METHODS AND COMPOSITIONS FOR TREATMENT OF THYROID EYE DISEASE

CROSS-REFERENCE

[0001] This application claims the benefit of U.S. Provisional Application No. 63/346,069, filed May 26, 2022, and U.S. Provisional Application No. 63/386,528, filed December 8, 2022, both of which are herein entirely incorporated by reference.

BACKGROUND

[0002] The insulin-like growth factor 1 receptor (IGF1R) is a cell surface receptor. The IGF1R signaling is involved in a number of disorders, such as thyroid eye disease (TED), also known as Graves' eye disease, Graves' ophthalmopathy, Graves' orbitopathy, thyroid-associated ophthalmopathy (TAO). The thyroid eye disease may affect the thyroid and eyes, and cause inflammation and damage to the muscle and connective tissues of the eyes, leading to pain, swelling, disfigurement of the eye socket, poor vision, or blindness.

[0003] There exists a need for methods and composition for the treatment of IGF1R associated disorders, such as thyroid eye disease.

INCORPORATION BY REFERENCE

[0004] All publications, patents, and patent applications mentioned in this specification are herein incorporated by reference to the same extent as if each individual publication, patent, or patent application was specifically and individually indicated to be incorporated by reference.

BRIEF SUMMARY

[0005] In one aspect, the present disclosure refers to the use of an antagonist of insulin-like growth factor 1 receptor (IGF1R) signaling in the manufacture of a medicament for treating an individual afflicted with thyroid eye disease, wherein the individual afflicted with thyroid eye disease exhibits normal blood glucose control by a test for blood glucose control; and wherein the antagonist of IGF1R signaling is an antibody that binds IGF1R. In one example, provided herein is a method of treating an individual afflicted with an insulin-like growth factor 1 receptor (IGF1R) associated disorder, the method comprising: a) selecting an individual afflicted with the IGF1R associated disorder for treatment with an antagonist of IGF1R signaling if the individual exhibits normal blood glucose control by a test for blood glucose control; and b) administering the antagonist of IGF1R signaling to the individual. In some examples, the IGF1R associated disorder comprises thyroid eye disease. In some examples, the antagonist of IGF1R signaling comprises an antibody that binds IGF1R. In some examples, the antibody that binds IGF1R comprises ganitumab, figitumumab, MEDI-573, cixutumumab, dalotuzumab, robatumumab, AVE1642, BIIB022, xentuzumab, istiratumab, or linsitinib. In some examples, the antibody that binds IGF1R

comprises teprotumumab. In some examples, the antagonist of IGF1R signaling comprises a small molecule that inhibits IGF1R signaling. In some examples, the small molecule that inhibits IGF1R signaling comprises picropodophyllin, BMS-754807, BMS-536924, BMS-554417, GSK1838705A, GSK1904529A, NVP-AEW541, NVP-ADW742, GTx-134, AG1024, KW-2450, PL-2258, NVP-AEW541, INSM-18, AZD3463, AZD9362, BI885578, BI893923, TT-100 (NDGA), XL-228, ganetespib, ceritinib, or A-928605. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising: (i) a first heavy chain complementarity determining region (HCDR1) comprising an amino acid sequence according to SEQ ID No.: 5; (ii) a second heavy chain complementarity determining region (HCDR2) comprising an amino acid sequence according to SEQ ID No.: 6; and (iii) a third heavy chain complementarity determining region (HCDR3) comprising an amino acid sequence according to SEQ ID No.: 7; and b) a light chain comprising: (i) a first light chain complementarity determining region (LCDR1) comprising an amino acid sequence according to SEQ ID No.: 8; (ii) a second light chain complementarity determining region (LCDR2) comprising an amino acid sequence according to SEQ ID No.: 9; and (iii) a third light chain complementarity determining region (LCDR3) comprising an amino acid sequence according to SEQ ID No.: 10. In some examples, the antibody that binds IGF1R comprises:a) a heavy chain variable domain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 3; and b) a light chain variable domain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 4. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain variable domain comprising an amino acid sequence according to SEQ ID No.: 3; and b) a light chain variable domain comprising an amino acid sequence according to SEQ ID No.: 4. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 1; and b) a light chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 2. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising an amino acid sequence according to SEQ ID No.: 1; and b) a light chain comprising an amino acid sequence according to SEQ ID No.: 2.

[0006] In some examples, the test for blood glucose control comprises a measurement of hemoglobin A1c (HbA1c), an oral glucose tolerance test, a measurement of fasting blood glucose, a measurement of non-fasting blood glucose, or any combination thereof. In some examples, the test for blood glucose control comprises a measurement of hemoglobin

A1c (HbA1c). In some examples, the individual exhibits normal blood glucose control if the measurement of hemoglobin A1c (HbA1c) is below about 6.5%. In some examples, the individual exhibits normal blood glucose control if the measurement of hemoglobin A1c (HbA1c) is below about 5.7%. In some examples, the test for blood glucose control comprises an oral glucose tolerance test. In some examples, the individual exhibits normal blood glucose control if the individual exhibits a blood glucose level below about 200 mg/dL about two hours after oral ingestion of about 75 grams of sugar. In some examples, the individual exhibits normal blood glucose control if the individual exhibits a blood glucose level of about 140 mg/dL or less about two hours after oral ingestion of about 75 grams of sugar. In some examples, the test for blood glucose control comprises a measurement of fasting blood glucose. In some examples, the individual exhibits normal blood glucose control if the individual exhibits a blood glucose level below about 126 mg/dL after an overnight fast. In some examples, the individual exhibits normal blood glucose control if the individual exhibits a blood glucose level of about 99 mg/dL or less after an overnight fast. In some examples, the overnight fast lasts at least about 8 hours. In some examples, the overnight fast lasts between about 8 and about 16 hours. In some examples, the test for blood glucose control comprises a measurement of non-fasting blood glucose. In some examples, the individual exhibits normal blood glucose control if the individual exhibits a non-fasting blood glucose level below about 200 mg/dL. In some examples, the individual is diagnosed with hyperglycemia, prediabetes, or diabetes before the treatment with the antagonist of IGF1R signaling. In some examples, the administering comprises intravenous infusion. In some examples, the administering comprises administering about 10 mg/kg of the antagonist of IGF1R signaling over the course of about 60 min to about 90 min based on the weight of the individual. In some examples, the administering further comprises administering about 20 mg/kg of the antagonist of IGF1R signaling over the course of about 60 min to about 90 min based on the weight of the individual. In some examples, the administering further comprises administering about 20 mg/kg of the antagonist of IGF1R signaling once every 3 weeks for about 7 times.

