

[0006] Cellular myristoylated proteins have diverse biological functions in signal transduction and oncogenesis. Modification of proteins by myristoylation is required for the subcellular targeting, protein conformation and biological activity of many important proteins in eukaryotic cells, including those required for signal transduction and regulatory functions important in cell growth. Tyrosine kinases of the Src family (proto-oncogenes) are among the most extensively studied myristoylated proteins.

[0007] Myristoylation of proteins is catalyzed by *N*-myristoyltransferase (NMT). NMT is responsible for this activity in eukaryotic cells and works by modifying its polypeptide substrate after the removal of the initiator methionine residue by methionyl aminopeptidase. This modification occurs primarily as a cotranslational process, although myristoylation can also occur post-translationally after proteolytic cleavage of proteins, typically during apoptosis. Two isozymes of the mammalian NMT enzymes have been cloned and are designated NMT1 and NMT2. NMTs play a pro-survival role in cells. The two NMTs are present in all normal cells.

[0008] There remains a need for compounds, composition and method for the treatment of cancer.

[0009] This background information is provided for the purpose of making known information believed by the applicant to be of possible relevance to the present invention. No admission is necessarily intended, nor should it be construed, that any of the preceding information constitutes prior art against the present invention.

SUMMARY OF THE DISCLOSURE

[0010] In accordance with one example of the present disclosure there is provided compounds and compositions for the treatment of a subject with cancer. There are also provided methods for identifying subject with cancer that are suitable for treatment with the compounds, composition and methods are described herein.

[0011] In accordance with one example, there is provided a method of treating a subject having a cancer deficient in NMT2, comprising: administering to said subject an NMT inhibitor.

[0011a] In one aspect, the present disclosure refers to use of a composition comprising an NMT1 inhibitor and doxorubicin in the manufacture of a medicament for treating a subject having a cancer deficient in NMT2 defined by inhibition, reduction or elimination of NMT2 synthesis, levels, activity, or function as well as inhibition of the induction or stimulation of synthesis, levels, activity or function of the protein NMT2, wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481

[0012] In a specific example, said NMT inhibitor comprises an NMT1 inhibitor.

- [0013] In a specific example, said NMT1 inhibitor comprises a small molecule, an antibody, a peptide fragment, a nucleic acid, or combinations thereof.
- [0014] In a specific example, said small molecule comprises Tris-DBA, HMA, or DDD85646, DDD86481, or a derivative thereof.
- 5 [0015] In a specific example, said antibody is a monoclonal antibody or a polyclonal antibody.
- [0016] In a specific example, said nucleic acid comprises a dsRNA molecule, a RNAi molecule, a miRNA molecule, a ribozyme, a shRNA molecule, or a siRNA molecule.
- 10 [0017] In a specific example, said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia,
- 15 Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast
- 20 carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.
- [0018] In a specific example, said subject is a human subject.
- 25 [0019] In accordance with another example, there is provided a method for treating a subject with a cancer or suspect of having a cancer, comprising: requesting a test providing the results of an analysis to determine whether a sample from the subject expresses NMT2, and administering an NMT1 inhibitor to the subject if the sample is deficient in NMT2.
- 30 [0019a] In one aspect, the present disclosure refers to use of a composition comprising an NMT1 inhibitor and doxorubicin in the manufacture of a medicament for treating a subject with a cancer, wherein the composition is to be administered to the subject if a sample from the subject is deficient in NMT2, defined by inhibition, reduction or elimination of NMT2 synthesis, levels, activity, or function as well as
- 35 inhibition of the induction or stimulation of synthesis, levels, activity or function of the protein NMT2, and defined by the results of an analysis to determine whether the sample expresses NMT2; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.
- [0020] In accordance with another example, there is provided a method,
- 40 comprising: obtaining a sample from a subject with a cancer or suspected of having a cancer; processing said sample; performing a binding assay comprising contacting the

processed sample with an antibody to NMT2 to form a complex between the antibody and NMT2 protein present in the processed sample, said binding assay generating at least one assay result indicative of said complex; wherein administering an NMT1 inhibitor to said subject is indicated when the amount of NMT2 protein said sample is low or absent, optionally as compared to a control.

[0021] In accordance with another example, there is provided a method, comprising: obtaining a sample from a subject having a cancer or suspect of having a cancer; processing said sample; performing a binding assay comprising contacting the processed sample with an antibody to NMT2 protein to form a complex between the antibody and NMT2 protein present in the processed sample, said binding assay generating at least one assay result indicative of said complex; and administering an NMT1 inhibitor to said subject when the amount to NMT2 protein in said sample is low or absent, optionally as compared to a control.

[0021a] In one aspect, the present disclosure refers to use of a composition comprising an NMT1 inhibitor and doxorubicin in the manufacture of a medicament for treating a subject with a cancer or suspected of having a cancer by a method, comprising: processing a sample from the subject with a cancer or suspected of having a cancer; performing a binding assay comprising contacting the processed sample with an antibody to NMT2 protein to form a complex between the antibody and NMT2 protein present in the processed sample, said binding assay generating at least one assay result indicative of said complex; wherein administration of the composition to said subject is indicated when the amount of NMT2 protein in said sample is low or absent, as compared to a control; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

[0022] In a specific example, said analysis to determine whether said sample from the subject expresses NMT2, comprises performing a binding assay comprising contacting the processed sample with an antibody to NMT2 to form a complex between the antibody and NMT2 present in the processed sample, said binding assay generating at least one assay result indicative of said complex.

[0023] In a specific example, said binding assay comprises fluorescence activated cell sorting, enzyme linked immunosorbent assay, immunohistochemistry, quantitative immunohistochemistry, fluorescence resonance energy transfer, Forster resonance energy transfer, biomolecular fluorescence complementation, mass spectrometry, immunoblot assay or coimmunoprecipitation assay.

