Development of the novel oncolytic coxsackievirus therapy for the clinical trial

Target disease: Lung cancer, Malignant pleural mesothelioma, Breast cancer

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Synopsis

We carried out the screening of approximately 40 enteroviral strains and found that coxsackievirus B3 (CVB3) possessed specific oncolytic activity for cell lines of human lung cancer, malignant mesothelioma and breast cancer. We previously reported that CVB3 had potent oncolytic activity with immunostimulatory properties against the above-mentioned malignant tumor in mouse xenograft models. Furthermore, we successfully constructed the novel recombinant CVB3 of CVB3-miR1&217T by genetically incorporating two distinct normal tissue-specific miRNA target sequences into the CVB3 genome. Injection of CVB3-miR-1&217T, but not parental CVB3, into human lung cancer xenograft tumor in athymic nude mice remarkably reduced serum level of amylase and mitigated both pancreatitis and myocarditis with a significant tumor regression. For acquisition of non-clinical proof of concept, we have been trying to manufacture CVB3-miRT following Good Manufacturing Practices (GMP) guidelines and conduct preclinical safety tests using mice and monkeys.

Goal

Development of the novel oncolytic coxsackievirus therapy for the clinical trial

Non clinical safety testing

Developing purification methods towards GMP

Developing serum-free mass culture

Establishment of mass production

Nonclinical POC confirmation

Characteristics of test artifact

Efficient cytolysis in carcinoma

Possible induction of anti-human immune stimulation

Improving safety by genetic modification

Intellectual property information: Patent pending

Related keywords: Oncolytic virotherapy, Lung cancer, Malignant mesothelioma, Breast cancer, Non-clinical proof of concept