

ANTIBODIES TARGETING A COMPLEX COMPRISING NON-CLASSICAL HLA-I AND NEOANTIGEN AND THEIR METHODS OF USE

RELATED APPLICATIONS

[0001] The present application claims priority to U.S. Patent Application No. 17/199,205, filed March 11, 2021, now pending, and U.S. Provisional Patent Application No. 63/032,747, filed June 1, 2020; now pending, the entire contents of each of which are hereby incorporated by reference for all purposes.

REFERENCE TO A SEQUENCE LISTING

[0001.1] This application contains a Sequence Listing in computer readable form. The computer readable form is incorporated herein by reference. Said ASCII copy, created on September 12, 2022, is named ABX-005WO_SL.txt and is 37,602 bytes in size.

SUMMARY

[0002] In one aspect, the present disclosure provides a monoclonal antibody or an antigen-binding fragment thereof, comprising (a) a light chain complementarity determining region (CDR)1 having the amino acid sequence set forth as SEQ ID NO: 1, a light chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 2, and a light chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 3; and (b) a heavy chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 4, a heavy chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 5, and a heavy chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 6. In another aspect, the present disclosure provides a monoclonal antibody or an antigen-binding fragment thereof, comprising: (a) a HC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 30; and (b) a heavy chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 4, a heavy chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 5, and a heavy chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 6. In yet another aspect, the present disclosure provides a monoclonal antibody or an antigen-binding fragment thereof, comprising: (a) a HC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 32; and (b) a heavy chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 4, a heavy chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 5, and a heavy chain CDR3 having the amino acid sequence set forth as SEQ

ID NO: 6. In yet another aspect, the present disclosure provides a monoclonal antibody or an antigen-binding fragment thereof, comprising: (a) a HC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 33; and (b) a heavy chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 4, a heavy chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 5, and a heavy chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 6.

[0002a] In yet another aspect, the present disclosure provides a bispecific T cell engager antibody, comprising: (a) a first antigen-binding arm, comprising: (i) a light chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 1, a light chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 2, and a light chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 3; and (ii) a heavy chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 4, a heavy chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 5, and a heavy chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 6; and (b) a second antigen-binding arm that specifically binds to a CD3 protein associated with a T cell receptor (TCR).

[0002b] In a further aspect, the present disclosure provides a pharmaceutical composition comprising the monoclonal antibody as described herein or an antigen-binding fragment thereof, or the bispecific T cell engager as described herein, and a pharmaceutically acceptable carrier or excipient. In a further aspect, the present disclosure provides a pharmaceutical composition for use in treating a HLA-E expressing cancer, comprising the monoclonal antibody as described herein or an antigen-binding fragment thereof, or the bispecific T cell engager as described herein, and a pharmaceutically acceptable carrier or excipient. In a further aspect, the present disclosure provides a use of a monoclonal antibody as described herein or an antigen-binding fragment thereof, or a bispecific T cell engager as described herein in the preparation of a medicament for treating a HLA-E expressing cancer in an individual in need thereof.

[0002c] Disclosed herein, in certain **embodimentexamples**, are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7. Disclosed herein, in certain **embodimentexamples**, are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain variable domain (VL) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 7. Disclosed herein, in certain **embodimentexamples**, are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain variable domain (VL) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 7. Disclosed herein, in certain **embodimentexamples**, are monoclonal

antibodies or antigen-binding fragments thereof, comprising a light chain variable domain (VL) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 7. Disclosed herein, in certain embodimentexamples, are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain variable domain (VL) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 7. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 8. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 95% identical to an amino acid

sequence set forth as SEQ ID NO: 8. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 8. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 8. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof selectively binds to a complex comprising an HLA-E and a neoantigen. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone. In some [embodimentexamples](#), the neoantigen is expressed by an antigen processing machinery (APM)-proficient cell. In some [embodimentexamples](#), the neoantigen is expressed by a TAP1/2-proficient cell. In some [embodimentexamples](#), the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLIL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLIL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPRTLIL), or SEQ ID NO: 29 (VTAPRTVLL). In some [embodimentexamples](#), the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL). In some [embodimentexamples](#), the HLA-E is HLA-E*0101 or HLA-E*0103. In some [embodimentexamples](#), the antibody selectively binds to the complex comprising: (a) the HLA-E*0101 and the neoantigen; (b) the HLA-E*0103 and the neoantigen; or (c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a TCR-like antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a multispecific antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a bispecific antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE). In some [embodimentexamples](#), the BiTE binds to a CD3 protein associated with a T cell receptor (TCR). In some [embodimentexamples](#), the BiTE further comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15. In some [embodimentexamples](#),

the BiTE further comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a multifunctional antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety. In some [embodimentexamples](#), the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell. In some [embodimentexamples](#), the immune response comprises activation of T cells. In some [embodimentexamples](#), the T cell is a CD8+ T cell. In some [embodimentexamples](#), the immune response comprises activation of cytotoxic T cells (CTLs). In some [embodimentexamples](#), the cell is a cancer cell.

[0003] Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8. Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a heavy chain variable domain (VH) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 8. Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a heavy chain variable domain (VH) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 8. Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a heavy chain variable domain (VH) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 8. Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a heavy chain variable domain (VH) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 8. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 7. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 7. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid

sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 7. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 7. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof selectively binds to a complex comprising an HLA-E and a neoantigen. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone. In some [embodimentexamples](#), the neoantigen is expressed by an antigen processing machinery (APM)-proficient cell. In some [embodimentexamples](#), the neoantigen is expressed by a TAP1/2-proficient cell. In some [embodimentexamples](#), the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLIL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLLL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPRTLIL), or SEQ ID NO: 29 (VTAPRTLVL). In some [embodimentexamples](#), the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL). In some [embodimentexamples](#), the HLA-E is HLA-E*0101 or HLA-E*0103. In some [embodimentexamples](#), the antibody selectively binds to the complex comprising: (a) the HLA-E*0101 and the neoantigen; (b) the HLA-E*0103 and the neoantigen; or (c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a TCR-like antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a multispecific antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a bispecific antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE). In some [embodimentexamples](#), the BiTE binds to a CD3 protein associated with a T cell receptor (TCR). In some [embodimentexamples](#), the BiTE further comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15. In some [embodimentexamples](#), the BiTE further comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16. In some [embodimentexamples](#),

the monoclonal antibody or antigen-binding fragment thereof is a multifunctional antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety. In some [embodimentexamples](#), the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell. In some [embodimentexamples](#), the immune response comprises activation of T cells. In some [embodimentexamples](#), the T cell is a CD8⁺ T cell. In some [embodimentexamples](#), the immune response comprises activation of cytotoxic T cells (CTLs). In some [embodimentexamples](#), the cell is a cancer cell.

[0004] Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3. Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain complementarity determining region (CDR) having an amino acid sequence at least 90% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3. Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain complementarity determining region (CDR) having an amino acid sequence at least 95% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3. Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain complementarity determining region (CDR) having an amino acid sequence at least 99% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3. Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain complementarity determining region (CDR) having an amino acid sequence 100% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 90% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 95% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. In some [embodimentexamples](#), the monoclonal antibody or

antigen-binding fragment thereof comprises a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 99% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain complementarity determining region (CDR) having an amino acid sequence 100% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof selectively binds to a complex comprising an HLA-E and a neoantigen. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone. In some [embodimentexamples](#), the neoantigen is expressed by an antigen processing machinery (APM)-proficient cell. In some [embodimentexamples](#), the neoantigen is expressed by a TAP1/2-proficient cell. In some [embodimentexamples](#), the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLIL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLIL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPRTLIL), or SEQ ID NO: 29 (VTAPRTVLL). In some [embodimentexamples](#), the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL). In some [embodimentexamples](#), the HLA-E is HLA-E*0101 or HLA-E*0103. In some [embodimentexamples](#), the antibody selectively binds to the complex comprising: (a) the HLA-E*0101 and the neoantigen; (b) the HLA-E*0103 and the neoantigen; or (c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a TCR-like antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a multispecific antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-

binding fragment thereof is a bispecific antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE). In some [embodimentexamples](#), the BiTE binds to a CD3 protein associated with a T cell receptor (TCR). In some [embodimentexamples](#), the BiTE further comprises a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 9-11. In some [embodimentexamples](#), the BiTE further comprises a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 12-14. In some [embodimentexamples](#), the BiTE further comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15. In some [embodimentexamples](#), the BiTE further comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a multifunctional antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety. In some [embodimentexamples](#), the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell. In some [embodimentexamples](#), the immune response comprises activation of T cells. In some [embodimentexamples](#), the T cell is a CD8+ T cell. In some [embodimentexamples](#), the immune response comprises activation of cytotoxic T cells (CTLs). In some [embodimentexamples](#), the cell is a cancer cell.

[0005] Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 90% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 95% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 99% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. Disclosed herein, in certain [embodimentexamples](#),

are monoclonal antibodies or antigen-binding fragments thereof, comprising a heavy chain complementarity determining region (CDR) having an amino acid sequence 100% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment comprises a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment comprises a light chain complementarity determining region (CDR) having an amino acid sequence at least 90% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment comprises a light chain complementarity determining region (CDR) having an amino acid sequence at least 95% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment comprises a light chain complementarity determining region (CDR) having an amino acid sequence at least 99% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment comprises a light chain complementarity determining region (CDR) having an amino acid sequence 100% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof selectively binds to a complex comprising an HLA-E and a neoantigen. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone. In some [embodimentexamples](#), the neoantigen is expressed by an antigen processing machinery (APM)-proficient cell. In some [embodimentexamples](#), the neoantigen is expressed by a TAP1/2-proficient cell. In some [embodimentexamples](#), the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLIL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLIL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28

(VMPRTLIL), or SEQ ID NO: 29 (VTAPRTVLL). In some [embodimentexamples](#), the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL). In some [embodimentexamples](#), the HLA-E is HLA-E*0101 or HLA-E*0103. In some [embodimentexamples](#), the antibody selectively binds to the complex comprising: (a) the HLA-E*0101 and the neoantigen; (b) the HLA-E*0103 and the neoantigen; or (c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a TCR-like antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a multispecific antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a bispecific antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE). In some [embodimentexamples](#), the BiTE binds to a CD3 protein associated with a T cell receptor (TCR). In some [embodimentexamples](#), the BiTE further comprises a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 9-11. In some [embodimentexamples](#), the BiTE further comprises a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 12-14. In some [embodimentexamples](#), the BiTE further comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15. In some [embodimentexamples](#), the BiTE further comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a multifunctional antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety. In some [embodimentexamples](#), the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell. In some [embodimentexamples](#), the immune response comprises activation of T cells. In some [embodimentexamples](#), the T cell is a CD8⁺ T cell. In some [embodimentexamples](#), the immune response comprises activation of cytotoxic T cells (CTLs). In some [embodimentexamples](#), the cell is a cancer cell.

