the ability to specifically target cancer cells for destruction via antibody-based therapies. In this regard, it is noted that antibody-based therapy has proved very effective in the treatment of certain cancers. For example, HERCEPTIN® and RITUXAN® (both from Genentech Inc., South San Francisco, California) are antibodies that have been used successfully to treat breast cancer and non-Hodgkin's lymphoma, respectively. More specifically, HERCEPTIN® is a recombinant DNA-derived humanized monoclonal antibody that selectively binds to the extracellular domain of the human epidermal growth factor receptor 2 (HER2) proto-oncogene. HER2 protein overexpression is observed in 25-30% of primary breast cancers. RITUXAN® is a genetically engineered chimeric murine/human monoclonal antibody directed against the CD20 antigen found on the surface of normal and malignant B lymphocytes. Both these antibodies are recombinantly produced in CHO cells.

Despite the above identified advances in mammalian cancer therapy, there is a great need for additional diagnostic and therapeutic agents capable of detecting the presence of tumor in a mammal and for effectively inhibiting neoplastic cell growth, respectively. Accordingly, it is an objective of the present invention to identify cell membrane-associated polypeptides that are more abundantly expressed on one or more type(s) of cancer cell(s) as compared to on normal cells or on other different cancer cells and to use those polypeptides, and their encoding nucleic acids, to produce compositions of matter useful in the therapeutic treatment and diagnostic detection of cancer in mammals.

SUMMARY ~~OF INVENTION~~

In the present specification, Applicants describe for the first time the identification of cellular polypeptides (and their encoding nucleic acids or fragments thereof) which are expressed to a greater degree on the surface of one or more types of cancer cell(s) as compared to on the surface of one or more types of normal non-cancer cells. These polypeptides are herein referred to as Tumor-associated Antigenic Target polypeptides ("TAT" polypeptides) and are expected to serve as effective targets for cancer therapy and diagnosis in mammals.

Accordingly, in one embodiment of the present disclosure~~invention~~, the disclosure~~invention~~ provides an isolated nucleic acid molecule having a nucleotide sequence that encodes a tumor-associated antigenic target polypeptide or fragment thereof (a "TAT" polypeptide).

In certain embodimentaspects, the isolated nucleic acid molecule comprises a nucleotide sequence having at least about 80% nucleic acid sequence identity, alternatively at least about 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99% or 100% nucleic acid sequence identity, to (a) a DNA molecule encoding a full-length TAT polypeptide having an amino acid sequence as disclosed herein, a TAT polypeptide amino acid sequence lacking the signal peptide as disclosed herein, an extracellular domain of a transmembrane TAT polypeptide, with or without the signal peptide, as disclosed herein or any other specifically defined fragment of a full-length TAT polypeptide amino acid sequence as disclosed herein, or (b) the complement of the DNA molecule of (a).

In other embodimentaspects, the isolated nucleic acid molecule comprises a nucleotide sequence having at least about 80% nucleic acid sequence identity, alternatively at least about 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99% or 100% nucleic acid sequence identity, to (a) a DNA molecule comprising the coding sequence of a full-length TAT polypeptide cDNA as disclosed herein, the coding sequence of a TAT polypeptide lacking the signal peptide as disclosed herein, the coding sequence of an extracellular domain of a transmembrane TAT polypeptide, with or without the signal peptide, as disclosed herein or the coding sequence of any other specifically defined fragment of the full-length TAT polypeptide amino acid sequence as disclosed herein, or (b) the complement of the DNA molecule of (a).

Another embodimentaspect of the disclosureinvention provides an isolated nucleic acid molecule comprising a nucleotide sequence encoding a TAT polypeptide which is either transmembrane domain-deleted or transmembrane domain-inactivated, or is complementary to such encoding nucleotide sequence, wherein the transmembrane domain(s) of such polypeptide(s) are disclosed herein. Therefore, soluble extracellular domains of the herein described TAT polypeptides are contemplated.