[0007] In another example, provided herein is a method of treating an individual afflicted with an insulin-like growth factor 1 receptor (IGF1R) associated disorder the method comprising: a) obtaining the results of a test for blood glucose control from the individual; and b) administering an antagonist of IGF1R signaling to the individual if the individual exhibits normal blood glucose control by the test for blood glucose control. In some

examples, the IGF1R associated disorder comprises thyroid eye disease. In some examples, the antagonist of IGF1R signaling comprises an antibody that binds IGF1R. In some examples, the antibody that binds IGF1R comprises ganitumab, figitumumab, MEDI-573, cixutumumab, dalotuzumab, robatumumab, AVE1642, BIIB022, xentuzumab, istiratumab, or linsitinib. In some examples, the antibody that binds IGF1R comprises teprotumumab. In some examples, the antagonist of IGF1R signaling comprises a small molecule that inhibits IGF1R signaling. In some examples, the small molecule that inhibits IGF1R signaling comprises picropodophyllin, BMS-754807, BMS-536924, BMS- 554417, GSK1838705A, GSK1904529A, NVP-AEW541, NVP-ADW742, GTx-134, AG1024, KW-2450, PL-2258, NVP-AEW541, INSM-18, AZD3463, AZD9362, BI885578, BI893923, TT-100 (NDGA), XL-228, ganetespib, ceritinib, or A-928605. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising: (i) a first heavy chain complementarity determining region (HCDR1) comprising an amino acid sequence according to SEQ ID No.: 5; (ii) a second heavy chain complementarity determining region (HCDR2) comprising an amino acid sequence according to SEQ ID No.: 6; and (iii) a third heavy chain complementarity determining region (HCDR3) comprising an amino acid sequence according to SEQ ID No.: 7; and b) a light chain comprising: (i) a first light chain complementarity determining region (LCDR1) comprising an amino acid sequence according to SEQ ID No.: 8; (ii) a second light chain complementarity determining region (LCDR2) comprising an amino acid sequence according to SEQ ID No.: 9; and (iii) a third light chain complementarity determining region (LCDR3) comprising an amino acid sequence according to SEQ ID No.: 10. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain variable domain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 3; and b) a light chain variable domain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 4. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain variable domain comprising an amino acid sequence according to SEQ ID No.: 3; and b) a light chain variable domain comprising an amino acid sequence according to SEQ ID No.: 4. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 1; and b) a light chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 2. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising an amino acid sequence

according to SEQ ID No.: 1; and b) a light chain comprising an amino acid sequence according to SEQ ID No.: 2.

[0008] In some examples, the test for blood glucose control comprises a measurement of hemoglobin A1c (HbA1c), an oral glucose tolerance test, a measurement of fasting blood glucose, a measurement of non-fasting blood glucose, or any combination thereof. In some examples, the test for blood glucose control comprises a measurement of hemoglobin A1c (HbA1c). In some examples, the individual exhibits normal blood glucose control if the measurement of HbA1c is below about 6.5%. In some examples, the individual exhibits normal blood glucose control if the measurement of HbA1c is below about 5.7%. In some examples, the test for blood glucose control comprises an oral glucose tolerance test. In some examples, the individual exhibits normal blood glucose control if the individual exhibits a blood glucose level below about 200 mg/dL about two hours after oral ingestion of about 75 grams of sugar. In some examples, the individual exhibits normal blood glucose control if the individual exhibits a blood glucose level of about 140 mg/dL or less about two hours after oral ingestion of about 75 grams of sugar. In some examples, the test for blood glucose control comprises a measurement of fasting blood glucose. In some examples, the individual exhibits normal blood glucose control if the individual exhibits a blood glucose level below about 126 mg/dL after an overnight fast. In some examples, the individual exhibits normal blood glucose control if the individual exhibits a blood glucose level of about 99 mg/dL or less after an overnight fast. In some examples, the overnight fast lasts at least about 8 hours. In some examples, the overnight fast lasts between about 8 and about 16 hours. In some examples, the test for blood glucose control comprises a measurement of non-fasting blood glucose. In some examples, the individual exhibits normal blood glucose control if the individual exhibits a non-fasting blood glucose level below about 200 mg/dL. In some examples, the individual is diagnosed with hyperglycemia, prediabetes, or diabetes before the treatment with the antagonist of IGF1R signaling. In some examples, the administering comprises intravenous infusion. In some examples, the administering comprises administering about 10 mg/kg of the antagonist of IGF1R signaling over the course of about 60 min to about 90 min based on the weight of the individual. In some examples, the administering further comprises administering about 20 mg/kg of the antagonist of IGF1R signaling over the course of about 60 min to about 90 min based on the weight of the individual. In some examples, the administering further comprises administering about 20 mg/kg of the antagonist of IGF1R signaling once every 3 weeks for about 7 times.

