WHAT IS CLAIMED IS:

1. A linker unit comprising, a center core, a plurality of linking arms, and optionally a coupling arm, wherein,

the center core comprises, (1) a first polypeptide comprising a plurality of lysine (K) residues, wherein each K residue and its next K residue are separated by a filler sequence comprising glycine (G) and serine (S) residues, and the number of K residues ranges from 2 to 15; or (2) a second polypeptide comprising the sequence of $(X_{aa}\text{-}K)_n$, where each X_{aa} is a PEGylated amino acid having 2 to 12 repeats of ethylene glycol (EG) unit, and n is an integral from 2 to 15;

the plurality of linking arms are respectively linked to the K residues of the center core,

each of the plurality of linking arms has a maleimide group at its free terminus; and

the amino acid residue at the N- or C-terminus of the center core has an azide or an alkyne group; or the amino acid residue at the N- or C-terminus of the center core is a cysteine residue, and the thiol group of the cysteine residue is linked with the coupling arm having the azide, the alkyne, a tetrazine or a strained alkyne group at the free terminus of the coupling arm.

2. The linker unit of claim 1, wherein the filler sequence has the sequence of GS, GGS, GSG, or SEQ ID NOs: 1-16.

3. The linker unit of claim 1 or 2, wherein each of the linking arms is a PEG chain having 2-20 , and wherein the coupling arm is a PEG chain having 2-12 repeats of EG units.

4. The linker unit of any of claims 1 to 3, wherein

the amino acid residue having the azide group is L-azidohomoalanine (AHA), 4-azido-L-phenylalanine, 4-azido-D-phenylalanine, 3-azido-L-alanine, 3-azido-D-alanine, 4-azido-L-homoalanine, 4-azido-D-homoalanine, 5-azido-L-ornithine, 5-azido-d-ornithine, 6-azido-L-lysine, or 6-azido-D-lysine;

the amino acid residue having the alkyne group is L-homopropargylglycine (L-HPG), D-homopropargylglycine (D-HPG), or beta-homopropargylglycine (β-HPG);

the strained alkyne group is trans-cyclooctene (TCO), dibenzocyclooctyne (DBCO), difluorinated cyclooctyne(DIFO), bicyclononyne (BCN), or dibenzocyclooctyne (DICO); or
the tetrazine group is 1,2,3,4-tetrazine, 1,2,3,5-tetrazine or 1,2,4,5-tetrazine, or derivatives thereof.

5. The linker unit of any of claims 1 to 4, further comprising a plurality of first elements that are respectively linked to the plurality of linking arms via thiol–maleimide reaction.

6. The linker unit of claim 5, further comprising a second element that is,

linked to the azide group via copper catalyzed azide-alkyne cycloaddition (CuAAC) reaction or strained-promoted azide-alkyne click chemistry (SPAAC) reaction;

linked to the alkyne group via CuAAC reaction;

linked to the strained alkyne group via inverse electron demand Diels–Alder (iEDDA) reaction or SPAAC reaction; or
linked to the tetrazine group via iEDDA reaction.

7. The linker unit of claim 6, further comprising a third element, wherein when the second element is linked via the CuAAC reaction, the third element is linked to the coupling arm via iEDDA reaction, whereas when the second element is linked via the SPAAC reaction the third element that is linked to the coupling arm via iEDDA reaction.

8. The linker unit of claim 7, wherein the third element is a long PEG chain having a molecular weight of about 20,000 to 50,000 daltons.

9. The linker unit of claim 6, wherein,

the first element is a first single-chain variable fragment (scFv) specific for a cytokine or a receptor of the cytokine; or a soluble receptor of the cytokine; and

the second element is a second scFv specific for a tissue-associated extracellular matrix protein.

10. The linker unit of claim 9, wherein,

the tissue-associated extracellular matrix protein is selected from the group consisting of α-aggrecan, collagen I, collagen II, collagen III, collagen V, collagen VII, collagen IX, and collagen XI;

the cytokine is selected from the group consisting of tumor necrosis factor-α (TNF-α), interleukin-17 (IL-17), IL-1, IL-6, IL-12/IL-23, and B cell activating factor (BAFF);

the receptor of the cytokine is a receptor specific for IL-6 (IL-6R) or a receptor specific for IL-17 (IL-17R); or

the soluble receptor of the cytokine is specific for TNF-α or IL-1.

11. The linker unit of claim 6, wherein,

the first element is a first scFv specific for a first cell surface antigen; and

the second element is a second scFv specific for a second cell surface antigen.

12. The linker unit of claim 11, wherein the first cell surface antigen is selected from the group consisting of, CD5, CD19, CD20, CD22, CD23, CD27, CD30, CD33, CD34, CD37, CD38, CD43, CD72a, CD78, CD79a, CD79b, CD86, CD134, CD137, CD138, and CD319 and the second cell surface antigen is CD3 or CD16a.

13. The linker unit of claim 6, wherein,

the first element is a peptide hormone, a growth factor, or a first scFv specific for a tumor-associated antigen; and

the second element is a second scFv specific for a cell surface antigen.

14. The linker unit of claim 13, wherein

the peptide hormone is secretin, cholecystokinin (CCK), somatostatin, or thyroid-stimulating hormone (TSH);

the growth factor is selected from the group consisting of epidermal growth factor (EGF), mutant EGF, epiregulin, heparin-binding epidermal growth factor (HB-EGF), vascular endothelial growth factor A (VEGF-A), basic fibroblast growth factor (bFGF), and hepatocyte growth factor (HGF);

the tumor-associated antigen is selected from the group consisting of human epidermal growth factor receptor (HER1), HER2, HER3, HER4, carbohydrate antigen 19-9 (CA 19-9), carbohydrate antigen 125 (CA 125), carcinoembryonic antigen (CEA), mucin 1 (MUC 1), ganglioside GD2, melanoma-associated antigen (MAGE), prostate-specific membrane antigen (PSMA), prostate stem cell antigen (PSCA), mesothelin, mucine-related Tn, Sialyl Tn, Globo H, stage-specific embryonic antigen-4 (SSEA-4), and epithelial cell adhesion molecule (EpCAM); or

the cell surface antigen is CD3 or CD16a.

15. The linker unit of claim, wherein,

when the first element is a first scFv specific for receptor activator of nuclear factor κB (RANKL), the second element is a second scFv specific for collagen I or osteonectin;

when the first element is an scfv specific for VEGF-A, the second element is a long PEG chain having a molecular weight of about 20,000 to 50,000 daltons.

16. A pharmaceutical for the treatment of an immune disorder, comprising a linker unit of claim 9.

17. A pharmaceutical for the treatment of a diffused tumor, comprising a linker unit of claim 11.

18. A pharmaceutical for the treatment of a solid tumor, comprising a linker unit of claim 13.

19. A pharmaceutical for the treatment of an osteoporosis disease, comprising a linker unit of claim 15.

20. A pharmaceutical for the treatment of an age-related macular degeneration (AMD), comprising a linker unit of claim 15, wherein the first element is an scfv specific for VEGF-A, and the second element is a long PEG chain having a molecular weight of about 20,000 to 50,000 daltons.