What is claimed:

1. An antibody or antigen binding fragment thereof that binds ACVR2A, wherein the affinity of the antibody or antigen binding fragment to ACVR2A is at least 10 fold of that to ACVR2B, and wherein optionally the antibody or antigen binding fragment comprises:

(i) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 1, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 2;

(ii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 3, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 2;

(iii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 4, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 2;

(iv) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 5, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 6;

(v) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 6;

(vi) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 8, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 6;

(vii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 9, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 2;

(viii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 10, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 2;

(ix) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 11, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 2;

(x) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 12, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 2;

(xi) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 13, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 2;

(xii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 14;

(xiii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 15;

(xiv) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 2;

(xv) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 12, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 16;

(xvi) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 17;

(xvii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 18;

(xviii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 19;

(xix) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 20;

(xx) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 12, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 21;

(xxi) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 12, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 22;

(xxii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 23;

(xxiii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 24;

(xxiv) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 6;

(xxv) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 12, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 25;

(xxvi) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 12, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 26;

(xxvii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 27;

(xxviii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 28;

(xxix) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 29;

(xxx) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 11, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 30;

(xxxi) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 31;

(xxxii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 32;

(xxxiii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 7, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 33;

(xxxiv) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 9, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 34;

(xxxv) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 11, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 35;

(xxxvi) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 11, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 36;

(xxxvii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 11, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 37;

(xxxviii) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 12, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 38;

(xxxix) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 12, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 39;

(xxxx) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 12, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 40; or

(xxxxi) an HCDR1, an HCDR2, and an HCDR3 as set forth in SEQ ID NO: 9, and a LCDR1, a LCDR2, and a LCDR3 as set forth in SEQ ID NO: 41.

2. The antibody or antigen binding fragment of claim 1, wherein

(i) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 42, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(ii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3

comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(iii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 49, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(iv) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 50, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 52, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 53, or

(v) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 52, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 53, or

(vi) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 49, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 52, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 53, or

(vii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 54, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino

acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(viii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 55, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(ix) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 56, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(x) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 57, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xi) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 58, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 59, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xiii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 60, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xiv) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xv) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 57, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 61, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xvi) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 62, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xvii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 63, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xviii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3

comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 52, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 82, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xix) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 64, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xx) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 57, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 65, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxi) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 57, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 66, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 59, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 67, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxiii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 59, the LCDR2 comprises the amino

acid sequence of SEQ ID NO: 68, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxiv) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 52, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 46, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 53, or

(xxv) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 57, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 59, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 69, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxvi) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 57, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 59, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 70, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxvii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 71, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxviii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 72, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxix) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 73, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxx) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 56, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 74, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxxi) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 75, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxxii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 67, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxxiii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 48, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 51, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 68, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxxiv) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 54, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3

comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 76, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxxv) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 56, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 77, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxxvi) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 56, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 78, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxxvii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 56, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 79, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxxviii) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 57, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 69, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxxix) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 57, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino

acid sequence of SEQ ID NO: 80, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxxx) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 57, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 70, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47, or

(xxxxi) the HCDR1 comprises the amino acid sequence of SEQ ID NO: 54, the HCDR2 comprises the amino acid sequence of SEQ ID NO: 43, the HCDR3 comprises the amino acid sequence of SEQ ID NO: 44, the LCDR1 comprises the amino acid sequence of SEQ ID NO: 45, the LCDR2 comprises the amino acid sequence of SEQ ID NO: 81, and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 47.

3. The antibody or antigen binding fragment of claim 1 or 2, comprises:

(i) a VH comprising the amino acid sequence of SEQ ID NO: 1, and a VL comprising the amino acid sequence of SEQ ID NO: 2;

(ii) a VH comprising the amino acid sequence of SEQ ID NO: 3, and a VL comprising the amino acid sequence of SEQ ID NO: 2;

(iii) a VH comprising the amino acid sequence of SEQ ID NO: 4, and a VL comprising the amino acid sequence of SEQ ID NO: 2;

(iv) a VH comprising the amino acid sequence of SEQ ID NO: 5, and a VL comprising the amino acid sequence of SEQ ID NO: 6;

(v) a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 6;

(vi) a VH comprising the amino acid sequence of SEQ ID NO: 8, and a VL comprising the amino acid sequence of SEQ ID NO: 6;

(vii) a VH comprising the amino acid sequence of SEQ ID NO: 9, and a VL comprising the amino acid sequence of SEQ ID NO: 2;

(viii) a VH comprising the amino acid sequence of SEQ ID NO: 10, and a VL comprising the amino acid sequence of SEQ ID NO: 2;

(ix) a VH comprising the amino acid sequence of SEQ ID NO: 11, and a VL comprising the amino acid sequence of SEQ ID NO: 2;

(x) a VH comprising the amino acid sequence of SEQ ID NO: 12, and a VL comprising the amino acid sequence of SEQ ID NO: 2;

(xi) a VH comprising the amino acid sequence of SEQ ID NO: 13, and a VL comprising the amino acid sequence of SEQ ID NO: 2;

(xii) a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 14;

(xiii) a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 15;

(xiv) a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 2;

(xv) a VH comprising the amino acid sequence of SEQ ID NO: 12, and a VL comprising the amino acid sequence of SEQ ID NO: 16;

(xvi) a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 17;

(xvii) a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 18;

(xviii) a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 19;

(xix) a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 20;

(xx) a VH comprising the amino acid sequence of SEQ ID NO: 12, and a VL comprising the amino acid sequence of SEQ ID NO: 21;

(xxi) a VH comprising the amino acid sequence of SEQ ID NO: 12, and a VL comprising the amino acid sequence of SEQ ID NO: 22;

