

[05a] In one aspect, the present disclosure refers to the use of an Activin A antagonist in the manufacture of a medicament for decreasing the formation of new heterotopic ossification lesions in a human subject with FOP.

[05b] In another aspect, the present disclosure refers to the use of an Activin A antagonist in the manufacture of a medicament for preventing formation of new heterotopic ossification lesions in a human subject with FOP.

[06] In one [aspect-example](#) the disclosure provides a method of treating fibrodysplasia ossificans progressiva (FOP), the method comprising administering to a human subject having FOP a therapeutically effective amount of an Activin A antagonist, thereby treating the FOP.

[07] In some [embodimentexamples](#) the Activin A antagonist is an anti-Activin A antibody or antigen-binding fragment thereof. In some [embodimentexamples](#), the antibody competes for binding with an antibody comprising the heavy and light chain variable regions of the antibody designated H4H10446P, H4H10430P or A1. In some [embodimentexamples](#), the antibody comprises the heavy and light chain variable regions of the antibody designated H4H10446P, H4H10430P or A1. In some [embodimentexamples](#), the antibody is a chimeric, veneered, humanized or human antibody. In some [embodimentexamples](#), the antibody is an intact antibody. In some [embodimentexamples](#), the antibody is a human kappa IgG1 antibody. In some [embodimentexamples](#), the antibody is administered in combination therapy with an ACVR1, ACVR2A, or ACVR2B extracellular domain-Fc fusion protein.

[08] The disclosure further provides an antagonist of Activin A for use in a method of treating Fibrodysplasia Ossificans Progressiva (FOP), the method comprising administering to a subject having FOP a therapeutically effective amount of the antagonist of Activin A. Optionally, the Activin A antagonist is an anti-Activin A antibody or antigen-binding fragment thereof. Optionally, the disclosure provides the use of an anti-Activin A antibody or antigen-binding fragment thereof in the manufacture of a medicament for treating FOP. Optionally, the antibody is chimeric, veneered, humanized or human antibody. Optionally, the antibody is an intact antibody. Optionally, the antibody is a human kappa IgG1 antibody. Optionally, the antibody is administered in combination therapy with an ACVR1, ACVR2A, or ACVR2B extracellular domain-Fc fusion protein.

[09] In one [aspectexample](#), the disclosure provides a method of decreasing the formation of new heterotopic ossification lesions in a human subject with FOP, the method comprising administering to the human subject a therapeutically effective amount of an Activin A antagonist, thereby decreasing the formation of new heterotopic ossification lesions in the human subject.

[010] In one [embodimentexample](#), the formation of new heterotopic ossification lesions is prevented in the human subject.

[011] In one [embodimentexample](#), the human subject exhibits a decrease in number of new heterotopic ossification lesions of at least 5%, at least 10%, at least 20%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 90%, at least 5%-90%, at

least 10%-90%, at least 20%-90%, at least 30%-90%, at least 40%-90%, at least 50%-90%, at least 60%-90%, at least 70%-90%, at least 80%-90%, at least 5%-80%, at least 5%-70%, at least 5%-60%, at least 5%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

[012] In one [embodimentexample](#), the human subject exhibits a decrease in new heterotopic ossification lesion volume by at least 5%, at least 10%, at least 15%, at least 20%, at least 25%, at least 30%, at least 40%, at least 50%, at least 5%-50%, at least 10%-50%, at least 20%-50%, at least 30%-50%, at least 40%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

[013] In one [embodimentexample](#), the human subject exhibits a decrease in a rate of new heterotopic ossification lesion growth and mineralization of at least 5%, at least 10%, at least 20%, at least 30%, at least 40%, at least 50%, at least 5%-50%, at least 10%-50%, at least 20%-50%, at least 30%-50%, at least 40%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

[014] In one [embodimentexample](#), the human subject exhibits a decrease in new heterotopic ossification lesion intensity of at least 5%, at least 10%, at least 20%, at least 30%, at least 40%, at least 50% at least 5%-50%, at least 10%-50%, at least 20%-50%, at least 30%-50%, at least 40%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