[0006] Disclosed herein, in certain embodimentexamples, are bispecific antibodies or antigen-binding fragments thereof, comprising: (a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; or a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6; and (b) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 9-11; or a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 12-14. In some embodimentexamples, the bispecific antibody comprises: (a) a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7; or a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8; and (b) a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15; or a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16. Disclosed herein, in certain embodimentexamples, are bispecific antibodies or antigen-binding fragments thereof, comprising: (a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; and a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6; and (b) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 9-11; and a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 12-14. In some embodimentexamples, the bispecific antibody comprises: (a) a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7; and a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8; and (b) a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15; and a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16. In some embodimentexamples,

the bispecific antibody selectively binds to a complex comprising an HLA-E and a neoantigen. In some [embodimentexamples](#), the bispecific antibody does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone. In some [embodimentexamples](#), the neoantigen is expressed by an antigen processing machinery (APM)-proficient cell. In some [embodimentexamples](#), the neoantigen is expressed by a TAP1/2-proficient cell. In some [embodimentexamples](#), the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLIL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLIL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPRTLIL), or SEQ ID NO: 29 (VTAPRTVLL). In some [embodimentexamples](#), the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL). In some [embodimentexamples](#), the HLA-E is HLA-E*0101 or HLA-E*0103. In some [embodimentexample](#), the antibody selectively binds to the complex comprising: (a) the HLA-E*0101 and the neoantigen; (b) the HLA-E*0103 and the neoantigen; or (c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE). In some [embodimentexamples](#), the BiTE binds to a CD3 protein associated with a T cell receptor (TCR). In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a multifunctional antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety. In some [embodimentexamples](#), the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell. In some [embodimentexamples](#), the immune response comprises activation of T cells. In some [embodimentexamples](#), the T cell is a CD8⁺ T cell. In some [embodimentexamples](#), the immune response comprises activation of cytotoxic T cells (CTLs). In some [embodimentexamples](#), the cell is a cancer cell.

[0007] Disclosed herein, in certain [embodimentexamples](#), are pharmaceutical compositions comprising: (a) a monoclonal antibody or an antigen-binding fragment thereof as disclosed herein, or a bispecific antibody or an antigen-binding fragment thereof as disclosed herein; and (b) a pharmaceutically acceptable carrier or excipient.

[0008] Disclosed herein, in certain embodimentexamples, are methods of treating cancer in an individual in need thereof, comprising administering to the individual an effective amount of a monoclonal antibody or an antigen-binding fragment thereof comprising a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3. Disclosed herein, in certain embodimentexamples, are methods of treating cancer in an individual in need thereof, comprising administering to the individual an effective amount of a monoclonal antibody or an antigen-binding fragment thereof comprising a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises (a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; and (b) a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises (a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 90% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; and (b) a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 90% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises (a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 95% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; and (b) a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 95% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises (a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 99% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; and (b) a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 99% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises (a) a light chain complementarity determining region (CDR) having an amino acid sequence 100% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; and (b) a heavy chain

complementarity determining region (CDR) having an amino acid sequence 100% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof selectively binds to a complex comprising an HLA-E and a neoantigen. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone. In some [embodimentexamples](#), the neoantigen is expressed by an antigen processing machinery (APM)-proficient cell. In some [embodimentexamples](#), the neoantigen is expressed by a TAP1/2-proficient cell. In some [embodimentexamples](#), the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLIL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLIL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPRTLIL), or SEQ ID NO: 29 (VTAPRTLIL). In some [embodimentexamples](#), the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL). In some [embodimentexamples](#), the HLA-E is HLA-E*0101 or HLA-E*0103. In some [embodimentexamples](#), the antibody selectively binds to the complex comprising: (a) the HLA-E*0101 and the neoantigen; (b) the HLA-E*0103 and the neoantigen; or (c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a TCR-like antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a multispecific antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a bispecific antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE). In some [embodimentexamples](#), the BiTE binds to a CD3 protein associated with a T cell receptor (TCR). In some [embodimentexamples](#), the BiTE further

comprises a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 9-11. In some [embodimentexamples](#), the BiTE further comprises a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 12-14. In some [embodimentexamples](#), the BiTE further comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15. In some [embodimentexamples](#), the BiTE further comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a multifunctional antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety. In some [embodimentexamples](#), the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell. In some [embodimentexamples](#), the immune response comprises activation of T cells. In some [embodimentexamples](#), the T cell is a CD8+ T cell. In some [embodimentexamples](#), the immune response comprises activation of cytotoxic T cells (CTLs). In some [embodimentexamples](#), the cancer is breast cancer. In some [embodimentexamples](#), the cancer is kidney cancer. In some [embodimentexamples](#), the cancer is lung cancer. In some [embodimentexamples](#), the cancer is ovarian cancer. In some [embodimentexamples](#), the cancer is colorectal cancer. In some [embodimentexamples](#), the cancer is pancreatic cancer. In some [embodimentexamples](#), the cancer is choriocarcinoma. In some [embodimentexamples](#), the cancer is non-small cell lung carcinoma (NSCLC). In some [embodimentexamples](#), the cancer is gastric cancer. In some [embodimentexamples](#), the cancer is cervical cancer. In some [embodimentexamples](#), the cancer is head and neck cancer. In some [embodimentexamples](#), the cancer is a myeloma. In some [embodimentexamples](#), the cancer is a leukemia. In some [embodimentexamples](#), the cancer is a lymphoma. In some [embodimentexamples](#), the cancer is acute myeloid leukemia (AML). In some [embodimentexamples](#), the cancer is multiple myeloma. In some [embodimentexamples](#), the cancer is a myelodysplastic syndrome. In some [embodimentexamples](#), the cancer is a B-cell malignancy. In some [embodimentexamples](#), the cancer is mantle cell lymphoma.

[0009] Disclosed herein, in certain [embodimentexamples](#), are methods of treating cancer in an individual in need thereof, comprising administering to the individual an effective amount of a bispecific antibody or an antigen-binding fragment thereof, comprising: (a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; or a heavy chain complementarity determining region

(CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6; and (b) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 9-11; or a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 12-14. In some embodimentexamples, the bispecific antibody comprises: (a) a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7; or a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8; and (b) a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15; or a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16. Disclosed herein, in certain embodimentexamples, are methods of treating cancer in an individual in need thereof, comprising administering to the individual an effective amount of a bispecific antibody or an antigen-binding fragment thereof, comprising: (a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; and a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6; and (b) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 9-11; and a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 12-14. In some embodimentexamples, the bispecific antibody comprises: (a) a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7; and a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8; and (b) a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15; and a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16. In some embodimentexamples, the bispecific antibody or antigen-binding fragment thereof selectively binds to a complex comprising an HLA-E and a neoantigen. In some embodimentexamples, the bispecific antibody or antigen-binding fragment thereof

does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone. In some [embodimentexamples](#), the neoantigen is expressed by an antigen processing machinery (APM)-proficient cell. In some [embodimentexamples](#), the neoantigen is expressed by a TAP1/2-proficient cell. In some [embodimentexamples](#), the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLLL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLLL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPPTLLL), or SEQ ID NO: 29 (VTAPRTVLL). In some [embodimentexamples](#), the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL). In some [embodimentexamples](#), the HLA-E is HLA-E*0101 or HLA-E*0103. In some [embodimentexamples](#), the bispecific antibody selectively binds to the complex comprising: (a) the HLA-E*0101 and the neoantigen; (b) the HLA-E*0103 and the neoantigen; or (c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen. In some [embodimentexamples](#), the bispecific antibody or antigen-binding fragment thereof is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody. In some [embodimentexamples](#), the bispecific antibody or antigen-binding fragment thereof is a TCR-like antibody. In some [embodimentexamples](#), the bispecific antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE). In some [embodimentexamples](#), the BiTE binds to a CD3 protein associated with a T cell receptor (TCR). In some [embodimentexamples](#), the bispecific antibody or antigen-binding fragment thereof is a multifunctional antibody. In some [embodimentexamples](#), the bispecific antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety. In some [embodimentexamples](#), the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell. In some [embodimentexamples](#), the immune response comprises activation of T cells. In some [embodimentexamples](#), the T cell is a CD8+ T cell. In some [embodimentexamples](#), the immune response comprises activation of cytotoxic T cells (CTLs). In some [embodimentexamples](#), the bispecific antibody is administered at a therapeutically effective amount. In some [embodimentexamples](#), the cancer is breast cancer. In some [embodimentexamples](#), the cancer is kidney cancer. In some [embodimentexamples](#), the cancer is lung cancer. In some [embodimentexamples](#), the cancer is ovarian cancer. In some [embodimentexamples](#), the cancer is colorectal cancer. In some [embodimentexamples](#), the cancer is pancreatic cancer. In some [embodimentexamples](#), the cancer is choriocarcinoma. In some [embodimentexamples](#), the cancer is non-small cell lung carcinoma

(NSCLC). In some [embodimentexamples](#), the cancer is gastric cancer. In some [embodimentexamples](#), the cancer is cervical cancer. In some [embodimentexamples](#), the cancer is head and neck cancer. In some [embodimentexamples](#), the cancer is a myeloma. In some [embodimentexamples](#), the cancer is a leukemia. In some [embodimentexamples](#), the cancer is a lymphoma. In some [embodimentexamples](#), the cancer is acute myeloid leukemia (AML). In some [embodimentexamples](#), the cancer is multiple myeloma. In some [embodimentexamples](#), the cancer is a myelodysplastic syndrome. In some [embodimentexamples](#), the cancer is a B-cell malignancy. In some [embodimentexamples](#), the cancer is mantle cell lymphoma.

[0010] Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain (LC) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 31. Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain (LC) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 31. Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain (LC) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 31. Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain (LC) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 31. Disclosed herein, in certain [embodimentexamples](#), are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain (LC) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 31. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 30. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 30. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 30. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 30. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 30. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment

thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 32. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 32. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 32. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 32. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 32. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 33. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 33. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 33. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 33. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 33. Disclosed herein, in certain embodimentexamples, are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain (LC) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 35. Disclosed herein, in certain embodimentexamples, are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain (LC) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 35. Disclosed herein, in certain embodimentexamples, are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain (LC) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 35. Disclosed herein, in certain embodimentexamples, are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain (LC) comprising an amino acid sequence at least 99% identical to an amino acid sequence

set forth as SEQ ID NO: 35. Disclosed herein, in certain embodimentexamples, are monoclonal antibodies or antigen-binding fragments thereof, comprising a light chain (LC) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 35. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 34. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 34. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 34. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 34. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 34. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof selectively binds to a complex comprising an HLA-E and a neoantigen. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone. In some embodimentexamples, the neoantigen is expressed by an antigen processing machinery (APM)-proficient cell. In some embodimentexamples, the neoantigen is expressed by a TAP1/2-proficient cell. In some embodimentexamples, the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLIL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLIL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPRTLIL), or SEQ ID NO: 29 (VTAPRTVLL). In some embodimentexamples, the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL). In some embodimentexamples, the HLA-E is HLA-E*0101 or HLA-E*0103. In some embodimentexamples, the antibody selectively binds to the complex comprising: (a) the HLA-E*0101 and the neoantigen; (b) the HLA-E*0103 and the neoantigen; or (c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen. In some embodimentexamples, the monoclonal antibody or antigen-binding fragment thereof

is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a TCR-like antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a multispecific antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a bispecific antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE). In some [embodimentexamples](#), the BiTE binds to a CD3 protein associated with a T cell receptor (TCR). In some [embodimentexamples](#), the BiTE further comprises a light chain (LC) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15. In some [embodimentexamples](#), the BiTE further comprises a heavy chain (HC) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof is a multifunctional antibody. In some [embodimentexamples](#), the monoclonal antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety. In some [embodimentexamples](#), the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell. In some [embodimentexamples](#), the immune response comprises activation of T cells. In some [embodimentexamples](#), the T cell is a CD8⁺ T cell. In some [embodimentexamples](#), the immune response comprises activation of cytotoxic T cells (CTLs). In some [embodimentexamples](#), the cell is a cancer cell.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The novel features of the invention are set forth with particularity in the appended claims. A better understanding of the features and advantages of the present invention will be obtained by reference to the following detailed description that sets forth illustrative embodiments, in which the principles of the invention are utilized, and the accompanying drawings of which:

[0012] **Fig. 1A-Fig. 1D** exemplifies identification and affinity characterization of CDRH3 region of R4 clone 1 (R4c1) against V-0025 and V-0018 (control). Phage (**Fig. 1A**) and monoclonal soluble ELISA(**Fig. 1B**). Antigen is at 1 µg/ml. Binding affinity sensorgram (**Fig. 1C**) and kinetic data (**Fig. 1D**).