In other embodimentaspects, the present disclosureinvention is directed to isolated nucleic acid molecules which hybridize to (a) a nucleotide sequence encoding a TAT polypeptide having a full-length amino acid sequence as disclosed herein, a TAT polypeptide amino acid sequence lacking the signal peptide as disclosed herein, an extracellular domain of a transmembrane TAT polypeptide, with or without the signal peptide, as disclosed herein or any other specifically defined fragment of a full-length TAT polypeptide amino acid

sequence as disclosed herein, or (b) the complement of the nucleotide sequence of (a). In this regard, an embodiment of the present disclosure~~invention~~ is directed to fragments of a full-length TAT polypeptide coding sequence, or the complement thereof, as disclosed herein, that may find use as, for example, hybridization probes useful as, for example, diagnostic probes, PCR primers, antisense oligonucleotide probes, or for encoding fragments of a full-length TAT polypeptide that may optionally encode a polypeptide comprising a binding site for an anti-TAT polypeptide antibody. Such nucleic acid fragments are usually at least about 5 nucleotides in length, alternatively at least about 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 165, 170, 175, 180, 185, 190, 195, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, or 1000 nucleotides in length, wherein in this context the term "about" means the referenced nucleotide sequence length plus or minus 10% of that referenced length. Moreover, such nucleic acid fragments are usually comprised of consecutive nucleotides derived from the full-length coding sequence of a TAT polypeptide or the complement thereof. It is noted that novel fragments of a TAT polypeptide-encoding nucleotide sequence, or the complement thereof, may be determined in a routine manner by aligning the TAT polypeptide-encoding nucleotide sequence with other known nucleotide sequences using any of a number of well known sequence alignment programs and determining which TAT polypeptide-encoding nucleotide sequence fragment(s), or the complement thereof, are novel. All of such novel fragments of TAT polypeptide-encoding nucleotide sequences, or the complement thereof, are contemplated herein. Also contemplated are the TAT polypeptide fragments encoded by these nucleotide molecule fragments, preferably those TAT polypeptide fragments that comprise a binding site for an anti-TAT antibody.

In another embodiment, the disclosure~~invention~~ provides isolated TAT polypeptides encoded by any of the isolated nucleic acid sequences hereinabove identified.

In a certain embodiment~~aspect~~, the disclosure~~invention~~ concerns an isolated TAT polypeptide, comprising an amino acid sequence having at least about 80% amino acid sequence identity,

alternatively at least about 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99% or 100% amino acid sequence identity, to a TAT polypeptide having a full-length amino acid sequence as disclosed herein, a TAT polypeptide amino acid sequence lacking the signal peptide as disclosed herein, an extracellular domain of a transmembrane TAT polypeptide protein, with or without the signal peptide, as disclosed herein, an amino acid sequence encoded by any of the nucleic acid sequences disclosed herein or any other specifically defined fragment of a full-length TAT polypeptide amino acid sequence as disclosed herein.

In a yet further embodiment~~aspect~~, the disclosure~~invention~~ concerns an isolated TAT polypeptide comprising an amino acid sequence that is encoded by a nucleotide sequence that hybridizes to the complement of a DNA molecule encoding (a) a TAT polypeptide having a full-length amino acid sequence as disclosed herein, (b) a TAT polypeptide amino acid sequence lacking the signal peptide as disclosed herein, (c) an extracellular domain of a transmembrane TAT polypeptide protein, with or without the signal peptide, as disclosed herein, (d) an amino acid sequence encoded by any of the nucleic acid sequences disclosed herein or (e) any other specifically defined fragment of a full-length TAT polypeptide amino acid sequence as disclosed herein.

In a specific embodiment~~aspect~~, the disclosure~~invention~~ provides an isolated TAT polypeptide without the N-terminal signal sequence and/or without the initiating methionine and is encoded by a nucleotide sequence that encodes such an amino acid sequence as hereinbefore described. Processes for producing the same are also herein described, wherein those processes comprise culturing a host cell comprising a vector which comprises the appropriate encoding nucleic acid molecule under conditions suitable for expression of the TAT polypeptide and recovering the TAT polypeptide from the cell culture.

Another embodiment~~aspect~~ of the disclosure~~invention~~ provides an isolated TAT polypeptide which is either transmembrane domain-deleted or transmembrane domain-inactivated. Processes for producing the same are also herein described, wherein those processes comprise culturing a host cell comprising a vector which comprises the appropriate encoding nucleic acid molecule under conditions suitable for expression of the TAT polypeptide and recovering the TAT polypeptide from the cell culture.

In other embodiments of the present disclosure~~invention~~, the disclosure~~invention~~ provides vectors comprising DNA encoding any of the herein described polypeptides. Host cells

comprising any such vector are also provided. By way of example, the host cells may be CHO cells, E. coli cells, or yeast cells. A process for producing any of the herein described polypeptides is further provided and comprises culturing host cells under conditions suitable for expression of the desired polypeptide and recovering the desired polypeptide from the cell culture.

