

CLAIMS

1. An anti-integrin alpha 11 beta 1 ($\alpha 11\beta 1$) antibody, or antigen-binding fragment thereof, comprising an amino acid sequence selected from a group consisting of SEQ ID NO: 103-~~435~~443.
2. An anti- $\alpha 11\beta 1$ antibody, or antigen-binding fragment thereof, comprising a CDR sequence encompassed within any one of SEQ ID NO: 103-207, 209, 211, 213, 216, 218, 220, 223, 225, 228, 233, 234, 236, 240, 241, 245, 247, 253, 255, 257, 259, 261, 265, 267, 269, 271, 275, 277, 279, 281, 283, 287, 289, 291, 293, 296, 300, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 325, 327, 329, 334, 336, 338, 340, 342, 344, 348, 351, 353, 355, 358, 360, 361, 364, 366, 368, 369, 374, 376, 377, 379, 380, 381, 383, 384, 385, 387, 389, 392, 393, 396, 398, 400, 402, 405, 408, 411, ~~or 413-435~~, or 436-443.
3. An anti- $\alpha 11\beta 1$ antibody, or antigen-binding fragment thereof, comprising CDR1, CDR2, and CDR3 encompassed within any one of SEQ ID NO: 103-206, or 413-435.
4. The anti- $\alpha 11\beta 1$ antibody, or antigen-binding fragment thereof, of claim 1, comprising an amino acid sequence selected from a group consisting of SEQ ID NO: 103-114, 207-311 or 436-442, and 312-435 or 443.
5. The anti- $\alpha 11\beta 1$ antibody, or antigen-binding fragment thereof, of claim 2, comprising a CDR sequence encompassed within any one of SEQ ID NO: 103-114, 207, 209, 211, 213, 216, 218, 220, 223, 225, 228, 233, 234, 236, 240, 241, 245, 247, 253, 255, 257, 259, 261, 265, 267, 269, 271, 275, 277, 279, 281, 283, 287, 289, 291, 293, 296, 300, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 325, 327, 329, 334, 336, 338, 340, 342, 344, 348, 351, 353, 355, 358, 360, 361, 364, 366, 368, 369, 374, 376, 377, 379, 380, 381, 383, 384, 385, 387, 389, 392, 393, 396, 398, 400, 402, 405, 408, 411, ~~or 413-435~~, or 436-443.
6. The anti- $\alpha 11\beta 1$ antibody, or antigen-binding fragment thereof, of claim 2, comprising one or more CDR sequences encompassed within any one of SEQ ID NO: 103-114, or 413-434.

7. The anti- $\alpha 11\beta 1$ antibody, or antigen-binding fragment thereof, of claim 3, comprising CDR1, CDR2, and CDR3 encompassed within any one of SEQ ID NO: 103-114 or 413-434.

8. The anti- $\alpha 11\beta 1$ antibody, or antigen-binding fragment thereof, of ~~any one of claims 1-7~~claim 1, wherein the antibody, or antigen-binding fragment thereof, is a monoclonal antibody, or antigen-binding fragment thereof.

9. The anti- $\alpha 11\beta 1$ antibody, or antigen-binding fragment thereof, of ~~any one of claims 1-8~~claim 1, wherein the antibody, or antigen-binding fragment thereof, is a humanized antibody, or antigen-binding fragment thereof.

10. The anti- $\alpha 11\beta 1$ antibody, or antigen-binding fragment thereof, of ~~any one of claims 1-9~~claim 1, wherein the antibody, or antigen-binding fragment thereof, reduces interaction of $\alpha 11\beta 1$ with collagen in human $\alpha 11\beta 1$ -expressing cells.

11. An anti- $\alpha 11\beta 1$ antibody, or antigen-binding fragment thereof, that competes with the antibody, or antigen-binding fragment thereof, of ~~any one of claims 1-10~~claim 1.

12. A nucleic acid, comprising a nucleic acid sequence encoding an antibody, or antigen-binding fragment thereof, of ~~any one of claims 1-11~~claim 1.

13. The nucleic acid of claim 11, wherein the nucleic acid sequence comprises a sequence selected from a group consisting of SEQ ID NO: 1-102.

14. A vector comprising the nucleic acid of claim 12 ~~or 13~~.

15. A host cell comprising ~~the nucleic acid of claim 12 or 13 or the vector of claim 14~~.

16. A method of producing an antibody, or antigen-binding fragment thereof, comprising culturing the host cell of claim 14 under conditions suitable for expression of the antibody or antigen-binding fragment thereof.

17. A method of treating a subject having or at risk of a fibrotic disorder, the method comprising administering to the subject a therapeutically effective amount of the antibody, or antigen-binding fragment thereof, of ~~any one of claims 1-11~~claim 1.

18. The method of claim 17, wherein the fibrotic disorder is idiopathic pulmonary fibrosis (IPF), chronic kidney disease, diabetic cardiomyopathy, primary sclerosing cholangitis (PSC), primary biliary cirrhosis (PBC), non-alcoholic fatty liver disease (NAFLD/NASH), Crohn's disease, ulcerative colitis, or systemic sclerosis.

19. A method of treating a subject having or at risk of cancer, the method comprising administering to the subject a therapeutically effective amount of the antibody, or antigen-binding fragment thereof, of ~~any one of claims 1-11~~claim 1.

20. The method of claim 19, wherein the cancer is a head and neck squamous cell carcinoma, pancreatic ductal adenocarcinoma, non-small cell lung cancer, adrenocortical carcinoma, acute myeloid leukemia, bladder urothelial carcinoma, invasive breast carcinoma, cervical squamous cell carcinoma, cholangiocarcinoma, colorectal adenocarcinoma, diffuse large B-cell lymphoma, esophageal adenocarcinoma, glioblastoma multiforme, liver hepatocellular carcinoma, lung adenocarcinoma, lung squamous cell carcinoma, skin cutaneous melanoma, mesothelioma, ovarian serous cystadenocarcinoma, pheochromocytoma and paraganglioma, prostate adenocarcinoma, sarcoma, stomach adenocarcinoma, testicular germ cell tumors, thymoma, thyroid carcinoma, uterine corpus endometrial carcinoma, uterine carcinosarcoma, uveal melanoma, kidney renal clear cell carcinoma, kidney chromophobe, kidney renal papillary cell carcinoma, or a combination thereof.

21. ~~The method of claim 19 or 20, further comprising administering to the subject A~~
composition comprising the anti- α 11 β 1 antibody, or antigen-binding fragment thereof, of claim 1
and an effective amount of a chemotherapeutic agent or an oncolytic therapeutic agent.

22. The anti- α 11 β 1 antibody, or antigen-binding fragment thereof, of any one of claims 2-7,
wherein the amino acid sequence having at least 80%, 85%, 90%, 91%, 92%, 93%, 94%, 95%,
96%, 97%, 98%, or 99% sequence identity to an amino acid sequence selected from a group
consisting of SEQ ID NO: 103-158, 413, 414 and 421-434.