[0024] In a specific example, instrumentation having a detector set to detect the complex formed between said antibody and said NMT2 in said sample is used to determine an amount of complex in said sample.

[0025] In a specific example, said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.

[0026] In a specific example, said wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell

lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.

[0027] In a specific example, said subject is human.

[0028] In another example, there is provided a method, comprising: obtaining a sample from a subject having a cancer or suspected of having a cancer; processing said sample; performing a binding assay comprising contacting the processed sample with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid present in the sample, said binding assay generating at least one assay result indicative of said complex; wherein administering an NMT1 inhibitor to said subject is indicated when the amount to NMT2 nucleic acid in said sample is low or absent, optionally as compared to a control.

[0028a] In one aspect, the present disclosure refers to use of a composition comprising an NMT1 inhibitor and doxorubicin in the manufacture of a medicament for treating a subject having a cancer or suspected of having a cancer by a method, comprising: processing a sample from the subject having a cancer or suspected of having a cancer; performing a binding assay comprising contacting the processed sample with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid present in the sample, said binding assay generating at least one assay result indicative of said complex; wherein administration of the composition to said subject is indicated when the amount to NMT2 nucleic acid in said sample is low or absent, as compared to a control; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

[0029] In another example, there is provided a method, comprising: obtaining a sample from a subject having a cancer or suspected of having a cancer; processing said sample; performing a binding assay comprising contacting the processed sample with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid present in the sample, said binding assay generating at least one assay result indicative of said complex; and administering an NMT1 inhibitor to said subject when the amount to NMT2 nucleic acid in said sample is low or absent, optionally as compared to a control.

[0030] In a specific example, said analysis to determine whether said sample from the subject expresses NMT2, comprises performing a binding assay comprising contacting the processed sample with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid present

in the sample, said binding assay generating at least one assay result indicative of said complex.

[0031] In a specific example, said binding assay comprises, a hybridization assay using detectably labeled DNA or RNA probes.

5 [0032] In a specific example, said hybridization assay is quantitative or semi-quantitative.

[0033] In a specific example, said hybridization assay is RT-PCR, in situ hybridization, RNA protection assay ("RPA"), cDNA and oligonucleotide microarray, representation difference analysis ("RDA"), differential display, EST sequence
10 analysis, serial analysis of gene expression ("SAGE"), and multiplex ligation-mediated amplification with the Luminex FlexMAP ("LMF").

[0034] In a specific example instrumentation having a detector set to detect the complex between the detectable label and NMT2 nucleic acid present in the sample is used to determine an amount of complex in said sample.

15 [0035] In a specific example, said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.

[0036] In a specific example, said wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B
20 cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse
25 Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma,
30 endometrial adenocarcinoma, esophageal squamous carcinoma.

[0037] In a specific example, said subject is a human.

[0038] In another example, there is provided a method, comprising: obtaining a sample from a subject having a cancer or suspected of having a cancer; processing said sample; performing a binding assay comprising contacting the processed sample with a an antibody to which binds to myristoylated protein, or azido-biotin labeled myristoylated proteins, within the sample to form a complex between the detectable label and myristoylated protein present in the sample, said binding assay generating at least one myristoylation profile indicative of said complex; wherein administering an NMT1 inhibitor to said subject is indicated when said myristoylation profile indicates said cancer is deficient in NMT2, optionally as compared to a control

[0038a] In one aspect, the present disclosure refers to use of a composition comprising an NMT1 inhibitor and doxorubicin in the manufacture of a medicament for treating a subject having a cancer or suspected of having a cancer by a method, comprising: processing a sample from the subject having a cancer or suspected of having a cancer; performing a binding assay comprising contacting the processed sample with a an antibody to which binds to myristoylated protein, or azido-biotin labeled myristoylated proteins, within the sample to form a complex between the detectable label and myristoylated protein present in the sample, said binding assay generating at least one myristoylation profile indicative of said complex; wherein administration of the composition to said subject is indicated when said myristoylation profile indicates said cancer is deficient in NMT2 defined by inhibition, reduction or elimination of NMT2 synthesis, levels, activity, or function as well as inhibition of the induction or stimulation of synthesis, levels, activity or function of the protein NMT2, as compared to a control; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

[0039] In another example, there is provided a method, comprising: obtaining a sample from a subject having a cancer or suspected of having a cancer; processing said sample; performing a binding assay comprising contacting the processed sample with a an antibody to which binds to myristoylated protein, or azido-biotin labeled myristoylated proteins, within the sample to form a complex between the detectable label and myristoylated protein present in the sample, said binding assay generating at least one myristoylation profile indicative of said

complex; and administering an NMT1 inhibitor to said subject is when said myristoylation profile indicates said cancer is deficient in NMT2, optionally as compared to a control

5 [0040] In a specific example, said processing comprises treating said sample with alyknyl-myristate and desthiobiotin azido-PEG biotin .

[0041] In a specific example, said binding assay comprises fluorescence activated cell sorting, enzyme linked immunosorbent assay, immunohistochemistry, quantitative immunohistochemistry, fluorescence resonance energy transfer, Forster resonance energy transfer, biomolecular fluorescence complementation, mass
10 spectrometry, immunoblot assay or coimmunoprecipitation assay.

[0042] In a specific example, instrumentation having a detector set to detect the complex formed between said antibody and said NMT2 in said sample is used to determine an amount of complex in said sample.

15 [0043] In a specific example, said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.

[0044] In a specific example, said wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell

lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed
5 Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast
10 carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.

[0045] In a specific example, said subject is human.

[0046] In another example there is provided a use of an NMT inhibitor for
15 treating a subject having a cancer deficient in NMT2.

[0046a] In one aspect, the present disclosure refers to use of a composition comprising an NMT1 inhibitor and doxorubicin in the manufacture of a medicament for for treating a subject having a cancer deficient in NMT2 defined by inhibition, reduction or elimination of NMT2 synthesis, levels, activity, or function as well as
20 inhibition of the induction or stimulation of synthesis, levels, activity or function of the protein NMT2, wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

[0047] In a specific example, said NMT inhibitor comprises an NMT1 inhibitor.

