*What is claimed is:*

1. ~~A method for treating a subject having, or identified as having, a B-cell lymphoma having an increased level and/or activity of a MYC gene or gene product and/or an anti-apoptotic gene or gene product, comprising:~~

~~administering to the subject a therapy comprising a population of immune effector cells that expresses a Chimeric Antigen Receptor (CAR) that binds to CD19 ("CD19 CAR therapy"), in combination with a BCL2 inhibitor, thereby treating the B-cell lymphoma in the subject.~~

Use of a population of immune effector cells that express a Chimeric Antigen Receptor (CAR) that binds to CD19 ("CD19 CAR therapy") in combination with a BCL2 inhibitor in the manufacture of a medicament for treating a subject identified as having a lymphoma.

~~2. A method of treating a subject having a B-cell lymphoma having an increased level and/or activity of a MYC gene or gene product and/or an anti-apoptotic gene or gene product (e.g., a high grade B-cell lymphoma), said method comprising:~~

~~administering to the subject a BCL2 inhibitor, wherein the subject is, or is identified as being, a non-responder, a partial responder, or a relapser to the CD19 CAR therapy.~~

~~3. The method of claim 2, wherein the subject has undergone, is undergoing, or will receive, the CD19 CAR therapy.~~

~~4. A method of treating or preventing a relapse to a population of immune effector cells that expresses a Chimeric Antigen Receptor (CAR) that binds to CD19 ("CD19 CAR therapy") in a subject with a lymphoma having increased level and/or activity of a MYC gene or gene product and/or an anti-apoptotic gene or gene product (e.g., a high grade B-cell lymphoma), comprising:~~

~~administering a BCL2 inhibitor to a subject who has undergone, is undergoing, or will receive, the CD19 CAR therapy,~~

~~thereby treating or preventing the relapse to the CD19 CAR therapy.~~

~~5. The method of any of claims 1 to 4, wherein the subject has, or is identified as having, an alteration in a MYC gene or gene product, or an alteration in an anti-apoptotic gene or gene product, or a combination thereof.~~

~~6~~2. The use of claim 1~~2method of any of claims 1 to 5~~, wherein the subject ~~has, or~~ is identified as having an increased level ~~of, e.g.,~~or increased number of cells positive for~~,~~ a MYC gene or MYC gene product~~, e.g.,~~.

3. The use of claim 2, wherein the level or number of cells positive for the MYC gene or MYC gene product is ~~as~~ identified by ~~detecting a rearrangement, e.g., translocation, using a FISH assay or~~ an immunohistochemistry assay.

~~7~~4. The use ~~method~~ of claim ~~6~~2 or 3, wherein the subject is identified as being MYC positive~~, e.g.,~~ by detecting greater than 40% of cells in a sample~~, e.g., a tumor biopsy or blood sample,~~ from the subject as ~~being~~ positive for expression of ~~a~~ the MYC gene or MYC gene product~~, e.g., by an immunohistochemistry assay~~.

~~8. The method of claim 7, wherein the MYC-positive subject, is further identified as having an increased level of a BCL2 gene or gene product and/or a BCL6 gene or gene product e.g., as identified by detecting a rearrangement, e.g., translocation, in a sample, e.g., a tumor biopsy or a blood sample, using a FISH assay or an immunohistochemistry assay.~~

~~9~~5. The use ~~method~~ of ~~either~~ any of claims ~~7 or 8~~1-4, wherein the lymphoma ~~MYC-positive subject having an increased level of the BCL2 gene or gene product or an increased level of the BCL6 gene or gene product~~ is identified as ~~having,~~ a double hit (DH) lymphoma, ~~e.g.,~~wherein the DH lymphoma is a MYC positive and BCL2- or BCL6-positive lymphoma.

~~10~~6. The use ~~method~~ of any of claims ~~7 to 9~~1-4, wherein the lymphoma ~~MYC-positive subject having an increased level of a BCL2 gene or gene product and a BCL6 gene or gene product~~ is identified as ~~having,~~ a triple hit (TH) lymphoma, ~~e.g.,~~ wherein the TH lymphoma is a MYC positive, BCL2-positive, and BCL6-positive lymphoma.

7. The use of any of claims 5or 6, wherein the lymphoma is identified as MYC positive, BCL-2 lymphoma or BCL-6 positive by detecting a rearrangement in a sample using a FISH assay.

8. The use of claim 4 or 7, wherein the sample is a tumor biopsy or blood sample.

~~11~~9. The use of any of claims 1-4~~method of any of the preceding claims~~, wherein the lymphoma is chosen from a high grade B-cell lymphoma ~~(e.g., a double hit lymphoma, a triple hit lymphoma, or a non-specified NOS high-grade lymphoma)~~, a diffuse large B-cell lymphoma (DLBCL), or follicular lymphoma (FL).

~~12. The method of claim 11, wherein the lymphoma is a high grade B-cell lymphoma.~~

~~13. The method of claim 12, wherein the high grade B-cell lymphoma is a double hit lymphoma.~~

~~14. The method of claim 12, wherein the high grade B-cell lymphoma is a triple hit lymphoma.~~

~~15~~10. The use of claim 9~~method of claim 11~~, wherein the lymphoma is relapsed or refractory~~DLBCL, e.g., a relapsed or refractory DLBCL~~.

