A rapid assay for evaluating tumor resistance to chemotherapeutic drugs

"Lead Inventors: Jean Gautier and Carmelo Rizzo"

Chemotherapy resistance in tumor cells identified using rapid test: Crosslinking agents are among the most widely used chemotherapeutic drugs to treat cancer. Their efficacy is based on the ability to induce cell death by producing DNA lesions and, in particular, interstrand crosslinks. However, some tumors have the ability to repair interstrand crosslinks, which is thought to be a determining factor in acquired tumor resistance to chemotherapeutic drugs. Considering the expense and harmful side effects associated with many chemotherapeutic drugs, there is an unmet need for a rapid assay that evaluates tumor resistance to crosslinking agents for guiding cancer treatments.

Rapid test evaluates the ability of cells to repair DNA damage caused by chemotherapy: This technology is a rapid assay for evaluating tumor resistance to chemotherapeutic drugs. The test evaluates the ability of cells to repair interstrand crosslinks by using qRT-PCR and specific primers to amplify DNA across lesions; if repaired, DNA polymerases are able to amplify the nucleic acid segments. This assay has been validated in human cells suspected to be deficient in interstrand crosslink repair, such as those derived from patients with Fanconi anemia, a disease characterized by extreme sensitivity to crosslinking agents.

Applications: • Rapid assay for evaluating interstrand link repair in drug-resistant tumor cells

Advantages: • Rapid and novel diagnostic for assessing resistance to chemotherapeutic drugs

Patent Status: Copyright

Licensing Status: Available for Licensing and Sponsored Research Support

Inventors

Jean Gautier Ph.D.