, 4 Drawing Sheets