[0009] In one aspect, the present disclosure refers to a method of monitoring an individual being treated for thyroid eye disease with an antagonist of IGF1R signaling, the method comprising: a) obtaining the results of a test for blood glucose control from the individual being treated with the antagonist of IGF1R signaling, wherein the antagonist of IGF1R signaling is an antibody that binds IGF1R; and b) wherein the treatment of the individual with the antagonist of IGF1R signaling is to be interrupted if the individual exhibits abnormal blood glucose control by the results of the test for blood glucose control. In another example, provided herein is a method of monitoring an individual being treated with an antagonist of insulin-like growth factor 1 receptor (IGF1R) signaling, wherein the individual is afflicted with an IGF1R associated disorder, the method comprising: a) obtaining the results of a test for blood glucose control from the individual being treated with the antagonist of IGF1R signaling; and b) interrupting the treatment of the individual with the antagonist of IGF1R signaling if the individual exhibits abnormal blood glucose control by the test for blood glucose control. In some examples, the IGF1R associated disorder comprises thyroid eye disease. In some examples, the antagonist of IGF1R signaling comprises an antibody that binds IGF1R. In some examples, the antibody that binds IGF1R comprises ganitumab, figitumumab, MEDI-573, cixutumumab, dalotuzumab, robatumumab, AVE1642, BIIB022, xentuzumab, istiratumab, or linsitinib. In some examples, the antibody that binds IGF1R comprises teprotumumab. In some examples, the antagonist of IGF1R signaling comprises a small molecule that inhibits IGF1R signaling. In some examples, the small molecule that inhibits IGF1R signaling comprises picropodophyllin, BMS-754807, BMS-536924, BMS- 554417, GSK1838705A, GSK1904529A, NVP-AEW541, NVP-ADW742, GTx-134, AG1024, KW-2450, PL-2258, NVP-AEW541, INSM-18, AZD3463, AZD9362, BI885578, BI893923, TT-100 (NDGA), XL-228, ganetespib, ceritinib, or A-928605. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising: (i) a first heavy chain complementarity determining region (HCDR1) comprising an amino acid sequence according to SEQ ID No.: 5; (ii) a second heavy chain complementarity determining region (HCDR2) comprising an amino acid sequence according to SEQ ID No.: 6; and (iii) a third heavy chain complementarity determining region (HCDR3) comprising an amino acid sequence according to SEQ ID No.: 7; and b) a light chain comprising: (i) a first light chain complementarity determining region (LCDR1) comprising an amino acid sequence according to SEQ ID No.: 8; (ii) a second light chain complementarity determining region (LCDR2) comprising an amino acid sequence according to SEQ ID No.: 9; and (iii) a third light chain complementarity determining region (LCDR3) comprising an amino acid sequence according to SEQ ID No.: 10. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain variable domain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 3; and b) a light chain variable domain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 4. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain variable domain comprising an amino acid sequence according to SEQ ID No.: 3; and b) a light chain

variable domain comprising an amino acid sequence according to SEQ ID No.: 4. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 1; and b) a light chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 2. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising an amino acid sequence according to SEQ ID No.: 1; and b) a light chain comprising an amino acid sequence according to SEQ ID No.: 2.

[0010] In some examples, the test for blood glucose control comprises a measurement of hemoglobin A1c (HbA1c), an oral glucose tolerance test, a measurement of fasting blood glucose, a measurement of non-fasting blood glucose, or any combination thereof. In some examples, the test for blood glucose control comprises a measurement of hemoglobin A1c (HbA1c). In some examples, the individual exhibits abnormal blood glucose control if the measurement of HbA1c is about 6.5% or above. In some examples, the individual exhibits abnormal blood glucose control if the measurement of HbA1c is above about 5.7% or above. In some examples, the test for blood glucose control comprises an oral glucose tolerance test. In some examples, the individual exhibits abnormal blood glucose control if the individual exhibits a blood glucose level of at least about 200 mg/dL about two hours after oral ingestion of about 75 grams of sugar. In some examples, the individual exhibits abnormal blood glucose control if the individual exhibits a blood glucose level above about 140 mg/dL about two hours after oral ingestion of about 75 grams of sugar. In some examples, the test for blood glucose control comprises a measurement of fasting blood glucose. In some examples, the individual exhibits abnormal blood glucose control if the measurement of fasting blood glucose is about 126 mg/dL or above after an overnight fast. In some examples, the individual exhibits abnormal blood glucose control if the measurement of fasting blood glucose is above about 99 mg/dL after an overnight fast. In some examples, the overnight fast lasts at least about 8 hours. In some examples, the overnight fast lasts between about 8 and about 16 hours. In some examples, the test for blood glucose control comprises a measurement of non-fasting blood glucose. In some examples, the individual exhibits abnormal blood glucose control if the individual exhibits a non-fasting blood glucose level of about 200 mg/dL or above. In some examples, the individual is diagnosed with pre-existing hyperglycemia, prediabetes, or diabetes before the treatment with the antagonist of IGF1R signaling. In some examples, the administering comprises intravenous infusion. In some examples, the method further comprises obtaining the results of a second test for blood glucose control from the individual

after treating the individual for abnormal blood glucose control. In some examples, the method further comprises administering the antagonist of IGF1R signaling to the individual if the individual exhibits normal blood glucose control by the second test for blood glucose control. In some examples, the administering further comprises administering about 10 mg/kg of the antagonist of IGF1R signaling based on the weight of the individual. In some examples, the administering further comprises administering about 20 mg/kg of the antagonist of IGF1R signaling based on the weight of the individual once every 3 weeks for about 7 times.