[0048] In a specific example, said NMT1 inhibitor comprises a small
25 molecule, an antibody, a peptide fragment, a nucleic acid, or combinations thereof.

[0049] In a specific example, said small molecule comprises Tris-DBA, HMA, or DDD85646, DDD86481, or a derivative thereof.

[0050] In a specific example, said small molecule comprises DDD86481.

[0051] In a specific example, said antibody is a monoclonal antibody or a
30 polyclonal antibody.

[0052] In a specific example, said nucleic acid comprises a dsRNA molecule, a RNAi molecule, a miRNA molecule, a ribozyme, a shRNA molecule, or a siRNA molecule.

[0053] In a specific example, said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-
35 CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed
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Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.

[0054] In a specific example, said subject is a human subject.

10 [0055] In another example, there is provided a use of an NMT1 inhibitor for treating a subject with a cancer, or suspected of having a cancer, wherein said an NMT1 inhibitor is indicated of use when the amount of NMT2 protein in a sample from said subject is low or absent, optionally as compared to a control, wherein a binding assay comprising contacting a processed sample from said subject with an antibody to NMT2 to form a complex between the antibody and NMT2 protein present in the processed sample generates at least one assay result indicative of said complex; wherein said assay result is indicative of said amount of NMT2 protein in said sample.

[0055a] In one aspect, the present disclosure refers to use of a composition comprising an NMT1 inhibitor and doxorubicin in the manufacture of a medicament for treating a subject with a cancer, wherein use of the composition is indicated when the amount of NMT2 protein in a sample from said subject is low or absent, as compared to a control, wherein a binding assay comprising contacting a processed sample from said subject with an antibody to NMT2 to form a complex between the antibody and NMT2 protein present in the processed sample generates at least one assay result indicative of said complex; wherein said assay result is indicative of said amount of NMT2 protein in said sample; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

[0056] In a specific example, said analysis to determine whether said sample from the subject expresses NMT2, comprises performing a binding assay comprising contacting the processed sample with an antibody to NMT2 to form a complex between the antibody and NMT2 present in the processed sample, said binding assay generating at least one assay result indicative of said complex.

[0057] In a specific example, said binding assay comprises fluorescence activated cell sorting, enzyme linked immunosorbent assay, immunohistochemistry, quantitative immunohistochemistry, fluorescence resonance energy transfer, Forster resonance energy transfer, biomolecular fluorescence complementation, mass spectrometry, immunoblot assay or coimmunoprecipitation assay.

[0058] In a specific example, instrumentation having a detector set to detect the complex formed between said antibody and said NMT2 in said sample is used to determine an amount of complex in said sample.

[0059] In a specific example, said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.

[0060] In a specific example, said wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.

[0061] In a specific example, said subject is human.

[0062] In another example, there is provided a use of an NMT1 inhibitor for treating a subject with a cancer, or suspected of having a cancer, wherein said an NMT1 inhibitor is indicated of use when the amount of NMT2 nucleic acid in a sample from said subject is low or absent, optionally as compared to a control, wherein a binding assay comprising contacting a processed sample from said subject with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid in said sample, said binding assay generating at least one assay result indicative of said complex.

[0062a] In one aspect, the present disclosure refers to use of a composition comprising an NMT1 inhibitor and doxorubicin in the manufacture of a medicament for treating a subject with a cancer, wherein the use of said composition is indicated when the amount of NMT2 nucleic acid in a sample from said subject is low or absent, as compared to a control, wherein a binding assay comprising contacting a processed sample from said subject with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid in said sample, said binding assay generating at least one assay result indicative of said complex; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

[0063] In a specific example, said analysis to determine whether said sample from the subject expresses NMT2, comprises performing a binding assay comprising contacting the processed sample with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid present in the sample, said binding assay generating at least one assay result indicative of said complex.

- [0064] In a specific example, said binding assay comprises, a hybridization assay using detectably labeled DNA or RNA probes.
- [0065] In a specific example, said hybridization assay is quantitative or semi-quantitative.
- 5 [0066] In a specific example, said hybridization assay is RT-PCR, in situ hybridization, RNA protection assay ("RPA"), cDNA and oligonucleotide microarray, representation difference analysis ("RDA"), differential display, EST sequence analysis, serial analysis of gene expression ("SAGE"), and multiplex ligation-mediated amplification with the Luminex FlexMAP ("LMF").
- 10 [0067] In a specific example, instrumentation having a detector set to detect the complex between the detectable label and NMT2 nucleic acid present in the sample is used to determine an amount of complex in said sample.
- [0068] In a specific example, said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.
- 15 [0069] In a specific example, said wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia,
- 20 Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter
- 25 and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.
- [0070] In a specific example, said subject is a human.
- 30 [0071] In one example there is provided a use of an NMT1 inhibitor for treating a subject with a cancer, or suspected of having a cancer, wherein said use of said NMT1 inhibitor is indicated when a myristoylation profile from a sample from said

subject indicates said cancer is deficient in NMT2, optionally as compared to a control, wherein performing a binding assay comprising contacting a processed sample with an antibody which binds to myristoylated protein, or azido-biotin labeled myristoylated proteins, within the sample to form a complex between the detectable label and myristoylated protein present in the sample, said binding assay generating at least one myristoylation profile indicative of said complex.