[0013] **Fig. 2A-Fig. 2D** are exemplary overview of sorting schematic for the isolation of affinity matured R4c1. **Fig. 2A-Fig. 2C** exemplify cell sorting plots showing each round of sorting for the first round of affinity maturation. The ‘star’ indicates the sorted population. For the R4 sort (**Fig.**

staining, depending on cell line Fc receptor expression. Gray represents isotype staining and black line represents antibody staining. N/T means not tested.

[0036] Fig. 25 exemplifies that cell lines that exhibit ABX0023 binding without stimulation show an increase in ABX0023 binding with IFN γ stimulation. Cells were stimulated for 24 hrs with IFN γ . Either ABX0023 (mouse Fc) or ABX0020 (human Fc) was used for staining, depending on cell line Fc receptor expression. Gray represents isotype staining and black line represents antibody staining. N/T means not tested.

[0037] Fig. 26A-Fig.26B exemplifies that some cell lines require stimulation with IFN γ for ABX0023 binding. Cells were (**Fig. 26A**) left in culture or (**Fig. 26B**) stimulated with IFN γ for 24 hrs prior to staining. Gray represents isotype staining and black line represents antibody staining. N/T means not tested.

[0038] Fig. 27 exemplifies that cell lines without HLA-E do not exhibit ABX0023 binding. Either ABX0023 (mouse Fc) or ABX0020 (human Fc) was used for staining. Gray represents isotype staining and black line represents antibody staining.

[0039] Fig. 28A-Fig. 28B exemplify that HLA-E and Tap1 peptide processing is required for ABX0023 binding. (**Fig. 28A**) JEG3 cells were stimulated for 24 hrs with IFN γ for 24 hrs prior to staining. (**Fig. 28B**) OCI-AML3 cells were unstimulated. Either ABX0023 (mouse Fc) or ABX0020 (human Fc) was used for staining. Gray represents isotype staining and black line represents antibody staining. N/T means not tested.

[0040] Fig. 29 exemplifies that ABX0023 stains K562.E cells pulsed with specific peptide. K562 and K562.HLA-E + V-0025 (VMAPRTLFL) peptide ([SEQ ID NO: 18](#)) pulsed cells were pelleted, treated with OCI compound and flash frozen to prepare frozen cell blocks for immunohistochemistry. ABX0023 antibody (2.25ug/ml) was used to stain K562.E + V-0025 and K562 cells. The panel on the left shows positive ABX0023 staining while control cells (right panel) are not stained.

[0041] Fig. 30 exemplifies positive ABX0023 staining of human placenta tissue and specifically trophoblast cells.

[0042] Fig. 31A- Fig. 31B exemplify frozen section samples of head and neck tumor and normal adjacent tissue (NAT). **Fig. 31A** shows (panel left) staining with anti-HLA-E antibody (2.25ug/ml) and (panel right) with ABX0023 antibody (2.25ug/ml). **Fig. 31B** shows (panel left) NAT staining with anti-HLA-E antibody but not with ABX0023 antibody (panel right).

[0043] Fig. 32A-Fig. 32B exemplify frozen section samples of colon adenocarcinoma and NAT. **Fig. 32A** shows (panel left) staining with anti-HLA-E antibody (2.25ug/ml) and (panel right) with

EXAMPLES

[00239] The following examples are given for the purpose of illustrating various embodiments of the invention and are not meant to limit the present invention in any fashion. The present examples, along with the methods described herein are presently representative of preferred embodiments, are exemplary, and are not intended as limitations on the scope of the invention. Changes therein and other uses which are encompassed within the spirit of the invention as defined by the scope of the claims will occur to those skilled in the art.

Example 1. Generation of antibodies

[00240] R4 clone was first isolated from a semi-synthetic human antibody phage library. In brief, this was performed as follows. A human scFv antibody phage display library (1.42×10^9 clones) constructed by Creative Biolabs (HuScL-2 phage library) was used to screen against HLA-G signal peptide/HLA-E*0103 complex (ABI-V-0025; VMAPRTLFL ([SEQ ID NO: 18](#))). Briefly, 30 μg of a mix of five internal peptide/HLA-A2*0201 complexes (ABI-AV-007-Biot, ABI-AV-0010-Biot, ABI-AV-0014-Biot, ABI-AV-0019 and ABI-AB-0030-Biot) were used for depletion and pre-blocking, followed by enrichment with 50 μg of ABI-V-0025. The enrichment factor of the phage library was 2.73×10^6 (phage input: 5×10^{11} , phage output: 1.83×10^5). This process was repeated for the second round of biopanning, with an enrichment factor of 4.03×10^2 . This process was repeated for the third round of biopanning, but using 20 μg of the complex mix for depletion (enrichment factor 2.31×10^2). For the fourth round of biopanning, 50 μg of ABI-V-0018 was used for depletion and pre-blocking, followed by enrichment with 50 μg of ABI-V-0025 (enrichment factor 44). From the phage output of the fourth round of biopanning, 40 clones were picked and sequenced, revealing one unique sequence. This clone was designated as R4 (clone 1) (**Fig. 1A-Fig. 1B**). To determine affinity of the R4 antibody it was diluted in 0.1% BSA, 0.1% Tween20, PBS dilution/wash buffer and immobilized on the ForteBio Octet Protein A biosensor tip at 20 $\mu\text{g}/\text{ml}$ for 50 seconds. Tips were subsequently washed in dilution/wash buffer for 50 seconds. Antibody binding association was measured using six concentrations (serial dilutions starting at 100 $\mu\text{g}/\text{ml}$ in dilution/wash buffer) of canonical 0025-E 01:03 monomer complex over the course of 150 seconds immediately followed by dissociation (dilution/wash buffer) for 150 seconds (**Fig. 1C**). The equilibrium dissociation constant (KD) for clone R4 (clone 1) was determined to be 411 nM (**Fig. 1D**).

[00241] *Affinity maturation of R4: Cycle 2:* To increase the binding affinity of clone R4 to V-0025, the R4 scFv construct was cloned into a yeast vector to create a library of R4 mutants by

changing two amino acid in the CDRH3 region. In brief, the yeast display library generated used EBY100 yeast competent cells that were prepared for transformation by incubation in 100 mM lithium acetate (LiAc, Sigma) plus 10 mM Dithiothreitol (DTT, Sigma). Electroporation was achieved using a GenePulser (BioRad) with 60 OD prepared yeast per 2 mm cuvette (BioRad) in 10 mM LiAc, with 1 µg of scFv clones and 100 ng of pYES3 (ThermoFisher) altered to include Aga2 after the GAL1 promoter and a Flag (DYKDDDDK) epitope tag ([SEQ ID NO: 36](#)) after the scFv. To determine the number of transformants, 100 µL of 1/10, 1/100 and 1/1000 dilutions of transformed yeast were spread on glucose plates minus tryptophan and uracil (D-UT, Teknova). Transformation efficiency was calculated after incubation at 30°C for 2 days. Random clones were then picked for insertion diversity by PCR. Yeast were grown at 30°C with shaking at 200 rpm in CM broth with glucose minus tryptophan and uracil (D-UT, Teknova). scFv surface induction was achieved by growing yeast for at least 20 hrs in CM broth with galactose minus tryptophan and uracil (G-UT, Teknova) supplemented with 0.1% raffinose (Sigma) (GR-UT).

[00242] Yeast were stained after first blocking with 2% BSA in PBS 0.05% tween (blocking buffer) for 30 minutes to 1 hour at room temperature with rotation. Yeast were then incubated with biotinylated peptide/HLA complex monomers on ice for 30 minutes to 90 minutes, depending on monomer concentration. Secondary labeling was achieved with Streptavidin PE (ThermoFisher) and DYKDDDDK epitope tag ([SEQ ID NO: 36](#)) Alexa Fluor 488 (R&D Systems) on ice for 30 minutes. Samples were acquired using a LSR II flow cytometer (BD Biosciences) or a CytoFLEX S (Beckman Coulter). Data was prepared using Flowjo Software version 10 or FACSDiva (BD Biosciences).

[00243] Screening was achieved by either magnetic-activated cell sorting (MACS) or fluorescence-activated cell sorting (FACS), using at least ten-fold coverage of the library size. For MACS screening, yeast were first blocked with 2% BSA in PBS 0.05% tween (blocking buffer) for 30 minutes to 1 hour at room temperature with rotation. Biotinylated peptide/HLA complex monomers were then incubated on ice for 30 minutes at 1 µM. Secondary labeling was achieved using streptavidin microbeads (Miltenyi Biotec). Labeled yeast were poured over a MACS Column on a MACS Separator (Miltenyi Biotec). Yeast bound to the column were harvested and considered as an enriched population. For FACS screening, yeast were prepared as described in the flow cytometry section. Samples were sorted using a FACS Aria II (BD Bioscience). Sorted yeast were considered an enriched population.

[00244] Unique scFv clones were identified by plating. After two days at 30°C, individual colonies were picked and analyzed by PCR. Full-length human IgG1 of the selected clones were

1 and 0.1 nM (**Fig. 7**). The three with the top binding to target were selected for additional testing (clone R2-A01, R2-A12, R2-C09, **Fig. 7** black arrows).

Table 3. Unique clones

Clone	CDRL3
Parent	XXXXXXXXXX
R2-B08	GXXXXXWKM (SEQ ID NO: 37)
R2-A03	GXXXXXWLM (SEQ ID NO: 38)
R2-C03	GXXXXXWRM (SEQ ID NO: 39)
R2-A08	XNXXXXHDV (SEQ ID NO: 40)
R2-A01	XNXXXXWEX
R2-A04	XNXXXXWVA (SEQ ID NO: 41)
R2-C08	XNXXXXWVV (SEQ ID NO: 42)
R2-B07	XXXXCXFRP (SEQ ID NO: 43)
R2-A05	XXXXCXXSL
R2-A07	XXXXNXWMP (SEQ ID NO: 44)
R2-A10	XXXXSXHTP (SEQ ID NO: 45)
R2-A11	XXXXSXWEG (SEQ ID NO: 46)
R2-B06	XXXXSXVDV (SEQ ID NO: 47)
R2-C04	XXXXXXFTP
R2-B03	XXXXXXWFP
R2-A06	XXXXXXWKC
R2-C02	XXXXXXWWP
R2-C05	XXXXXXYKP
R2-A12	XXSXXXWDM (SEQ ID NO: 48)
R2-C09	XNXXXXWEA (SEQ ID NO: 49)
R2-D05	XXTXXXFTM (SEQ ID NO: 50)

Example 2. Characterization of top clones by ELISA, FACS and label-free technology

[00249] The top three clones identified from yeast display were made as hIgG1 and tested for specificity and affinity. Of the three clones tested, R2-A12 exhibited the best affinity and the broadest specificity (data not shown). R2-A12 was given the designation ABX0020 and produced in CHO cells using a 1-L transient transfection protocol followed by purification by Protein-A affinity chromatography. Sample purity was determined by SDS-PAGE reduced (two bands representing heavy and light chains) and non-reduced (single band at ~150kD) (**Fig. 8A**) and by observing a single peak by size exclusion chromatography (**Fig. 8B**). ABX0020 was first tested against a broad array of peptide/HLA complexes. As shown in **Fig. 9A**, HLA-E clone 3D12 binds to all HLA-E complexes, including peptide-empty HLA-E. However, ABX0020 was specific for classical HLA

the M1-flu peptide followed by staining with Calcein-AM (1.0 μ M/mL) before co-culturing with CD8⁺ T cells. Co-cultures were incubated with and without anti-NKG2a, ABX0021, ABX0020 or isotype control antibody. Specific lysis was calculated according to the formula $[(\text{test release} - \text{spontaneous release})/(\text{maximum release} - \text{spontaneous release})] \times 100$. Spontaneous release represents Calcein-AM release from target cells in medium alone, and maximum release is the Calcein-AM release from target cells lysed in medium 2% Triton X-100, each measured in at least three replicate wells. The data shown are the frequencies of JY-A2 target cell lysis. p values are calculated by using unpaired student t-test; results are in mean $\pm$ -SD.

