Topoisomerase 1 (TOP1) is an important protein found in the cell; it is used to unwind and reduce torsional stress on DNA during replication. TOP1 inhibitors are a useful chemotherapy agent because cells that are constantly dividing, such as cancer cells, are much more susceptible to attack; cell death will occur when topoisomerase 1 is inhibited. TOP1 inhibitors make up a large portion of the chemotherapy market because they can be used to target a wide variety of proliferating tumors. The characteristic of uninhibited division is a common feature in cancer that can be targeted without needing a specific marker for each cancer cell type. As more information becomes readily available, it is becoming apparent that within tumors there is a heterogeneous population of cells populating the primary tumor and the secondary tumors.

Researchers at Purdue University have developed a series of 7-azaindenoisoquinoline derivatives that act to inhibit topoisomerase and subsequently induce cell death. This new class of topoisomerase inhibitors has the potential to possess enhanced chemical stability over traditional inhibitors, while increasing inhibitor effectiveness.

Advantages:
- Azaindenoisoquinolines have enhanced chemical stability and effectiveness over other TOP1 inhibitors
- TOP1 is a proven target for cancer therapy

Potential Applications:
- Medical/Healthcare
- Pharmaceuticals
- Cancer Treatment
People:
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- Kiselev, Evgeny A.
- Morrell, Andrew E

Intellectual Property:

Application Date: March 6, 2014
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Country of Filing: United States
Patent Number: 9,034,870
Issue Date: May 19, 2015

Application Date: July 13, 2012
Type: Utility Patent
Country of Filing: United States
Patent Number: 8,686,146
Issue Date: April 1, 2014

Application Date: September 23, 2014
Type: Provisional-Patent
Country of Filing: United States
Patent Number: (None)
Issue Date: (None)

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