[015] In one [embodimentexample](#), the human subject exhibits a decrease in total lesion activity (TLA) of the heterotopic ossification lesions of at least 5%, at least 10%, at least 15%, at least 20%, at least 25%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 5%-80%, at least 10%-80%, at least 20%-80%, at least 30%-80%, at least 40%-80%, at least 50%-80%, at least 60%-80%, at least 70%-80%, at least 5%-70%, at least 5%-60%, at least 5%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

[016] In one [embodimentexample](#), the human subject exhibits a decrease in daily average pain-NRS of about 0.2-fold, 0.5-fold, 1-fold, 1.5-fold, 2-fold, 3-fold, 0.2 to 3-fold, 0.5 to 3-fold, 1 to 3-fold, 1.5 to 3-fold, 2 to 3-fold, 2.5 to 3-fold, 0.2 to 2.5-fold, 0.2 to 2-fold, 0.2 to 1.5-fold, 0.2 to 1-fold, or 0.2 to 0.5-fold, relative to a control.

[017] In one [embodimentexample](#), the control is an average measurement or value gathered from a population of human subjects having FOP who have not been administered the Activin A antagonist.

[018] In one [embodimentexample](#), the therapeutically effective amount of an Activin A antagonist reduces the occurrence of painful flare-ups in the human subject, relative to a control.

[019] In one [embodimentexample](#), the new heterotopic ossification lesions are analyzed by a Positron emission tomography (PET) scan, a computed tomography (CT) scan, or a combination thereof. In one [embodimentexample](#), the PET scan analysis is performed by administration of radiolabeled ^{18}F sodium fluoride (^{18}F -NaF) to the human subject.

[020] In one [embodimentexample](#), the therapeutically effective amount of an Activin A antagonist is administered to the human subject for at least 8 weeks.

[021] In one [embodimentexample](#), the method further comprises selecting a subject having FOP who would benefit from decreasing formation of new heterotopic ossification lesions. In one [embodimentexample](#), the subject who would benefit from decreasing formation of new heterotopic ossification lesions is about to undergo surgery.

[022] In one [embodimentexample](#), the human subject is about to undergo therapeutic treatment for FOP.

[023] In one [embodimentexample](#), the Activin A antagonist does not decrease the number, volume, or size of any pre-existing lesions in the human subject.

[024] In one [embodimentexample](#), the Activin A antagonist is a protein or a small molecule.

[025] In one [embodimentexample](#), the Activin A antagonist is an anti-Activin A antibody, or antigen-binding fragment thereof. In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, is a chimeric, veneered, humanized or human antibody, or antigen-binding fragment thereof.

[026] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, is a human kappa IgG1 antibody.

[027] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, comprises the following six CDR sequences: (a) an HCDR1 having at least about 80% identity to the sequence GGSFSSHF; (b) an HCDR2 having at least about 80% identity to the sequence ILYTGGT; (c) an HCDR3 having at least about 80% identity to the sequence ARARSGITFTGIIVPGSFDI; (d) an LCDR1 having at least about 80% identity to the sequence QSVSSSY; (e) an LCDR2 having at least about 80% identity to the sequence GAS; and (f) an LCDR3 having at least about 80% identity to the sequence QQYGSSPWT.

[028] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, comprises the following six CDR sequences: (a) an HCDR1 having the sequence GGSFSSHF; (b) an HCDR2 having the sequence ILYTGGT; (c) an HCDR3 having the

sequence ARARSGITFTGIIVPGSFDI; (d) an LCDR1 having the sequence QSVSSSY; (e) an LCDR2 having the sequence GAS; and (f) an LCDR3 having the sequence QQYGSSPWT.

[029] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, comprises a heavy chain variable region having at least 90% identity with SEQ ID NO:1 and a light chain variable region having at least 90% identity with SEQ ID NO:5.

[030] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, comprises a heavy chain variable region having at least 95% identity with SEQ ID NO:1 and a light chain variable region having at least 95% identity with SEQ ID NO:5.

[031] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, comprises a heavy chain variable region comprising SEQ ID NO:1 and a light chain variable region comprising SEQ ID NO:5.

[032] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, comprises a heavy chain comprising SEQ ID NO:25 and a light chain comprising SEQ ID NO:26.

