WHAT IS CLAIMED IS:

1. A composition comprising an antibody or antibody fragment that immunospecifically binds to MHC class I polypeptide-related sequence A (MICA), wherein the antibody or antibody fragment comprises a heavy chain variable region (V_H) and a light chain variable region (V_L), and wherein

~~(a) the V_H complementarity determining region (CDR) 1 comprises the amino acid sequence set forth in SEQ ID NO: 153, the V_H CDR2 comprises the amino acid sequence set forth in SEQ ID NO: 156, the V_H CDR3 comprises the amino acid sequence set forth in SEQ ID NO:158, he V_L CDR1 comprises the amino acid sequence set forth in SEQ ID NO: 160, the V_L CDR2 comprises the amino acid sequence set forth in SEQ ID NO: 162 and the V_L CDR3 comprises the amino acid sequence set forth in SEQ ID NO:164;~~

~~(b) the V_H complementarity determining region (CDR) 1 comprises the amino acid sequence set forth in SEQ ID NO: 190, the V_H CDR2 comprises the amino acid sequence set forth in SEQ ID NO: 192, the V_H CDR3 comprises the amino acid sequence set forth in SEQ ID NO: 194, the V_L CDR1 comprises the amino acid sequence set forth in SEQ ID NO: 197, the V_L CDR2 comprises the amino acid sequence set forth in SEQ ID NO: 199 and the V_L CDR3 comprises the amino acid sequence set forth in SEQ ID NO:201.~~

~~(c)~~ the V_H complementarity determining region (CDR) 1 comprises the amino acid sequence set forth in SEQ ID NO: 208, the V_H CDR2 comprises the amino acid sequence set forth in SEQ ID NO: 210, the V_H CDR3 comprises the amino acid sequence set forth in SEQ ID NO:212, the V_L CDR1 comprises the amino acid sequence set forth in SEQ ID NO: 215, the V_L CDR2 comprises the amino acid sequence set forth in SEQ ID NO: 217 and the V_L CDR3 comprises the amino acid sequence set forth in SEQ ID NO:219.

2. The composition of claim 1, wherein the antibody or antibody fragment comprises~~:~~

~~(a) a V_H comprising an amino acid sequence with at least 95% identity to the amino acid sequence set forth in SEQ ID NO: 149, and a V_L comprising an amino acid sequence with at least 95% identity to the amino acid sequence set forth in SEQ ID NO: 151;~~

~~(b) a V_H comprising an amino acid sequence with at least 95% identity to the amino acid sequence set forth in SEQ ID NO: 186, and a V_L comprising an amino acid sequence with at least 95% identity to the amino acid sequence set forth in SEQ ID NO: 188; or~~

~~(c)~~ a V_H comprising an amino acid sequence with at least 95% identity to the amino acid sequence set forth in SEQ ID NO: 204, and a V_L comprising an amino acid sequence with at least 95% identity to the amino acid sequence set forth in SEQ ID NO: 206.

3. The composition of claim 1, wherein:

~~(i) the amino acid sequence of the V_H is at least 98% identical to the amino acid sequence set forth in SEQ ID NO: 149, and the amino acid sequence of the V_L is at least 98% identical to the amino acid sequence set forth in SEQ ID NO: 151;~~

~~(ii) the amino acid sequence of the V_H is at least 98% identical to the amino acid sequence set forth in SEQ ID NO: 186, and the amino acid sequence of the V_L is at least 98% identical to the amino acid sequence set forth in SEQ ID NO: 188; or~~

~~(iii)~~ the amino acid sequence of the V_H is at least 98% identical to the amino acid sequence set forth in SEQ ID NO: 204, and the amino acid sequence of the V_L is at least 98% identical to the amino acid sequence set forth in SEQ ID NO: 206.

4. The composition of claim 1, wherein:

~~(i) the amino acid sequence of the V_H is at least 99% identical to the amino acid sequence set forth in SEQ ID NO: 149, and the amino acid sequence of the V_L is at least 99% identical to the amino acid sequence set forth in SEQ ID NO: 151;~~

~~(ii) the amino acid sequence of the V_H is at least 99% identical to the amino acid sequence set forth in SEQ ID NO: 186, and the amino acid sequence of the V_L is at least 99% identical to the amino acid sequence set forth in SEQ ID NO: 188; or~~

~~(iii)~~ the amino acid sequence of the V_H is at least 99% identical to the amino acid sequence set forth in SEQ ID NO: 204, and the amino acid sequence of the V_L is at least 99% identical to the amino acid sequence set forth in SEQ ID NO: 206.

5. A composition comprising an antibody or antibody fragment that immunospecifically binds to MHC class I polypeptide-related sequence A (MICA), wherein the antibody or antibody fragment comprises:

~~(i) a V_H comprising the amino acid sequence set forth in SEQ ID NO: 149, and a V_L comprising the amino acid sequence set forth in SEQ ID NO: 151;~~

~~(ii) a V_H comprising the amino acid sequence set forth in SEQ ID NO: 186, and a V_L comprising the amino acid sequence set forth in SEQ ID NO: 188; or~~

~~(iii) a~~ V_H comprising the amino acid sequence set forth in SEQ ID NO: 204, and a V_L comprising the amino acid sequence set forth in SEQ ID NO: 206.

6. The composition of any one of claims 1-5, further comprising an anti-cancer therapeutic.

7. The composition of any one of claims 1-6, formulated as a pharmaceutical composition.

8. The composition of any one of claims 1-7, further comprising an histone deacetylase inhibitor (HDAC) selected from the group consisting of suberoylanilide hydroxamic acid (SAHA), trichostatin A (TSA), LAQ824, panobinostat (LBH589), belinostat (PXD101), ITF2357, romidepsin (FK228), entinostat (SNDX-275/MS-275), MGCD0103, valproic acid, phenyl butyrate, AN-9, CHR-3996, and CHR-2845.

9. The composition of any of claims 1-8, further comprising a proteasome inhibitor selected from the group consisting of bortezomib, NPI-0052, carfilzomib (PR-171), CEP 18770, and MLN9708.

10. Use of a composition of any one of claims 1-9 in the manufacture of a medicament for treating cancer in a subject.