CLAIMS

1. A chimeric protein comprising:

   a. a receptor binding moiety capable of binding to a scavenger receptor (ScaR); and

   b. a target binding moiety capable of binding to a target protein or peptide;

   wherein the receptor binding moiety is a peptide.

2. The chimeric protein of any one of claim 1, wherein the binding affinity of the receptor binding moiety to the ScaR is lower than the binding affinity of the target binding moiety to the target protein or peptide, optionally wherein:

   (i) the binding affinity of the receptor binding moiety to the ScaR is at least an order of magnitude lower than the binding affinity of the target binding moiety to the target protein or peptide; or

   (ii) the binding affinity of the receptor binding moiety to the ScaR is about 0.1 nM to about 10 nM and the binding affinity of the target binding moiety to the target protein or peptide is about 0.1 pM to about 1 nM.

3. The chimeric protein of claim 1 or 2, wherein the chimeric protein comprises two or more receptor binding moieties, optionally wherein:

   (i) each of the two or more receptor binding moieties is independently capable of binding to a different part of the same ScaR; or

   (ii) each of the two or more receptor binding moieties is independently capable of binding to a different epitope of the same ScaR.

4. The chimeric protein of any one of claims 1 to 3, wherein the chimeric protein comprises two or more target binding moieties, optionally wherein:

   (i) each of the two or more target binding moieties is independently capable of binding to a different part of the same target protein or peptide;

   (ii) each of the two or more target binding moieties is independently capable of binding to a different epitope of the same target protein or peptide; or

   (iii) each of the two or more target binding moieties is independently capable of binding to a different target protein or peptide.

5. The chimeric protein of any one of claims 1 to 4, wherein the chimeric protein further comprises a linker that connects the receptor binding moiety and target binding moiety.

6. The chimeric protein of any one of claims 1 to 5, wherein expression of the target protein or peptide is upregulated in a disease or disorder, optionally wherein:
   (i) the disease or disorder is cancer;
   (ii) the disease or disorder is a receptor-mediated autoimmune disease;
   (iii) the disease or disorder is rheumatoid arthritis, type 1 diabetes, psoriasis, multiple sclerosis, systemic lupus erythematosus, inflammatory bowel disease, or Sjögren's Syndrome;
   (iv) the disease or disorder is myasthenia gravis, anti-NMDA receptor encephalitis, or idiopathic membranous nephropathy;
   (v) the disease or disorder is anti-NMDA receptor encephalitis, and the target protein or peptide is an NMDA receptor; or
   (vi) the disease or disorder is idiopathic membranous nephropathy, and the target protein or peptide is phospholipase A2 receptor.

7. The chimeric protein of claim 6(i), wherein the cancer is a solid tumor or hematological cancer, optionally wherein:
   (i) the solid tumor is ovarian cancer, esophageal/gastric cancer, cervical cancer, bladder cancer, breast cancer, central nervous system cancer, colorectal cancer, gastrointestinal cancer, endocrine cancer, eye cancer, female genitourinary cancer, head and neck cancer, liver cancer, lung cancer, skin cancer, soft tissue cancer, bone cancer, squamous cell cancer, pancreatic cancer, kidney cancer, or prostate cancer; or
   (ii) the hematological cancer is leukemia, lymphoma, or multiple myeloma.

8. The chimeric protein of any one of claims 1 to 5, 6(i)-(iv), and 7, wherein the target protein or peptide is a soluble extracellular protein, a cell-surface receptor of a cell, or an anchored protein or peptide.

9. The chimeric protein of any one of claims 1 to 8, wherein the receptor binding moiety binds to the ScaR at a location different from the pocket to which a natural ligand of the ScaR binds.

10. The chimeric protein of any one of claims 1 to 8, wherein the receptor binding moiety is a natural ligand of ScaR, a fragment of a natural ligand of ScaR, or a peptide mimicking a natural ligand of ScaR, optionally wherein the ScaR is a ScaR listed in **Table 1**, further optionally wherein the receptor binding moiety comprises a peptide selected from those listed in **Table 1** or a fragment of a peptide selected from those listed in **Table 1**.

11. The chimeric protein of any one of claims 1 to 10, wherein the target protein or peptide is
    (i) an immune checkpoint molecule, immune cell inhibitory signal molecule, immune cell inhibitory receptor, "don't-eat-me" signal molecule, "don't-eat-me" signal receptor, immune co-stimulatory signal molecule, immune co-stimulatory receptor, immune modulation receptor, or cytokine receptor; or
    (ii) an "eat-me" signal receptor, T-cell receptor, B-cell receptor, major histocompatibility complex (MHC) molecule, or CD8/CD4.

