Beta-carboline derivatives for the treatment of proliferative disorders
FUNDP – University of Namur

Abstract:
A Belgian research laboratory has developed new molecules for the treatment of proliferative disorders. Those molecules are effective in the nM range and act as powerful cytostatic and cytotoxic particularly useful in the treatment of solid or poorly vascularised tumours.

Description:
The search for novel anti-cancer drugs is a never ending story, since cancer is becoming a more and more important cause of death amongst humans. More than 80% of all anti-cancer drugs are directed towards the apoptosis pathway of tumour cells and are cytotoxic upon activating said pathway.
A large number of cancer cells such as glioblastomas (brain cancers), brain metastases, melanomas, pancreatic cancers, lung cancers of the NSCLC-type, refractory prostate cancers (HRPC), breast cancers such as triple negatives and other types are naturally resistant to apoptosis and cannot be treated by the many known drugs and chemotherapeutics. Development of new compounds having cytotoxic and/or cytostatic effects in tumour or cancer cells, and particularly in tumour or cancer cells which are resistant to apoptosis, is of considerable importance.
A naturally-occurring beta carboline, harmine, has been previously isolated from plants such as the Middle Eastern plant harmal or Syrian rue (Peganum harmala) and the South American vine (Banisteriopsis caapi) and shown to exhibit anti-cancer properties.

Innovations and advantages of the offer:
- The compounds had important cytostatic and/or anti-cancer effects which were not correlated with the compounds’ ability to inhibit the protein kinase DYRK1A, a known and prominent target for beta-carbolines such as harmine.
- The compounds exert their effect via a non-apoptosis-related mechanism, which makes them particularly good candidates as anti-proliferative drugs for treating apoptosis-resistant tumours or cancers and for reducing or overcoming problems linked to known anti-cancer drugs, such as acquisition of resistance, non-specific cytotoxicity, etc…

Technology Keywords:
• Pharmaceutics
• Organic Chemistry
• Clinical Research, Trials
• Cytology, Cancerology, Oncology
• Diagnostics, Diagnosis
• Diseases
• Medical Research
• Medical Technology / Biomedical Engineering
• Pharmaceutical Products / Drugs
• Medical Biomaterials
• Cellular and Molecular Biology

Market:
• Small molecule development
• Pharmaceuticals/fine chemicals
• Cancer treatment

Current Stage of Development: Development phase - Laboratory tested

Intellectual Property Rights: Patent(s) applied for but not yet granted
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Organisation/Company Type: Research institute/University

Collaboration Type:
- License Agreement
- Testing of new applications
- Adaptation to specific needs

Comments
An industrial partner involved or interested in the field of small molecules could exploit the proposed compounds for manufacturing innovative products on a medium or large scale. A pharmaceutical company could also produce new drugs on the basis of the medical composition containing these compounds. The collaboration would start through a license agreement.

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