CLAIMS

1. A radiolabeled antibody conjugate comprising an antibody or antigen binding fragment thereof that binds monomeric human program death ligand 1 (PD-L1), a chelating moiety, and a positron emitter, wherein:

(i) the antibody or antigen-binding fragment thereof comprises three CDRs within a HCVR of SEQ ID NO: 82; and three CDRs within a LCVR of SEQ ID NO: 90;

(ii) the chelating moiety comprises desferrioxamine; and

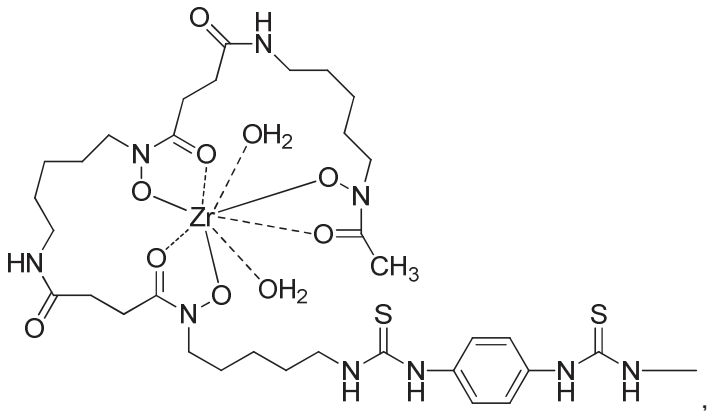
(iii) the positron emitter is ^{89}Zr.

2. The conjugate of claim 1, wherein said antibody or antigen-binding fragment thereof is covalently bonded to one or more moieties of formula (**A**):

$$-L-M_Z$$

(**A**)

wherein L is the chelating moiety; M is the positron emitter; and z, independently at each occurrence, is 0 or 1 wherein at least one of z is 1; and wherein -L-M is



wherein Zr is the positron emitter ^{89}Zr.

3. The compound of claim 1, wherein antibody or antigen-binding fragment thereof is covalently bonded to one, two, or three moieties of Formula (**A**).

4. The conjugate of claim 1, wherein the antibody comprises three heavy chain complementarity determining regions, HCDR1, HCDR2, and HCDR3, and three light chain complementarity determining regions, LCDR1, LCDR2, and LCDR3, wherein the HCDR1

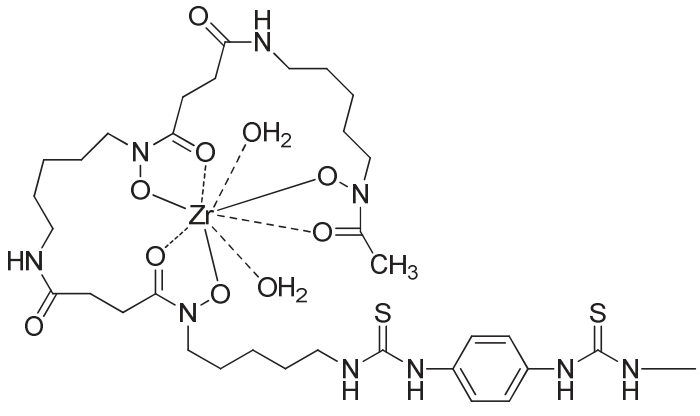
comprises the amino acid sequence of SEQ ID NO: 84; the HCDR2 comprises the amino acid sequence of SEQ ID NO: 86; the HCDR3 comprises the amino acid sequence of SEQ ID NO: 88; the LCDR1 comprises the amino acid sequence of SEQ ID NO: 92; the LCDR2 comprises the amino acid sequence of SEQ ID NO: 94; and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 96.

5. A method of imaging a tissue that expresses PD-L1 comprising administering a radiolabeled antibody conjugate of claim 1 to the tissue; and visualizing PD-L1 expression by positron emission tomography (PET) imaging.

6. A radiolabeled antibody conjugate comprising an antibody or antigen binding fragment thereof that binds human program death ligand 1 (PD-L1), a chelating moiety, and a positron emitter, wherein:

(i) the antibody or antigen-binding fragment thereof comprises three heavy chain CDRs (HCDR1, HCDR2, and HCDR3) and three light chain CDRs (LCDR1, LCDR2, and LCDR3), wherein the HCDR1 comprises the amino acid sequence of SEQ ID NO: 84; the HCDR2 comprises the amino acid sequence of SEQ ID NO: 86; the HCDR3 comprises the amino acid sequence of SEQ ID NO: 88; the LCDR1 comprises the amino acid sequence of SEQ ID NO: 92; the LCDR2 comprises the amino acid sequence of SEQ ID NO: 94; and the LCDR3 comprises the amino acid sequence of SEQ ID NO: 96;

(ii) the chelating moiety comprises



; and

(iii) Zr is the positron emitter ^{89}Zr.