

What is claimed is:

1. A method of treating cancer in a subject in need thereof comprising administering to the subject bryostatin-1 or a functional analog thereof and an immunotherapeutic agent, thereby treating the cancer.
2. The method of claim 1, wherein the cancer is a hematologic cancer selected from the group consisting of a B-cell lymphoma, a T-cell malignancy, non-Hodgkin's lymphoma (NHL), mantle cell lymphoma (MCL), multiple myeloma (MM), acute myelogenous leukemia (AML), chronic myelogenous leukemia (CML), myelodysplastic syndrome, acute lymphoblastic leukemia (ALL), chronic lymphocytic leukemia (CLL) and hairy cell leukemia (HCL).
3. The method of claim 1, wherein the immunotherapeutic agent is selected from the group consisting of a monoclonal antibody, a bispecific antibody, an antibody-drug conjugate (ADC), a chimeric antigen receptor (CAR)-T cell, a chimeric antigen receptor natural killer (CAR-NK) cell, an anti-tumor vaccine or a combination thereof.
4. The method of claim 3 wherein the immunotherapeutic agent is an anti-CD22 antibody.
5. The method of claim 3, wherein the CAR-T cell or the CAR-NK cell targets CD22.
6. The method of claim 3, wherein the ADC is inotuzumab ozogamicin.
7. The method of claim 1, further comprising administering to the subject an agent selected from the group consisting of an antibody directed against a (TAA), a chemotherapeutic agent, an ADC, a vaccine, an immunomodulatory drug, an immune metabolism modifying drug, a targeted therapy, radiation, an anti-angiogenesis agent, CAR-T therapy, CAR-NK therapy, an agent that reduces immune-suppression or a combination thereof.
8. The method of claim 1, wherein the immunotherapeutic agent is administered prior to, simultaneously with or following administration of bryostatin-1 or a functional analog thereof.
9. The method of claim 1, wherein the immunotherapeutic agent binds to or targets a protein selected from the group consisting of CD19, CD20, CD22, CD33, CD37, CD38, CD123 and BCMA.
10. The method of claim 1, wherein there is an increase in CD5, CD19, CD20, CD22, CD33, CD38, CD123 and/or BCMA expression following administration of bryostatin-1 or a functional analog thereof and the immunotherapeutic agent.
11. The method of claim 1, wherein the subject has CLL and there is an increase in CD19 and CD22 expression following administration of bryostatin-1 or a functional analog thereof and the immunotherapeutic agent.

- 12.** The method of claim 1, wherein the subject has multiple myeloma and there is an increase in CD38 and/or BCMA expression following administration of bryostatin-1 or a functional analog thereof and the immunotherapeutic agent.
- 13.** A method of initiating, enhancing, or prolonging an anti-tumor response in a subject in need thereof comprising administering to the subject bryostatin-1 or a functional analog thereof, and an immunotherapeutic agent, thereby initiating, enhancing, or prolonging an anti-tumor response in the subject.
- 14.** The method of claim 13, wherein the subject has a hematological cancer selected from the group consisting of a B-cell lymphoma, a T-cell malignancy, non-Hodgkin's lymphoma (NHL), mantle cell lymphoma (MCL), multiple myeloma (MM), acute myelogenous leukemia (AML), chronic myelogenous leukemia (CML), myelodysplastic syndrome, acute lymphoblastic leukemia (ALL), chronic lymphocytic leukemia (CLL) and hairy cell leukemia (HCL).
- 15.** The method of claim 13, wherein the immunotherapeutic agent is selected from the group consisting of a monoclonal antibody, a bispecific antibody, an antibody-drug conjugate (ADC), a chimeric antigen receptor (CAR)-T cell, a chimeric antigen receptor natural killer (CAR-NK) cell, an anti-tumor vaccine or a combination thereof.
- 16.** The method of claim 13, wherein the immunotherapeutic agent is administered prior to, simultaneously with or following administration of bryostatin-1 or a functional analog thereof.
- 17.** The method of claim 13, wherein the initiating, enhancing or prolonging an anti-tumor response is an increase in CD5, CD19, CD20, CD22, CD33, CD38, CD123 and/or BCMA expression following administration of bryostatin-1 or a functional analog thereof and the immunotherapeutic agent.
- 18.** A method of treating a cancer resistant to an immunotherapeutic agent in a subject comprising administering bryostatin-1 or a functional analog thereof and the immunotherapeutic agent to the subject, thereby treating the cancer.
- 19.** The method of claim 18, wherein the cancer is a hematological cancer selected from the group consisting of a B-cell lymphoma, a T-cell malignancy, non-Hodgkin's lymphoma (NHL), mantle cell lymphoma (MCL), multiple myeloma (MM), acute myelogenous leukemia (AML), chronic myelogenous leukemia (CML), myelodysplastic syndrome, acute lymphoblastic leukemia (ALL), chronic lymphocytic leukemia (CLL) and hairy cell leukemia (HCL).

- 20.** The method of claim 18, wherein the immunotherapeutic agent is selected from the group consisting of a monoclonal antibody, an antibody-drug conjugate, a chimeric antigen receptor (CAR)-T cell, an anti-tumor vaccine or a combination thereof.
- 21.** The method of claim 18, wherein the immunotherapeutic agent binds to or targets protein selected from the group consisting of CD19, CD20, CD22, CD33, CD37, CD38, CD123 and BCMA.
- 22.** The method of claim 18, wherein there is an increase in CD5, CD19, CD20, CD22, CD33, CD38, CD123 and/or BCMA expression following administration of bryostatin-1 or a functional analog thereof and the immunotherapeutic agent.