

CLAIMS

1. Use of an anti-Gal3 antibody or binding fragment thereof in the manufacture of a medicament for the treatment of fibrosis, wherein the anti-Gal3 antibody or binding fragment thereof comprises (1) a heavy chain variable region comprising a V_H-CDR1, a V_H-CDR2, and a V_H-CDR3, and (2) a light chain variable region comprising a V_L-CDR1, a V_L-CDR2, and a V_L-CDR3; wherein

the V_H-CDR1 comprises an amino acid sequence according to any one of **SEQ ID NOs: 27-34 or 398**,

the V_H-CDR2 comprises an amino acid sequence according to any one of **SEQ ID NOs: 46-52, 401 or 403-405**,

the V_H-CDR3 comprises an amino acid sequence according to any one of **SEQ ID NOs: 62-69, 409 or 411-413**,

the V_L-CDR1 comprises an amino acid sequence according to any one of **SEQ ID NOs: 83-90, 418 or 420-424**,

the V_L-CDR2 comprises an amino acid sequence according to any one of **SEQ ID NOs: 103-111 or 428**, and

the V_L-CDR3 comprises an amino acid sequence according to any one of **SEQ ID NOs: 118-126 or 431-433**, and wherein

the anti-Gal3 antibody or binding fragment thereof disrupts an interaction between Gal3 and a TGF- β receptor protein.

2. The use of claim 1, wherein

a. the heavy chain variable region comprises an amino acid sequence having at least 75%, 80%, 85%, 90%, 95%, or 100% sequence identity to any sequence according to **SEQ ID NOs: 138-145, 438, 441 or 443- 447**;

b. the heavy chain variable region is selected from the group consisting of **SEQ ID NOs: 138-145, 438, 441 or 443- 447**;

c. the light chain variable region comprises an amino acid sequence having at least 75%, 80%, 85%, 90%, 95%, or 100% sequence identity to any sequence according to **SEQ ID NOs: 163-171, 453, 455 or 457-461**.

- d. the light chain variable region is selected from the group consisting of **SEQ ID NOs: 163-171, 453, 455 or 457-461**; and/or
- e. the anti-Gal3 antibody or binding fragment thereof is selected from the group consisting of 4G2.2G6, 20H5.A3, 15F10.2D, 6H6.2D6, 2D10.2B2, 23H9.2E4, 19B5.2E6, 15G7.2A7, 12G5.D7, 4A11.2B5, 14H10.2C9, 13G4.2F8, 13A12.2E5, 9H2.2H10, 3B11.2G2, 20D11.2C6, 13H12.2F8 or a binding fragment thereof.
3. The use of claim 1 or 2, wherein the fibrosis comprises liver fibrosis, kidney fibrosis, cardiac fibrosis, arterial fibrosis, or pulmonary fibrosis.
4. The use of any one of claims 1 to 3, wherein the anti-Gal3 antibody or binding fragment thereof comprises:
- 1) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 138** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 163**;
 - 2) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 139** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 164**;
 - 3) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 140** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 165**;
 - 4) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 141** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 166**;
 - 5) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 142** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 167**;
 - 6) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 143** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 168**;

7) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 144** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 169**;

8) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 145** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 170**;

9) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 139** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 171**;

10) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 438** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 453**;

11) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 441** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 455**;

12) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 443** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 457**;

13) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 444** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 458**;

14) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 445** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 459**;

15) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 446** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 460**;

16) the V_H-CDR1, V_H-CDR2, V_H-CDR3 of the V_H-CDR1, V_H-CDR2, V_H-CDR3 within **SEQ ID NO: 447** and the V_L-CDR1, V_L-CDR2, V_L-CDR3 of the V_L-CDR1, V_L-CDR2, V_L-CDR3 within **SEQ ID NO: 461**.

5. The use of any one of claims 1 to 4, wherein the anti-Gal3 antibody or binding fragment thereof comprises:

- 1) the heavy chain variable region of **SEQ ID NO: 138** and the light chain variable region of **SEQ ID NO: 163**;
- 2) the heavy chain variable region of **SEQ ID NO: 139** and the light chain variable region of **SEQ ID NO: 164**;
- 3) the heavy chain variable region of **SEQ ID NO: 140** and the light chain variable region of **SEQ ID NO: 165**;
- 4) the heavy chain variable region of **SEQ ID NO: 141** and the light chain variable region of **SEQ ID NO: 166**;
- 5) the heavy chain variable region of **SEQ ID NO: 142** and the light chain variable region of **SEQ ID NO: 167**;
- 6) the heavy chain variable region of **SEQ ID NO: 143** and the light chain variable region of **SEQ ID NO: 168**;
- 7) the heavy chain variable region of **SEQ ID NO: 144** and the light chain variable region of **SEQ ID NO: 169**;
- 8) the heavy chain variable region of **SEQ ID NO: 145** and the light chain variable region of **SEQ ID NO: 170**;
- 9) the heavy chain variable region of **SEQ ID NO: 139** and the light chain variable region of **SEQ ID NO: 171**;
- 10) the heavy chain variable region of **SEQ ID NO: 438** and the light chain variable region of **SEQ ID NO: 453**;
- 11) the heavy chain variable region of **SEQ ID NO: 441** and the light chain variable region of **SEQ ID NO: 455**;
- 12) the heavy chain variable region of **SEQ ID NO: 443** and the light chain variable region of **SEQ ID NO: 457**;
- 13) the heavy chain variable region of **SEQ ID NO: 444** and the light chain variable region of **SEQ ID NO: 458**;
- 14) the heavy chain variable region of **SEQ ID NO: 445** and the light chain variable region of **SEQ ID NO: 459**;

15) the heavy chain variable region of **SEQ ID NO: 446** and the light chain variable region of **SEQ ID NO: 460**;

16) the heavy chain variable region of **SEQ ID NO: 447** and the light chain variable region of **SEQ ID NO: 461**.

6. The use of claim 1, wherein

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 31**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 401**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 409**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 418**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 106**, and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 120**; or

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 34**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 51**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 67**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 90**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 110**, and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 125**; or

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 32**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 49**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 66**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 87**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 107**, and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 122**; or

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 31**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 48**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 67**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 420**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 110**, and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 431**; or

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 29**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 52**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 69**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 83**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 103**, and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 126**; or

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 31**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 48**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 67**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 88**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 108**, and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 123**; or

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 29**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 405**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 68**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 424**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 109** and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 124**; or

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 29**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 47**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 63**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 84**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 104**, and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 119**; or

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 28**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 46**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 62**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 83**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 103**, and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 118**; or

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 31**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 48**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 65**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 86**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 106**, and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 121**; or

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 398**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 404**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 412**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 422**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 428**, and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 433**; or

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 30**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 48**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 64**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 85**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 105**, and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 120**; or

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 27**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 403**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 411**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 421**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 111**, and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 432**; or

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 30**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 48**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 64**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 85**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 106**, and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 120**; or

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 33**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 50**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 68**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 89**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 109**, and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 124**; or

the V_H-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 31**, the V_H-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 48**, the V_H-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 414**; the V_L-CDR1 comprises the amino acid sequence according to **SEQ ID NO: 425**, the V_L-CDR2 comprises the amino acid sequence according to **SEQ ID NO: 106**, and the V_L-CDR3 comprises the amino acid sequence according to **SEQ ID NO: 121**.