12. The chimeric protein of any of one of claims 1 to 11, wherein:
    (i) one or both of the receptor binding moiety and target binding moiety comprises an scFv;
    (ii) the receptor binding moiety comprises a natural ligand of the receptor, fragment of a natural ligand of the receptor, or derivative of the natural ligand or natural ligand fragment of the receptor and the target binding moiety comprises an scFv;
    (iii) one or both of the receptor binding moiety and target binding moiety comprises a Fab fragment; and/or
    (iv) the receptor binding moiety comprises a natural ligand of the receptor, fragment of a natural ligand of the receptor, or derivative of the natural ligand or natural ligand fragment of the receptor and the target binding moiety comprises a Fab.

13. The chimeric protein of any of one of claims 1 to 12, wherein:
    (i) the chimeric protein is a chimeric protein as described in **Table 3**;
    (ii) one or both of the receptor binding moiety and target binding moiety comprises a cyclic protein or peptide;
    (iii) one or both of the receptor binding moiety and target binding moiety comprises a branched protein or peptide; or
    (iv) one or both of the receptor binding moiety and target binding moiety comprises a designed ankyrin repeat protein (DARPin).

14. The chimeric protein of any of one of claims 1 to 13, wherein the chimeric protein is capable of binding to a ScaR and a target protein expressed by the same cell, optionally wherein the cell is a cancer cell, further optionally wherein the co-expression of the ScaR and a target protein is specific to the cancer cell.

15. The chimeric protein of any of one of claims 1 to 14, wherein the chimeric protein is capable of binding to ScaR and the target protein or peptide to form a complex that is internalized into a cell and degraded by a lysosome.

16. The chimeric protein of any of one of claims 1 to 15, wherein the receptor binding moiety is capable of binding to SCARA5/SCARA3.

17. The chimeric protein of any one of claims 1 to 16, wherein:
    (i) the target binding moiety is capable of binding to HER2, optionally wherein the target binding moiety is trastuzumab, a Fab of trastuzumab, or a scFV of trastuzumab; or
    (ii) the target binding moiety is capable of binding to EGFR, optionally wherein the target binding moiety that is capable of binding to EGFR is a scFV of cetuximab or an anti-EGFR affibody.

18. The chimeric protein of any one of claims 1-3, 5-16 and 17(i), wherein the target binding moiety is a first target binding moiety, and the chimeric protein comprises a second target binding moiety that is capable of binding to EGFR, optionally wherein

the target binding moiety that is capable of binding to EGFR is a scFV of cetuximab or an anti-EGFR affibody.

19. Use of the chimeric protein of any one of claims 1 to 18 in the manufacture of a medicament for treating a disease or disorder in a subject, wherein the disease or disorder is cancer.

20. The use of claim 19, wherein the cancer is a solid tumor or hematological cancer, optionally wherein:
    (i) the solid tumor is bladder cancer, breast cancer, central nervous system cancer, colorectal cancer, gastrointestinal cancer, endocrine cancer, eye cancer, female genitourinary cancer, head and neck cancer, liver cancer, lung cancer, skin cancer, soft tissue cancer, bone cancer, squamous cell cancer, pancreatic cancer, kidney cancer, or prostate cancer;
    (ii) the hematological cancer is leukemia, lymphoma, or multiple myeloma; or
    (iii) the solid tumor is non-small cell lung cancer, breast cancer, or gastroesophageal cancer.

21. A method of degrading a target protein or peptide, wherein the method comprises:
    (i) contacting the target protein or peptide with a chimeric protein of any one of claims 1 to 18 in the presence of a cell expressing a scavenger receptor (ScaR), wherein the contacting the target protein or peptide with the chimeric protein binds the target protein or peptide to the chimeric protein to generate a target-bound protein or peptide;
    (ii) binding a ScaR to the chimeric protein to generate a bound chimeric complex; and
    wherein when the chimeric protein is bound to both a ScaR and the target protein or peptide, the ScaR internalizes the target protein or peptide and directs it to a lysosome.

22. The method of claim 21, wherein:

(i) the target protein or peptide is directed to the lysosome at least 50%, at least 60%, at least 70%, or at least 80% of the times that the ScaR binds to the target-bound chimeric protein;

(ii) degradation of the target protein or peptide is initiated within 1 hour of the contacting the target protein or peptide with a chimeric protein in the presence of a cell expressing a scavenger receptor (ScaR);

(iii) at least 50% of the target protein or peptide is degraded within 4 hours of contacting the target protein or peptide with a chimeric protein in the presence of a cell expressing a scavenger receptor (ScaR); and/or

(iv) at least 80% of the target protein or peptide is degraded within 24 hours of contacting the target protein or peptide with a chimeric protein in the presence of a cell expressing a scavenger receptor (ScaR).

23. The method of claim 21 or 22, wherein:

(i) the bound chimeric complex is directed to the lysosome;

(ii) the percent of target-bound chimeric protein that is degraded is measured by flow cytometry and/or by Western Blot; and/or

(iii) the cell is in an *in vitro* assay, or in a mammalian subject.

24. The chimeric protein, use of the chimeric protein in the manufacture of a medicament, or method of any preceding claim, wherein:

(i) at least one of the receptor binding moiety and target binding moiety is not an IgG antibody; and/or

(ii) the chimeric protein is not a bispecific antibody.