[0071a] In one aspect, the present disclosure refers to use of a composition comprising an NMT1 inhibitor and doxorubicin in the manufacture of a medicament for treating a subject with a cancer, wherein the use of said composition is indicated when a myristoylation profile from a sample from said subject indicates said cancer is deficient in NMT2 defined by inhibition, reduction or elimination of NMT2 synthesis, levels, activity, or function as well as inhibition of the induction or stimulation of synthesis, levels, activity or function of the protein NMT2, as compared to a control, wherein performing a binding assay comprising contacting a processed sample with an antibody which binds to myristoylated protein, or azido-biotin labeled myristoylated proteins, within the sample to form a complex between the detectable label and myristoylated protein present in the sample, said binding assay generating at least one myristoylation profile indicative of said complex; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

[0072] In a specific example, said processing comprises treating said sample with alyknyl-myristate and desthiobiotin azido-PEG biotin .

[0073] In a specific example, said binding assay comprises fluorescence activated cell sorting, enzyme linked immunosorbent assay, immunohistochemistry, quantitative immunohistochemistry, fluorescence resonance energy transfer, Forster resonance energy transfer, biomolecular fluorescence complementation, mass spectrometry, immunoblot assay or coimmunoprecipitation assay.

[0074] In a specific example, instrumentation having a detector set to detect the complex formed between said antibody and said NMT2 in said sample is used to determine an amount of complex in said sample.

[0075] In a specific example, said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.

[0076] In a specific example, said wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.

[0077] In a specific example, said subject is human.

[0078] In another example there is provided a method for identifying a subject suitable for treatment with an NMT1 inhibitor, comprising: obtaining a sample from said subject with a cancer or suspected of having a cancer; processing said sample; performing a binding assay comprising contacting the processed sample with an antibody to NMT2 to form a complex between the antibody and NMT2 protein present in the processed sample, said binding assay generating at least one assay result indicative of said complex; wherein treatment with said NMT1 inhibitor is indicated when the amount of NMT2 protein said sample is low or absent, optionally as compared to a control.

[0078a] In one aspect, the present disclosure refers to a method for identifying a subject suitable for treatment with a composition comprising NMT1 inhibitor and doxorubicin, comprising: processing a sample from said subject with a cancer or suspected of having a cancer; performing a binding assay comprising contacting the processed sample with an antibody to NMT2 to form a complex between the antibody and NMT2 protein present in the processed sample, said binding assay generating at least one assay result indicative of said complex; wherein treatment with said composition is indicated when the amount of NMT2 protein in said sample is low or absent, as compared to a control; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

[0079] In a specific example said analysis to determine whether said sample from the subject expresses NMT2, comprises performing a binding assay comprising contacting the processed sample with an antibody to NMT2 to form a complex between the antibody and NMT2 present in the processed sample, said binding assay generating at least one assay result indicative of said complex.

[0080] In a specific example, said binding assay comprises fluorescence activated cell sorting, enzyme linked immunosorbent assay, immunohistochemistry, quantitative immunohistochemistry, fluorescence resonance energy transfer, Forster resonance energy transfer, biomolecular fluorescence complementation, mass spectrometry, immunoblot assay or coimmunoprecipitation assay.

[0081] In a specific example, instrumentation having a detector set to detect the complex formed between said antibody and said NMT2 in said sample is used to determine an amount of complex in said sample.

[0082] In a specific example, said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.

[0083] In a specific example, said wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus

Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.

[0084] In a specific example, said subject is human.

[0085] In another example there is provided, a method for identifying a subject suitable for treatment with an NMT1 inhibitor, comprising: obtaining a sample from a subject having a cancer or suspected of having a cancer; processing said sample; performing a binding assay comprising contacting the processed sample with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid present in the sample, said binding assay generating at least one assay result indicative of said complex; wherein administering an NMT1 inhibitor to said subject is indicated when the amount to NMT2 nucleic acid in said sample is low or absent, optionally as compared to a control.

[0085a] In one aspect, the present disclosure refers to a method for identifying a subject suitable for treatment with a composition comprising an NMT1 inhibitor and doxorubicin, comprising: processing a sample from a subject having a cancer or suspected of having a cancer; performing a binding assay comprising contacting the processed sample with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid present in the sample, said binding assay generating at least one assay result indicative of said complex; wherein administration of the composition to said subject is indicated when the amount to NMT2 nucleic acid in said sample is low or absent, as compared to a control; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

[0086] In a specific example, said analysis to determine whether said sample from the subject expresses NMT2, comprises performing a binding assay comprising contacting the processed sample with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid present in the sample, said binding assay generating at least one assay result indicative of said complex.

[0087] In a specific example, said binding assay comprises, a hybridization assay using detectably labeled DNA or RNA probes.

[0088] In a specific example, said hybridization assay is quantitative or semi-quantitative.

[0089] In a specific example, said hybridization assay is RT-PCR, in situ hybridization, RNA protection assay ("RPA"), cDNA and oligonucleotide microarray, representation difference analysis ("RDA"), differential display, EST sequence analysis, serial analysis of gene expression ("SAGE"), and multiplex ligation-mediated amplification with the Luminex FlexMAP ("LMF").

[0090] In a specific example, wherein instrumentation having a detector set to detect the complex between the detectable label and NMT2 nucleic acid present in the sample is used to determine an amount of complex in said sample.

[0091] In a specific example, wherein said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.

[0092] In a specific example, said wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.

[0093] In a specific example, said subject is a human.