[0011] In another example, provided herein is a method of treating an individual afflicted with an insulin-like growth factor 1 receptor (IGF1R) associated disorder, the method comprising: a) administering a first dose of an antagonist of IGF1R signaling to the individual; b) obtaining the results of a test for blood glucose control from the individual; and c) administering a second dose of the antagonist of IGF1R signaling to the individual if the individual exhibits abnormal blood glucose control by the test for blood glucose control, wherein the second dose is lower than the first dose. In some examples, the IGF1R associated disorder comprises thyroid-eye disease. In some examples, the antagonist of IGF1R signaling comprises an antibody that binds IGF1R. In some examples, the antibody that binds IGF1R comprises ganitumab, figitumumab, MEDI-573, cixutumumab, dalotuzumab, robatumumab, AVE1642, BIIB022, xentuzumab, istiratumab, or linsitinib. In some examples, the antibody that binds IGF1R comprises teprotumumab. In some examples, the antagonist of IGF1R signaling comprises a small molecule that inhibits IGF1R signaling. In some examples, the small molecule that inhibits IGF1R signaling comprises picropodophyllin, BMS-754807, BMS-536924, BMS- 554417, GSK1838705A, GSK1904529A, NVP-AEW541, NVP-ADW742, GTx-134, AG1024, KW-2450, PL-2258, NVP-AEW541, INSM-18, AZD3463, AZD9362, BI885578, BI893923, TT-100 (NDGA), XL-228, or A-928605. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising: (i) a first heavy chain complementarity determining region (HCDR1) comprising an amino acid sequence according to SEQ ID No.: 5; (ii) a second heavy chain complementarity determining region (HCDR2) comprising an amino acid sequence according to SEQ ID No.: 6; and (iii) a third heavy chain complementarity determining region (HCDR3) comprising an amino acid sequence according to SEQ ID No.: 7; and b) a light chain comprising: (i) a first light chain complementarity determining region (LCDR1) comprising an amino acid sequence according to SEQ ID No.: 8; (ii) a second light chain complementarity determining region (LCDR2) comprising an amino acid sequence

according to SEQ ID No.: 9; and (iii) a third light chain complementarity determining region (LCDR3) comprising an amino acid sequence according to SEQ ID No.: 10. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain variable domain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 3; and b) a light chain variable domain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 4. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain variable domain comprising an amino acid sequence according to SEQ ID No.: 3; and b) a light chain variable domain comprising an amino acid sequence according to SEQ ID No.: 4. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 1; and b) a light chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 2. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising an amino acid sequence according to SEQ ID No.: 1; and b) a light chain comprising an amino acid sequence according to SEQ ID No.: 2.

[0012] In some examples, the test for blood glucose control comprises a measurement of hemoglobin A1c (HbA1c), an oral glucose tolerance test, a measurement of fasting blood glucose, a measurement of non-fasting blood glucose, or any combination thereof. In some examples, the test for blood glucose control comprises a measurement of hemoglobin A1c (HbA1c). In some examples, the individual exhibits abnormal blood glucose control if the measurement of HbA1c is about 6.5% or above. In some examples, the individual exhibits abnormal blood glucose control if the measurement of HbA1c is about 5.7% or above. In some examples, the test for blood glucose control comprises an oral glucose tolerance test. In some examples, the individual exhibits abnormal blood glucose control if the individual exhibits a blood glucose level of about 200 mg/dL or above about two hours after oral ingestion of about 75 grams of sugar. In some examples, the individual exhibits abnormal blood glucose control if the individual exhibits a blood glucose level above about 140 mg/dL about two hours after oral ingestion of about 75 grams of sugar. In some examples, the test for blood glucose control comprises a measurement of fasting blood glucose. In some examples, the individual exhibits abnormal blood glucose control if the measurement of fasting blood glucose is about 126 mg/dL or above after an overnight fast. In some examples, the individual exhibits abnormal blood glucose control if the measurement of fasting blood glucose is above about 99 mg/dL after an overnight fast. In some examples, the overnight fast lasts at least about 8 hours. In some examples, the

overnight fast lasts between about 8 and about 16 hours. In some examples, the test for blood glucose control comprises a measurement of non-fasting blood glucose. In some examples, the individual exhibits abnormal blood glucose control if the individual exhibits a non-fasting blood glucose level of about 200 mg/dL or above. In some examples, the individual is diagnosed with pre-existing hyperglycemia, prediabetes or diabetes before the treatment with the antagonist of IGF1R signaling. In some examples, the administering comprises intravenous infusion. In some examples, the first dose comprises about 10 mg/kg of the antagonist of IGF1R signaling being administered over the course of about 60 min to about 90 min based on the weight of the individual. In some examples, the first dose further comprises about 20 mg/kg of the antagonist of IGF1R signaling being administered over the course of about 60 min to about 90 min based on the weight of the individual. In some examples, the about 20 mg/kg of the antagonist of IGF1R signaling is administered to the individual once every 3 weeks for about 7 times.

[0013] In one aspect, the present disclosure refers to use of an antagonist of insulin-like growth factor 1 receptor (IGF1R) signaling in the manufacture of a medicament for treating an individual afflicted with thyroid eye disease, wherein the individual afflicted with thyroid eye disease exhibits normal blood glucose control by a first test for blood glucose control; and wherein the antagonist of IGF1R signaling is an antibody that binds IGF1R; wherein a) a first dose of the antagonist of IGF1R signaling is to be administered to the individual; and b) obtaining the results of a second test for blood glucose control from the individual being treated with the antagonist of IGF1R signaling. In another example, provided herein is a method of treating an individual afflicted with an insulin-like growth factor 1 receptor (IGF1R) associated disorder, the method comprising: a) selecting an individual afflicted with the IGF1R associated disorder for treatment with an antagonist of IGF1R signaling if the individual exhibits normal blood glucose control by a first test for blood glucose control; b) administering a first dose of the antagonist of IGF1R signaling to the individual; and c) obtaining the results of a second test for blood glucose control from the individual being treated with the antagonist of IGF1R signaling. In some examples, the method further comprises interrupting treatment of the individual with the antagonist of IGF1R signaling if the individual exhibits abnormal blood glucose control by the results of the second test for blood glucose control. In some examples, the method further comprises administering a second dose of the antagonist of IGF1R signaling to the individual if the individual exhibits abnormal blood glucose control by the results of the second test for blood glucose control. In some examples,the IGF1R associated disorder comprises thyroid-eye disease. In some examples, the antagonist of IGF1R signaling comprises an antibody that binds IGF1R. In some examples, the antibody that binds IGF1R comprises ganitumab, figitumumab, MEDI-573, cixutumumab, dalotuzumab, robatumumab, AVE1642, BIIB022, xentuzumab, istiratumab, or linsitinib. In some examples, the antibody that binds IGF1R comprises teprotumumab. In some examples, the antagonist of IGF1R signaling comprises a small molecule that inhibits IGF1R signaling. In some examples, the small molecule that inhibits IGF1R signaling comprises picropodophyllin, BMS-754807, BMS-536924, BMS- 554417, GSK1838705A,