[00263] All statistical analysis was performed using GraphPad Prism software version 8 (GraphPad). Statistical significance was determined using Wilcoxon matched-pairs signed rank test. Significance was set at $p < 0.05$.

[00264] As shown in **Fig. 13**, CD8⁺ T cells in presence of isotype control (Mab Control) or without antibody (None) displayed no significant killing due to T-cell inhibition via interaction with HLA-E/signal peptide complexes. In contrast, a significant increase in target cell lysis was observed in culture wells with the addition of α NKG2A, ABX0020 or ABX0021. The cytolytic activity of two different CD8⁺ T cell lines (**Fig. 13**) exhibited approximately a 2-fold increase in target cell lysis in presence of α NKG2A, ABX0020 and ABX0021 compared to MabCtrl and showed approximately a 4-fold increase in target cell lysis compared to the “None” control. No difference between donors was observed for target cell lysis in the presence of ABX0020, ABX0021 (a-glycosylated) or α NKG2A.

[00265] These data demonstrate the HLA-E:NKG2A pathway inhibits T-cell cytolytic activity and that blocking this pathway using ABX0020 can reverse the suppression and unleash target (tumor) cell killing by CD8⁺ T-cells.

Example 6. Creating a bispecific antibody capable of both activating T-cells and blocking the HLA-E:NKG2A axis to release suppression of NK and T-cells

[00266] ABX0040 was constructed as a bispecific antibody to be able to activate CD3⁺ T-cells and simultaneously inhibit the HLA-E:NKG2A checkpoint pathway. ABX0040 was made as an Fab-Fc-scFv construct containing ABX0020 (Fab) coupled to a single-chain (scFv) of clone SP34 (mouse anti-human CD3e) on a non-glycosylated (N297D mutation) human IgG1 scaffold (**Fig. 14A**). A 20 amino acid linker (GKPGSGKPGSGKPGSGKPGS ([SEQ ID NO: 51](#))) was used to covalently join the ABX0020 Fab with the SP34 scFv. ABX0040 was produced in a transiently transfected CHO cell

(Thermo Fisher)-labeled target cells were added at a ratio of 3:1 (E:T). Antibodies were used at 10 µg/mL. Supernatant was tested for lactate dehydrogenase (LDH, Roche). The plate was read at 450 nM using a BioTek Synergy 2 plate reader (Agilent). These results indicate that ABX0040 can act as a checkpoint blocker on NK cells in addition to enhancing cytotoxicity in CD8⁺ T cells.

Table 4. List of peptide/HLA complexes **(Table 4 discloses SEQ ID NOS 17, 19-21, 23-29, 18 and 52-60, respectively, in order of appearance)**

Peptide family	Peptide ID	Sequence	HLA complex	Gene Origin
Classical HLA	V-0021	VMAPRTLIL	HLA-E	HLA-C HLA-Cw*01, -Cw*03, -Cw*04, -Cw*05, -Cw*06, -Cw*08, -Cw*12, -Cw*14, -Cw*16 and -Cw*17:02
	V-0034	VMAPRTLVL	HLA-E	HLA-A*02, -A*23, -A*24, -A*25, -A*26, -A*34:02, -A*34:06, -A*43, -A*66 and -A*69
	V-0035	VTAPRTLIL	HLA-E	HLA-B*13, -B*18, -B*27, -B*37, -B*40, -B*44, -B*47, -B*54, B*55 - B*56, -B*59, -B*82 and B*83
	V-0037	IMAPRTLVL	HLA-E	HLA-A*34:01
	V-0040	VMAPQALLL	HLA-E	HLA-Cw*17:01, Cw*17:03 and -Cw*17:05
	V-0041	VMAPRALLL	HLA-E	HLA-Cw*06:17, -Cw*07 and -Cw*18
	V-0042	VMAPRTLIL	HLA-E	HLA-A*01, -A*03, -A*11, -A*29, -A*30, A*31, -A*32, -A*33, -A*36, and A*74, HLA-Cw02 and Cw*15
	V-0043	VMAPRTLTL	HLA-E	HLA-Cw*08:09
	V-0044	VMAPRTVLL	HLA-E	HLA-B*07, -B*08, -B*14, -B*38, -B*39, -B*42, -B*48, -B*67, -B*73 and -B*81
	V-0045	VMPRTLIL	HLA-E	HLA-A*80
	V-0046	VTAPRTVLL	HLA-E	HLA-B*15, -B*35, -B*40, -B*41, -B*44:18, -B*45, -B*46 -B*49, -B*50, -B*51, -B*52, -B*53, -B*57, -B*58 and -B*78
Non-classical HLA	V-0025	VMAPRTLFL	HLA-A2*02:01 And HLA-E	HLA-G, HLA-G*01
Additional	LL-001	VTVPGPSL	HLA-E	PIP5K1A and PSMD4 like (pseudogene)
	LL-002	SLLEKSLGL	HLA-E	Chain B, Eukaryotic Translation Elongation Factor 1 Epsilon-1
	V-0013	ILSPTVVS	HLA-E	KIF11
	V-0038	QMRPVSRVL	HLA-E	Hsp60
	P-0550	RAARLPPL	HLA-E	PODXL2
	0002-A2	SLLQHLIGL	HLA-A2*02:01	PRAME
	0003-A2	KLQCVDLHV	HLA-A2*02:01	KLK3
	V-0018	YLLPAIVHI	HLA-A2*02:01	DDX17
Mouse analog	Qdm-Qa1b	AMAPRTLIL	Qa-1(b)	Qdm

Example 7 ABX0023 does not bind to immune cells in the periphery

[00273] In order to test binding of ABX0023 to immune cells, immune cells were purified, cultured, stained, and assessed by Flow Cytometry as described below.

Human primary cells

[00274] Blood from healthy volunteers was acquired from Carter BloodCare. PBMCs were isolated by density-gradient centrifugation using Ficoll-Paque PLUS (GE Healthcare) or

using Ventana Reaction buffer. One drop of DISC anti-HQ HRP (Ventana, Cat.#760-4820) was applied to slides, incubated for 24 min and rinsed 3x with Ventana Reaction buffer. Next, one drop of Discovery ChromoMap DAB kit (Ventana, Cat.#760-159) and one drop of CM H₂O₂ (Ventana) was applied to slides, incubated for 8 min followed by rinsing 3x with Ventana Reaction buffer. Then one drop of copper CM (Ventana) was applied to slides, incubated for 4 min followed by rinsing 3x with Ventana Reaction buffer before applying one drop of Hematoxylin (counterstain) to slide for 12 min. Following rinsing (2x) with Ventana Reaction buffer one drop of Bluing Reagent (post counterstain) was applied and after 8 min slides were rinsed 2x with Ventana Reaction buffer. Slides were then removed from Ventana XT, washed with dishwash detergent and treated with alcohol and xylene for dehydration. A coverslip was added to slides and slides were read on Discovery Ultra instrument.

[00285] ABX0023 (ABX0020 substituted with mouse IgG1), anti-HLA-E (MEM-E/02) antibody and mouse IgG1 isotype control antibody were used at 2.25 ug/ml to stain cell blocks of K562 cells or K562 cells transfected with HLA-E (K562.E) pulsed for 2 hr with 20ug/ml of V-0025 (VMAPRTLFL) peptide ([SEQ ID NO: 18](#)) (**Fig. 29**). Images show that ABX-0023 stains strong (3+++ out of 3) to K562.E + V-0025 peptide pulsed cells and not to K562 cells (-). These data show that ABX-0023 is binding selectively to cells presenting HLA-E/V-0025 and validates the immunohistochemistry (IHC) staining protocol.

Example 10 Staining positive control tissue

[00286] Fresh frozen human placenta tissue was used as a positive control for ABX-0023. It is well known that trophoblast cells express both HLA-E, and some classical HLA I such as HLA-C and HLA-G. Therefore, staining with ABX-0023 was anticipated in placental tissue. In **Fig. 30**, ABX-0023 shows strong (2++ to 3+++) staining of trophoblast cells in placenta tissue and demonstrates that the HLA-E + canonical leader sequence peptides are present on the surface of trophoblastic cells.

Example 11 ABX-0023 stains head and neck tumor tissue

[00287] To assess ABX-0023 target binding selectivity in head and neck tumor tissues, tissue was stained and analyzed as described below. **Fig. 31** is a representative image of ABX-0023 staining frozen tumor tissue collected from a head and neck patient. **Fig. 31A** left panel shows strong tumor cell staining with anti-HLA-E antibody (clone MEM-E/02). The same panel shows

CLAIMS

WHAT IS CLAIMED IS:

~~1. A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7.~~

~~2. A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain variable domain (VL) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 7.~~

~~3. A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain variable domain (VL) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 7.~~

~~4. A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain variable domain (VL) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 7.~~

~~5. A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain variable domain (VL) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 7.~~

~~6. The monoclonal antibody of any one of claims 1-5, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8.~~

~~7. The monoclonal antibody of any one of claims 1-5, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 8.~~

~~8. The monoclonal antibody of any one of claims 1-5, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 8.~~

~~9. The monoclonal antibody of any one of claims 1-5, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 8.~~

~~10. The monoclonal antibody of any one of claims 1-5, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 8.~~

~~11. The monoclonal antibody of any one of claims 1-10, wherein the monoclonal antibody or antigen-binding fragment thereof selectively binds to a complex comprising an HLA-E and a neoantigen.~~

~~12. The monoclonal antibody of any one of claims 1-11, wherein the monoclonal antibody or antigen-binding fragment thereof does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone.~~

~~13. The monoclonal antibody of any one of claims 1-12, wherein the neoantigen is expressed by an antigen-processing machinery (APM)-proficient cell.~~

~~14. The monoclonal antibody of claim 13, wherein the neoantigen is expressed by a TAP1/2-proficient cell.~~

~~15. The monoclonal antibody of any one of claims 1-14, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLILL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLILL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPRTLILL), or SEQ ID NO: 29 (VTAPRTVLL).~~

~~16. The monoclonal antibody of any one of claims 1-15, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL).~~

~~17. The monoclonal antibody of any one of claims 1-16, wherein the HLA-E is HLA-E*0101 or HLA-E*0103.~~

~~18. The monoclonal antibody of claim 17, wherein the antibody selectively binds to the complex comprising:~~

- ~~—— (a) the HLA-E*0101 and the neoantigen;~~
- ~~—— (b) the HLA-E*0103 and the neoantigen; or~~
- ~~—— (c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen.~~

~~19. The monoclonal antibody of any one of claims 1-18, wherein the monoclonal antibody or antigen-binding fragment thereof is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody.~~

~~20. The monoclonal antibody of any one of claims 1-19, wherein the monoclonal antibody or antigen-binding fragment thereof is a TCR-like antibody.~~

~~21. The monoclonal antibody of any one of claims 1-20, wherein the monoclonal antibody or antigen-binding fragment thereof is a multispecific antibody.~~

~~22. The monoclonal antibody of any one of claims 1-21, wherein the monoclonal antibody or antigen-binding fragment thereof is a bispecific antibody.~~

~~23. The monoclonal antibody of any one of claims 1-22, wherein the monoclonal antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE).~~

~~24. The monoclonal antibody of claim 23, wherein the BiTE binds to a CD3 protein associated with a T cell receptor (TCR).~~

~~25. The monoclonal antibody of any one of claims 23-24, wherein the BiTE further comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15.~~

~~26. The monoclonal antibody of any one of claims 23-25, wherein the BiTE further comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16.~~

~~27. The monoclonal antibody of any one of claims 1-26, wherein the monoclonal antibody or antigen-binding fragment thereof is a multifunctional antibody.~~

~~28. The monoclonal antibody of any one of claims 1-27, wherein the monoclonal antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety.~~

~~29. The monoclonal antibody of any one of claims 1-28, wherein the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell.~~