In other embodiments, the disclosure~~invention~~ provides isolated chimeric polypeptides comprising any of the herein described TAT polypeptides fused to a heterologous (non-TAT) polypeptide. Examples of such chimeric molecules comprise any of the herein described TAT polypeptides fused to a heterologous polypeptide such as, for example, an epitope tag sequence or a Fc region of an immunoglobulin.

In one aspect, there is provided an isolated antibody that binds TAT419 polypeptide of SEQ ID NO:2 comprising:

(a) a CDR-L1 sequence of SEQ ID NO:7;

(b) a CDR-L2 sequence of SEQ ID NO:8;

(c) a CDR-L3 sequence of SEQ ID NO:9;

(d) a CDR-H1 sequence of SEQ ID NO:10;

(e) a CDR-H2 sequence of SEQ ID NO:11; and

(f) a CDR-H3 sequence of SEQ ID NO:12.

In another embodiment, the disclosure~~invention~~ provides an antibody which binds, preferably specifically, to any of the above or below described polypeptides. Optionally, the antibody is a monoclonal antibody, antibody fragment, chimeric antibody, humanized antibody, single-chain antibody or antibody that competitively inhibits the binding of an anti-TAT polypeptide antibody to its respective antigenic epitope. Antibodies of the present disclosure~~invention~~ may optionally be conjugated to a growth inhibitory agent or cytotoxic agent such as a toxin, including, for example, a maytansinoid or calicheamicin, an antibiotic, a radioactive isotope, a nucleolytic enzyme, or the like. The antibodies of the present disclosure~~invention~~ may optionally be produced in CHO cells or bacterial cells and preferably inhibit the growth or proliferation of or induce the death of a cell to which they bind. For diagnostic purposes, the antibodies of the present disclosure~~invention~~ may be detectably labeled, attached to a solid support, or the like.

In one aspect, there is provided a cell which produces an antibody as defined herein.

In one aspect, there is provided an isolated nucleic acid that encodes an antibody as defined herein.

In other embodiments of the present disclosure~~invention~~, the disclosure~~invention~~ provides vectors comprising DNA encoding any of the herein described antibodies. Host cell comprising any such vector are also provided. By way of example, the host cells may be CHO cells, E. coli cells, or yeast cells. A process for producing any of the herein described antibodies is further provided and comprises culturing host cells under conditions suitable for expression of the desired antibody and recovering the desired antibody from the cell culture.

In a still further embodiment, the disclosure~~invention~~ concerns a composition of matter comprising a TAT polypeptide as described herein, a chimeric TAT polypeptide as

described herein, or an anti-TAT antibody as described herein, in combination with a carrier. Optionally, the carrier is a pharmaceutically acceptable carrier.

In yet another embodiment, the disclosure~~invention~~ concerns an article of manufacture comprising a container and a composition of matter contained within the container, wherein the composition of matter may comprise a TAT polypeptide as described herein, a chimeric TAT polypeptide as described herein, or an anti-TAT antibody as described herein. The article may further optionally comprise a label affixed to the container, or a package insert included with the container, that refers to the use of the composition of matter for the therapeutic treatment or diagnostic detection of a tumor.

Another embodiment of the present disclosure~~invention~~ is directed to the use of a TAT polypeptide as described herein, a chimeric TAT polypeptide as described herein, or an anti-TAT polypeptide antibody as described herein, for the preparation of a medicament useful in the treatment of a condition which is responsive to the TAT polypeptide, chimeric TAT polypeptide, or anti-TAT polypeptide antibody.

Other embodiments of the present disclosure~~invention~~ are directed to any isolated antibody comprising one or more of the CDR-L1, CDR-L2, CDR-L3, CDR-H1, CDR-H2, or CDR-H3 sequences disclosed herein, or any antibody that binds to the same epitope as any such antibody.

In one aspect, there is provided a method of inhibiting the proliferation of a cell that over-expresses a TAT419 polypeptide of SEQ ID NO: 2 or an extracellular domain thereof, said method comprising contacting said cell *in vitro* with an antibody as defined herein, wherein the binding of said antibody to said TAT419 polypeptide causes an inhibition of proliferation of said cell.

In one aspect, there is provided the use of an antibody as defined herein in the manufacture of a medicament for inhibiting the proliferation of a cell that over-expresses a TAT419 polypeptide of SEQ ID NO: 2 or an extracellular domain thereof, wherein the binding of said antibody to said TAT419 polypeptide causes an inhibition of proliferation of said cell.