GSK1904529A, NVP-AEW541, NVP-ADW742, GTx-134, AG1024, KW-2450, PL-2258, NVP-AEW541, INSM-18, AZD3463, AZD9362, BI885578, BI893923, TT-100 (NDGA), XL-228, or A-928605. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising: (i) a first heavy chain complementarity determining region (HCDR1) comprising an amino acid sequence according to SEQ ID No.: 5; (ii) a second heavy chain complementarity determining region (HCDR2) comprising an amino acid sequence according to SEQ ID No.: 6; and (iii) a third heavy chain complementarity determining region (HCDR3) comprising an amino acid sequence according to SEQ ID No.: 7; and b) a light chain comprising: (i) a first light chain complementarity determining region (LCDR1) comprising an amino acid sequence according to SEQ ID No.: 8; (ii) a second light chain complementarity determining region (LCDR2) comprising an amino acid sequence according to SEQ ID No.: 9; and (iii) a third light chain complementarity determining region (LCDR3) comprising an amino acid sequence according to SEQ ID No.: 10. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain variable domain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 3; and b) a light chain variable domain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 4. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain variable domain comprising an amino acid sequence according to SEQ ID No.: 3; and b) a light chain variable domain comprising an amino acid sequence according to SEQ ID No.: 4. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 1; and b) a light chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 2. In some examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising an amino acid sequence according to SEQ ID No.: 1; and b) a light chain comprising an amino acid sequence according to SEQ ID No.: 2.

[0014] In some examples, the first or second test for blood glucose control comprises a measurement of hemoglobin A1c (HbA1c), an oral glucose tolerance test, a measurement of fasting blood glucose, a measurement of non-fasting blood glucose, or any combination thereof. In some examples, the first or second test for blood glucose control comprises a measurement of hemoglobin A1c (HbA1c). In some examples, the individual exhibits abnormal blood glucose control if the measurement of HbA1c is about 6.5% or above, wherein the individual exhibits normal blood glucose control if the measurement of hemoglobin A1c (HbA1c) is below about 6.5%. In some examples, the individual

exhibits abnormal blood glucose control if the measurement of HbA1c is about 5.7% or above, wherein the individual exhibits normal blood glucose control if the measurement of hemoglobin A1c (HbA1c) is below about 5.7%. In some examples, the test for blood glucose control comprises an oral glucose tolerance test. In some examples, the individual exhibits abnormal blood glucose control if the individual exhibits a blood glucose level of at least about 200 mg/dL about two hours after oral ingestion of about 75 grams of sugar, wherein the individual exhibits normal blood glucose control if the individual exhibits a blood glucose level below about 200 mg/dL about two hours after oral ingestion of about 75 grams of sugar. In some examples, the individual exhibits abnormal blood glucose control if the individual exhibits a blood glucose level above about 140 mg/dL about two hours after oral ingestion of 75 grams of sugar, wherein the individual exhibits normal blood glucose control if the individual exhibits a blood glucose level of about 140 mg/dL or less about two hours after oral ingestion of about 75 grams of sugar. In some examples, the test for blood glucose control comprises a measurement of fasting blood glucose. In some examples, the individual exhibits abnormal blood glucose control if the measurement of fasting blood glucose is about 126 mg/dL or above after an overnight fast, wherein the individual exhibits normal blood glucose control if the individual exhibits a blood glucose level below about 126 mg/dL after an overnight fast. In some examples, the individual exhibits abnormal blood glucose control if the measurement of fasting blood glucose is above about 99 mg/dL after an overnight fast, wherein the individual exhibits normal blood glucose control if the individual exhibits a blood glucose level of about 99 mg/dL or less after an overnight fast. In some examples, the overnight fast lasts at least about 8 hours. In some examples, the overnight fast lasts between about 8 and about 16 hours. In some examples, the test for blood glucose control comprises a measurement of non-fasting blood glucose. In some examples, the individual exhibits abnormal blood glucose control if the individual exhibits a non-fasting blood glucose level of about 200 mg/dL or above, wherein the individual exhibits normal blood glucose control if the individual exhibits a non-fasting blood glucose level below about 200 mg/dL. In some examples, the individual is diagnosed with pre-existing hyperglycemia, prediabetes, or diabetes before the treatment with the antagonist of IGF1R signaling. In some examples, the administering comprises intravenous infusion. In some examples, the first dose comprises about 10 mg/kg of the antagonist of IGF1R signaling being administered over the course of about 60 min to about 90 min based on the weight of the individual. In some examples, the first dose further comprises about 20 mg/kg of the antagonist of IGF1R signaling being administered over the

course of about 60 min to about 90 min based on the weight of the individual. In some examples, the about 20 mg/kg of the antagonist of IGF1R signaling is administered to the individual once every 3 weeks for 7 times. In some examples, the method further comprises treating the individual for abnormal blood control if the individual exhibits abnormal blood glucose control by the results of the second test for blood glucose control.