[033] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, comprises a heavy chain variable region having at least 90% identity with SEQ ID NO:1 and a light chain variable region having at least 90% identity with SEQ ID NO:5.

[034] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, competes for binding with an antibody comprising the following six CDR sequences: (a) an HCDR1 having the sequence GGSFSSH; (b) an HCDR2 having the sequence ILYTGGT; (c) an HCDR3 having the sequence ARARSGITFTGIIVPGSFDI; (d) an LCDR1 having the sequence QSVSSSY; (e) an LCDR2 having the sequence GAS; and (f) an LCDR3 having the sequence QQYGSSPWT.

[035] In one [embodimentexample](#), the Activin A antagonist is administered in combination with a second therapy.

[036] In another aspect, the disclosure provides a method of preventing formation of new heterotopic ossification lesions in a human subject with FOP, the method comprising administering to the human subject a therapeutically effective amount of an Activin A antagonist, thereby preventing the formation of new heterotopic ossification lesions in the human subject.

[037] In one [embodimentexample](#), the human subject exhibits a decrease in number of new heterotopic ossification lesions of at least 5%, at least 10%, at least 20%, at least 30%, at least

40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 90%, at least 5%-90%, at least 10%-90%, at least 20%-90%, at least 30%-90%, at least 40%-90%, at least 50%-90%, at least 60%-90%, at least 70%-90%, at least 80%-90%, at least 5%-80%, at least 5%-70%, at least 5%-60%, at least 5%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

[038] In one [embodimentexample](#), the human subject exhibits a decrease in new heterotopic ossification lesion volume by at least 5%, at least 10%, at least 15%, at least 20%, at least 25%, at least 30%, at least 40%, at least 50%, at least 5%-50%, at least 10%-50%, at least 20%-50%, at least 30%-50%, at least 40%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

[039] In one [embodimentexample](#), the human subject exhibits a decrease in a rate of new heterotopic ossification lesion growth and mineralization of at least 5%, at least 10%, at least 20%, at least 30%, at least 40%, at least 50%, at least 5%-50%, at least 10%-50%, at least 20%-50%, at least 30%-50%, at least 40%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

[040] In one [embodimentexample](#), the human subject exhibits a decrease in new heterotopic ossification lesion intensity of at least 5%, at least 10%, at least 20%, at least 30%, at least 40%, at least 50% at least 5%-50%, at least 10%-50%, at least 20%-50%, at least 30%-50%, at least 40%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

[041] In one [embodimentexample](#), the human subject exhibits a decrease in total lesion activity (TLA) of the heterotopic ossification lesions of at least 5%, at least 10%, at least 15%, at least 20%, at least 25%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 5%-80%, at least 10%-80%, at least 20%-80%, at least 30%-80%, at least 40%-80%, at least 50%-80%, at least 60%-80%, at least 70%-80%, at least 5%-70%, at least 5%-60%, at least 5%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

[042] In one [embodimentexample](#), the human subject exhibits a decrease in daily average pain-NRS of about 0.2-fold, 0.5-fold, 1-fold, 1.5-fold, 2-fold, 3-fold, 0.2 to 3-fold, 0.5 to 3-fold, 1 to 3-fold, 1.5 to 3-fold, 2 to 3-fold, 2.5 to 3-fold, 0.2 to 2.5-fold, 0.2 to 2-fold, 0.2 to 1.5-fold, 0.2 to 1-fold, or 0.2 to 0.5-fold, relative to a control.

[043] In one [embodimentexample](#), the control is an average measurement or value gathered from a population of human subjects having FOP who have not been administered the Activin A antagonist.

[044] In one [embodimentexample](#), the therapeutically effective amount of an Activin A antagonist reduces the occurrence of painful flare-ups in the human subject, relative to a control.

[045] In one [embodimentexample](#), the new heterotopic ossification lesions are analyzed by a Positron emission tomography (PET) scan, a computed tomography (CT) scan, or a combination thereof. In one [embodimentexample](#), the PET scan analysis is performed by administration of radiolabeled ^{18}F sodium fluoride (^{18}F -NaF) to the human subject.

