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(54) Title: COMPOSITIONS AND METHODS FOR DETERMINING ANTI-VIRAL DRUG SUSCEPTIBILITY AND RESISTANCE AND ANTI-VIRAL DRUG SCREENING

(57) Abstract

This invention provides a method for determining susceptibility for an HCV or HCMV anti-viral drug comprising: (a) introducing a resistance test vector comprising a patient-derived segment and an indicator gene into a host cell; (b) culturing the host cell from (a); (c) measuring expression of the indicator gene in a target host cell, and (d) comparing the expression of the indicator gene from (c) with the expression of the indicator gene measured when steps (a-c) are carried out in the absence of the anti-viral drug, wherein a test concentration of the anti-viral drug is present at steps (a-c); at steps (b-c); or at step (c). This invention also provides a method for determining HCV or HCMV anti-viral drug resistance in a patient comprising: (a) determining anti-viral drug susceptibility in the patient at a first time using the susceptibility test described above, wherein the patient-derived segment is obtained from the patient at about said time; (b) determining anti-viral drug susceptibility of the same patient at a later time; and (c) comparing the anti-viral drug susceptibilities determined in step (a) and (b), wherein a decrease in anti-viral drug susceptibility at the later time compared to the first time indicates development or progression of anti-viral drug resistance in the patient. This invention also provides a method for evaluating the biological effectiveness of a candidate HCV or HCMV anti-viral drug compound. Compositions including resistance test vectors comprising a patient-derived segment comprising an HCV or HCMV gene and an indicator gene and host cells transformed with the resistance test vectors are provided.