[0015] In one aspect, the present disclosure refers to use of a dose of an antagonist of insulin-like growth factor 1 receptor (IGF1R) signaling in the manufacture of a medicament for treating an individual with thyroid eye disease, wherein the use comprises that: the dose of the antagonist of IGF1R signaling is to be administered to the individual if the individual does not exhibit elevated blood glucose by the results of a test for blood glucose obtained from the individual, wherein the antagonist of IGF1R signaling is an antibody that binds IGF1R. Described herein in one example is a method of treating an individual afflicted with an insulin-like growth factor 1 receptor (IGF1R) associated disorder, the method comprising: a) obtaining the results of a test for blood glucose from the individual; and b)administering a dose of the antagonist of IGF1R signaling to the individual if the individual does not exhibit elevated blood glucose by the test for blood glucose. In certain examples, the IGF1R associated disorder comprises thyroid eye disease. In certain examples, the antagonist of IGF1R signaling comprises an antibody that binds IGF1R. In certain examples, the antibody that binds IGF1R comprises ganitumab, figitumumab, MEDI-573, cixutumumab, dalotuzumab, robatumumab, AVE1642, BIIB022, xentuzumab, istiratumab, or linsitinib. In certain examples, the antibody that binds IGF1R comprises teprotumumab. In certain examples, the antagonist of IGF1R signaling comprises a small molecule that inhibits IGF1R signaling. In certain examples, the small molecule that inhibits IGF1R signaling comprises picropodophyllin, BMS-754807, BMS-536924, BMS- 554417, GSK1838705A, GSK1904529A, NVP-AEW541, NVP-ADW742, GTx-134, AG1024, KW-2450, PL-2258, NVP-AEW541, INSM-18, AZD3463, AZD9362, BI885578, BI893923, TT-100 (NDGA), XL-228, or A-928605. In certain examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising: (i) a first heavy chain complementarity determining region (HCDR1) comprising an amino acid sequence according to SEQ ID No.: 5; (ii) a second heavy chain complementarity determining region (HCDR2) comprising an amino acid sequence according to SEQ ID No.: 6; and (iii) a third heavy chain complementarity determining region (HCDR3) comprising an amino acid sequence according to SEQ ID No.: 7; and b) a light chain comprising: (i) a first light chain complementarity determining region (LCDR1) comprising an amino acid sequence according to SEQ ID No.: 8; (ii) a second light chain complementarity determining region (LCDR2) comprising an amino acid sequence according to SEQ ID No.: 9; and (iii) a third light chain complementarity determining region (LCDR3) comprising an amino acid sequence according to SEQ ID No.: 10. In certain examples, the antibody that binds IGF1R comprises: a) a heavy chain variable domain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 3; and b) a light chain variable domain comprising an amino acid sequence

having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 4. In certain examples, the antibody that binds IGF1R comprises: a) a heavy chain variable domain comprising an amino acid sequence according to SEQ ID No.: 3; and b) a light chain variable domain comprising an amino acid sequence according to SEQ ID No.: 4. In certain examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 1; and b) a light chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 2. In certain examples, the antibody that binds IGF1R comprises: a) a heavy chain comprising an amino acid sequence according to SEQ ID No.: 1; and b) a light chain comprising an amino acid sequence according to SEQ ID No.: 2. In certain examples, the test for blood glucose comprises a measurement of hemoglobin A1c (HbA1c), an oral glucose tolerance test, a measurement of fasting blood glucose, a measurement of non-fasting blood glucose, or any combination thereof. In certain examples, the test for blood glucose comprises a measurement of hemoglobin A1c (HbA1c). In certain examples, the individual does not exhibit elevated blood glucose if the measurement of HbA1c is about 6.5% or below. In certain examples, the individual does not exhibit elevated blood glucose if the measurement of HbA1c is about 5.7% or below. In certain examples, the test for blood glucose comprises an oral glucose tolerance test. In certain examples, the individual does not exhibit elevated blood glucose if the individual exhibits a blood glucose level below 200 mg/dL after about two hours after oral ingestion of about 75 grams of sugar. In certain examples, the individual does not exhibit elevated blood glucose if the individual exhibits a blood glucose level below 140 mg/dL after about two hours after oral ingestion of about 75 grams of sugar. In certain examples, the test for blood glucose comprises a measurement of fasting blood glucose. In certain examples, the individual does not exhibit elevated blood glucose if the measurement of fasting blood glucose is below 126 mg/dL after an overnight fast. In certain examples, the individual does not exhibit elevated blood glucose if the measurement of fasting blood glucose is below 99 mg/dL after an overnight fast. In certain examples, the overnight fast lasts at least about 8 hours. In certain examples, the overnight fast lasts between about 8 and about 16 hours. In certain examples, the test for blood glucose comprises a measurement of non-fasting blood glucose. In certain examples, the individual does not exhibit elevated blood glucose if the individual exhibits a non-fasting blood glucose level of below about 200 mg/dL. In certain examples, the individual is diagnosed with pre-existing hyperglycemia, prediabetes or diabetes before the treatment with the antagonist of

IGF1R signaling. In certain examples, the administering comprises intravenous infusion. In certain examples, dose comprises about 10 mg/kg of the antagonist of IGF1R signaling being administered over the course of about 60 min to about 90 min based on the weight of the individual. In certain examples, the dose comprises about 20 mg/kg of the antagonist of IGF1R signaling being administered over the course of about 60 min to about 90 min based on the weight of the individual. In certain examples, the about 20 mg/kg of the antagonist of IGF1R signaling is administered to the individual once every 3 weeks for about 7 times.

