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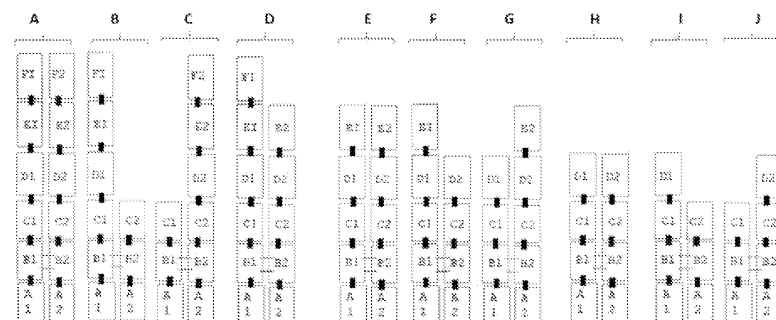
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(54) Title: SINGLE-CHAIN AND MULTI-CHAIN SYNTHETIC ANTIGEN RECEPTORS FOR DIVERSE IMMUNE CELLS



A1/A2 = SAR signaling chains comprising Hinge domains (Table 29), transmembrane (Table 28), cytosolic domain (Table 30) and optional co-stimulatory domain (Table 31)

B1/B2 = Ig like linker domain (e.g., IgCL, IgG1-CH1, TCRa-Ig-Like-C1-Domain-6MD etc.; See Table 13)

C1/C2 = vL, vH, Va, Vb, Vg, Vd

D1/D2 = AABD

E1/E2 = AABD

F1/F2 = AABD

FIG. 1

(57) Abstract: The disclosure provides single-chain and multi-chain synthetic antigen receptors (SARs), methods of making such synthetic antigen receptors, cells expressing said SARs, nucleic acids encoding said SARs, and uses thereof for the treatment of diseases and disorder. The receptors include unispecific, bispecific, multispecific and universal next generation SAR designs. Also presented are novel accessory modules that can be co-expressed with the SARs of the disclosure, cells expressing said accessory modules with and/or without a SAR, and vectors comprising nucleic acids encoding polypeptides for membrane anchored low-affinity variants of cytokines (e.g., IL-2 and/or IL-15), membrane anchored cytokines with epitope tags, and multi-purpose gene switches that serve suicide, survival and marker functions. In one aspect, the disclosure relates to a novel SAR design that confers TCR-like antigen binding specificity to any cell, including the ability to bind to a peptide antigen in association with an MHC or HLA molecule.

[Continued on next page]

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