Emetine Derivatives for Targeted Cancer Therapy

Researchers at Howard University have developed a set of compounds derived from the well-characterized bioactive molecule emetine that provide site-specific cytotoxicity to tumors and potentially avoid general toxicity to non-specific, healthy tissue.

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Inventors

Dr. Oladapo Bakare et al.

Benefits / Features

Derivatives of emetine target the original compound's demonstrated cytotoxic activity only to the tumor microenvironment, avoiding general systemic side effects

Potential Commercial Applications

Emetine has been demonstrated through phase II clinical trials to have anticancer activities, especially in combination with traditional chemotherapeutic agents. Substituted emetine may have application in multiple cancer types including prostate cancer.

Stage of Development

Patent application filed, cell assays performed; limited toxicity tests *in vivo* have been performed.

Background

Among its bioactive properties, emetine is cytotoxic to cancer cells, and in past clinical studies has progressed to phase II trials as a chemotherapeutic. It has been confirmed as efficacious, especially when co-administered with established agents. However it exhibits general cytotoxic properties when chronically administered and thus has been abandoned as a therapeutic.

Description of Technology

Dr. Oladapo Bakare and his colleagues have prepared a series of substituted emetine derivatives for cancer treatment that lack the general cytotoxic properties of conventional emetine. This is accomplished through linking protective groups to the emetine structure that prevent the systemic side effects that normally occur after administration. The protective groups are liberated upon encountering chemical or enzymatic changes such as those present in the tumor microenvironment. Thus the new compounds provide targeted chemotherapy, ameliorating non-specific exposure and causing cytotoxicity only to the tumor itself. Current embodiments could cover multiple types of cancer including prostate cancer. In vitro testing has confirmed the novel derivatives' activity against cancer cell lines *in vitro*, as well as specificity of the activity only under desired conditions. Limited toxicity testing in mice so far indicates the emetine derivatives are well tolerated *in vivo*.

Opportunity

Howard University and Dr. Bakare are seeking partners to continue small animal testing of these compounds, as well as subsequent development. This novel family of emetine derivatives and methods of using them for treating cancer are available under a license or research collaboration with Howard University. Dr. Bakare is available for further discussions about technical details and project status under a NDA.

Status Seeking research collaboration & licensing partners	