CLAIMS

1 - An ex-vivo method for testing whether a patient will respond therapeutically to a method of treatment comprising administration of an immunogenic composition, wherein the testing method comprises the steps of:

- measuring in a blood sample obtained from said patient levels of activated NK cells, wherein low levels of activated NK cells indicates that the patient will develop a prophylactic or therapeutic immune response towards the immunogenic composition.

2 - The ex-vivo method of claim 1 wherein said patient is to be further treated with chemotherapeutic agent.

3 - Use of levels of activated NK cells as a biomarker for predicting whether a patient is or is not susceptible to developing prophylactic or therapeutic immune response ~~by~~ to an administration of an immunogenic composition, wherein said levels of activated NK cells is to be measured in a blood sample obtained from said patient.

4 - Use of the level of activated NK cells as a biomarker for predicting whether a patient is or is not susceptible to developing prophylactic or therapeutic immune response ~~by~~ to an administration of an immunogenic composition, wherein low levels of activated NK cells indicates that the patient is predicted to have an increased susceptibility to develop a prophylactic or therapeutic immune response and wherein said levels of activated NK cells is to be measured in a blood sample obtained from said patient.

5 - The use of claim 3 or 4, wherein said patient is to be further treated with chemotherapeutic agent.

~~6 - Method for improving the treatment of a cancer patient which is undergoing chemotherapeutic treatment with a chemotherapeutic agent, said method comprising the following steps :~~

~~- measuring in the patient the levels of activated NK cells, and~~

~~- administering to the patient one immunogenic composition if said patient has low levels of activated NK cells.~~

~~7 - Method for extending the survival of a patient treated for human disease by administering an immunogenic composition, said method comprising the following steps :~~

~~- measuring in the patient the levels of activated NK cells, and~~

~~- administering to the patient the said immunogenic composition if said patient has low levels of activated NK cells.~~

~~8 - The method of claim 7 wherein the said patient is further treated with chemotherapeutic agent.~~

~~9~~ 6 - The method of ~~any of previous~~ claim~~s~~ 1 wherein said patient is suffering of cancer.

~~10~~7- The method of claim ~~9~~ 6 wherein said cancer is Non Small Cell Lung Cancer or kidney cancer.

8- Method or use of claim 1 to 7, wherein said level of activated NK cell is less than about 5%.

~~11~~9- Method or use of claim 1 to ~~10~~7, wherein said level of activated NK cells is less than about 3,45%.

10- The method of claim 1, wherein said immunogenic composition comprises (i) all or part of at least one targeted antigen and/or (ii) at least one recombinant vector expressing in vivo at least one heterologous nucleotide sequence encoding all or part of at least one targeted antigen.

11- The method of claim 1, wherein said antigen is the MUC1 antigen.

12- The method of claim 1, wherein said recombinant vector is a viral vector.

13- The method of claim 12, wherein said viral vector is a recombinant vaccinia vector.

14- The method of claim 13, wherein said recombinant vaccinia vector is a recombinant MVA vector.

15- The method of claim 13, wherein said recombinant vector is a MVA encoding all or part of the MUC-1 antigen and IL-2.

16. A kit for testing whether a patient will respond therapeutically to a method of treatment comprising administration of an immunogenic composition, wherein the kit comprises

- antibodies for determining the level of activated NK cells in a blood sample from the patient; and

- instructions for interpreting the data obtained saying that a low level of activated NK cells indicates that the patient will develop a prophylactic or therapeutic immune response towards the immunogenic composition or that the patient will survive longer after administration of an immunogenic composition.

17. The kit of claim 16 wherein the antibodies are specific for CD16, CD56 and/or CD69 cell surface antigens.