Another embodiment of the present disclosure~~invention~~ is directed to a method for inhibiting the growth of a cell that expresses a TAT polypeptide, wherein the method comprises contacting the cell with an antibody that binds to the TAT polypeptide, and wherein the binding of the antibody to the TAT polypeptide causes inhibition of the growth of the cell expressing the TAT polypeptide. In preferred embodiments, the cell is a cancer cell and binding of the antibody to the TAT polypeptide causes death of the cell expressing the TAT polypeptide. Optionally, the antibody is a monoclonal antibody, antibody fragment, chimeric antibody, humanized antibody, or single-chain antibody. Antibodies employed in the methods of the present disclosure~~invention~~ may optionally be conjugated to a growth inhibitory agent or cytotoxic agent such as a toxin, including, for example, a maytansinoid or calicheamicin, an antibiotic, a radioactive isotope, a nucleolytic enzyme, or the like. The antibodies employed in the methods of the present disclosure~~invention~~ may optionally be produced in CHO cells or bacterial cells.

In one aspect, there is provided the use of an antibody as defined herein in the manufacture of a medicament for therapeutically treating a mammal having a cancerous tumor comprising cells that over-express a TAT419 polypeptide of SEQ ID NO:2 or an extracellular domain thereof.

Yet another embodiment of the present disclosure~~invention~~ is directed to a method of therapeutically treating a mammal having a cancerous tumor comprising cells that express a TAT polypeptide, wherein the method comprises administering to the mammal a therapeutically effective amount of an antibody that binds to the TAT polypeptide, thereby resulting in the effective therapeutic treatment of the tumor. Optionally, the antibody is a monoclonal antibody, antibody fragment, chimeric antibody, humanized antibody, or single-chain antibody. Antibodies employed in the methods of the present disclosure~~invention~~ may optionally be conjugated to a growth inhibitory agent or cytotoxic agent such as a toxin, including, for example, a maytansinoid or calicheamicin, an antibiotic, a radioactive isotope, a nucleolytic enzyme, or the like. The antibodies employed in the methods of the present disclosure~~invention~~ may optionally be produced in CHO cells or bacterial cells.

In one aspect, there is provided a method of determining the presence of a TAT419 protein comprising the amino acid sequence of SEQ ID NO: 2 or an extracellular domain thereof in a sample suspected of containing said protein, said method comprising exposing said sample to an antibody as defined herein and determining binding of said antibody to said protein in said sample, wherein binding of the antibody to said protein is indicative of the presence of said protein in said sample.

Yet another embodiment of the present disclosure~~invention~~ is directed to a method of determining the presence of a TAT polypeptide in a sample suspected of containing the TAT polypeptide, wherein the method comprises exposing the sample to (or contacting the sample with) an antibody that binds to the TAT polypeptide and determining or detecting the binding of the antibody to the TAT polypeptide in the sample, wherein the presence of such binding is indicative of the presence of the TAT polypeptide in the sample. Optionally, the sample may contain cells (which may be cancer cells) suspected of expressing the TAT polypeptide. The antibody employed in the method may optionally be detectably labeled, attached to a solid support, or the like.

In one aspect, there is provided a method of diagnosing the presence of cancer in a mammal, said method comprising determining the level of expression of a gene encoding a TAT419 polypeptide of SEQ ID NO: 2 or an extracellular domain thereof in a test sample of tissue cells obtained from said mammal and in a control sample of known normal cells of the same tissue origin, wherein a higher level of expression of said TAT419 polypeptide in the test sample, as compared to the control sample, is indicative of the presence cancer in the mammal from which the test sample was obtained, and wherein the step of determining the level of expression of a gene encoding said polypeptide comprises employing an antibody as defined herein in an immunohistochemistry or Western blot analysis.

A further embodiment of the present disclosure~~invention~~ is directed to a method of diagnosing the presence of a tumor in a mammal, wherein the method comprises detecting the level of expression of a gene encoding a TAT polypeptide (a) in a test sample of tissue cells obtained from said mammal, and (b) in a control sample of known normal non-cancerous cells of the same tissue origin or type, wherein a higher level of expression of the TAT polypeptide in the test sample, as compared to the control sample, is indicative of the presence of tumor in the mammal from which the test sample was obtained.

