

To generate PCR amplicons for subsequent diversity analysis, bacterial 16S rRNA genes are amplified by PCR using universal primers. Two distinct PCR regimes are employed in parallel: one using normal and the other using biotin-labeled universal primers. PCR products obtained with biotin-labeled primers are mixed with streptavidin-labeled mag-

netic beads and selectively captured in the presence of a magnetic field. Less-abundant DNA templates that fail to amplify in this first round of PCR amplification are subjected to a second round of PCR using normal universal primers. These PCR products are then subjected to downstream diversity analyses such as conventional cloning and sequencing. A

second round of PCR amplified the minority population and completed the deep diversity picture of the environmental sample.

This work was done by Parag A. Vaishampayan and Kasthuri J. Venkateswaran of Caltech for NASA's Jet Propulsion Laboratory. For more information, contact iaoffice@jpl.nasa.gov. NPO-47993

Methods and Compositions Based on Culturing Microorganisms in Low Sedimental Fluid Shear Conditions

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The benefits of applying a low sedimental fluid shear environment to manipulate microorganisms were examined. Microorganisms obtained from a low sedimental fluid shear culture, which exhibit modified phenotypic and molecular genetic characteristics, are useful for the development of novel and improved diagnostics, therapeutics, vaccines, and bio-industrial products. Furthermore, application of low sedimental fluid conditions to microorganisms permits identification of molecules uni-

quely expressed under these conditions, providing a basis for the design of new therapeutic targets.

This work was done by C. Mark Ott of Johnson Space Center; Cheryl A. Nickerson, James W. Wilson, and Shameema Sarker of Arizona State University; Eric A. Nauman of Purdue University; Michael J. Schurr of the University of Colorado Health Science Center; and Mayra A. Nelman-Gonzalez of Wyle Laboratories. For further information, see <http://www.wipo.int/pctdb/en/wo.jsp?WO=2009036036>

In accordance with Public Law 96-517, the contractor has elected to retain title to this invention. Inquiries concerning rights for its commercial use should be addressed to:

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