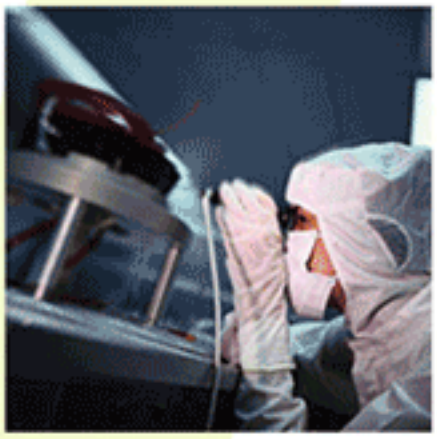
DEVELOPMENT OF BROAD SPECTRUM CANCER VACCINES – *NEWCASTLE DISEASE VIRUS AS ANTI-CANCER AGENT*

INTRODUCTION

OBJECTIVES

- To characterize the genetic make-up of several common tumor cells.
- To successfully infect/deliver NDV into several common tumor cells.
- To characterize the *in vitro* cytotoxicity effects of NDV on those tumor cells.
- To formulate NDV anti-cancer vaccines in mice model.
- To formulate NDV anti-cancer vaccines for clinical human trials.



RESEARCH COLLABORATION MAKNA, UPM AND USM

Numerous *in vitro* studies have been carried out on the anti-cancer activity of NDV on various cancer cells.

In vivo animal studies demonstrated complete regression of neuroblastoma (brain cancer) and fibrosarcoma after NDV therapy.

Recently, the anti-cancer activity of NDV has been demonstrated in human patients suffering with terminal-grade of malignant brain cancer and stage iv malignant melanoma.

The mechanisms of NDV-induced oncolytic activity are not known. However, numerous studies have indicated that NDV exert a pleiotropic immune stimulatory property that directly and indirectly destroy cancer cells.

PROJECT PLAN

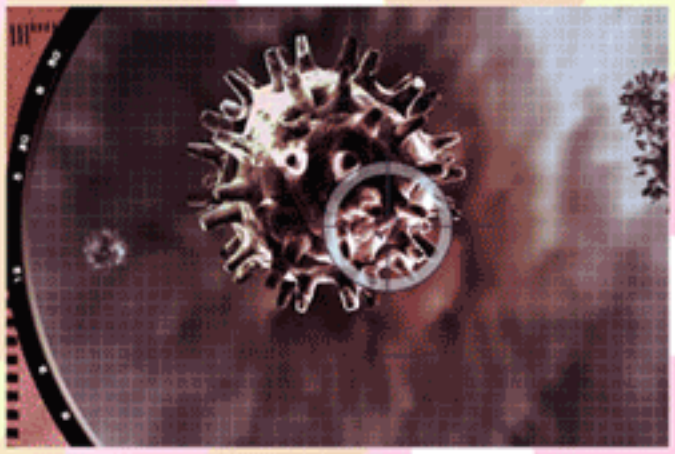
Phase l (Pre-clinical Studies) (3 to 5 years) :

1. Development of primary culture from tumor specimens obtained from patients in Malaysia.
2. Characterization of the genetic profile of the tumor cells.
3. screening and identification of NDV strains with oncolytic effects on local tumor specimens and commercially available tumor cell lines.
4. Characterization of the oncolytic NDV strains as anticancer agent in nude/anthymic mice.

Phase ll (Clinical Studies) (5 to 10 years) :

The effective formulation of NDV (based from *in vivo* animal studies) will based in various strengths to patients where written consent has been taken. Patients will be divided into groups of those who have undergo ;

a) NDV and radiotherapy.
b) NDV, radiotherapy and chemotherapy.
c) NDV, radiotherapy, chemotherapy and immunotherapy.
d) NDV alone.
e) No therapy.



Chicken.
Possible source of cancer cure.

LATEST FINDINGS

a) Local strains of NDV (AF2240 and V4-UPM) have an oncolytic effect on MDA-MB-231 and MCF-7 breast cancer cell lines, and leukemic cells.
b) In –vivo study using nude mice showed partial regression of tumor size within 3 months after treatment with NDV.
c) The NDV is capable of suppressing cell proliferation and induced apoptosis in brain cancer cell line (astrocytomas).

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