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(71) Applicant *(for all designated States except US)*: **BECTON, DICKINSON AND COMPANY** [US/US]; 1 Becton Drive, Franklin Lakes, NJ 07417-1880 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **HAALAND, Perry, D.** [US/US]; 8914 Laurel Springs Drive, Chapel Hill, NC 27514 (US). **CHANEY, Bryce, N.** [US/US]; 4600 University Drive, #302, Durham, NC 27707 (US). **HOLDREAD, Stacy, D.** [US/US]; 1 Far Corners Loop, Sparks, MD 21152 (US).

(74) Agents: **HIGHET, David, W.** et al.; Becton Dickinson and Company, 1 Becton Drive, Franklin Lakes, NJ 07417-1880 (US).

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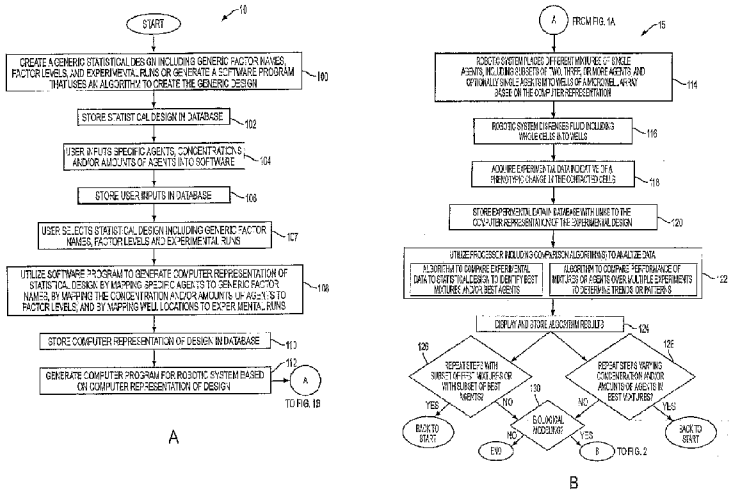
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(54) Title: AUTOMATED MEDIA OPTIMIZATION TECHNOLOGY



(57) **Abstract:** An automated system and method for identifying agents capable of eliciting a phenotypic change in a cell-type. The method includes the steps of providing a statistical design including generic factor names, factor levels and experimental runs, and utilizing a software program to generate a computer representation of the statistical design by automatically mapping the identities of the agents to the generic factor names, concentrations or amounts of the agents to the factor levels, and the locations of the receptacles to the experimental runs. The method also includes placing different mixtures of single agents, such as peptones, into receptacles in the array based on the computer representation of the statistical design, contacting the placed mixtures with cells, acquiring experimental data from the contacted cells, and utilizing a processor including an algorithm for comparing the acquired data with the statistical design to identify peptone combinations and concentrations that optimize cell culture conditions.

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