Docket Number
20071216

Synthetic Flavonoids and Pharmaceutical Compositions and Therapeutic Methods of Treatment of HIV Infection and Other Pathologies

Patent No. 8,313,143

In vitro testing indicated that a group of newly synthesized flavonoid derivatives were found to be more potent than the drug, "AZT" as anti-HIV agents.

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Key Features:
Synthetic flavonoids are active as anti-HIV/AIDS. They are more potent than AZT.

Field:
Pharmaceutical

Technology:
Anti-HIV/AIDS medication with decreased adverse side effects and lower production cost.

Stage of Development:
Initial Pre-clinical development

Status:
Seeking further research & development support and/or licensing partner.

Patent Status:
Issued

Background:

HIV/AIDS is a major health problem in our society. About 42 million people worldwide currently live with the infection, 3 million die and 5 million new infections are registered every year. TechNavio's analysts forecast the Global HIV Drugs market to reach US$15.5 billion by 2014. The growth is attributed to the increase in use of highly effective antiretroviral therapy as well as to the introduction of novel treatments.

Statement of Problem:

The management of the disease is based on a "drug cocktail" consisting of multiple antiretroviral drugs. Although this therapy succeeded in improving the quality of life and the life expectance of the patients, it is associated with both short- and long term adverse side effects, such as nausea, weakness, insomnia, liver damage, osteoporosis, and lipodystrophy. After prolonged usage, the drugs become ineffective due to the virus mutation. Despite the availability of generic drugs the price of the therapy is still too high especially for the third world countries.

Potential Solution:

FAMU has developed and patented anti-HIV agents based on synthetic flavonoids which have shown promising results from in vitro studies in blocking the reverse transcriptase, the enzyme responsible for inserting the viral DNA into the host cells. Several compounds were found to be more potent than AZT, which enables applications of smaller dosages. The synthesis of the compounds is cost-effective from available commercial starting materials. They can easily be obtained in pure form with relatively high yields and long bench stability. Adverse toxic effects are not currently known however more toxicology studies are needed.

Commercialization Status:

The flavonoid HIV/AIDS agents are currently in the early development stage, and R&D is currently funded at FAMU by the National Institutes of Health, Research Center in Minority Institutions (NIH-RCMI) Program. Future work will focus on the development of the most potent and safe analogs, the performance of animal studies, and evaluation of toxicology on normal cells. These studies will further determine efficacy and safety of the drugs and potential side effects. We are looking for partnership for further toxicology studies as well as for licensing purposes in order to bring our research from the lab bench to the drug market.