BACKGROUND OF THE INVENTION

[0005] Periodontal infections and gingival inflammations are known to be major causes of periodontal diseases. Both are chronic inflammatory diseases, and as they progress, the periodontal tissue is destroyed and the alveolar bone is reduced due to bone resorption causing loss of tooth support in some cases. In addition, the alveolar bone may become defective due to perforations caused by surgical treatments or apical lesions from progressed dental caries.

SUMMARY

[0006] The invention is directed to methods of using a sclerostin inhibitor to enhance alveolar bone. In one aspect, the present invention refers to the use of an anti-sclerostin antibody in the manufacture of a medicament for increasing alveolar bone height in a subject suffering from alveolar bone loss, wherein the anti-sclerostin antibody comprises CDR-H1 of SEQ ID NO:245, CDR-H2 of SEQ ID NO:246, CDR-H3 of SEQ ID NO:247, CDR-L1 of SEQ ID NO:78, CDR-L2 of SEQ ID NO:79, and CDR-L3 of SEQ ID NO:80. In one example, the present disclosure refers to the use of an anti-sclerostin antibody in the manufacture of a medicament for increasing alveolar bone height in a subject suffering from alveolar bone loss, wherein the anti-sclerostin antibody binds to SEQ ID NO: 1) and wherein the anti-sclerostin antibody cross-blocks or is cross-blocked by an antibody that comprises a) CDR sequences of SEQ ID NOs:48, 49, and 50 and CDR sequences of SEQ ID NOs:45, 46, and 47; b) CDR sequences of SEQ ID NOs:42, 43, and 44 and CDR sequences of SEQ ID NOs:39, 40, and 41; c) CDR sequences of SEQ ID NOs:275, 276, and 277 and CDR sequences of SEQ ID NOs:287, 288, and 289;d) CDR sequences of SEQ ID NOs:278, 279, and 280 and CDR sequences of SEQ ID NOs:290, 291, and 292;e) CDR sequences of SEQ ID NOs:281, 282, and 283 and CDR sequences of SEQ ID NOs:293, 294, and 295;f) CDR sequences of SEQ ID NOs:284, 285, and 286 and CDR sequences of SEQ ID NOs:296, 297, and 298; g) CDR sequences of SEQ ID NOs:116, 237, and 238 and CDR sequences of SEQ ID NOs:266, 267, and 268; or h) CDR sequences of SEQ ID NOs:242, 243, and 244 and CDR sequences of SEQ ID NOs:272, 273, and 274. In one example, described herein is a method of treating alveolar bone loss in a subject comprising administering a sclerostin inhibitor (e.g., an anti-sclerostin antibody or antibody fragment) in an amount effective to decrease the distance between the cement-enamel junction and the alveolar bone crest, optionally at a dose from about 5 mg to about 1,000 mg per week. In one example, the sclerostin inhibitor is administered twice a week for the duration of the treatment period. In

another example, the sclerostin inhibitor is administered once a week for the duration of the treatment period.

[0007] The treatment period can be at least about 1 week, 2 weeks, 3 weeks, 4 weeks, 5 weeks, 6 weeks, 7 weeks, 8 weeks, 9 weeks, 10 weeks, 11 weeks, 12 weeks, 3 months, 13 weeks, 14 weeks, 15 weeks, 16 weeks, 4 months, 17 weeks, 18 weeks, 19 weeks, 20 weeks, 5 months, 21 weeks, 22 weeks, 23 weeks, 24 weeks, 6 months, 25 weeks, 26 weeks, 27 weeks 28 weeks, 7 months, 29 weeks, 30 weeks, 31 weeks or longer (e.g., 8 months, 9 months, 10 months, 11 months, 1 year, 15 months, 18 months or longer). In some examples, the treatment period is about 6-12 weeks. In some examples, the treatment period is 4-12 weeks, or about 1-3 months. In some examples, the treatment period is about 12-20 weeks, or about 3-5 months. In some examples, the treatment period is about 20-32 weeks, or about 5-8 months. In some examples, the treatment period is about 24-36 weeks, or about 6-9 months. In some examples, the treatment period is no more than about 28 weeks. In some examples, the treatment period is about 1 year. In some or any examples, the treatment period is no more than about 18 months.

[0008] In some or any examples, the distance between the cement-enamel junction and the alveolar bone crest is decreased by at least 10% (e.g., 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% or more) compared to the pre-treatment distance by six weeks after initiation of treatment. In