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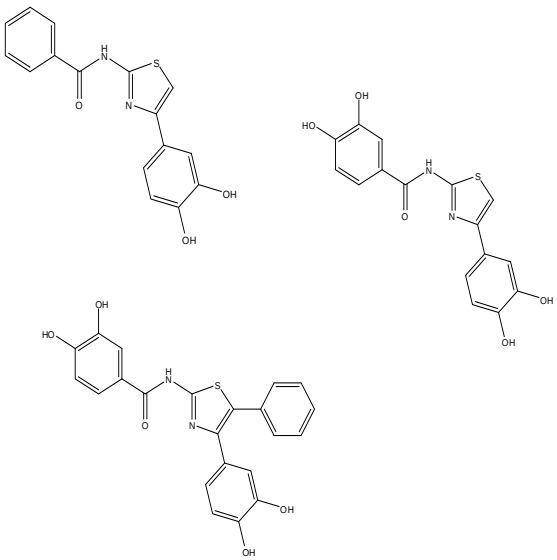
City of Hope
NATIONAL MEDICAL CENTER AND
BECKMAN RESEARCH INSTITUTE

Ribonucleotide Reductase Inhibitors for the Treatment of Cancer



DESCRIPTION

Ribonucleotide diphosphate reductase (RR) is a highly regulated enzyme in the DNA synthesis pathway that is present in human, bacteria, yeast, and other organisms. RR is responsible for conversion of ribonucleotides to deoxyribonucleotides, a process that is essential for DNA synthesis and repair. RR is directly involved in tumor growth, metastasis, and drug resistance because cancer cells require the constant synthesis of new DNA for their growth and expansion. Therefore, RR is an important target for anti-cancer therapy.

This technology describes three novel compounds—COH4, COH20 and COH29—that powerfully and selectively inhibit RR function in cancer cells, including colon cancer, breast cancer, lung cancer, melanoma, leukemia, and lymphoma cells. Pharmaceutical formulations of these inhibitors and methods for treating cancer using these inhibitors are currently being developed by City of Hope investigators. These novel compounds are significantly more potent and far less toxic than the RR inhibitors currently in clinical use, including hydroxyurea, 3-aminopyridine-2-carboxaldehyde thiosemicarbazone, and GTI2040.

KEY ASPECTS

- Novel RR inhibitors target a critical pathway to block cancer growth and metastasis.
- Novel RR inhibitors avoid the significant toxicity apparent in currently available RR inhibitors in the clinic
- Novel RR inhibitors may also provide valuable treatment for mitochondrial or degenerative diseases
- Animal data demonstrating efficacy and potency is available

INTELLECTUAL PROPERTY

Title	US Patent Application	Date Filed
Ribonucleotide Reductase Inhibitors and Methods of Use	12/420,713	4/8/2009

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