(xxii) a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 23;

(xxiii) a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 24;

(xxiv) a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 6;

(xxv) a VH comprising the amino acid sequence of SEQ ID NO: 12, and a VL comprising the amino acid sequence of SEQ ID NO: 25;

(xxvi) a VH comprising the amino acid sequence of SEQ ID NO: 12, and a VL comprising the amino acid sequence of SEQ ID NO: 26;

(xxvii) a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 27;

(xxviii)a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 28;

(xxix) a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 29;

(xxx) a VH comprising the amino acid sequence of SEQ ID NO: 11, and a VL comprising the amino acid sequence of SEQ ID NO: 30;

(xxxi) a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 31;

(xxxii) a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 32;

(xxxiii)a VH comprising the amino acid sequence of SEQ ID NO: 7, and a VL comprising the amino acid sequence of SEQ ID NO: 33;

(xxxiv)a VH comprising the amino acid sequence of SEQ ID NO: 9, and a VL comprising the amino acid sequence of SEQ ID NO: 34;

(xxxv) a VH comprising the amino acid sequence of SEQ ID NO: 11, and a VL comprising the amino acid sequence of SEQ ID NO: 35;

(xxxvi)a VH comprising the amino acid sequence of SEQ ID NO: 11, and a VL comprising the amino acid sequence of SEQ ID NO: 36;

(xxxvii) a VH comprising the amino acid sequence of SEQ ID NO: 11, and a VL comprising the amino acid sequence of SEQ ID NO: 37;

(xxxviii)a VH comprising the amino acid sequence of SEQ ID NO: 12, and a VL comprising the amino acid sequence of SEQ ID NO: 38;

(xxxix)a VH comprising the amino acid sequence of SEQ ID NO: 12, and a VL comprising the amino acid sequence of SEQ ID NO: 39;

(xxxx) a VH comprising the amino acid sequence of SEQ ID NO: 12, and a VL comprising the amino acid sequence of SEQ ID NO: 40; or

(xxxxi) a VH comprising the amino acid sequence of SEQ ID NO: 9, and a VL comprising the amino acid sequence of SEQ ID NO: 41.

4. The antibody or antigen binding fragment of any one of claims 1-3, wherein the antibody is an IgG.

5. The antibody of any one of claims 1-4, wherein the antibody is a humanized antibody.

6. The antibody of any one of claims 1-5, wherein the antibody or antigen binding fragment thereof is genetically fused or chemically conjugated to an agent.

7. A nucleic acid molecule encoding the antibody or antigen binding fragment of any one of claims 1-6.

8. A vector comprising the nucleic acid molecule of claim 7.

9. A host cell transformed with the vector of claim 8.

10. A composition comprising a therapeutically effective amount of the antibody or antigen binding fragment of any one of claims 1-6, the nucleic acid molecule of claim 7, or the vector of claim 8, and a pharmaceutically acceptable excipient.

11. Use of the composition of claim 10 in the manufacture of a medicament for treating a disease or disorder in a subject, wherein the medicament is to be administered to the subject.

12. The use of claim 11, wherein the disease or disorder is associated with ACVR2A.

13. The use of claim 11, wherein the disease or disorder is associated with ACVR2A ligands.

14. The use of claim 11, wherein the disease or disorder is associated with Activin A, GDF8 or GDF11.

15. The use of any one of claims 11-14, wherein the disease or disorder is a musculoskeletal disease or disorder.

16. The use of claim 15, wherein the musculoskeletal disease or disorder is selected from a group consisting of muscle atrophy, spinal muscular atrophy and cancer cachexia.

17. The use of any one of claims 11-14, wherein the disease or disorder is an age- related condition selected from a group consisting of sarcopenia, skin atrophy, muscle wasting, brain atrophy, atherosclerosis, arteriosclerosis, pulmonary emphysema, osteoporosis, osteoarthritis, immunologic incompetence, high blood pressure, dementia, Huntington's disease, Alzheimer's disease, cataracts, age-related macular degeneration, prostate cancer, stroke, diminished life expectancy, frailty, memory loss, wrinkles, impaired kidney function, and age-related hearing loss.

18. The use of any one of claims 11-14, wherein the disease or disorder is a metabolic disorder selected from a group consisting of Type II Diabetes, Metabolic Syndrome, hyperglycemia, NASH and obesity.

19. The use of any one of claims 11-14, wherein the disease or disorder is selected from a group consisting of acute and/or chronic renal disease or failure, liver fibrosis or cirrhosis, lung fibrosis, pulmonary arterial hypertension, kidney fibrosis, Parkinson's Disease, ALS, brain atrophy, dementia cachexia, bone-loss inducing cancers.

20. The use of any one of claims 11-14, wherein the disease or disorder is cancer selected from a group consisting of sarcoma, ovarian cancers, breast cancer, esophageal cancer, head and neck cancer, lung cancer, melanoma, multiple myeloma, colorectal cancer, hepatocellular carcinomas, pancreatic cancer, endometrial cancer and gastrointestinal cancers.

21. The use of any one of claims 11-14, wherein the disease or disorder is anemia.

22. The use of any one of claims 11 to 21, wherein a second agent is to be further administered to the subject.

23. The use of claim 22, wherein the second agent is an ACVR2B antagonist, wherein optionally the ACVR2B antagonist is an ACVR2B extracellular domain fusion protein, Luspatercept.

24. The use of claim 22, wherein the second agent is an anti-PD-Ll antibody.

25. The use of claim 22, wherein the second agent is a chemotherapy agent such as carboplatin.

26. A method for inhibiting or antagonizing ACVR2A in a cell, comprising contacting the cell with the composition of claim 10.

27. The composition of claim 10 for use in therapy.