[0094] In another example there is provided a method for identifying a subject suitable for treatment with an NMT1 inhibitor, comprising: obtaining a sample from a subject having a cancer or suspected of having a cancer; processing said sample; performing a binding assay comprising contacting the processed sample with an antibody to which binds to myristoylated protein, or azido-biotin labeled myristoylated proteins, within the sample to form a complex between the detectable label and myristoylated protein present in the sample, said binding assay generating at least one myristoylation profile indicative of said complex; wherein administering an NMT1 inhibitor to said subject is indicated when said myristoylation profile indicates said cancer is deficient in NMT2, optionally as compared to a control

[0094a] In one aspect, the present disclosure refers to a method for identifying a subject suitable for treatment with a composition comprising an NMT1 inhibitor and doxorubicin, comprising: processing a sample from a subject having a cancer or suspected of having a cancer; performing a binding assay comprising contacting the processed sample with an antibody to which binds to myristoylated protein, or azido-biotin labeled myristoylated proteins, within the sample to form a complex between the detectable label and myristoylated protein present in the sample, said binding assay generating at least one myristoylation profile indicative of said complex; wherein administration of the composition to said subject is indicated when said myristoylation profile indicates said cancer is deficient in NMT2 defined by inhibition, reduction or elimination of NMT2 synthesis, levels, activity, or function as well as inhibition of the induction or stimulation of synthesis, levels, activity or function of the protein NMT2, as compared to a control; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

[0095] In a specific example, said processing comprises treating said sample with alyknyl-myristate and desthiobiotin azido-PEG biotin.

- 5 [0096] In a specific example, said binding assay comprises fluorescence activated cell sorting, enzyme linked immunosorbent assay, immunohistochemistry, quantitative immunohistochemistry, fluorescence resonance energy transfer, Forster resonance energy transfer, biomolecular fluorescence complementation, mass spectrometry, immunoblot assay or coimmunoprecipitation assay.
- [0097] In a specific example, instrumentation having a detector set to detect the complex formed between said antibody and said NMT2 in said sample is used to determine an amount of complex in said sample.
- 10 [0098] In a specific example, said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.
- [0099] In a specific example, said wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.
- 20 [00100] In a specific example, wherein said subject is human.
- [00101] In another example there is provided a kit for identifying a subject suitable for treatment with an NMT1 inhibitor, comprising: an antibody to NMT2; instructions for identifying the subject according to the method of any one of claims 68-74.
- 30 [00101a] In one aspect, the present disclosure refers to a kit for identifying a subject suitable for treatment with a composition comprising an NMT1 inhibitor and doxorubicin, comprising: an antibody to NMT2; instructions for identifying the subject according to the method disclosed herein, wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.
- 35 [00102] In a specific example the kit further comprising a control.
- [00103] In another example there is provided a kit for identifying a subject suitable for treatment with an NMT1 inhibitor, comprising: a nucleic acid for binding

to NMT2; instructions for identifying the subject according to the method of any one of claims 75-83.

[00103a] In one aspect, the present disclosure refers to a kit for identifying a subject suitable for treatment with a composition comprising an NMT1 inhibitor and doxorubicin, comprising: a nucleic acid for binding to NMT2; instructions for identifying the subject according to the method disclosed herein, wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

[00104] In a specific example, the kit further comprising a control.

[00105] The kit of claim 93, wherein said nucleic acid is RNA or DNA.

[00106] In another example there is provided a kit for identifying a subject suitable for treatment with an NMT1 inhibitor, comprising: NeutrAvidinTM-HRP; and instructions for identifying said subject according to any one of claims 84-90.

[00106a] In one aspect, the present disclosure refers to a kit for identifying a subject suitable for treatment with a composition comprising an NMT1 inhibitor and doxorubicin, comprising: antibodies to which binds to myristoylated protein, or azido-biotin labeled myristoylated protein, or alkynyl myristate, and azido-biotin for using click chemistry, and NeutrAvidinTM-HRP; and instructions for identifying said subject according to the method disclosed herein, wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

[00107] In a specific example the kit further comprising a control.

[00108] In a specific example the kit further comprising alkynyl-myristate or desthiobiotin azido-PEG biotin.

BRIEF DESCRIPTION OF THE DRAWINGS

[00109] Embodiments of the present invention will now be described, by way of example only, with reference to the attached Figures, wherein:

[00110] Figure 1 depicts immunoblot analysis of NMT1 and NMT2 expression in one type of normal B cells (L0) and various B cell lymphomas and T cell leukemias;

[00111] Figure 2 is a graph illustrating sensitivity of various normal cells and various B cell lymphomas and T cell leukemias to the NMT inhibitors tris-dibenzylideneacetone-dipalladium (Tris-DBA);

[00112] Figure 3 is a bar graph illustrating inhibition of N-myristoyltransferase (NMT) by tris-dibenzylideneacetone-dipalladium (Tris-DBA); and

[00113] Figure 4 are immunoblots depicting lymphoma cell lines probed with antibodies against NMT1 and NMT2.

[00114] Figure 5 is a line graph showing the sensitivity of NMT inhibitors on a Burkitt's Lymphoma cell line in comparison to an immortalized normal B lymphocytic cell line;

[00115] Figure 6 depicts the results of transfection of Ramos B lymphoma cells with pcDNA3.1-V5-NMT2 showing increased survival to TrisDBA (5 ug/ml) 2.5 fold vs control cells transfected with empty plasmid vector (Panel A) showing cell viability, and (Panel B) an immunoblot;

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. Use of a composition comprising an NMT1 inhibitor and doxorubicin in the
5 manufacture of a medicament for treating a subject having a cancer deficient in NMT2 defined by inhibition, reduction or elimination of NMT2 synthesis, levels, activity, or function as well as inhibition of the induction or stimulation of synthesis, levels, activity or function of the protein NMT2, wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.
- 10 2. The use of claim 1, wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma,
15 Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma,
20 colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.
3. The use of claim 1 or 2, wherein said subject is a human subject.
4. Use of a composition comprising an NMT1 inhibitor and doxorubicin in the
25 manufacture of a medicament for treating a subject with a cancer, wherein the composition is to be administered to the subject if a sample from the subject is deficient in NMT2, defined by inhibition, reduction or elimination of NMT2 synthesis, levels, activity, or function as well as inhibition of the induction or stimulation of synthesis, levels, activity or function of the protein NMT2, and defined by the results of an analysis to determine whether the sample
30 expresses NMT2; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

5. Use of a composition comprising an NMT1 inhibitor and doxorubicin in the manufacture of a medicament for treating a subject with a cancer or suspected of having a cancer by a method, comprising: processing a sample from the subject with a cancer or suspected of having a cancer; performing a binding assay comprising contacting the
5 processed sample with an antibody to NMT2 protein to form a complex between the antibody and NMT2 protein present in the processed sample, said binding assay generating at least one assay result indicative of said complex; wherein administration of the composition to said subject is indicated when the amount of NMT2 protein in said sample is low or absent, as compared to a control; and wherein the NMT1 inhibitor is selected from DDD85646, and
10 DDD86481.