In one aspect, there is provided a method of diagnosing the presence of a human melanoma cancer or multiple myeloma in a mammal, said method comprising contacting a test sample of tissue cells that has been obtained from said mammal with an antibody as defined herein and detecting the formation of a complex between said antibody and a TAT419 protein in the test sample, wherein the formation of a complex is indicative of the presence of cancer in said mammal, and wherein said TAT419 protein comprises the amino acid sequence of SEQ ID NO:2 or an extracellular domain thereof.

Another embodiment of the present disclosure~~invention~~ is directed to a method of diagnosing the presence of a tumor in a mammal, wherein the method comprises (a) contacting a test sample comprising tissue cells obtained from the mammal with an antibody that binds to a TAT polypeptide and (b) detecting the formation of a complex between the antibody and the TAT polypeptide in the test sample, wherein the formation of a complex is

indicative of the presence of a tumor in the mammal. Optionally, the antibody employed is detectably labeled, attached to a solid support, or the like, and/or the test sample of tissue cells is obtained from an individual suspected of having a cancerous tumor.

Yet another embodiment of the present disclosure~~invention~~ is directed to a method for treating or preventing a cell proliferative disorder associated with altered, preferably increased, expression or activity of a TAT polypeptide, the method comprising administering to a subject in need of such treatment an effective amount of an antagonist of a TAT polypeptide. Preferably, the cell proliferative disorder is cancer and the antagonist of the TAT polypeptide is an anti-TAT polypeptide antibody or antisense oligonucleotide. Effective treatment or prevention of the cell proliferative disorder may be a result of direct killing or growth inhibition of cells that express a TAT polypeptide or by antagonizing the cell growth potentiating activity of a TAT polypeptide.

Yet another embodiment of the present disclosure~~invention~~ is directed to a method of binding an antibody to a cell that expresses a TAT polypeptide, wherein the method comprises contacting a cell that expresses a TAT polypeptide with said antibody under conditions which are suitable for binding of the antibody to said TAT polypeptide and allowing binding therebetween. In preferred embodiments, the antibody is labeled with a molecule or compound that is useful for qualitatively and/or quantitatively determining the location and/or amount of binding of the antibody to the cell.

In one aspect, there is provided an *in vitro* method of delivering a cytotoxic or a diagnostic agent to a cell that over-expresses a TAT419 polypeptide of SEQ ID NO: 2 or an extracellular domain thereof, said method comprising providing a cytotoxic agent or diagnostic agent conjugated to an antibody as defined herein that binds to said TAT419 polypeptide to form an antibody-agent conjugate, and exposing said cell to the antibody-agent conjugate.

Yet another embodiment of the present disclosure~~invention~~ is directed to a method of delivering a cytotoxic or a diagnostic agent to a cell that expresses a TAT polypeptide, wherein the method comprises providing a cytotoxic agent or diagnostic agent conjugated to an antibody that binds to said TAT polypeptide to form an antibody-agent conjugate, and exposing the cell to the antibody-agent conjugate. Optionally, the antibody is a monoclonal antibody, antibody fragment, chimeric antibody, humanized antibody, or single-chain antibody.

In one aspect, there is provided the use of an antibody-agent conjugate formed by conjugating a cytotoxic agent or diagnostic agent to an antibody as defined herein that binds to a TAT419 polypeptide of SEQ ID NO: 2 or an extracellular domain thereof in the manufacture of a medicament for delivering said cytotoxic or a diagnostic agent to a cell that over-expresses said TAT419 polypeptide upon exposure of said cell to the antibody-agent conjugate.

Other embodiments of the present disclosure~~invention~~ are directed to the use of a TAT polypeptide, a nucleic acid encoding a TAT polypeptide or a vector or host cell comprising that nucleic acid, or an anti-TAT polypeptide antibody in the preparation of a medicament useful for (i) the therapeutic treatment or diagnostic detection of a cancer or tumor, or (ii) the therapeutic treatment or prevention of a cell proliferative disorder.

Another embodiment of the present disclosure~~invention~~ is directed to a method for inhibiting the growth of a cancer cell, wherein the growth of said cancer cell is at least in part dependent upon the growth potentiating effect(s) of a TAT polypeptide (wherein the TAT polypeptide may be expressed either by the cancer cell itself or a cell that produces polypeptide(s) that have a growth potentiating effect on cancer cells), wherein the method comprises contacting the TAT polypeptide with an antibody that binds to the TAT polypeptide, thereby antagonizing the growth-potentiating activity of the TAT polypeptide and, in turn, inhibiting the growth of the cancer cell. Preferably the growth of the cancer cell is completely inhibited. Even more preferably, binding of the antibody to the TAT polypeptide induces the death of the cancer cell. Optionally, the antibody is a monoclonal antibody, antibody fragment, chimeric antibody, humanized antibody, or single-chain antibody. Antibodies employed in the methods of the present disclosure~~invention~~ may optionally be conjugated to a growth inhibitory agent or cytotoxic agent such as a toxin, including, for example, a maytansinoid or calicheamicin, an antibiotic, a radioactive isotope, a nucleolytic enzyme, or the like. The antibodies employed in the methods of the present disclosure~~invention~~ may optionally be produced in CHO cells or bacterial cells.