~~30. The monoclonal antibody of claim 29, wherein the immune response comprises activation of T cells.~~

~~31. The monoclonal antibody of claim 30, wherein the T cell is a CD8⁺ T cell.~~

~~32. The monoclonal antibody of claim 30, wherein the immune response comprises activation of cytotoxic T-cells (CTLs).~~

~~33. The monoclonal antibody of claim 29, wherein the cell is a cancer cell.~~

~~34. A monoclonal antibody or an antigen-binding fragment thereof, comprising a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8.~~

~~35. A monoclonal antibody or an antigen-binding fragment thereof, comprising a heavy chain variable domain (VH) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 8.~~

~~36. A monoclonal antibody or an antigen-binding fragment thereof, comprising a heavy chain variable domain (VH) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 8.~~

~~37. A monoclonal antibody or an antigen-binding fragment thereof, comprising a heavy chain variable domain (VH) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 8.~~

~~38. A monoclonal antibody or an antigen-binding fragment thereof, comprising a heavy chain variable domain (VH) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 8.~~

~~39. The monoclonal antibody of any one of claims 34-38, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7.~~

~~40. The monoclonal antibody of any one of claims 34-38, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 7.~~

~~41. The monoclonal antibody of any one of claims 34-38, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 7.~~

~~42. The monoclonal antibody of any one of claims 34-38, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 7.~~

~~43. The monoclonal antibody of any one of claims 34-38, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 7.~~

~~44. The monoclonal antibody of any one of claims 34-43, wherein the monoclonal antibody or antigen-binding fragment thereof selectively binds to a complex comprising an HLA-E and a neoantigen.~~

~~45. The monoclonal antibody of any one of claims 34-44, wherein the monoclonal antibody or antigen-binding fragment thereof does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone.~~

~~46. The monoclonal antibody of any one of claims 34-45, wherein the neoantigen is expressed by an antigen processing machinery (APM)-proficient cell.~~

~~47. The monoclonal antibody of claim 46, wherein the neoantigen is expressed by a TAP1/2-proficient cell.~~

~~48. The monoclonal antibody of any one of claims 34-47, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLILL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLILL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPPRTLILL), or SEQ ID NO: 29 (VTAPRTVLL).~~

~~49. The monoclonal antibody of any one of claims 34-48, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL).~~

~~50. The monoclonal antibody of any one of claims 34-49, wherein the HLA-E is HLA-E*0101 or HLA-E*0103.~~

~~51. The monoclonal antibody of claim 50, wherein the antibody selectively binds to the complex comprising:~~

- ~~—— (a) the HLA-E*0101 and the neoantigen;~~
- ~~—— (b) the HLA-E*0103 and the neoantigen; or~~
- ~~—— (c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen.~~

~~52. The monoclonal antibody of any one of claims 34-51, wherein the monoclonal antibody or antigen-binding fragment thereof is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody.~~

~~53. The monoclonal antibody of any one of claims 34-52, wherein the monoclonal antibody or antigen-binding fragment thereof is a TCR-like antibody.~~

~~54. The monoclonal antibody of any one of claims 34-53, wherein the monoclonal antibody or antigen-binding fragment thereof is a multispecific antibody.~~

~~55. The monoclonal antibody of any one of claims 34-54, wherein the monoclonal antibody or antigen-binding fragment thereof is a bispecific antibody.~~

~~56. The monoclonal antibody of any one of claims 34-55, wherein the monoclonal antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE).~~

~~57. The monoclonal antibody of claim 56, wherein the BiTE binds to a CD3 protein associated with a T cell receptor (TCR).~~

~~58. The monoclonal antibody of any one of claims 56-57, wherein the BiTE further comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15.~~

~~59. The monoclonal antibody of any one of claims 56-58, wherein the BiTE further comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16.~~

~~60. The monoclonal antibody of any one of claims 34-59, wherein the monoclonal antibody or antigen-binding fragment thereof is a multifunctional antibody.~~

~~61. The monoclonal antibody of any one of claims 34-60, wherein the monoclonal antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety.~~

~~62. The monoclonal antibody of any one of claims 34-61, wherein the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell.~~

~~63. The monoclonal antibody of claim 62, wherein the immune response comprises activation of T cells.~~

~~64. The monoclonal antibody of claim 63, wherein the T cell is a CD8⁺ T cell.~~

~~65. The monoclonal antibody of claim 62, wherein the immune response comprises activation of cytotoxic T-cells (CTLs).~~

~~66. The monoclonal antibody of claim 62, wherein the cell is a cancer cell.~~

~~67.1. A monoclonal antibody or an antigen-binding fragment thereof, comprising~~

~~(a) a light chain complementarity determining region (CDR₁) having an the amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3;~~

~~68. A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain complementarity determining region (CDR₂) having an the amino acid sequence at least 90% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-32, and;~~

~~69. A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain complementarity determining region (CDR₃) having an the amino acid sequence at least 95% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; and;~~

~~70. A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain complementarity determining region (CDR) having an amino acid sequence at least 99% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3.~~

~~71. A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain complementarity determining region (CDR) having an amino acid sequence 100% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3.~~

~~72. The monoclonal antibody of any one of claims 67-71, wherein the monoclonal antibody or antigen-binding fragment thereof comprises (b) a heavy chain complementarity determining region (CDR₁) having an the amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6;~~

~~73. The monoclonal antibody of any one of claims 67-71, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain complementarity determining region (CDR₂) having an the amino acid sequence at least 90% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-65, and;~~

~~74. The monoclonal antibody of any one of claims 67-71, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain complementarity determining region (CDR3) having an the amino acid sequence at least 95% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6.~~

~~75. The monoclonal antibody of any one of claims 67-71, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 99% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6.~~

~~76. The monoclonal antibody of any one of claims 67-71, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain complementarity determining region (CDR) having an amino acid sequence 100% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6.~~

~~77. The monoclonal antibody of any one of claims 67-76, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7.~~

~~78. The monoclonal antibody of any one of claims 67-77, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8.~~

~~79. The monoclonal antibody of any one of claims 67-78, wherein the monoclonal antibody or antigen-binding fragment thereof selectively binds to a complex comprising an HLA-E and a neoantigen.~~

~~80. The monoclonal antibody of any one of claims 67-79, wherein the monoclonal antibody or antigen-binding fragment thereof does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone.~~

~~81. The monoclonal antibody of any one of claims 67-80, wherein the neoantigen is expressed by an antigen processing machinery (APM)-proficient cell.~~

~~82. The monoclonal antibody of claim 81, wherein the neoantigen is expressed by a TAP1/2-proficient cell.~~

~~83. The monoclonal antibody of any one of claims 67-82, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ~~

~~ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLTL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLTL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPPRTLTL), or SEQ ID NO: 29 (VTAPRTVLL).~~

~~84. The monoclonal antibody of any one of claims 67-83, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL).~~

~~85. The monoclonal antibody of any one of claims 67-84, wherein the HLA-E is HLA-E*0101 or HLA-E*0103.~~

~~86. The monoclonal antibody of claim 85, wherein the antibody selectively binds to the complex comprising:~~

- ~~—— (a) the HLA-E*0101 and the neoantigen;~~
- ~~—— (b) the HLA-E*0103 and the neoantigen; or~~
- ~~—— (c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen.~~

~~87. The monoclonal antibody of any one of claims 67-86, wherein the monoclonal antibody or antigen-binding fragment thereof is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody.~~

~~88. The monoclonal antibody of any one of claims 67-87, wherein the monoclonal antibody or antigen-binding fragment thereof is a TCR-like antibody.~~

~~89. The monoclonal antibody of any one of claims 67-88, wherein the monoclonal antibody or antigen-binding fragment thereof is a multispecific antibody.~~

~~90. The monoclonal antibody of any one of claims 67-89, wherein the monoclonal antibody or antigen-binding fragment thereof is a bispecific antibody.~~

~~91. The monoclonal antibody of any one of claims 67-90, wherein the monoclonal antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE).~~

~~92. The monoclonal antibody of claim 91, wherein the BiTE binds to a CD3 protein associated with a T cell receptor (TCR).~~

~~93. The monoclonal antibody of any one of claims 91-92, wherein the BiTE further comprises a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 9-11.~~

~~94. The monoclonal antibody of any one of claims 91-93, wherein the BiTE further comprises a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 12-14.~~

~~95. The monoclonal antibody of any one of claims 91-94, wherein the BiTE further comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15.~~

~~96. The monoclonal antibody of any one of claims 91-95, wherein the BiTE further comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16.~~

~~97. The monoclonal antibody of any one of claims 67-96, wherein the monoclonal antibody or antigen-binding fragment thereof is a multifunctional antibody.~~

~~98. The monoclonal antibody of any one of claims 67-97, wherein the monoclonal antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety.~~

~~99. The monoclonal antibody of any one of claims 67-98, wherein the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell.~~

~~100.—The monoclonal antibody of claim 99, wherein the immune response comprises activation of T cells.~~

~~101.—The monoclonal antibody of claim 100, wherein the T cell is a CD8⁺ T cell.~~

~~102.—The monoclonal antibody of claim 99, wherein the immune response comprises activation of cytotoxic T cells (CTLs).~~

~~103.—The monoclonal antibody of claim 99, wherein the cell is a cancer cell.~~

~~104.—A monoclonal antibody or an antigen-binding fragment thereof, comprising a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6.~~

~~105.—A monoclonal antibody or an antigen-binding fragment thereof, comprising a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 90% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6.~~

~~106.—A monoclonal antibody or an antigen-binding fragment thereof, comprising a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 95% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6.~~

~~107.—A monoclonal antibody or an antigen-binding fragment thereof, comprising a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 99% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6.~~

~~108.—A monoclonal antibody or an antigen-binding fragment thereof, comprising a heavy chain complementarity determining region (CDR) having an amino acid sequence 100% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6.~~

~~109.—The monoclonal antibody of any one of claims 104-108, wherein the monoclonal antibody or antigen-binding fragment comprises a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3.~~

~~110.—The monoclonal antibody of any one of claims 104-108, wherein the monoclonal antibody or antigen-binding fragment comprises a light chain complementarity determining region (CDR) having an amino acid sequence at least 90% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3.~~

~~111.—The monoclonal antibody of any one of claims 104-108, wherein the monoclonal antibody or antigen-binding fragment comprises a light chain complementarity determining region (CDR) having an amino acid sequence at least 95% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3.~~

~~112.—The monoclonal antibody of any one of claims 104-108, wherein the monoclonal antibody or antigen-binding fragment comprises a light chain complementarity determining region (CDR) having an amino acid sequence at least 99% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3.~~

~~113.—The monoclonal antibody of any one of claims 104-108, wherein the monoclonal antibody or antigen-binding fragment comprises a light chain complementarity determining region~~

(CDR) having an amino acid sequence 100% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3.

114.—The monoclonal antibody of any one of claims 104-113, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8.

115.—The monoclonal antibody of any one of claims 104-114, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7.

116.—The monoclonal antibody of any one of claims 104-115, wherein the monoclonal antibody or antigen-binding fragment thereof selectively binds to a complex comprising an HLA-E and a neoantigen.

117.—The monoclonal antibody of any one of claims 104-116, wherein the monoclonal antibody or antigen-binding fragment thereof does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone.

118.—The monoclonal antibody of any one of claims 104-117, wherein the neoantigen is expressed by an antigen processing machinery (APM)-proficient cell.

119.—The monoclonal antibody of claim 118, wherein the neoantigen is expressed by a TAP1/2-proficient cell.

120.—The monoclonal antibody of any one of claims 104-119, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLILL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLILL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPRTLILL), or SEQ ID NO: 29 (VTAPRTVLL).

121.—The monoclonal antibody of any one of claims 104-120, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL).