6. The use of claim 4, wherein said analysis to determine whether said sample from the subject expresses NMT2, comprises performing a binding assay comprising contacting the processed sample with an antibody to NMT2 to form a complex between the antibody and NMT2 present in the processed sample, said binding assay generating at least one assay result
15 indicative of said complex.

7. The use of claim 5 or 6, wherein said binding assay comprises fluorescence activated cell sorting, enzyme linked immunosorbent assay, immunohistochemistry, quantitative immunohistochemistry, fluorescence resonance energy transfer, Forster resonance energy transfer, biomolecular fluorescence complementation, mass spectrometry, immunoblot assay
20 or coimmunoprecipitation assay.

8. The use of any one of claims 5 to 7, wherein instrumentation having a detector set to detect the complex formed between said antibody and said NMT2 in said sample is used to determine an amount of complex in said sample.

9. The use of claim 8, wherein said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.
25

10. The use of anyone of claims 4 to 9, wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid
30 leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small

Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-
5 CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.

11. The use of any one of claims 4 - 10, wherein said subject is human.

12. Use of a composition comprising an NMT1 inhibitor and doxorubicin in the
10 manufacture of a medicament for treating a subject having a cancer or suspected of having a cancer by a method, comprising: processing a sample from the subject having a cancer or suspected of having a cancer; performing a binding assay comprising contacting the processed sample with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid present in the sample, said
15 binding assay generating at least one assay result indicative of said complex; wherein administration of the composition to said subject is indicated when the amount to NMT2 nucleic acid in said sample is low or absent, as compared to a control; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

13. The use of claim 4, wherein said analysis to determine whether said sample from the
20 subject expresses NMT2, comprises performing a binding assay comprising contacting the processed sample with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid present in the sample, said binding assay generating at least one assay result indicative of said complex.

14. The use of claim 12 or 13, wherein said binding assay comprises, a hybridization
25 assay using detectably labeled DNA or RNA probes.

15. The use of claim 14, wherein said hybridization assay is quantitative or semi-quantitative.

16. The use of claim 15, wherein said hybridization assay is RT-PCR, in situ hybridization, RNA protection assay ("RPA"), cDNA and oligonucleotide microarray,
30 representation difference analysis ("RDA"), differential display, EST sequence analysis,

serial analysis of gene expression ("SAGE"), and multiplex ligation-mediated amplification with the Luminex FlexMAP ("LMF").

17. The use of claim 16, wherein instrumentation having a detector set to detect the complex between the detectable label and NMT2 nucleic acid present in the sample is used to determine an amount of complex in said sample.

18. The use of claim 17, wherein said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.

19. The use of anyone of claims 11 – 18, wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.

20. The use of any one of claims 12 to 19, wherein said subject is a human.

21. Use of a composition comprising an NMT1 inhibitor and doxorubicin in the manufacture of a medicament for treating a subject having a cancer or suspected of having a cancer by a method, comprising: processing a sample from the subject having a cancer or suspected of having a cancer; performing a binding assay comprising contacting the processed sample with a an antibody to which binds to myristoylated protein, or azido-biotin labeled myristoylated proteins, within the sample to form a complex between the detectable label and myristoylated protein present in the sample, said binding assay generating at least one myristoylation profile indicative of said complex; wherein administration of the composition to said subject is indicated when said myristoylation profile indicates said cancer is deficient in NMT2 defined by inhibition, reduction or elimination of NMT2 synthesis,

levels, activity, or function as well as inhibition of the induction or stimulation of synthesis, levels, activity or function of the protein NMT2, as compared to a control; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

22. The use of claim 21, wherein said processing comprises treating said sample with ω -alkynyl-myristate and desthiobiotin azido-PEG biotin .

23. The use of claim 21 or 22, wherein said binding assay comprises fluorescence activated cell sorting, enzyme linked immunosorbent assay, immunohistochemistry, quantitative immunohistochemistry, fluorescence resonance energy transfer, Forster resonance energy transfer, biomolecular fluorescence complementation, mass spectrometry, immunoblot assay or coimmunoprecipitation assay.

24. The use of claim 23, wherein instrumentation having a detector set to detect the complex formed between said antibody and said NMT2 in said sample is used to determine an amount of complex in said sample.

25. The use of claim 24, wherein said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.

26. The use of anyone of claims 21 to 25, wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.

27. The use of any one of claims 23 - 26, wherein said subject is human.

28. Use of a composition comprising an NMT1 inhibitor and doxorubicin in the manufacture of a medicament for treating a subject having a cancer deficient in NMT2 defined by inhibition, reduction or elimination of NMT2 synthesis, levels, activity, or function as well as inhibition of the induction or stimulation of synthesis, levels, activity or function of the protein NMT2, wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.
29. The use of claim 28, wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.
30. The use of claim 28 or 29, wherein said subject is a human subject.
31. Use of a composition comprising an NMT1 inhibitor and doxorubicin in the manufacture of a medicament for treating a subject with a cancer, wherein use of the composition is indicated when the amount of NMT2 protein in a sample from said subject is low or absent, as compared to a control, wherein a binding assay comprising contacting a processed sample from said subject with an antibody to NMT2 to form a complex between the antibody and NMT2 protein present in the processed sample generates at least one assay result indicative of said complex; wherein said assay result is indicative of said amount of NMT2 protein in said sample; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.
32. The use of claim 31, wherein said analysis to determine whether said sample from the subject expresses NMT2, comprises performing a binding assay comprising contacting the

processed sample with an antibody to NMT2 to form a complex between the antibody and NMT2 present in the processed sample, said binding assay generating at least one assay result indicative of said complex.

