In a further aspect, the present invention provides an amino sequence comprising a chimeric antigen receptor (CAR) or a fragment thereof comprising an extracellular domain comprising an antigen-binding region which binds to CD19; wherein the nucleotide sequence encoding the CAR is operably linked to a promoter and wherein the polynucleotide molecule further comprises a nucleotide sequence encoding a heterologous signal peptide fused to a signal regulatory protein gamma (SIRPγ)-related protein (SGRP).

In another aspect, the present invention provides an amino sequence comprising a chimeric antigen receptor (CAR) or a fragment thereof comprising an extracellular domain comprising an antigen-binding region which binds to epidermal growth factor receptor variant III (EGFRvIII); wherein the nucleotide sequence encoding the chimeric antigen receptor (CAR) is operably linked to a promoter and wherein the polynucleotide molecule further comprises a nucleotide sequence encoding a heterologous signal peptide fused to a signal regulatory protein gamma (SIRPγ)-related protein (SGRP) comprising the sequence as shown in SEQ ID NO: 3.

In another aspect, the present invention provides an amino sequence comprising a chimeric antigen receptor (CAR) or a fragment thereof comprising an extracellular domain comprising an antigen-binding region which binds to CD19; wherein the nucleotide sequence encoding the CAR is operably linked to a promoter and wherein the polynucleotide molecule further comprises a nucleotide sequence encoding a heterologous signal peptide fused to a signal regulatory protein gamma (SIRPγ)-related protein (SGRP) comprising the sequence as shown in SEQ ID NO: 4.

In a further aspect, the present invention provides a construct comprising the polynucleotide molecule described herein.

In a further aspect, the present invention provides a chimeric antigen receptor (CAR)-T cell comprising T cells expressing the polynucleotide molecule and/ or the construct described herein.

In yet another aspect, the present invention provides use of the chimeric antigen receptor (CAR)-T cell as described herein in the manufacture of a medicament for the treatment of

an epidermal growth factor receptor (EGFR)-associated cancer or a CD19-associated cancer.

In yet another aspect, provided herein is the chimeric antigen receptor (CAR)-T cell as described herein for use in therapy.

In a further aspect, the present invention provides a method of treating cancer in a subject suffering from an epidermal growth factor receptor (EGFR)-associated cancer or suffering from a CD19-associated cancer, the method comprising administering to the subject a therapeutically effective amount of a chimeric antigen receptor (CAR)-T cell described herein.

In a further aspect, the present invention provides a method of treating a solid cancer in a subject, the method comprising administering to the subject a therapeutically effective amount of a chimeric antigen receptor (CAR)-T cell described herein.

In a further aspect, the present invention provides a method of treating cancer in a subject, wherein the cancer is located in the central nervous system and wherein the method comprises administering to the subject a therapeutically effective amount of a chimeric antigen receptor (CAR)-T cell described herein, wherein the CAR or a fragment thereof of the CAR-T cell comprises a CAR or a fragment thereof comprising an extracellular domain comprising an antigen binding region which binds to epidermal growth factor receptor variant III (EGFRvIII).

In a further aspect, the present invention provides a method of treating cancer in a subject,