CLAIMS

1. A chimeric polypeptide comprising, in any order:

i) an amino acid sequence of adiponectin, preferably of wild-type adiponectin,

ii) an amino acid sequence of a transmembrane domain of a transmembrane protein, and

iii) optionally, an amino acid sequence of a pilot peptide, wherein said pilot peptide interacts with the Endosomal Sorting Complexes Required for Transport (ESCRT) cellular machinery.

2. The chimeric polypeptide according to claim **1**, further comprising at least one linker between the amino acid sequence of adiponectin and the amino acid sequence of the transmembrane domain.

3. The chimeric polypeptide according to claim **1** or claim **2**, wherein the chimeric polypeptide comprises, from N- to C-terminal, the components iii), ii) and i).

4. The chimeric polypeptide according to any one of claims **1** to **3**, further comprising a sub-membrane targeting domain, preferably wherein said sub-membrane targeting domain is linked to an anchoring molecule, preferably wherein the anchoring molecule is a fatty acid.

5. The chimeric polypeptide according to any one of claims **1** to **4**, wherein the transmembrane domain is selected from the group comprising the transmembrane domain of CD40L and the transmembrane domain of CD8;
preferably with SEQ ID NO: 34 and SEQ ID NO: 36, respectively;
more preferably with SEQ ID NO: 35 and SEQ ID NO: 37, respectively.

6. The chimeric polypeptide according to any one of claims **1** to **5**, wherein the pilot peptide comprises at least one YxxL motif with SEQ ID NO: 1 or DyxxL motif with SEQ ID NO: 4, and at least one PxxP motif with SEQ ID NO: 8, in which “x” represents any amino acid residue.

7. The chimeric polypeptide according to any one of claims **1** to **6**, wherein the pilot peptide comprises an amino acid sequence with SEQ ID NO: 30 or a variant thereof,

wherein the variant of SEQ ID NO: 30 retains at least three YxxL and/or DyxxL motifs with SEQ ID NO: 1 and SEQ ID NO: 4, respectively; and at least four PxxP motifs with SEQ ID NO: 8; wherein "x" represents any amino acid residue.

8. A nucleic acid encoding the chimeric polypeptide according to any one of claims **1** to **7**.

9. An extracellular vesicle comprising the chimeric polypeptide according to any one of claims **1** to **7**, preferably wherein:

- the transmembrane domain of the chimeric polypeptide is anchored in the extracellular vesicle lipid bilayer; and
- the adiponectin of the chimeric polypeptide is exposed at the outer surface of the extracellular vesicle.

10. The extracellular vesicle according to claim **9**, wherein the extracellular vesicle is an exosome, preferably having a diameter ranging from about 30 nm to about 120 nm.

11. A population of extracellular vesicles according to claim **9** or claim **10**, optionally further comprising soluble adiponectin.

12. The extracellular vesicle according to claim **9** or claim **10** or the population of extracellular vesicles according to claim **11**, being purified, preferably ultra-purified.

13. Use of the extracellular vesicle according to claim **9, 10** or **12** or of the population of extracellular vesicles according to claim **11** or **12**, for the manufacture of a medicament for the treatment of a disease, disorder or condition selected from the group comprising diabetes, obesity, insulin resistance, diseases related to insulin resistance or deficiency, hypertension, dyslipidemia, hyperuricemia, atherosclerosis (including coronary artery disease, stroke and peripheral artery

disease), fibrosis, inflammatory pulmonary diseases, nephrotic disease, sleep apnea, dry eye diseases, inflammatory ocular diseases, gastritis and gastro-esophageal reflux disease, inflammatory bowel disease, pancreatitis, osteoporosis, and inflammatory bone and joint diseases.

14. The use according to claim **13**, wherein the extracellular vesicle is partially or totally coated with recombinant adiponectin, optionally wherein the recombinant adiponectin is fused to lactadherin or a functional C1 and/or C2 domain thereof.