[046] In one [embodimentexample](#), the therapeutically effective amount of an Activin A antagonist is administered to the human subject for at least 8 weeks.

[047] In one [embodimentexample](#), the method further comprises selecting a subject having FOP who would benefit from decreasing formation of new heterotopic ossification lesions. In one [embodimentexample](#), the subject who would benefit from decreasing formation of new heterotopic ossification lesions is about to undergo surgery.

[048] In one [embodimentexample](#), the human subject is about to undergo therapeutic treatment for FOP.

[049] In one [embodimentexample](#), the Activin A antagonist does not decrease the number, volume, or size of any pre-existing lesions in the human subject.

[050] In one [embodimentexample](#), the Activin A antagonist is a protein or a small molecule.

[051] In one [embodimentexample](#), the Activin A antagonist is an anti-Activin A antibody, or antigen-binding fragment thereof. In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, is a chimeric, veneered, humanized or human antibody, or antigen-binding fragment thereof.

[052] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, is a human kappa IgG1 antibody.

[053] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, comprises the following six CDR sequences: (a) an HCDR1 having at least about 80% identity to the sequence GGSFSSHF; (b) an HCDR2 having at least about 80% identity to the sequence ILYTGGT; (c) an HCDR3 having at least about 80% identity to the sequence ARARSGITFTGIIVPGSFDI; (d) an LCDR1 having at least about 80% identity to the sequence QSVSSSY; (e) an LCDR2 having at least about 80% identity to the sequence GAS; and (f) an LCDR3 having at least about 80% identity to the sequence QQYGSSPWT.

[054] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, comprises the following six CDR sequences: (a) an HCDR1 having the sequence GGSFSSHF; (b) an HCDR2 having the sequence ILYTGGT; (c) an HCDR3 having the sequence ARARSGITFTGIIVPGSFDI; (d) an LCDR1 having the sequence QSVSSSY; (e) an LCDR2 having the sequence GAS; and (f) an LCDR3 having the sequence QQYGSSPWT.

[055] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, comprises a heavy chain variable region having at least 90% identity with SEQ ID NO:1 and a light chain variable region having at least 90% identity with SEQ ID NO:5.

[056] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, comprises a heavy chain variable region having at least 95% identity with SEQ ID NO:1 and a light chain variable region having at least 95% identity with SEQ ID NO:5.

[057] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, comprises a heavy chain variable region comprising SEQ ID NO:1 and a light chain variable region comprising SEQ ID NO:5.

[058] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, comprises a heavy chain comprising SEQ ID NO:25 and a light chain comprising SEQ ID NO:26.

[059] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, comprises a heavy chain variable region having at least 90% identity with SEQ ID NO:1 and a light chain variable region having at least 90% identity with SEQ ID NO:5.

[060] In one [embodimentexample](#), the anti-Activin A antibody, or antigen-binding fragment thereof, competes for binding with an antibody comprising the following six CDR sequences: (a) an HCDR1 having the sequence GGSFSSHF; (b) an HCDR2 having the sequence ILYTGGT; (c) an HCDR3 having the sequence ARARSGITFTGIIVPGSFDI; (d) an LCDR1 having the sequence QSVSSSY; (e) an LCDR2 having the sequence GAS; and (f) an LCDR3 having the sequence QQYGSSPWT.

[061] In one [embodimentexample](#), the Activin A antagonist is administered in combination with a second therapy.

BRIEF DESCRIPTION OF THE DRAWINGS

[062] **FIG. 1** shows a schematic of a double-blind study for assessing the impact of an anti-Activin A antagonist in total lesion activity and volume of heterotopic bone.