~~122.—The monoclonal antibody of any one of claims 104-121, wherein the HLA-E is HLA-E*0101 or HLA-E*0103.~~

~~123.—The monoclonal antibody of claim 122, wherein the antibody selectively binds to the complex comprising:~~

- ~~——(a) the HLA-E*0101 and the neoantigen;~~
- ~~——(b) the HLA-E*0103 and the neoantigen; or~~
- ~~——(c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen.~~

~~124.—The monoclonal antibody of any one of claims 104-123, wherein the monoclonal antibody or antigen-binding fragment thereof is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody.~~

~~125.—The monoclonal antibody of any one of claims 104-124, wherein the monoclonal antibody or antigen-binding fragment thereof is a TCR-like antibody.~~

~~126.—The monoclonal antibody of any one of claims 104-125, wherein the monoclonal antibody or antigen-binding fragment thereof is a multispecific antibody.~~

~~127.—The monoclonal antibody of any one of claims 104-126, wherein the monoclonal antibody or antigen-binding fragment thereof is a bispecific antibody.~~

~~128.—The monoclonal antibody of any one of claims 104-127, wherein the monoclonal antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE).~~

~~129.—The monoclonal antibody of claim 128, wherein the BiTE binds to a CD3 protein associated with a T cell receptor (TCR).~~

~~130.—The monoclonal antibody of any one of claims 128-129, wherein the BiTE further comprises a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 9-11.~~

~~131.—The monoclonal antibody of any one of claims 128-130, wherein the BiTE further comprises a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 12-14.~~

~~132.—The monoclonal antibody of any one of claims 128-131, wherein the BiTE further comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15.~~

~~133.—The monoclonal antibody of any one of claims 128-132, wherein the BiTE further comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16.~~

~~134.—The monoclonal antibody of any one of claims 104-133, wherein the monoclonal antibody or antigen-binding fragment thereof is a multifunctional antibody.~~

~~135.—The monoclonal antibody of any one of claims 104-134, wherein the monoclonal antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety.~~

~~136.—The monoclonal antibody of any one of claims 104-135, wherein the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell.~~

~~137.—The monoclonal antibody of claim 136, wherein the immune response comprises activation of T cells.~~

~~138.—The monoclonal antibody of claim 137, wherein the T cell is a CD8+ T cell.~~

~~139.—The monoclonal antibody of claim 136, wherein the immune response comprises activation of cytotoxic T cells (CTLs).~~

~~140.—The monoclonal antibody of claim 136, wherein the cell is a cancer cell.~~

~~141.—A bispecific antibody or an antigen-binding fragment thereof, comprising:~~

~~——(a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; or a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6; and~~

~~(b) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 9-11; or a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 12-14.~~

~~142.—The bispecific antibody of claim 141, wherein the bispecific antibody comprises:—~~

~~——(a) a light chain variable domain (VL) comprising an amino acid sequence at least~~

~~80% identical to an amino acid sequence set forth as SEQ ID NO: 7; or a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8; and~~

~~(b) a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15; or a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16.~~

~~143.—A bispecific antibody or an antigen-binding fragment thereof, comprising:~~

~~——(a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; and a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6; and~~

~~(b) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 9-11; and a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 12-14.~~

~~144.—The bispecific antibody of claim 143, wherein the bispecific antibody comprises:—~~

~~——(a) a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7; and a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8; and~~

~~(b) a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15; and a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16.~~

~~145.—The bispecific antibody of any one of claims 141-144, wherein the bispecific antibody selectively binds to a complex comprising an HLA-E and a neoantigen.~~

~~146.—The bispecific antibody of any one of claims 141-145, wherein the bispecific antibody does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone.~~

~~147.—The bispecific antibody of any one of claims 141-146, wherein the neoantigen is expressed by an antigen processing machinery (APM)-proficient cell.~~

~~148.—The bispecific antibody of claim 147, wherein the neoantigen is expressed by a TAP1/2-proficient cell.~~

~~149.—The bispecific antibody of any one of claims 141-148, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLLL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLLL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPPRTLLL), or SEQ ID NO: 29 (VTAPRTVLL).~~

~~150.—The bispecific antibody of any one of claims 141-149, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL).~~

~~151.—The bispecific antibody of any one of claims 141-150, wherein the HLA-E is HLA-E*0101 or HLA-E*0103.~~

~~152.—The bispecific antibody of claim 151, wherein the antibody selectively binds to the complex comprising:~~

- ~~——(a) the HLA-E*0101 and the neoantigen;~~
- ~~——(b) the HLA-E*0103 and the neoantigen; or~~
- ~~——(c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen.~~

~~153.—The bispecific antibody of any one of claims 141-152, wherein the monoclonal antibody or antigen-binding fragment thereof is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody.~~

~~154.—The bispecific antibody of any one of claims 104-153, wherein the monoclonal antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE).~~

~~155.—The bispecific antibody of claim 154, wherein the BiTE binds to a CD3 protein associated with a T cell receptor (TCR).~~

~~156.—The bispecific antibody of any one of claims 141-155, wherein the monoclonal antibody or antigen-binding fragment thereof is a multifunctional antibody.~~

~~157.—The bispecific antibody of any one of claims 141-156, wherein the monoclonal antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety.~~

~~158.—The bispecific antibody of any one of claims 141-157, wherein the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell.~~

~~159.—The bispecific antibody of claim 158, wherein the immune response comprises activation of T cells.~~

~~160.—The bispecific antibody of claim 159, wherein the T cell is a CD8+ T cell.~~

~~161.—The bispecific antibody of claim 158, wherein the immune response comprises activation of cytotoxic T cells (CTLs).~~

~~162.—The bispecific antibody of claim 158, wherein the cell is a cancer cell.~~

2. The monoclonal antibody of claim 1 or an antigen-binding fragment thereof, comprising:

(a) a light chain variable domain (VL) comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 7; and

(b) a heavy chain variable domain (VH) comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 8.

3. The monoclonal antibody of claim 1 or 2 or an antigen-binding fragment thereof, comprising:

(a) a VL comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 7; and

(b) a VH comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 8.

4. The monoclonal antibody of any one of claims 1-3 or an antigen-binding fragment thereof, comprising:

(a) a VL comprising an amino acid sequence set forth as SEQ ID NO: 7; and

(b) a VH comprising an amino acid sequence set forth as SEQ ID NO: 8.

5. The monoclonal antibody of any one of claims 1-4 or an antigen-binding fragment thereof, comprising:

(a) a heavy chain (HC) comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 30; and

(b) a light chain (LC) comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 31.

6. The monoclonal antibody of any one of claims 1-5 or an antigen-binding fragment thereof, comprising:

(a) a HC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 30; and

(b) a LC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 31.

7. The monoclonal antibody of any one of claims 1-6 or an antigen-binding fragment thereof, comprising:

(a) a HC comprising an amino acid sequence set forth as SEQ ID NO: 30; and

(b) a LC comprising an amino acid sequence set forth as SEQ ID NO: 31.

8. The monoclonal antibody of any one of claims 1-4 or an antigen-binding fragment thereof, comprising:

(a) a HC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 32; and

(b) a LC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 31.

9. The monoclonal antibody of any one of claims 1-4 or 8 or an antigen-binding fragment thereof, comprising:

(a) a HC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 32; and

(b) a LC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 31.

10. The monoclonal antibody of any one of claims 1-4, 8, or 9 or an antigen-binding fragment thereof, comprising:

- (a) a HC comprising an amino acid sequence set forth as SEQ ID NO: 32; and
- (b) a LC comprising an amino acid sequence set forth as SEQ ID NO: 31.

11. The monoclonal antibody of any one of claims 1-4 or an antigen-binding fragment thereof, comprising:

- (a) a HC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 33; and
- (b) a LC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 31.

12. The monoclonal antibody of any one of claims 1-4 or 11 or an antigen-binding fragment thereof, comprising:

- (a) a HC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 33; and
- (b) a LC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 31.

13. The monoclonal antibody of any one of claims 1-4, 11, or 12 or an antigen-binding fragment thereof, comprising:

- (a) a HC comprising an amino acid sequence set forth as SEQ ID NO: 33; and
- (b) a LC comprising an amino acid sequence set forth as SEQ ID NO: 31.

14. A monoclonal antibody or an antigen-binding fragment thereof, comprising:

- (a) a HC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 30; and
- (b) a heavy chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 4, a heavy chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 5, and a heavy chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 6.

15. The monoclonal antibody of claim 14 or an antigen-binding fragment thereof, comprising a HC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 30.

16. The monoclonal antibody of claim 14 or 15 or an antigen-binding fragment thereof, comprising a HC comprising the amino acid sequence set forth as SEQ ID NO: 30.

17. The monoclonal antibody of any one of claims 14-16 or an antigen-binding fragment thereof, further comprising:

(a) a LC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 31; and

(b) a light chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 1, a light chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 2, and a light chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 3.

18. The monoclonal antibody of any one of claims 14-17 or an antigen-binding fragment thereof, further comprising:

(a) a LC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 31; and

(b) a light chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 1, a light chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 2, and a light chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 3.

19. The monoclonal antibody of any one of claims 14-18 or an antigen-binding fragment thereof, further comprising:

(a) a LC comprising an amino acid sequence set forth as SEQ ID NO: 31; and

(b) a light chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 1, a light chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 2, and a light chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 3.

20. The monoclonal antibody of any one of claims 14-19 or an antigen-binding fragment thereof, further comprising:

- (a) a VL comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 7; and
- (b) a VH comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 8.
21. The monoclonal antibody of any one of claims 14-20 or an antigen-binding fragment thereof, further comprising:
- (a) a VL comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 7; and
- (b) a VH comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 8.
22. The monoclonal antibody of any one of claims 14-21 or an antigen-binding fragment thereof, further comprising:
- (a) a VL comprising an amino acid sequence set forth as SEQ ID NO: 7; and
- (b) a VH comprising an amino acid sequence set forth as SEQ ID NO: 8.
23. A monoclonal antibody or an antigen-binding fragment thereof, comprising:
- (a) a HC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 32; and
- (b) a heavy chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 4, a heavy chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 5, and a heavy chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 6.
24. The monoclonal antibody of claim 23 or an antigen-binding fragment thereof, comprising a HC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 32.
25. The monoclonal antibody of claim 23 or 24 or an antigen-binding fragment thereof, comprising a HC comprising the amino acid sequence set forth as SEQ ID NO: 32.
26. The monoclonal antibody of any one of claims 23-25 or an antigen-binding fragment thereof, further comprising:

- (a) a LC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 31; and
- (b) a light chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 1, a light chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 2, and a light chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 3.

27. The monoclonal antibody of any one of claims 23-26 or an antigen-binding fragment thereof, further comprising:

- (a) a LC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 31; and
- (b) a light chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 1, a light chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 2, and a light chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 3.

28. The monoclonal antibody of any one of claims 23-27 or an antigen-binding fragment thereof, further comprising:

- (a) a LC comprising an amino acid sequence set forth as SEQ ID NO: 31; and
- (b) a light chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 1, a light chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 2, and a light chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 3.

29. The monoclonal antibody of any one of claims 23-28 or an antigen-binding fragment thereof, further comprising:

- (a) a VL comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 7; and
- (b) a VH comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 8.

30. The monoclonal antibody of any one of claims 23-29 or an antigen-binding fragment thereof, further comprising:

- (a) a VL comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 7; and

- (b) a VH comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 8.
31. The monoclonal antibody of any one of claims 23-30 or an antigen-binding fragment thereof, further comprising:
- (a) a VL comprising an amino acid sequence set forth as SEQ ID NO: 7; and
(b) a VH comprising an amino acid sequence set forth as SEQ ID NO: 8.
32. A monoclonal antibody or an antigen-binding fragment thereof, comprising:
- (a) a HC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 33; and
(b) a heavy chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 4, a heavy chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 5, and a heavy chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 6.
33. The monoclonal antibody of claim 32 or an antigen-binding fragment thereof, comprising a HC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 33.
34. The monoclonal antibody of claim 32 or 33 or an antigen-binding fragment thereof, comprising a HC comprising the amino acid sequence set forth as SEQ ID NO: 33.
35. The monoclonal antibody of any one of claims 32-34 or an antigen-binding fragment thereof, further comprising:
- (a) a LC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 31; and
(b) a light chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 1, a light chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 2, and a light chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 3.
36. The monoclonal antibody of any one of claims 32-35 or an antigen-binding fragment thereof, further comprising:

(a) a LC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 31; and

(b) a light chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 1, a light chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 2, and a light chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 3.