Yet another embodiment of the present disclosure~~invention~~ is directed to a method of therapeutically treating a tumor in a mammal, wherein the growth of said tumor is at least in part dependent upon the growth potentiating effect(s) of a TAT polypeptide, wherein the method comprises administering to the mammal a therapeutically effective amount of an antibody that binds to the TAT polypeptide, thereby antagonizing the growth potentiating activity of said TAT polypeptide and resulting in the effective therapeutic treatment of the tumor. Optionally, the antibody is a monoclonal antibody, antibody fragment, chimeric antibody, humanized antibody, or single-chain antibody. Antibodies employed in the methods of the present disclosure~~invention~~ may optionally be conjugated to a growth inhibitory agent or cytotoxic agent such as a toxin, including, for example, a maytansinoid or calicheamicin, an antibiotic, a radioactive isotope, a nucleolytic enzyme, or the like. The antibodies employed in the methods of the present disclosure~~invention~~ may optionally be produced in CHO cells or bacterial cells.

In one aspect, there is provided a method of identifying a first antibody that binds to a TAT419 antigenic epitope of TAT419 polypeptide of SEQ ID NO:2 bound by a second antibody, wherein said second antibody is an antibody as defined herein, said method comprising determining the ability of said first antibody to block binding of said second antibody to a TAT419 polypeptide of SEQ ID NO:2, wherein the ability of said first antibody to block the binding of said second antibody to said TAT419 polypeptide by at least 40% and at equal antibody concentrations is indicative of said first antibody being capable of binding to an epitope bound by said second antibody.

In yet further embodiments, the disclosure~~invention~~ is directed to the following set of potential claims for this or future applications:

1. Isolated nucleic acid having a nucleotide sequence that has at least 80% nucleic acid sequence identity to (a) a DNA molecule encoding the amino acid sequence

antibody being capable of binding to an epitope bound by said any antibody of Claims 15 to 29.

Yet further embodiments of the present disclosure~~invention~~ will be evident to the skilled artisan upon a reading of the present specification.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows a nucleotide sequence (SEQ ID NO:1) of a TAT419 cDNA, wherein SEQ ID NO:1 is a clone designated herein as "DNA96945". Putative start and stop codons are underlined.

Figure 2 shows the amino acid sequence (SEQ ID NO:2) of a TAT419 polypeptide derived from the coding sequence of SEQ ID NO:1 shown in Figure 1.

Figure 3 shows the amino acid sequences of the full-length light chain of the murine 5E9 monoclonal antibody (SEQ ID NO:3) and the variable light chain of the murine 5E9 monoclonal antibody (SEQ ID NO:5).

Figure 4 shows the amino acid sequences of the full-length heavy chain of the murine 5E9 monoclonal antibody (SEQ ID NO:4) and the variable heavy chain of the murine 5E9 monoclonal antibody (SEQ ID NO:6).

Figure 5 shows the amino acid sequences of the full-length light chain of the humanized hu5E9.v1 antibody (SEQ ID NO:13) and the variable light chain of the humanized hu5E9.v1 antibody (SEQ ID NO:15).

Figure 6 shows the amino acid sequences of the full-length heavy chain of the humanized hu5E9.v1 antibody (SEQ ID NO:14) and the variable heavy chain of the humanized hu5E9.v1 antibody (SEQ ID NO:16).

Figure 7 shows the amino acid sequence of the variable heavy chain of the humanized hu5E9.v2 antibody (SEQ ID NO:17).

Figure 8 shows in vitro killing of UACC257X2.2 cells with various concentrations of PBS (PBS), a vc-MMAE toxin-conjugated control antibody that does not bind to TAT419 polypeptide on the surface of live cells (Ctrl-vc-MMAE), and a vc-MMAE toxin-conjugated murine 5E9 monoclonal antibody (5E9-vc-MMAE).