CLAIMS

1. Use of NUC-1031 (gemcitabine-[phenyl-benzoxy-L-alaninyl)]-phosphate) in the manufacture of a medicament for the treatment of cancer by targeting cancer stem cells.

2. Use of NUC-1031 in the manufacture of a medicament, wherein the medicament is to be used for the treatment of relapsed or refractory cancer in a human patient.

3. The use according to claim 2 wherein the medicament is to be used for the treatment of relapsed cancer in a human patient.

4. The use according to claim 2 wherein the medicament is to be used for the treatment of refractory cancer in a human patient.

5. The use according to any preceding claim, wherein targeting of cancer stem cells causes their death.

6. The use according to any preceding claim wherein the medicament is to be used for the treatment of cancer by reducing or preventing cancer development.

7. The use according to any preceding claim wherein the medicament is to be used for the treatment of cancer by reducing or preventing cancer progression.

8. The use according to any preceding claim wherein the medicament is to be used for the treatment of cancer by reducing or preventing cancer recurrence.

9. The use according to any preceding claim wherein the medicament is to be used for the treatment of cancer by reducing or preventing cancer propagation.

10. The use according to claim 1 wherein the medicament is to be used for adjuvant or neo-adjuvant treatment.

11. The use according to any preceding claim for the treatment of a cancer selected from the group consisting of: leukaemia, lymphoma, multiple myeloma, lung cancer, liver cancer, breast cancer, head and neck cancer, neuroblastoma, thyroid carcinoma, skin cancer (including melanoma), oral squamous cell carcinoma, bladder cancer, Leydig cell tumour, biliary cancer, such as cholangiocarcinoma or bile duct cancer, pancreatic cancer, colon cancer, colorectal cancer, osteosarcoma and gynaecological cancers, including ovarian cancer, endometrial cancer, fallopian tube cancer, uterine cancer and cervical cancer.

12. The use according to claim 11, wherein the leukaemia is selected from the group consisting of acute lymphoblastic leukaemia, acute myelogenous leukaemia (also known as acute myeloid leukaemia or acute non-lymphocytic leukaemia), acute promyelocytic leukaemia, acute lymphocytic leukaemia, chronic myelogenous leukaemia (also known as chronic myeloid leukaemia, chronic myelocytic leukaemia or chronic granulocytic leukaemia), chronic lymphocytic leukaemia, monoblastic leukaemia and hairy cell leukaemia.

13. The use according to claim 12, wherein the cancer is acute lymphoblastic leukaemia.

14. The use according to claim 13, wherein the lymphoma is selected from the group consisting of: Hodgkin's lymphoma; non-Hodgkin lymphoma; Burkitt's lymphoma; and small lymphocytic lymphoma.

15. Use of NUC-1031 in the manufacture of a medicament for the treatment of cancer in a patient selected for such treatment by a method comprising:
assaying a biological sample representative of cancer or a pre-cancerous condition in the patient for the presence of CSCs, wherein the presence of CSCs in the biological sample indicates that the patient is suitable for treatment with NUC-1031, wherein the assay is to be performed *in vitro*.

16. The use according to claim 15, wherein the cancer stem cells present in the biological sample are $CD34^+$, $CD44^+$, $CD133^+$ or $CD90^+$.

17. The use according to claim 15 or claim 16, wherein the cancer stem cells present in the biological sample are $Lin^-/CD34^+/CD38^-/CD123^+$.

18. The use according to any preceding claim, wherein the medicament is to be administered at a weekly dose of between 250 mg/m^2 and 1000 mg/m^2.

19. The use according to claim 18, wherein the medicament is to be administered at a weekly dose of between 375 mg/m^2 and 900 mg/m^2.

20. The use according to claim 18, wherein the medicament is to be administered at a weekly dose of between 500 mg/m^2 and 825 mg/m^2.

21. A method of determining whether a patient with cancer will benefit from treatment of cancer with NUC-1031, the method comprising:
assaying a biological sample representative of cancer in the patient for the presence of CSCs, wherein the presence of CSCs in the biological sample indicates that the patient will benefit from treatment with NUC-1031, wherein the assay is to be performed *in vitro*.

22. A method of determining a suitable treatment regimen for a patient with cancer, the method comprising:
assaying a biological sample representative of cancer in the patient for the presence of CSCs, wherein the presence of CSCs in the biological sample indicates that a suitable treatment regimen will comprise treatment of the patient with NUC-1031, wherein the assay is to be performed *in vitro*.

23. A method according to claim 22, wherein the cancer stem cells present in the biological sample are $CD34^+$, $CD44^+$, $CD133^+$ or $CD90^+$.

24. A method according to claim 22 or claim 23, wherein the cancer stem cells present in the biological sample are $Lin^-/CD34^+/CD38^-/CD123^+$.

25. Use of NUC-1031 in the manufacture of a medicament for the treatment of cancer by targeting cancer stem cells, wherein the medicament is to be administered at a dose of between approximately 500 mg/m^2 and 1000 mg/m^2 per week in at least one initial cycle of treatment, and then administered at a lower weekly dose in at least one further cycle of treatment.

26. The use according to claim 25, wherein the cancer is a relapsed or refractory cancer.

27. The use according to claim 26, wherein the cancer is relapsed cancer.

28. The use according to claim 26, wherein the cancer is refractory cancer.