37. The monoclonal antibody of any one of claims 32-36 or an antigen-binding fragment thereof, further comprising:

(a) a LC comprising an amino acid sequence set forth as SEQ ID NO: 31; and

(b) a light chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 1, a light chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 2, and a light chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 3.

38. The monoclonal antibody of any one of claims 32-37 or an antigen-binding fragment thereof, further comprising:

(a) a VL comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 7; and

(b) a VH comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 8.

39. The monoclonal antibody of any one of claims 32-38 or an antigen-binding fragment thereof, further comprising:

(a) a VL comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 7; and

(b) a VH comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 8.

40. The monoclonal antibody of any one of claims 32-39 or an antigen-binding fragment thereof, further comprising:

(a) a VL comprising an amino acid sequence set forth as SEQ ID NO: 7; and

(b) a VH comprising an amino acid sequence set forth as SEQ ID NO: 8.

41. The monoclonal antibody of any one of claims 1-40 or an antigen-binding fragment thereof, wherein the monoclonal antibody or antigen-binding fragment thereof selectively binds to at least two complexes comprising a HLA-E and a neoantigen selected from the group consisting of SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLLL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLLL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPPRTLLL), or SEQ ID NO: 29 (VTAPRTVLL).

42. A bispecific T cell engager antibody, comprising:

(a) a first antigen-binding arm, comprising:

(i) a light chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 1, a light chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 2, and a light chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 3; and

(ii) a heavy chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 4, a heavy chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 5, and a heavy chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 6; and

(b) a second antigen-binding arm that specifically binds to a CD3 protein associated with a T cell receptor (TCR).

43. The bispecific T cell engager of claim 42, comprising a second antigen-binding arm comprising:

(a) a light chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 9, a light chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 10, and a light chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 11; and

(b) a heavy chain CDR1 having the amino acid sequence set forth as SEQ ID NO: 12, a heavy chain CDR2 having the amino acid sequence set forth as SEQ ID NO: 13, and a heavy chain CDR3 having the amino acid sequence set forth as SEQ ID NO: 14.

44. The bispecific T cell engager of claim 42 or 43, comprising a first antigen-binding arm comprising:

(a) a VL comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 7; and

(b) a VH comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 8.

45. The bispecific T cell engager of any one of claims 42-44, comprising a first antigen-binding arm comprising:

(a) a VL comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 7; and

(b) a VH comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 8.

46. The bispecific T cell engager of any one of claims 42-45, comprising a first antigen-binding arm comprising:

(a) a VL comprising an amino acid sequence set forth as SEQ ID NO: 7; and

(b) a VH comprising an amino acid sequence set forth as SEQ ID NO: 8.

47. The bispecific T cell engager of any one of claims 42-46, comprising a first antigen-binding arm comprising:

(a) a HC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 30; and

(b) a LC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 31.

48. The bispecific T cell engager of any one of claims 42-47, comprising a first antigen-binding arm comprising:

(a) a HC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 30; and

(b) a LC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 31.

49. The bispecific T cell engager of any one of claims 42-48, comprising a first antigen-binding arm comprising:

- (a) a HC comprising an amino acid sequence set forth as SEQ ID NO: 30; and
- (b) a LC comprising an amino acid sequence set forth as SEQ ID NO: 31.

50. The bispecific T cell engager of any one of claims 42-46, comprising a first antigen-binding arm comprising:

- (a) a HC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 32; and
- (b) a LC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 31.

51. The bispecific T cell engager of any one of claims 42-46 or 50, comprising a first antigen-binding arm comprising:

- (a) a HC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 32; and
- (b) a LC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 31.

52. The bispecific T cell engager of any one of claims 42-46, 50, or 51, comprising a first antigen-binding arm comprising:

- (a) a HC comprising an amino acid sequence set forth as SEQ ID NO: 32; and
- (b) a LC comprising an amino acid sequence set forth as SEQ ID NO: 31.

53. The bispecific T cell engager of any one of claims 42-46, comprising a first antigen-binding arm comprising:

- (a) a HC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 33; and
- (b) a LC comprising an amino acid sequence at least 95% identical to the amino acid sequence set forth as SEQ ID NO: 31.

54. The bispecific T cell engager of any one of claims 42-46 or 53, comprising a first antigen-binding arm comprising:

(a) a HC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 33; and

(b) a LC comprising an amino acid sequence at least 99% identical to the amino acid sequence set forth as SEQ ID NO: 31.

55. The bispecific T cell engager of any one of claims 42-46, 53, or 54, comprising a first antigen-binding arm comprising:

(a) a HC comprising an amino acid sequence set forth as SEQ ID NO: 33; and

(b) a LC comprising an amino acid sequence set forth as SEQ ID NO: 31.

56. The bispecific T cell engager of any one of claims 42-55, comprising a second antigen-binding arm comprising:

(a) a VL comprising an amino acid sequence set forth as SEQ ID NO: 15; and

(b) a VH comprising an amino acid sequence set forth as SEQ ID NO: 16.

57. The bispecific T cell engager of any one of claims 42-56, wherein the bispecific T cell engager selectively binds to at least two complexes comprising a HLA-E and a neoantigen selected from the group consisting of SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLLL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLLL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPPTLLL), or SEQ ID NO: 29 (VTAPRTVLL).

163.58. A pharmaceutical composition comprising: ~~(a) a the~~ monoclonal antibody of any one of claims 1-41 or an antigen-binding fragment thereof ~~according to any one of claims 1-140,~~ or ~~a-the~~ bispecific T cell engager ~~antibody or an antigen-binding fragment thereof according to~~ any one of claims ~~141-142-162-57;~~ , and ~~(b)~~ a pharmaceutically acceptable carrier or excipient.

59. A pharmaceutical composition for use in treating a HLA-E expressing cancer, comprising the monoclonal antibody of any one of claims 1-41 or an antigen-binding fragment thereof, or the bispecific T cell engager of any one of claims 42-57, and a pharmaceutically acceptable carrier or excipient.

60. The pharmaceutical composition for use according to claim 59, wherein the HLA-E-expressing cancer is breast cancer, kidney cancer, lung cancer, ovarian cancer, colorectal cancer, pancreatic cancer, choriocarcinoma, non-small cell lung carcinoma (NSCLC), gastric cancer, cervical cancer, head and neck cancer, leukemia, lymphoma, myeloma, multiple myeloma (MM), acute myeloid leukemia (AML), myelodysplastic syndrome, a B-cell malignancy, and mantel cell lymphoma.

61. Use of a monoclonal antibody of any one of claims 1-41 or an antigen-binding fragment thereof, or a bispecific T cell engager of any one of claims 42-57 in the preparation of a medicament for treating a HLA-E expressing cancer in an individual in need thereof.

62. The use according to claim 61, wherein the HLA-E-expressing cancer is breast cancer, kidney cancer, lung cancer, ovarian cancer, colorectal cancer, pancreatic cancer, choriocarcinoma, non-small cell lung carcinoma (NSCLC), gastric cancer, cervical cancer, head and neck cancer, leukemia, lymphoma, myeloma, multiple myeloma (MM), acute myeloid leukemia (AML), myelodysplastic syndrome, a B-cell malignancy, and mantel cell lymphoma.

~~164.—A method of treating cancer in an individual in need thereof, comprising administering to the individual an effective amount of a monoclonal antibody or an antigen-binding fragment thereof comprising a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3.~~

~~165.—A method of treating cancer in an individual in need thereof, comprising administering to the individual an effective amount of a monoclonal antibody or an antigen-binding fragment thereof comprising a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6.~~

~~166.—The method of claim 164 or claim 165, wherein the monoclonal antibody or antigen-binding fragment thereof comprises (a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; and (b) a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6.~~

~~167.—The method of any one of claims 164-166, wherein the monoclonal antibody or antigen-binding fragment thereof comprises (a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 90% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; and (b) a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 90% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6.~~

~~168.—The method of any one of claims 164-167, wherein the monoclonal antibody or antigen-binding fragment thereof comprises (a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 95% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; and (b) a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 95% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6.~~

~~169.—The method of any one of claims 164-168, wherein the monoclonal antibody or antigen-binding fragment thereof comprises (a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 99% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; and (b) a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 99% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6.~~

~~170.—The method of any one of claims 164-169, wherein the monoclonal antibody or antigen-binding fragment thereof comprises (a) a light chain complementarity determining region (CDR) having an amino acid sequence 100% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; and (b) a heavy chain complementarity determining region (CDR) having an amino acid sequence 100% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6.~~

~~171.—The method of any one of claims 164-170, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7.~~

~~172.—The method of any one of claims 164-171, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8.~~

~~173.—The method of any one of claims 164-172, wherein the monoclonal antibody or antigen-binding fragment thereof selectively binds to a complex comprising an HLA-E and a neoantigen.~~

~~174.—The method of any one of claims 164-173, wherein the monoclonal antibody or antigen-binding fragment thereof does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone.~~

~~175.—The method of any one of claims 164-174, wherein the neoantigen is expressed by an antigen-processing machinery (APM)-proficient cell.~~

~~176.—The method of claim 175, wherein the neoantigen is expressed by a TAP1/2-proficient cell.~~

~~177.—The method of any one of claims 164-176, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLLL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLLL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPPTLLL), or SEQ ID NO: 29 (VTAPRTVLL).~~

~~178.—The method of any one of claims 164-177, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL).~~

~~179.—The method of any one of claims 164-178, wherein the HLA-E is HLA-E*0101 or HLA-E*0103.~~

~~180.—The method of claim 179, wherein the antibody selectively binds to the complex comprising:~~

- ~~——(a) the HLA-E*0101 and the neoantigen;~~
- ~~——(b) the HLA-E*0103 and the neoantigen; or~~
- ~~——(c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen.~~

~~181.—The method of any one of claims 164-180, wherein the monoclonal antibody or antigen-binding fragment thereof is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody.~~

~~182.—The method of any one of claims 164-181, wherein the monoclonal antibody or antigen-binding fragment thereof is a TCR-like antibody.~~

~~183.—The method of any one of claims 164-182, wherein the monoclonal antibody or antigen-binding fragment thereof is a multispecific antibody.~~

~~184.—The method of any one of claims 164-183, wherein the monoclonal antibody or antigen-binding fragment thereof is a bispecific antibody.~~

~~185.—The method of any one of claims 164-184, wherein the monoclonal antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE).~~

~~186.—The method of claim 185, wherein the BiTE binds to a CD3 protein associated with a T cell receptor (TCR).~~

~~187.—The method of any one of claims 185-186, wherein the BiTE further comprises a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 9-11.~~

~~188.—The method of any one of claims 185-187, wherein the BiTE further comprises a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 12-14.~~

~~189.—The method of any one of claims 185-188, wherein the BiTE further comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15.~~

~~190.—The method of any one of claims 185-189, wherein the BiTE further comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16.~~

~~191.—The method of any one of claims 164-190, wherein the monoclonal antibody or antigen-binding fragment thereof is a multifunctional antibody.~~

~~192.—The method of any one of claims 164-191, wherein the monoclonal antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety.~~

~~193.—The method of any one of claims 164-192, wherein the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell.~~

194.—~~The method of claim 193, wherein the immune response comprises activation of T cells.~~