CLAIMS

1. Use of an Activin A antagonist in the manufacture of a medicament for ~~A method of~~ decreasing the formation of new heterotopic ossification lesions in a human subject with FOP, ~~the method comprising administering to the human subject a therapeutically effective amount of an Activin A antagonist, thereby decreasing the formation of new heterotopic ossification lesions in the human subject.~~
2. The ~~method-use~~ of claim 1, wherein the formation of new heterotopic ossification lesions is prevented in the human subject.
3. Use of an Activin A antagonist in the manufacture of a medicament for ~~A method of~~ preventing formation of new heterotopic ossification lesions in a human subject with FOP, ~~the method comprising administering to the human subject a therapeutically effective amount of an Activin A antagonist, thereby preventing the formation of new heterotopic ossification lesions in the human subject.~~
4. The ~~method-use~~ of any one of the previous claims, wherein the human subject exhibits a decrease in number of new heterotopic ossification lesions of at least 5%, at least 10%, at least 20%, at least about 25%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 90%, at least 5%-90%, at least 10%-90%, at least 20%-90%, at least 30%-90%, at least 40%-90%, at least 50%-90%, at least 60%-90%, at least 70%-90%, at least 80%-90%, at least 5%-80%, at least 5%-70%, at least 5%-60%, at least 5%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.
5. The ~~method-use~~ of any one of the previous claims, wherein the human subject exhibits a decrease in new heterotopic ossification lesion volume by at least 5%, at least 10%, at least 15%, at least 20%, at least 25%, at least 30%, at least 40%, at least 50%, at least 5%-50%, at least 10%-50%, at least 20%-50%, at least 30%-50%, at least 40%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

6. The ~~method-use~~ of any one of the previous claims, wherein the human subject exhibits a decrease in a rate of new heterotopic ossification lesion growth and mineralization of at least 5%, at least 10%, at least 20%, at least 30%, at least 40%, at least 50%, at least 5%-50%, at least 10%-50%, at least 20%-50%, at least 30%-50%, at least 40%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

7. The ~~method-use~~ of any one of the previous claims, wherein the human subject exhibits a decrease in new heterotopic ossification lesion intensity of at least 5%, at least 10%, at least 20%, at least 30%, at least 40%, at least 50% at least 5%-50%, at least 10%-50%, at least 20%-50%, at least 30%-50%, at least 40%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

8. The ~~method-use~~ of any one of the previous claims, wherein the human subject exhibits a decrease in total lesion activity (TLA) of the heterotopic ossification lesions of at least 5%, at least 10%, at least 15%, at least 20%, at least 25%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 5%-80%, at least 10%-80%, at least 20%-80%, at least 30%-80%, at least 40%-80%, at least 50%-80%, at least 60%-80%, at least 70%-80%, at least 5%-70%, at least 5%-60%, at least 5%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

9. The ~~method-use~~ of any one of the previous claims, wherein the human subject exhibits a decrease in daily average pain-NRS of about 0.2-fold, 0.5-fold, 1-fold, 1.5-fold, 2-fold, 3-fold, 0.2 to 3-fold, 0.5 to 3-fold, 1 to 3-fold, 1.5 to 3-fold, 2 to 3-fold, 2.5 to 3-fold, 0.2 to 2.5-fold, 0.2 to 2-fold, 0.2 to 1.5-fold, 0.2 to 1-fold, or 0.2 to 0.5-fold, relative to a control.

10. The ~~method-use~~ of any one of claims 4-9, wherein the control is an average measurement or value gathered from a population of human subjects having FOP who have not been administered the Activin A antagonist.

11. The ~~method-use~~ of any one of the previous claims, wherein the ~~therapeutically effective amount of an~~ Activin A antagonist reduces the occurrence of painful flare-ups in the human subject, relative to a control.

12. The ~~method-use~~ of any one of the previous claims, wherein the new heterotopic ossification lesions are to be analyzed by a Positron emission tomography (PET) scan, a computed tomography (CT) scan, or a combination thereof.

13. The ~~method-use~~ of claim 12, wherein the PET scan analysis is to be performed by administration of radiolabeled ^{18}F sodium fluoride (^{18}F -NaF) to the human subject.

14. The ~~method-use~~ of any one of the previous claims, wherein ~~the therapeutically effective amount of an~~ Activin A antagonist is to be administered to the human subject for at least 8 weeks.

15. The ~~method-use~~ of any one of the previous claims, further comprising selecting a subject having FOP who would benefit from decreasing formation of new heterotopic ossification lesions.

16. The ~~method-use~~ of claim 15, wherein the subject who would benefit from decreasing formation of new heterotopic ossification lesions is about to undergo surgery.

17. The ~~method-use~~ of any one of the previous claims, wherein the human subject is about to undergo therapeutic treatment for FOP.