33. The use of claim 31 or 32, wherein said binding assay comprises fluorescence
5 activated cell sorting, enzyme linked immunosorbent assay, immunohistochemistry, quantitative immunohistochemistry, fluorescence resonance energy transfer, Forster resonance energy transfer, biomolecular fluorescence complementation, mass spectrometry, immunoblot assay or coimmunoprecipitation assay.

34. The use of any one of claim 31 to 33, wherein instrumentation having a detector set to
10 detect the complex formed between said antibody and said NMT2 in said sample is used to determine an amount of complex in said sample.

35. The use of claim 34, wherein said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.

36. The use of anyone of claims 28 to 35, wherein said cancer is lymphoma, B cell
15 lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small
20 Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian
25 carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.

37. The use of any one of claims 28 - 36, wherein said subject is human.

38. Use of a composition comprising an NMT1 inhibitor and doxorubicin in the
manufacture of a medicament for treating a subject with a cancer, wherein the use of said
30 composition is indicated when the amount of NMT2 nucleic acid in a sample from said

subject is low or absent, as compared to a control, wherein a binding assay comprising contacting a processed sample from said subject with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid in said sample, said binding assay generating at least one assay result indicative of said complex; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

39. The use of claim 38, wherein said analysis to determine whether said sample from the subject expresses NMT2, comprises performing a binding assay comprising contacting the processed sample with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid present in the sample, said binding assay generating at least one assay result indicative of said complex.

40. The use of claim 38 or 39, wherein said binding assay comprises, a hybridization assay using detectably labeled DNA or RNA probes.

41. The use of claim 40, wherein said hybridization assay is quantitative or semi-quantitative.

42. The use of claim 41, wherein said hybridization assay is RT-PCR, in situ hybridization, RNA protection assay ("RPA"), cDNA and oligonucleotide microarray, representation difference analysis ("RDA"), differential display, EST sequence analysis, serial analysis of gene expression ("SAGE"), and multiplex ligation-mediated amplification with the Luminex FlexMAP ("LMF").

43. The use of claim 41, wherein instrumentation having a detector set to detect the complex between the detectable label and NMT2 nucleic acid present in the sample is used to determine an amount of complex in said sample.

44. The use of claim 43, wherein said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.

45. The use of anyone of claims 39 – 44, wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell

Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.

46. The use of any one of claims 39 to 45, wherein said subject is a human.

47. Use of a composition comprising an NMT1 inhibitor and doxorubicin in the manufacture of a medicament for treating a subject with a cancer, wherein the use of said composition is indicated when a myristoylation profile from a sample from said subject indicates said cancer is deficient in NMT2 defined by inhibition, reduction or elimination of NMT2 synthesis, levels, activity, or function as well as inhibition of the induction or stimulation of synthesis, levels, activity or function of the protein NMT2, as compared to a control, wherein performing a binding assay comprising contacting a processed sample with an antibody which binds to myristoylated protein, or azido-biotin labeled myristoylated proteins, within the sample to form a complex between the detectable label and myristoylated protein present in the sample, said binding assay generating at least one myristoylation profile indicative of said complex; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

48. The use of claim 47, wherein said processing comprises treating said sample with alyknyl-myristate and desthiobiotin azido-PEG biotin.

49. The use of claims 47 or 48, wherein said binding assay comprises fluorescence activated cell sorting, enzyme linked immunosorbent assay, immunohistochemistry, quantitative immunohistochemistry, fluorescence resonance energy transfer, Forster resonance energy transfer, biomolecular fluorescence complementation, mass spectrometry, immunoblot assay or coimmunoprecipitation assay.

50. The use of claim 49, wherein instrumentation having a detector set to detect the complex formed between said antibody and said NMT2 in said sample is used to determine an amount of complex in said sample.

51. The use of claim 50, wherein said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.

52. The use of anyone of claims 47 to 51, wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-
5 CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal
10 Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric
15 adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.

53. The use of any one of claims 48 - 52, wherein said subject is human.

54. A method for identifying a subject suitable for treatment with a composition comprising NMT1 inhibitor and doxorubicin, comprising: processing a sample from said subject with a cancer or suspected of having a cancer; performing a binding assay comprising
20 contacting the processed sample with an antibody to NMT2 to form a complex between the antibody and NMT2 protein present in the processed sample, said binding assay generating at least one assay result indicative of said complex; wherein treatment with said composition is indicated when the amount of NMT2 protein in said sample is low or absent, as compared to a control; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

25 55. The method of claim 54, wherein said analysis to determine whether said sample from the subject expresses NMT2, comprises performing a binding assay comprising contacting the processed sample with an antibody to NMT2 to form a complex between the antibody and NMT2 present in the processed sample, said binding assay generating at least one assay result indicative of said complex.

30 56. The method of claims 54 or 55, wherein said binding assay comprises fluorescence activated cell sorting, enzyme linked immunosorbent assay, immunohistochemistry,

quantitative immunohistochemistry, fluorescence resonance energy transfer, Forster resonance energy transfer, biomolecular fluorescence complementation, mass spectrometry, immunoblot assay or coimmunoprecipitation assay.

57. The method of any one of claim 54 - 56, wherein instrumentation having a detector set to detect the complex formed between said antibody and said NMT2 in said sample is used to determine an amount of complex in said sample.