195.—~~The method of claim 194, wherein the T cell is a CD8+ T cell.~~

196.—~~The method of claim 193, wherein the immune response comprises activation of cytotoxic T cells (CTLs).~~

197.—~~The method of any one of claims 164-193, wherein the cancer is breast cancer, kidney cancer, lung cancer, ovarian cancer, colorectal cancer, pancreatic cancer, choriocarcinoma, non-small cell lung carcinoma (NSCLC), gastric cancer, cervical cancer, or head and neck cancer.~~

198.—~~The method of any one of claims 164-193, wherein the cancer is a leukemia, a lymphoma or a myeloma.~~

199.—~~The method of any one of claims 164-193, wherein the cancer is multiple myeloma (MM), acute myeloid leukemia (AML), or myelodysplastic syndrome.~~

200.—~~The method of any one of claims 164-193, wherein the cancer is a B-cell malignancy.~~

201.—~~The method of any one of claims 164-193, wherein the cancer is mantle cell lymphoma.~~

202.—~~A method of treating cancer in an individual in need thereof, comprising administering to the individual an effective amount of a bispecific antibody or an antigen-binding fragment thereof, comprising:~~

———~~(a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; or a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6; and~~

~~(b) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 9-11; or a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 12-14.~~

203.—~~The method of claim 201, wherein the bispecific antibody comprises: ———~~

~~——(a) a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7; or a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8; and~~

~~(b) a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15; or a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16.~~

204. —A method of treating cancer in an individual in need thereof, comprising administering to the individual an effective amount of a bispecific antibody or an antigen-binding fragment thereof, comprising:

~~——(a) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 1-3; and a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 4-6; and~~

~~(b) a light chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 9-11; and a heavy chain complementarity determining region (CDR) having an amino acid sequence at least 80% identical to at least one of the amino acid sequences set forth as SEQ ID NOS: 12-14.~~

205. —The method of claim 204, wherein the bispecific antibody comprises: —

~~——(a) a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 7; and a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 8; and~~

~~(b) a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15; and a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16.~~

~~206.—The method of any one of claims 201-205, wherein the bispecific antibody or antigen-binding fragment thereof selectively binds to a complex comprising an HLA-E and a neoantigen.~~

~~207.—The method of any one of claims 201-206, wherein the bispecific antibody or antigen-binding fragment thereof does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone.~~

~~208.—The method of any one of claims 201-207, wherein the neoantigen is expressed by an antigen processing machinery (APM)-proficient cell.~~

~~209.—The method of claim 208, wherein the neoantigen is expressed by a TAP1/2-proficient cell.~~

~~210.—The method of any one of claims 201-209, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLILL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLILL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPPRTLILL), or SEQ ID NO: 29 (VTAPRTVLL).~~

~~211.—The method of any one of claims 201-210, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL).~~

~~212.—The method of any one of claims 201-211, wherein the HLA-E is HLA-E*0101 or HLA-E*0103.~~

~~213.—The method of claim 212, wherein the bispecific antibody selectively binds to the complex comprising:~~

- ~~——(a) the HLA-E*0101 and the neoantigen;~~
- ~~——(b) the HLA-E*0103 and the neoantigen; or~~
- ~~——(c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen.~~

~~214.—The method of any one of claims 201-213, wherein the bispecific antibody or antigen-binding fragment thereof is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody.~~

215.—The method of any one of claims 201-214, wherein the bispecific antibody or antigen-binding fragment thereof is a TCR-like antibody.

216.—The method of any one of claims 201-215, wherein the bispecific antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE).

217.—The method of claim 216, wherein the BiTE binds to a CD3 protein associated with a T cell receptor (TCR).

218.—The method of any one of claims 201-217, wherein the bispecific antibody or antigen-binding fragment thereof is a multifunctional antibody.

219.—The method of any one of claims 201-218, wherein the bispecific antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety.

220.—The method of any one of claims 201-219, wherein the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell.

221.—The method of claim 220, wherein the immune response comprises activation of T cells.

222.—The method of claim 221, wherein the T cell is a CD8⁺ T cell.

223.—The method of claim 220, wherein the immune response comprises activation of cytotoxic T cells (CTLs).

224.—The method of any one of claims 201-223, wherein the bispecific antibody is administered at a therapeutically effective amount.

225.—The method of any one of claims 201-224, wherein the cancer is breast cancer, kidney cancer, lung cancer, ovarian cancer, colorectal cancer, pancreatic cancer, choriocarcinoma, non-small cell lung carcinoma (NSCLC), gastric cancer, cervical cancer, or head and neck cancer.

226.—The method of any one of claims 201-224, wherein the cancer is a leukemia, a lymphoma or a myeloma.

227.—The method of any one of claims 201-224, wherein the cancer is multiple myeloma (MM), acute myeloid leukemia (AML), or myelodysplastic syndrome.

228.—The method of any one of claims 201-224, wherein the cancer is a B-cell malignancy.

229.—~~The method of any one of claims 201-224, wherein the cancer is mantle cell lymphoma.~~

230.—~~A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain (LC) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 31.~~

231.—~~A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain (LC) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 31.~~

232.—~~A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain (LC) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 31.~~

233.—~~A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain (LC) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 31.~~

234.—~~A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain (LC) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 31.~~

235.—~~The monoclonal antibody of any one of claims 230-234, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 30.~~

236.—~~The monoclonal antibody of any one of claims 230-234, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 30.~~

237.—~~The monoclonal antibody of any one of claims 230-234, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 30.~~

238.—~~The monoclonal antibody of any one of claims 230-234, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 30.~~

239.—~~The monoclonal antibody of any one of claims 230-234, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 30.~~

240.—~~The monoclonal antibody of any one of claims 230-234, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 32.~~

241.—~~The monoclonal antibody of any one of claims 230-234, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 32.~~

242.—~~The monoclonal antibody of any one of claims 230-234, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 32.~~

243.—~~The monoclonal antibody of any one of claims 230-234, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 32.~~

244.—~~The monoclonal antibody of any one of claims 230-234, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 32.~~

245.—~~The monoclonal antibody of any one of claims 230-234, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 33.~~

246.—~~The monoclonal antibody of any one of claims 230-234, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 33.~~

247.—~~The monoclonal antibody of any one of claims 230-234, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 33.~~

248.—~~The monoclonal antibody of any one of claims 230-234, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 33.~~

249.—~~The monoclonal antibody of any one of claims 230-234, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 33.~~

250.—~~A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain (LC) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 35.~~

251.—~~A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain (LC) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 35.~~

252.—~~A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain (LC) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 35.~~

253.—~~A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain (LC) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 35.~~

254.—~~A monoclonal antibody or an antigen-binding fragment thereof, comprising a light chain (LC) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 35.~~

255.—~~The monoclonal antibody of any one of claims 250-254, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 34.~~

256.—~~The monoclonal antibody of any one of claims 250-254, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 90% identical to an amino acid sequence set forth as SEQ ID NO: 34.~~

257.—~~The monoclonal antibody of any one of claims 250-254, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 95% identical to an amino acid sequence set forth as SEQ ID NO: 34.~~

~~258.—The monoclonal antibody of any one of claims 250-254, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence at least 99% identical to an amino acid sequence set forth as SEQ ID NO: 34.~~

~~259.—The monoclonal antibody of any one of claims 250-254, wherein the monoclonal antibody or antigen-binding fragment thereof comprises a heavy chain (HC) comprising an amino acid sequence 100% identical to an amino acid sequence set forth as SEQ ID NO: 34.~~

~~260.—The monoclonal antibody of any one of claims 230-259, wherein the monoclonal antibody or antigen-binding fragment thereof selectively binds to a complex comprising an HLA-E and a neoantigen.~~

~~261.—The monoclonal antibody of any one of claims 230-260, wherein the monoclonal antibody or antigen-binding fragment thereof does not have a binding affinity to (i) the HLA-E alone; or (ii) the neoantigen alone.~~

~~262.—The monoclonal antibody of any one of claims 230-261, wherein the neoantigen is expressed by an antigen processing machinery (APM) proficient cell.~~

~~263.—The monoclonal antibody of claim 262, wherein the neoantigen is expressed by a TAP1/2-proficient cell.~~

~~264.—The monoclonal antibody of any one of claims 230-263, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 20 (VTAPRTLILL), SEQ ID NO: 21 (IMAPRTLVL), SEQ ID NO: 23 (VMAPQALLL), SEQ ID NO: 24 (VMAPRALLL), SEQ ID NO: 25 (VMAPRTLILL), SEQ ID NO: 26 (VMAPRTLTL), SEQ ID NO: 27 (VMAPRTVLL), SEQ ID NO: 28 (VMPPTLILL), or SEQ ID NO: 29 (VTAPRTVLL).~~

~~265.—The monoclonal antibody of any one of claims 230-264, wherein the neoantigen comprises, consists essentially of, or consists of a sequence according to SEQ ID NO: 17 (VMAPRTLIL), SEQ ID NO: 18 (VMAPRTLFL), SEQ ID NO: 19 (VMAPRTLVL), SEQ ID NO: 26 (VMAPRTLTL), or SEQ ID NO: 27 (VMAPRTVLL).~~

~~266.—The monoclonal antibody of any one of claims 230-265, wherein the HLA-E is HLA-E*0101 or HLA-E*0103.~~

~~267.—The monoclonal antibody of claim 266, wherein the antibody selectively binds to the complex comprising:~~

- ~~—— (a) the HLA-E*0101 and the neoantigen;~~
- ~~—— (b) the HLA-E*0103 and the neoantigen; or~~
- ~~—— (c) the HLA-E*0101 and the neoantigen, and the HLA-E*0103 and the neoantigen.~~

~~268. — The monoclonal antibody of any one of claims 230-267, wherein the monoclonal antibody or antigen-binding fragment thereof is a murine antibody, a chimeric antibody, a camelid antibody, a humanized antibody, or a human antibody.~~

~~269. — The monoclonal antibody of any one of claims 230-268, wherein the monoclonal antibody or antigen-binding fragment thereof is a TCR-like antibody.~~

~~270. — The monoclonal antibody of any one of claims 230-269, wherein the monoclonal antibody or antigen-binding fragment thereof is a multispecific antibody.~~

~~271. — The monoclonal antibody of any one of claims 230-270, wherein the monoclonal antibody or antigen-binding fragment thereof is a bispecific antibody.~~

~~272. — The monoclonal antibody of any one of claims 230-271, wherein the monoclonal antibody or antigen-binding fragment thereof is a bispecific T cell engager (BiTE).~~

~~273. — The monoclonal antibody of claim 272, wherein the BiTE binds to a CD3 protein associated with a T cell receptor (TCR).~~

~~274. — The monoclonal antibody of any one of claims 272-273, wherein the BiTE further comprises a light chain variable domain (VL) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 15.~~

~~275. — The monoclonal antibody of any one of claims 272-273, wherein the BiTE further comprises a heavy chain variable domain (VH) comprising an amino acid sequence at least 80% identical to an amino acid sequence set forth as SEQ ID NO: 16.~~

~~276. — The monoclonal antibody of any one of claims 230-275, wherein the monoclonal antibody or antigen-binding fragment thereof is a multifunctional antibody.~~

~~277. — The monoclonal antibody of any one of claims 230-276, wherein the monoclonal antibody or antigen-binding fragment thereof antibody further comprises a conjugated therapeutic moiety.~~

~~278.—The monoclonal antibody of any one of claims 230-277, wherein the selective binding of the antibody to the complex comprising the HLA-E and the neoantigen induces an immune response in a cell.~~

~~279.—The monoclonal antibody of claim 278, wherein the immune response comprises activation of T cells.~~

~~280.—The monoclonal antibody of claim 279, wherein the T cell is a CD8+ T cell.~~

~~281.—The monoclonal antibody of claim 280, wherein the immune response comprises activation of cytotoxic T cells (CTLs).~~

~~282.—The monoclonal antibody of claim 281, wherein the cell is a cancer cell.~~