18. The ~~method-use~~ of any one of the previous claims, wherein the Activin A antagonist does not decrease the number, volume, or size of any pre-existing lesions in the human subject.

19. The ~~method-use~~ of any one of the previous claims, wherein the Activin A antagonist is a protein or a small molecule.

20. The ~~method-use~~ of any one of claims 1-18, wherein the Activin A antagonist is an anti-Activin A antibody, or antigen-binding fragment thereof.

21. The ~~method-use~~ of claim 20, wherein the anti-Activin A antibody, or antigen-binding fragment thereof, is a chimeric, veneered, humanized or human antibody, or antigen-binding fragment thereof.

22. The [method-use](#) of claim 20 or claim 21, wherein the anti-Activin A antibody, or antigen-binding fragment thereof, is a human kappa IgG1 antibody.

23. The [method-use](#) of claim 20 or claim 21, wherein the anti-Activin A antibody, or antigen-binding fragment thereof, comprises the following six CDR sequences:

- (a) an HCDR1 having at least about 80% identity to the sequence GGSFSSHF;
- (b) an HCDR2 having at least about 80% identity to the sequence ILYTGGT;
- (c) an HCDR3 having at least about 80% identity to the sequence

ARARSGITFTGIIVPGSFDI;

- (d) an LCDR1 having at least about 80% identity to the sequence QSVSSSY;
- (e) an LCDR2 having at least about 80% identity to the sequence GAS; and
- (f) an LCDR3 having at least about 80% identity to the sequence QQYGSSPWT.

24. The [method-use](#) of claim 23, wherein the anti-Activin A antibody, or antigen-binding fragment thereof, comprises the following six CDR sequences:

- (a) an HCDR1 having the sequence GGSFSSHF;
- (b) an HCDR2 having the sequence ILYTGGT;
- (c) an HCDR3 having the sequence ARARSGITFTGIIVPGSFDI;
- (d) an LCDR1 having the sequence QSVSSSY;
- (e) an LCDR2 having the sequence GAS; and
- (f) an LCDR3 having the sequence QQYGSSPWT.

25. The [method-use](#) of claim 24, wherein the anti-Activin A antibody, or antigen-binding fragment thereof, comprises a heavy chain variable region having at least 90% identity with SEQ ID NO:1 and a light chain variable region having at least 90% identity with SEQ ID NO:5.

26. The [method-use](#) of claim 25, wherein the anti-Activin A antibody, or antigen-binding fragment thereof, comprises a heavy chain variable region having at least 95% identity with SEQ ID NO:1 and a light chain variable region having at least 95% identity with SEQ ID NO:5.

27. The ~~method-use~~ of claim 26, wherein the anti-Activin A antibody, or antigen-binding fragment thereof, comprises a heavy chain variable region comprising SEQ ID NO:1 and a light chain variable region comprising SEQ ID NO:5.

28. The ~~method-use~~ of claim 27, wherein the anti-Activin A antibody, or antigen-binding fragment thereof, comprises a heavy chain comprising SEQ ID NO:25 and a light chain comprising SEQ ID NO:26.

29. The ~~method-use~~ of claim 20 or claim 21, wherein the anti-Activin A antibody, or antigen-binding fragment thereof, comprises a heavy chain variable region having at least 90% identity with SEQ ID NO:1 and a light chain variable region having at least 90% identity with SEQ ID NO:5.

30. The ~~method-use~~ of claim 20 or claim 21, wherein the anti-Activin A antibody, or antigen-binding fragment thereof, competes for binding with an antibody comprising the following six CDR sequences:

- (a) an HCDR1 having the sequence GGSFSSHf;
- (b) an HCDR2 having the sequence ILYTGgT;
- (c) an HCDR3 having the sequence ARARSGITFTGIIVPGSFdI;
- (d) an LCDR1 having the sequence QSVSSSY;
- (e) an LCDR2 having the sequence GAS; and
- (f) an LCDR3 having the sequence QQYGSSPWT.

31. The ~~method-use~~ of any one of the previous claims, ~~wherein the Activin A antagonist is administered in combination with~~further comprising use of a second therapy.