moiety and a T-cell activation moiety, and wherein the antigen recognition moiety is directed against B-cell Maturation Antigen (BCMA), and wherein a ~~host~~ T cell or natural killer (NK) cell expressing the CAR secretes interferon-gamma in response to co-culture with a BCMA-positive target cell.

[0007b] In another aspect, there is provided an isolated or purified CAR encoded by the nucleic acid sequence as described herein.

[0007c] In yet another aspect, there is provided a vector comprising the isolated or purified nucleic sequence as described herein.

[0007d] In yet another aspect, there is provided an isolated host cell which expresses the nucleic acid sequence as described herein.

[0007e] In yet another aspect, there is provided a method of destroying cancer cells, which method comprises contacting cancer cells that express BCMA with the isolated or purified nucleic acid sequence as described herein, whereby the CAR is produced and binds to BCMA on the cancer cells and the cancer cells are destroyed, wherein the cancer cells are *in vitro*.

[0007f] In yet another aspect, there is provided a method of destroying cancer cells, which method comprises contacting cancer cells that express BCMA with the vector of the present disclosure, whereby the CAR is produced and binds to BCMA on the cancer cells and the cancer cells are destroyed, wherein the cancer cells are *in vitro*.

[0007g] In yet another aspect, there is provided a method of destroying cancer cells, which method comprises contacting cancer cells that express BCMA with one or more of the isolated T-cells of the present disclosure, whereby the CAR is produced and binds to BCMA on the cancer cells and the cancer cells are destroyed, wherein the cancer cells are *in vitro*.

[0007h] In yet another aspect, there is provided a method of destroying cancer cells, which method comprises contacting cancer cells that express BCMA with one or more of the isolated NK cells of the present disclosure, whereby the CAR is produced and binds to BCMA on the cancer cells and the cancer cells are destroyed, wherein the cancer cells are *in vitro*.

[0007i] In yet another aspect, there is provided a use of the nucleic acid sequence as described herein, the CAR as described herein, the vector as described herein, or the host cell as described herein, in the manufacture of a medicament for the destruction of BCMA-expressing cancer cells.

CLAIMS:

1. An isolated or purified nucleic acid sequence encoding a chimeric antigen receptor (CAR), wherein the CAR comprises an antigen recognition moiety and a T-cell activation moiety, and wherein the antigen recognition moiety is directed against B-cell Maturation Antigen (BCMA), and wherein a ~~host~~ T cell or natural killer (NK) cell expressing the CAR secretes interferon-gamma in response to co-culture with a BCMA-positive target cell.

2. The isolated or purified nucleic acid sequence of claim 1, wherein the antigen recognition moiety comprises a monoclonal antibody directed against BCMA, or an antigen-binding portion thereof.

3. The isolated or purified nucleic acid sequence of claim 2, wherein the antigen recognition moiety comprises a variable region of a monoclonal antibody directed against BCMA.

4. The isolated or purified nucleic acid sequence of any one of claims 1-3, wherein the T-cell activation moiety comprises a T-cell signaling domain of any one of the following proteins: a human CD8-alpha protein, a human CD28 protein, a human CD3-zeta protein, a human FcRγ protein, a CD27 protein, an OX40 protein, a human 4-1BB protein, modified versions of any of the foregoing, or any combination of the foregoing.

5. The isolated or purified nucleic acid sequence of any one of claims 1-4, wherein the antigen recognition moiety comprises the (i) heavy chain complementarity determining region (CDR)1, (ii) heavy chain CDR2, (iii) heavy chain CDR3, (iv) light chain CDR1, (v) light chain CDR2, and (vi) light chain CDR3 of an amino acid sequence selected from the group consisting of SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10, SEQ ID NO: 11, and SEQ ID NO: 12.

6. The isolated or purified nucleic acid sequence of any one of claims 1-5, wherein the antigen recognition moiety comprises the (i) heavy chain variable region and (ii) light chain variable region of an amino acid sequence selected from the group consisting of SEQ ID NO: 4,