~~16. The method of claim 11 or 15, wherein the DLBCL arises from a cell population comprising a Germinal Center B-Cell (GCB cell), an activated B-Cell (ABC cell), or an unclassified cell.~~

~~17. The method of claim 16, wherein the DLBCL arises from a cell population comprising a Germinal Center B-Cell (GCB cell).~~

~~18. The method of any of claims 11 or 15-17, wherein the DLBCL is relapsed or refractory DLBCL.~~

~~19. The method of claim 11, wherein the lymphoma is a follicular lymphoma (FL).~~

~~20. The method of claim 11 or 19, wherein the FL is a relapsed or refractory FL.~~

~~21. The method of any of claims 1-2, or 4-20, wherein the subject has undergone, is undergoing the CD19 CAR therapy, or will receive the CD19 CAR therapy.~~

~~22. The method of any of the preceding claims, wherein the subject has relapsed, or is identified as having relapsed, after treatment with the CD19 CAR therapy.~~

~~23. The method of any of the preceding claims, wherein the subject has relapsed or is identified as having relapsed based on one or more of:~~

~~(1) a reappearance of a bone marrow involvement, e.g., a lesion, after a complete response;~~

~~(2) a reappearance of a malignant effusion, after a complete response;~~

~~(3) a reappearance of a nodal lesion greater than 1.5 cm (e.g., a previously normal lymph node becoming greater than 1.5 cm) by CT scan or MRI, after a complete response;~~

~~(4) a reappearance of a discrete extranodal lesion (including liver or spleen) by CT scan or MRI after a complete response; or~~

~~(5) a $\geq$ 50% increase in the size of a residual lymph node or mass, e.g., the long axis from baseline of the lymph node or mass.~~

~~24~~11. The use of any of claims 1-10~~method of any of the preceding claims~~, wherein the CD19 CAR therapy and the BCL2 inhibitor are to be administered concurrently~~ or sequentially~~.

12. The use of claims 1-10, wherein the BCL2 inhibitor is to be administered prior to the CD19 CAR therapy.

13. The use of claims 1-10, wherein the BCL2 inhibitor is to be administered after the CD19 CAR therapy.

14. The use of claims 1-10, wherein the BCL2 inhibitor is to be administered prior to and after the CD19 CAR therapy.

~~25. The method of any of the preceding claims, wherein the subject is treated with the BCL2 inhibitor before, concurrently, and/or after the CD19 CAR therapy.~~

~~26. The method of any of the preceding claims, wherein the subject is evaluated prior to, during, or after receiving the CD19 CAR therapy or the BCL2 inhibitor for the presence or absence of the alteration in the MYC gene or gene product, or the alteration in the anti-apoptotic gene or gene product, or a combination thereof.~~

~~27~~15. The use of any of claims 1-14~~method of any one of the preceding claims~~, wherein the CD19 CAR therapy comprises a CD19 CAR comprising an anti-CD19 binding domain, a transmembrane domain, and an intracellular signaling domain comprising a stimulatory domain.

~~28~~16. The ~~method~~ use of claim ~~27~~15, wherein the anti-CD19 binding domain ~~of the CD19 CAR~~ comprises one or more of light chain complementarity determining region 1 (LC CDR1), light chain complementarity determining region 2 (LC CDR2), and light chain complementarity determining region 3 (LC CDR3) of any anti-CD19 light chain binding domain amino acid sequence listed in Tables 2 or 3, and one or more of heavy chain complementarity determining region 1 (HC CDR1), heavy chain complementarity determining region 2 (HC CDR2), and heavy chain complementarity determining region 3 (HC CDR3) of any anti-CD19 heavy chain binding domain amino acid sequence listed in Tables 2 or 3.

~~29~~17. The use ~~method~~ of claim ~~27 or 28~~15 or 16, wherein the anti-CD19 binding domain ~~of the CD19 CAR~~ comprises ~~an~~ the amino acid sequence of any of SEQ ID NOs: 1-12 or SEQ ID NO: 59, or a sequence at least 95% identical thereto.

~~30~~18. The use ~~method~~ of claim 15or 16~~27 or 28~~, wherein the anti-CD19 binding domain comprises the amino acid~~a~~ sequence of SEQ ID NO: 2, or SEQ ID NO:59, or a sequence at least 95% identical thereto.

~~31~~19. The use of any of claims 15-18~~method of any of the preceding claims~~, wherein the CD19 CAR comprises an amino acid sequence of any of SEQ ID NOs: 31-42 or SEQ ID NO: 58, or a sequence at least 95% identical thereto.

~~32~~20. The use of any of claims 15-18~~method of any of the preceding claims~~, wherein the CD19 CAR comprises a polypeptide having the amino acid sequence of SEQ ID NO:32, or SEQ ID NO: 58, or a sequence at least 95% identical thereto.

~~33. The method of any of the preceding claims, wherein the CD19 CAR therapy is a therapy comprising CTL-019 or CTL-119 or both.~~

~~34. The method of any of the preceding claims, wherein the CD19 CAR therapy is administered intravenously.~~

~~35~~21. The use of any of claims 1-20~~method of any of the preceding claims~~, wherein the BCL2 inhibitor is chosen from venetoclax (ABT-199), navitoclax (ABT-263), ABT-737, BP1002, SPC2996, APG-1252, obatoclax mesylate (GX15-070MS), PNT2258, or oblimersen (G3139), or a combination thereof.

~~36~~22. The use of claim 21~~method of any of the preceding claims~~, wherein the BCL2 inhibitor is venetoclax.

~~37~~23. The use of any of claims 1-22~~method of any of the preceding claims~~, wherein the use further ~~comprising~~ comprises administering a standard of care for a B-cell lymphoma~~DLBCL, e.g.,~~.

24. The use of claim 23, wherein the standard of care for the B-cell lymphoma is selected from the group consisting of a CD20 inhibitor, a chemotherapeutic agent, and~~/or~~ a corticosteroid.

~~38. A combination comprising a CD19 CAR therapy and a BCL2 inhibitor.~~