[0016] In one aspect, the present disclosure refers to the use of one or more anti-diabetic drugs to lower blood glucose levels in the manufacture of a first medicament and use of an antagonist of insulin-like growth factor 1 receptor (IGF1R) signaling in the manufacture of a second medicament, wherein the first and second medicament are to be used in combination therapy for treating thyroid eye disease in an individual with diabetes wherein the antagonist of IGF1R signaling is an antibody that binds IGF1R. Also described herein in another example is a method of treating an individual afflicted with an insulin-like growth factor 1 receptor (IGF1R) associated disorder wherein the individual is also afflicted with diabetes, the method comprising: (a) administering one or more anti-diabetic drugs to lower blood glucose levels; and (b) administering a dose of the antagonist of IGF1R signaling to the individual. In certain examples, the IGF1R associated disorder comprises thyroid eye disease. In certain examples, the antagonist of IGF1R signaling comprises an antibody that binds IGF1R. In certain examples, the antibody that binds IGF1R comprises ganitumab, figitumumab, MEDI-573, cixutumumab, dalotuzumab, robatumumab, AVE1642, BIIB022, xentuzumab, istiratumab, or linsitinib. In certain examples, the antibody that binds IGF1R comprises teprotumumab. In certain examples, the antagonist of IGF1R signaling comprises a small molecule that inhibits IGF1R signaling. In certain examples, the small molecule that inhibits IGF1R signaling comprises picropodophyllin, BMS-754807, BMS-536924, BMS-554417, GSK1838705A, GSK1904529A, NVP-AEW541, NVP-ADW742, GTx-134, AG1024, KW-2450, PL-2258, NVP-AEW541, INSM-18, AZD3463, AZD9362, BI885578, BI893923, TT-100 (NDGA), XL-228, or A-928605. In certain examples, the antibody that binds IGF1R comprises: (a) a heavy chain comprising: (i) a first heavy chain complementarity determining region (HCDR1) comprising an amino acid sequence according to SEQ ID No.: 5; (ii) a second heavy chain complementarity determining region (HCDR2) comprising an amino acid sequence according to SEQ ID No.: 6; and (iii) a third heavy chain complementarity determining region (HCDR3) comprising an amino acid sequence according to SEQ ID No.: 7; and (b) a light chain comprising: (i) a first light chain complementarity determining region (LCDR1) comprising an amino acid sequence according to SEQ ID No.: 8; (ii) a second light chain complementarity determining region (LCDR2) comprising an amino acid sequence according to SEQ ID No.: 9; and (iii) a third light chain complementarity determining region (LCDR3) comprising an amino acid sequence according to SEQ ID No.: 10. In certain

examples, the antibody that binds IGF1R comprises: (a) a heavy chain variable domain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 3; and (b) a light chain variable domain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 4. In certain examples, the antibody that binds IGF1R comprises: (a) a heavy chain variable domain comprising an amino acid sequence according to SEQ ID No.: 3; and (b) a light chain variable domain comprising an amino acid sequence according to SEQ ID No.: 4. In certain examples, the antibody that binds IGF1R comprises: (a) a heavy chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 1; and (b) a light chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 2. V the antibody that binds IGF1R comprises: (a) a heavy chain comprising an amino acid sequence according to SEQ ID No.: 1; and (b) a light chain comprising an amino acid sequence according to SEQ ID No.: 2. In certain examples, the one or more anti-diabetic drugs are selected from the list consisting of insulin, metformin, pioglitazone, rosiglitazone, acarbose, miglitol, bromocriptine, alogliptin, linagliptin, saxagliptin, sitagliptin, dulaglutide, exenatide, liraglutide, lixisenatide, semaglutide, tirzepatide, nateglinide, repaglinide, canagliflozin, dapagliflozin, empagliflozin, ertugliflozin, glimepiride, gliclazide, glipizide, and combinations thereof. In certain examples, blood glucose levels are established by a measurement of hemoglobin A1c (HbA1c), an oral glucose tolerance test, a measurement of fasting blood glucose, a measurement of non-fasting blood glucose, or any combination thereof. In certain examples, the administering comprises intravenous infusion. In certain examples, dose comprises about 10 mg/kg of the antagonist of IGF1R signaling being administered over the course of about 60 min to about 90 min based on the weight of the individual. In certain examples, the dose comprises about 20 mg/kg of the antagonist of IGF1R signaling being administered over the course of about 60 min to about 90 min based on the weight of the individual. In certain examples, the about 20 mg/kg of the antagonist of IGF1R signaling is administered to the individual once every 3 weeks for about 7 times.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The novel features of the disclosure are set forth with particularity in the appended claims. A better understanding of the features and advantages of the present invention will be obtained by reference to the following detailed description that sets forth illustrative

CLAIMS

WHAT IS CLAIMED IS:

1. Use of an antagonist of insulin-like growth factor 1 receptor (IGF1R) signaling in the manufacture of a medicament for treating an individual afflicted with thyroid eye disease, wherein the individual afflicted with thyroid eye disease exhibits normal blood glucose control by a test for blood glucose control; and
   wherein the antagonist of IGF1R signaling is an antibody that binds IGF1R.
2. The use of claim 1, wherein the test for blood glucose control comprises a measurement of hemoglobin A1c (HbA1c).
3. The use of claim 2, wherein the individual exhibits normal blood glucose control if the measurement of HbA1c is below about 6.5%.
4. The use of claim 1, wherein the test for blood glucose control comprises a measurement of fasting blood glucose.
5. The use of claim 4, wherein the individual exhibits normal blood glucose control if the measurement of fasting blood glucose is below about 126 mg/dL after an overnight fast.
6. A method of monitoring an individual being treated for thyroid eye disease with an antagonist of IGF1R signaling, the method comprising:

   a) obtaining the results of a test for blood glucose control from the individual being treated with the antagonist of IGF1R signaling, wherein the antagonist of IGF1R signaling is an antibody that binds IGF1R; and

   b) wherein the treatment of the individual with the antagonist of IGF1R signaling is to be interrupted if the individual exhibits abnormal blood glucose control by the results of the test for blood glucose control.
7. The method of claim 6, wherein the test for blood glucose control comprises a measurement of HbA1c.
8. The method of claim 7, wherein the individual exhibits abnormal blood glucose control if the measurement of HbA1c is at least about 6.5%.
9. The method of claim 6, wherein the test for blood glucose control comprises a measurement of fasting blood glucose.
10. The method of claim 9, wherein the individual exhibits abnormal blood glucose control if the measurement of fasting blood glucose is at least about 126 mg/dL after an overnight fast.

