

CLAIMS

1. An isolated anti-PcrV antibody, comprising:

- (i) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 1, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 9, and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 15; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO: 32, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 35;
- (ii) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 2, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 10, and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 16; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO: 32, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 35;
- (iii) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 1, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 9, and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 17; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO: 32, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 36;
- (iv) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 3, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 10, and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 18; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO: 32, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 37;
- (v) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 3, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 10, and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 19; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO:

- 32, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 35;
- (vi) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 3, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 11, and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 20; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO: 32, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 35;
 - (vii) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 6, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 10, and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 23; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO: 32, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 37;
 - (viii) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 1, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 12, and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 24; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO: 33, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 35;
 - (ix) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 2, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 10, and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 25; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO: 32, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 37;
 - (x) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 1, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 9, and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 26; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO: 32, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 35;

- (xi) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 3, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 10, and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 27; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO: 32, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 35;
- (xii) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 1, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 10, and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 28; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO: 32, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 35;
- (xiii) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 7, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 13, and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 29; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO: 32, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 37;
- (xiv) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 1, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 10, and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 30; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO: 32, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 35;
- (xv) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 8, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 14, and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 31; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO: 32, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 37; or
- (xvi) a V_H comprising an HC-CDR1 comprising the amino acid sequence of SEQ ID NO: 7, an HC-CDR2 comprising the amino acid sequence of SEQ ID NO: 13,

and an HC-CDR3 comprising the amino acid sequence of SEQ ID NO: 29; and a V_L comprising an LC-CDR1 comprising the amino acid sequence of SEQ ID NO: 32, an LC-CDR2 comprising the amino acid sequence of SEQ ID NO: 34, and an LC-CDR3 comprising the amino acid sequence of SEQ ID NO: 38.

2. The isolated anti-PcrV antibody of claim 1, comprising:

- (i) a V_H comprising the amino acid sequence of SEQ ID NO: 48 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 48, and a V_L comprising the amino acid sequence of SEQ ID NO: 65 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 65;
- (ii) a V_H comprising the amino acid sequence of SEQ ID NO: 49 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 49, and a V_L comprising the amino acid sequence of SEQ ID NO: 65 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 65;
- (iii) a V_H comprising the amino acid sequence of SEQ ID NO: 50 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 50, and a V_L comprising the amino acid sequence of SEQ ID NO: 66 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 66;
- (iv) a V_H comprising the amino acid sequence of SEQ ID NO: 51 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 51, and a V_L comprising the amino acid sequence of SEQ ID NO: 67 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 67;
- (v) a V_H comprising the amino acid sequence of SEQ ID NO: 52 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 52, and a V_L comprising the amino acid sequence of SEQ ID NO: 65 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 65;

- (vi) a V_H comprising the amino acid sequence of SEQ ID NO: 53 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 53, and a V_L comprising the amino acid sequence of SEQ ID NO: 65 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 65;
- (vii) a V_H comprising the amino acid sequence of SEQ ID NO: 56 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 56, and a V_L comprising the amino acid sequence of SEQ ID NO: 67 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 67;
- (viii) a V_H comprising the amino acid sequence of SEQ ID NO: 57 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 57, and a V_L comprising the amino acid sequence of SEQ ID NO: 68 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 68;
- (ix) a V_H comprising the amino acid sequence of SEQ ID NO: 58 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 58, and a V_L comprising the amino acid sequence of SEQ ID NO: 69 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 69;
- (x) a V_H comprising the amino acid sequence of SEQ ID NO: 59 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 59, and a V_L comprising the amino acid sequence of SEQ ID NO: 65 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 65;
- (xi) a V_H comprising the amino acid sequence of SEQ ID NO: 60 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 60, and a V_L comprising the amino acid sequence of SEQ ID NO: 65 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 65;
- (xii) a V_H comprising the amino acid sequence of SEQ ID NO: 61 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO:

- 61, and a V_L comprising the amino acid sequence of SEQ ID NO: 65 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 65;
- (xiii) a V_H comprising the amino acid sequence of SEQ ID NO: 62 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 62, and a V_L comprising the amino acid sequence of SEQ ID NO: 67 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 67;
- (xiv) a V_H comprising the amino acid sequence of SEQ ID NO: 63 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 63, and a V_L comprising the amino acid sequence of SEQ ID NO: 65 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 65;
- (xv) a V_H comprising the amino acid sequence of SEQ ID NO: 64 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 64, and a V_L comprising the amino acid sequence of SEQ ID NO: 67 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 67; or
- (xvi) a V_H comprising the amino acid sequence of SEQ ID NO: 62 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 62, and a V_L comprising the amino acid sequence of SEQ ID NO: 70 or a variant thereof having at least 90% sequence identity to the amino acid sequence of SEQ ID NO: 70.
3. The isolated anti-PcrV antibody according to claim 1 or 2, wherein the anti- PcrV antibody comprises an Fc fragment.
4. The isolated anti- PcrV antibody of claim 3, wherein the anti-PcrV antibody is a full-length IgG antibody.

5. The isolated anti- PcrV antibody of claim 4, wherein the anti- PcrV antibody is a full-length IgG1 or IgG4 antibody.
6. The isolated anti- PcrV antibody of claim 1 or 2, wherein the anti- PcrV antibody is chimeric, human, or humanized.
7. The isolated anti- PcrV antibody according to claim 1 or 2, wherein the anti- PcrV antibody is an antigen binding fragment selected from the group consisting of a Fab, a Fab', a F(ab)'2, a Fab'-SH, a single-chain Fv (scFv), an Fv fragment, and a diabody.
8. An isolated nucleic acid molecule that encodes the isolated anti- PcrV antibody according to any one of claims 1-7.
9. A vector comprising the nucleic acid molecule of claim 8.
10. An isolated host cell comprising the isolated anti- PcrV antibody of any one of claims 1-7, the isolated nucleic acid of claim 8, or the vector of claim 9.
11. A method of producing an isolated anti- PcrV antibody, comprising:
 - a) culturing the host cell of claim 10 under conditions effective to express the anti- PcrV antibody; and
 - b) obtaining the expressed anti- PcrV antibody from the host cell.
12. A pharmaceutical composition comprising the anti-PcrV antibody according to any one of claims 1-7, the nucleic acid of claim 8, the vector of claim 9, or the isolated host cell of claim 10, and a pharmaceutically acceptable carrier.
13. Use of the pharmaceutical composition of claim 12 in the manufacture of a medicament for the treatment of a disease or condition in an individual in need thereof, wherein the disease or condition is *Pseudomonas aeruginosa* infection.

14. The use of claim 13, wherein the disease or condition comprises one or more symptoms caused by *Pseudomonas aeruginosa* infection.
15. The use of claim 14, wherein the symptom comprises one or more of fever, chills, fatigue, muscle and joint pain, swelling of joints, headache, diarrhea, skin rashes, pus in wounds, bacteremia, acute pneumonia, intraperitoneal infection, respiratory tract infections, septic shock, suppurative arthritis, enteritis, skin and soft tissue infections, urinary tract infections, intestinal infections, ulcerative keratitis, chronic suppurative otitis media, mastoiditis, sinusitis, or endocarditis.
16. The use of any one of claims 13-15, wherein the medicament is to be further administered with one or more therapeutic agents.
17. The use of claim 16, wherein at least one of the therapeutic agents is an antibiotic.
18. The use of claim 17, wherein the antibiotic is one or more of Imipenem, Tobramycin, Ciprofloxacin, Meropenem or Aztreonam.