

antibody), a human polypeptide having one or more structural components of a human immunoglobulin polypeptide).

[0004] In one aspect, the invention features an anti-CD22 construct comprising an antibody moiety that specifically binds to CD22, wherein the antibody moiety comprises: (a) a light chain variable region (V_L) comprising a light chain complementarity determining region (LC-CDR) 1, an LC-CDR2, and an LC-CDR3 of the light chain variable region of SEQ ID NO:218 or 212; and (b) a heavy chain variable region (V_H) comprising a heavy chain complementarity determining region (HC-CDR) 1, an HC-CDR2, and an HC-CDR3 of the heavy chain variable region of SEQ ID NO:219 or 213.

[0004a] In another aspect, the invention features a chimeric anti-CD22 construct comprising the anti-CD22 construct described herein, wherein the anti-CD22 construct is either (a) a chimeric antigen receptor (CAR) or (b) a chimeric antibody-T cell receptor (caTCR) comprising an extracellular domain that binds to CD22 and a T cell receptor (TCR) module (TCRM) comprising TCR transmembrane domains.

[0004b] In another aspect, the invention features an anti-CD22 construct which is a chimeric signaling receptor (CSR) further comprising: (a) the anti-CD22 construct described herein; (b) a transmembrane module; and (c) a co-stimulatory immune cell signaling module that is capable of providing a costimulatory signal to the immune cell, wherein the CSR lacks a functional primary immune cell signaling domain.

[0004c] In another aspect, the invention features a nucleic acid molecule encoding one or more polypeptides contained in the anti-CD22 construct described herein.

[0004d] In another aspect, the invention features a pharmaceutical composition comprising a therapeutically effective amount of the anti-CD22 construct described herein and one or more pharmaceutically acceptable carriers or excipients.

[0004e] In another aspect, the invention features the use of the anti-CD22 construct described herein in the manufacture of a medicament for treating a B-cell malignancy or a disease or disorder characterized by CD22 overexpression in a subject in need thereof, wherein a therapeutically effective amount of the medicament is to be administered to the subject.

[0004f] In another aspect, the invention features the use of the nucleic acid molecule described herein in the manufacture of a medicament for treating a B-cell malignancy or a disease or disorder characterized by CD22 overexpression in a subject in need thereof, wherein the nucleic acid molecule is to be introduced into one or more primary cells isolated from a subject, and wherein the one or more primary cells comprising the nucleic acid molecule is to be administered to the subject.

[0004g] In another aspect, the invention features the anti-CD22 construct described herein or the nucleic acid molecule described herein for use in therapy.

[0005] In some embodiments, the antibody moiety comprises the LC-CDR1, the LC-CDR2, and the LC-CDR3 of the light chain variable region of SEQ ID NO:218. In some embodiments, the antibody moiety comprises the LC-CDR1, the LC-CDR2, and the LC-CDR3 of the light chain variable region of SEQ ID NO:212.

[0006] In some embodiments, the antibody moiety comprises: (a) the light chain variable region (VL) comprising the LC-CDR1, the LC-CDR2, and the LC-CDR3 of the light chain variable region of SEQ ID NO:218; and (b) a heavy chain variable region (VH) comprising the HC-CDR1, the HC-CDR2, and the HC-CDR3 of the heavy chain variable region of SEQ ID NO:219.

[0007] In some embodiments, the antibody moiety comprises: (a) the light chain variable region (VL) comprising the LC-CDR1, the LC-CDR2, and the LC-CDR3 of the light chain variable region of SEQ ID NO:212; and (b) a heavy chain variable region (VH) comprising the HC-CDR1, the HC-CDR2, and the HC-CDR3 of the heavy chain variable region of SEQ ID NO:213.

[0008] In some embodiments of this aspect, the antibody moiety comprises one or more of: the LC-CDR1 having a sequence of HDIRNY (SEQ ID NO:214), the LC-CDR2 having a sequence of AAS (SEQ ID NO:215), the LC-CDR3 having a sequence of QQYDGLPLT (SEQ ID NO:216), the HC-CDR1 having a sequence of GFTFSNYA (SEQ ID NO:209), the HC-CDR2 having a sequence of ISGSGGST (SEQ ID NO:210), and the HC-CDR3 having a sequence of ARYGSAAWMDS (SEQ ID NO:217). In particular embodiments, the antibody moiety comprises the sequences of SEQ ID NOS:209, 210, and 214-217.