58. The method of claim 57, wherein said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.

59. The method of anyone of claims 54 to 58, wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.

60. The method of any one of claims 54 - 59, wherein said subject is human.

61. A method for identifying a subject suitable for treatment with a composition comprising an NMT1 inhibitor and doxorubicin, comprising: processing a sample from a subject having a cancer or suspected of having a cancer; performing a binding assay comprising contacting the processed sample with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid present in the sample, said binding assay generating at least one assay result indicative of said complex; wherein administration of the composition to said subject is indicated when the amount to NMT2 nucleic acid in said sample is low or absent, as compared to a control; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

62. The method of claim 61, wherein said analysis to determine whether said sample from the subject expresses NMT2, comprises performing a binding assay comprising contacting the processed sample with a detectable label which binds to NMT2 nucleic acid to form a complex between the detectable label and NMT2 nucleic acid present in the sample, said
5 binding assay generating at least one assay result indicative of said complex.
63. The method of claim 62, wherein said binding assay comprises, a hybridization assay using detectably labeled DNA or RNA probes.
64. The method of claim 63, wherein said hybridization assay is quantitative or semi-quantitative.
- 10 65. The method of claim 64, wherein said hybridization assay is RT-PCR, in situ hybridization, RNA protection assay ("RPA"), cDNA and oligonucleotide microarray, representation difference analysis ("RDA"), differential display, EST sequence analysis, serial analysis of gene expression ("SAGE"), and multiplex ligation-mediated amplification with the Luminex FlexMAP ("LMF").
- 15 66. The method of claim 65, wherein instrumentation having a detector set to detect the complex between the detectable label and NMT2 nucleic acid present in the sample is used to determine an amount of complex in said sample.
67. The method of claim 66, wherein said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.
- 20 68. The method of anyone of claims 61 – 67, wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell
25 Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-
30 CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian

carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.

69. The method of any one of claims 61 to 68, wherein said subject is a human.

70. A method for identifying a subject suitable for treatment with a composition comprising an NMT1 inhibitor and doxorubicin, comprising: processing a sample from a subject having a cancer or suspected of having a cancer; performing a binding assay comprising contacting the processed sample with a an antibody to which binds to myristoylated protein, or azido-biotin labeled myristoylated proteins, within the sample to form a complex between the detectable label and myristoylated protein present in the sample, said binding assay generating at least one myristoylation profile indicative of said complex; wherein administration of the composition to said subject is indicated when said myristoylation profile indicates said cancer is deficient in NMT2 defined by inhibition, reduction or elimination of NMT2 synthesis, levels, activity, or function as well as inhibition of the induction or stimulation of synthesis, levels, activity or function of the protein NMT2, as compared to a control; and wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481

71. The method of claim 70, wherein said processing comprises treating said sample with alyknyl-myristate and desthiobiotin azido-PEG biotin.

72. The method of claims 70 or 71, wherein said binding assay comprises fluorescence activated cell sorting, enzyme linked immunosorbent assay, immunohistochemistry, quantitative immunohistochemistry, fluorescence resonance energy transfer, Forster resonance energy transfer, biomolecular fluorescence complementation, mass spectrometry, immunoblot assay or coimmunoprecipitation assay.

73. The method of claim 72, wherein instrumentation having a detector set to detect the complex formed between said antibody and said NMT2 in said sample is used to determine an amount of complex in said sample.

74. The method of claim 73, wherein said instrumentation is a spectrophotometer, spectrofluorometer, optical device, or electrochemical device.

75. The method of anyone of claims 70 to 74, wherein said cancer is lymphoma, B cell lymphoma, follicular lymphoma, diffuse large B-cell lymphoma, mantle cell lymphoma, B-CLL/SLL, immunocytoma/Waldenstrom's, MALT-type/monocytoid B cell lymphoma, Burkitt's lymphoma, a pediatric lymphoma, anaplastic large cell lymphoma, acute myeloid leukemia, Blast Phase Chronic Myeloid Leukaemia, Burkitt's Lymphoma, Plasma Cell Myeloma, Intestinal Adenocarcinoma, Lung mixed Adenosquamous Carcinoma, Lung Small Cell Carcinoma, Lung, Oesophagus Squamous Cell Carcinoma, Bone, Breast Ductal Carcinoma, Stomach Diffuse Adenocarcinoma, Thyroid Medullary Carcinoma, urinary Tract Transitional Cell Carcinoma, myeloma, ovarian clear cell carcinoma, transition cell carcinoma (ureter and bladder cancer), chronic myelogenous leukemia (CML), lymphoma-CLL, breast carcinoma, colorectal adenocarcinoma, pancreas adenocarcinoma, ovarian carcinoma, non-small cell lung carcinoma, osteosarcoma, melanoma, gastric adenocarcinoma, endometrial adenocarcinoma, esophageal squamous carcinoma.
76. The method of any one of claims 70 - 75, wherein said subject is human.
77. A kit for identifying a subject suitable for treatment with a composition comprising an NMT1 inhibitor and doxorubicin, comprising: an antibody to NMT2; instructions for identifying the subject according to the method of any one of claims 54 to 60, wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.
78. The kit of claim 77, further comprising a control.
79. A kit for identifying a subject suitable for treatment with a composition comprising an NMT1 inhibitor and doxorubicin, comprising: a nucleic acid for binding to NMT2; instructions for identifying the subject according to the method of any one of claims 61 to 69, wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.
80. The kit of claim 79, further comprising a control.
81. The kit of claim 79, wherein said nucleic acid for binding to NMT2 nucleic acid is RNA or DNA.
82. A kit for identifying a subject suitable for treatment with a composition comprising an NMT1 inhibitor and doxorubicin, comprising: antibodies to which binds to myristoylated protein, or azido-biotin labeled myristoylated protein, or alkynyl myristate, and azido-biotin

for using click chemistry, and NeutrAvidin™-HRP; and instructions for identifying said subject according to the method of any one of claims 70 to 76, wherein the NMT1 inhibitor is selected from DDD85646, and DDD86481.

83. The kit of claim 82, further comprising a control.

5 84. The kit of claim 83, further comprising ω -alkynyl-myristate or desthiobiotin azido-PEG biotin.