11. The method of claim 6, further comprising obtaining the results of a second test for blood glucose control from the individual after treatment of the individual for abnormal blood glucose control after the interruption and administration of the antagonist of IGF1R signaling to the individual if the individual exhibits normal blood glucose control by the second test for blood glucose control.
12. Use of an antagonist of insulin-like growth factor 1 receptor (IGF1R) signaling in the manufacture of a medicament for treating an individual afflicted with thyroid eye disease, wherein the individual afflicted with thyroid eye disease exhibits normal blood glucose control by a first test for blood glucose control; and

wherein the antagonist of IGF1R signaling is an antibody that binds IGF1R; wherein

a) a first dose of the antagonist of IGF1R signaling is to be administered to the individual; and

b) obtaining the results of a second test for blood glucose control from the individual being treated with the antagonist of IGF1R signaling.
13. The use of claim 12, further comprising that the treatment of the individual with the antagonist of IGF1R signaling is to be interrupted if the individual exhibits abnormal blood glucose control by the results of the second test for blood glucose control.
14. The use of claim 12, further comprising that a second dose of the antagonist of IGF1R signaling is to be administered to the individual if the individual exhibits abnormal blood glucose control by the results of the second test for blood glucose control, wherein the second dose is lower than the first dose.
15. The use of claim 12, wherein the first or second test for blood glucose control comprises a measurement of HbA1c.
16. The use of claim 15, wherein the individual exhibits abnormal blood glucose control if the measurement of HbA1c is about 6.5% or above and the individual exhibits normal blood glucose control if the measurement of HbA1c is below about 6.5%.
17. The use of claim 12, wherein the first or second test for blood glucose control comprises that fasting blood glucose is to be measured.
18. The use of claim 17, wherein the individual exhibits abnormal blood glucose control if the measurement of fasting blood glucose is about 126 mg/dL or above after an overnight fast and the individual exhibits normal blood glucose control if the measurement of fasting blood glucose is below about 126 mg/dL after an overnight fast.

19. The use of any one of claims 12 to 18, wherein the use further comprises that the individual is to be treated for abnormal blood control if the individual exhibits abnormal blood glucose control by the results of the second test for blood glucose control.
20. Use of a dose of an antagonist of insulin-like growth factor 1 receptor (IGF1R) signaling in the manufacture of a medicament for treating an individual with thyroid eye disease, wherein the use comprises that:

the dose of the antagonist of IGF1R signaling is to be administered to the individual if the individual does not exhibit elevated blood glucose by the results of a test for blood glucose obtained from the individual, wherein the antagonist of IGF1R signaling is an antibody that binds IGF1R.

21. The use of claim 20, wherein the test for blood glucose comprises a measurement of HbA1c.
22. The use of claim 21, wherein the individual does not exhibit elevated blood glucose if the measurement of HbA1c is about 6.5% or below.
23. The use of claim 20, wherein the test for blood glucose comprises a measurement of fasting blood glucose.
24. The use of claim 23, wherein the individual does not exhibit elevated blood glucose if the measurement of fasting blood glucose is below 126 mg/dL after an overnight fast.
25. The use of any one of claims 1 to 24, wherein the individual is diagnosed with prediabetes before the treatment with the antagonist of IGF1R signaling.
26. The use of any one of claims 1 to 24, wherein the individual is diagnosed with diabetes before the treatment with the antagonist of IGF1R signaling.
27. Use of one or more anti-diabetic drugs to lower blood glucose levels in the manufacture of a first medicament and use of an antagonist of insulin-like growth factor 1 receptor (IGF1R) signaling in the manufacture of a second medicament, wherein the first and second medicament are to be used in combination therapy for treating thyroid eye disease in an individual with diabetes,

wherein the antagonist of IGF1R signaling is an antibody that binds IGF1R.

28. The use of claim 27, wherein one or more anti-diabetic drugs are selected from the list consisting of insulin, metformin, pioglitazone, rosiglitazone, acarbose, miglitol, bromocriptine, alogliptin, linagliptin, saxagliptin, sitagliptin, dulaglutide, exenatide, liraglutide, lixisenatide, semaglutide, tirzepatide, nateglinide, repaglinide, canagliflozin,

dapagliflozin, empagliflozin, ertugliflozin, glimepiride, gliclazide, glipizide, and combinations thereof.

29. The use of any one of claims 1 to 28, wherein the antibody that binds IGF1R comprises:
a) a heavy chain comprising:
(i) a first heavy chain complementarity determining region (HCDR1) comprising an amino acid sequence according to SEQ ID No.: 5;
(ii) a second heavy chain complementarity determining region (HCDR2) comprising an amino acid sequence according to SEQ ID No.: 6; and
(iii) a third heavy chain complementarity determining region (HCDR3) comprising an amino acid sequence according to SEQ ID No.: 7; and
b) a light chain comprising:
(i) a first light chain complementarity determining region (LCDR1) comprising an amino acid sequence according to SEQ ID No.: 8;
(ii) a second light chain complementarity determining region (LCDR2) comprising an amino acid sequence according to SEQ ID No.: 9; and
(iii) a third light chain complementarity determining region (LCDR3) comprising an amino acid sequence according to SEQ ID No.: 10.

30. The use of any one of claims 1 to 29, wherein the antibody that binds IGF1R comprises:
a) a heavy chain variable domain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 3; and
b) a light chain variable domain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 4.

31. The use of claim 30, wherein the antibody that binds IGF1R comprises:
a) a heavy chain variable domain comprising the amino acid sequence of SEQ ID No.: 3; and
b) a light chain variable domain comprising the amino acid sequence of SEQ ID No.: 4.

32. The use of any one of claims 1 to 31, wherein the antibody that binds IGF1R comprises:
a) a heavy chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 1; and
b) a light chain comprising an amino acid sequence having at least 85%, 90%, or 95% sequence identity to SEQ ID No.: 2.

33. The use of claim 32, wherein the antibody that binds IGF1R comprises:
a) a heavy chain comprising the amino acid sequence of SEQ ID No.: 1; and

b) a light chain comprising the amino acid sequence of SEQ ID No.: 2.

34. The use of any one of claims 1 to 33, wherein the antibody that binds IGF1R is teprotumumab.

35. The use of any one of claims 1 to 28, wherein the antibody that binds IGF1R is ganitumab, figitumumab, MEDI-573, cixutumumab, dalotuzumab, robatumumab, AVE1642, BIIB022, xentuzumab, or istiratumab.