Chronic Lymphocytic Leukemia Treatment
(VA Reference No. 04-002)

Novel method of using nitric oxide synthase – 1 inhibitors for chronic lymphocytic leukemia therapy

Technology
Use of nitric oxide synthase -1 inhibitors for treatment of chronic lymphocytic leukemia

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Key Features
- Causes rapid death in malignant cells at lower treatment doses
- Could be used either alone or in combination with other agents
- Expected to have mild or no toxicity

Stage of Development
Reduced to practice with successful demonstration in both in vitro and animal models

Keywords
Therapeutic
- Oncology
- Chronic lymphocytic leukemia

Patent Status
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Technology
The Department of Veterans Affairs has developed a method of use of nitric oxide synthase – 1 (NOS1) inhibitors for promotion of chronic lymphocytic leukemia (CLL) cell apoptosis and treatment of CLL.

Description
The VA has identified that NOS1 may be the most important NOS isoenzyme involved in the suppression of apoptosis in CLL cells. Results of the research performed suggest that NOS1 inhibitors appear to be more potent inducers of apoptosis in the CLL cells than either the non-specific NOS inhibitors or the NOS2-specific inhibitors. In addition, treatment with NOS1 inhibitors in-vitro causes malignant cells to die more rapidly and at lower treatment doses than treatment with inhibitors of NOS2 and NOS3 or with inhibitors that affect all three types of NOS. These findings could lead to strategies designed to inhibit CLL cell nitric oxide synthases and NO production for effective treatment of CLL.

Competitive Advantage
Although various drugs are available for the treatment of CLL and its complications, there is no specific curative treatment. Patients with CLL succumb to the disease, usually as a result of infection, a secondary neoplasm, or other illness such as cardiovascular disease.

This invention:
- Has the potential to cause rapid death in malignant cells at lower treatment doses.
- Could be used in CLL chemotherapy either alone or in combination with other agents.
- Could prove beneficial in providing a treatment option for patients that have become refractive or unresponsive to current therapies.
- Is expected to have mild to no toxicity based on testing in animal models.

Status
The Department of Veterans Affairs is looking for a partner for further development and commercialization of this technology through a license, and the VA inventors are available to collaborate with interested companies through a Cooperative Research and Development Agreement (CRADA).