CLAIMS

1. A molecule comprising

(i) a targeting moiety

(ii) at least one payload wherein said at least one payload is a therapeutic agent or a detectable label,

(iii) a linker/linkers covalently linking said payload/payloads and said targeting moiety, and

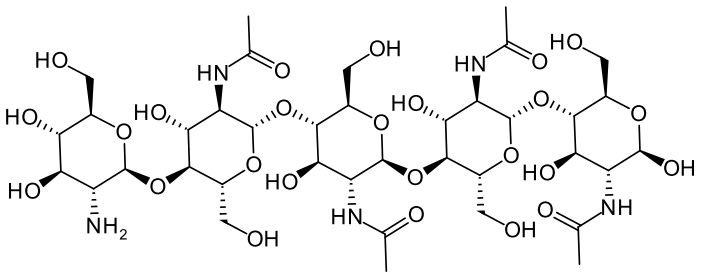
(iv) at least one solubility tag,

wherein said solubility tag comprises a chito-oligosaccharide of at least 3 and up to 12 monosaccharide units.

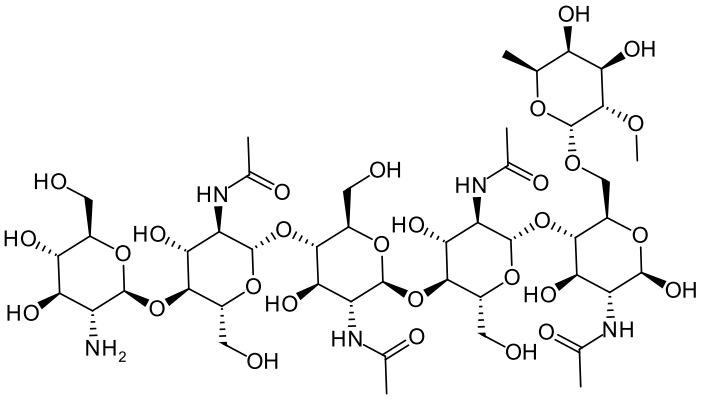
2. The molecule according to claim 1, wherein said solubility tag is/said solubility tags are linked by a covalent bond to said at least one payload and/or to said linker(s).

3. The molecule according to claim 1, wherein said chito-oligosaccharide is a chito-oligosaccharide selected from the group consisting of $(GlcN)_3$, $(GlcN)_2$–GlcNAc, $(GlcNAc)_2$–GlcN, GlcN-$(GlcNAc)_2$, $(GlcNAc)_3$, $(GlcN)_4$, $(GlcN)_3$–GlcNAc, $(GlcNAc)_2$–$(GlcN)_2$, GlcNAc–GlcN–GlcNAc– GlcN, GlcNAc–$(GlcN)_2$–GlcNAc, GlcN–$(GlcNAc)_2$–GlcN, GlcN–GlcNAc–GlcN–GlcNAc, $(GlcN)_2$–$(GlcNAc)_2$, $(GlcNAc)_3$–GlcN, $(GlcNAc)_2$–GlcN–GlcNAc, GlcNAc–GlcN–$(GlcNAc)_2$, GlcN–$(GlcNAc)_3$, $(GlcNAc)_4$, $(GlcN)_5$, $(GlcN)_3$–$(GlcNAc)_2$, $(GlcNAc)_2$–$(GlcN)_2$–GlcNAc, GlcNAc–GlcN–GlcNAc–GlcN–GlcNAc, GlcNAc–$(GlcN)_2$–$(GlcNAc)_2$, GlcN–$(GlcNAc)_2$–GlcN–GlcNAc, GlcN–GlcNAc–GlcN–$(GlcNAc)_2$, GlcN–$(GlcNAc)_4$, $(GlcNAc)_5$, $(GlcN)_6$, $(GlcN)_2$–GlcNAc–$(GlcN)_3$, GlcNAc–$(GlcN)_4$–GlcNAc, GlcN–GlcNAc–GlcN–GlcNAc–$(GlcN)_2$, GlcNAc–$(GlcN)_2$–GlcNAc–GlcN–GlcNAc, GlcNAc–$(GlcN)_3$–$(GlcNAc)_2$, GlcN–GlcNAc–GlcN–$(GlcNAc)_3$, GlcNAc–$(GlcN)_2$–$(GlcNAc)_3$, $(GlcNAc)_6$, $(GlcN)_7$, and $(GlcNAc)_7$.

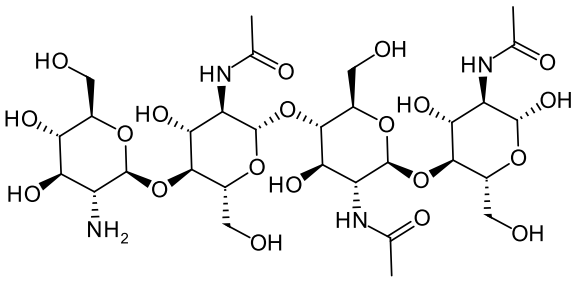
4. The molecule according to any of claims 1 to 3, wherein said solubility tag comprises or is a chemical group with a structural formula selected from the following (I) to (IV):



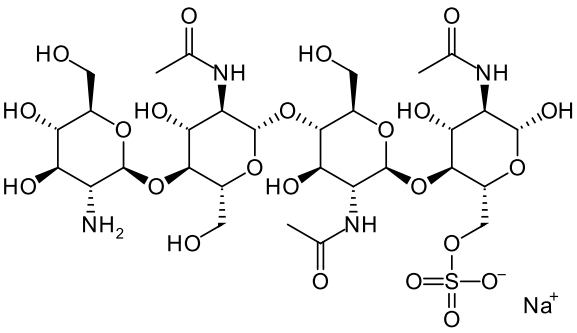
(I);



(II);



(III);



(IV).

5. The molecule according to any of claims 1 to 4, wherein said targeting moiety is selected from the group consisting of a protein, a peptide, a peptide mimetic, a nucleic acid, an oligonucleotide and a small molecule.

6. The molecule according to any of claims 1 to 5, wherein said targeting moiety is an antibody against an antigen present on the surface of a target cell or an antigen-binding fragment of such an antibody.

7. The molecule according to any of claims 1 to 6, wherein said targeting moiety specifically is capable of binding to a tumor antigen.

8. The molecule according to any of claims 1 to 7, wherein said therapeutic agent is a cytotoxic agent, anti-inflammatory agent, immunostimulatory agent or immunosuppressive agent.

9. The molecule according to any of claims 1 to 8, wherein said linker/each of said linkers has a molecular weight of up to 1,500 Da.

10. A method for increasing the solubility of a chemical compound, said chemical compound comprising

(i) a targeting moiety,

(ii) at least one payload wherein said at least one payload is a therapeutic agent or a detectable label, and

(iii) a linker/linkers covalently linking said payload/payloads and said targeting moiety,

wherein said method comprises the preparation of a molecule in which said chemical compound is covalently linked to at least one solubility tag, wherein said solubility tag comprises an chito-oligosaccharide having at least 3 and up to 12 monosaccharide units.

11. A pharmaceutical composition comprising the molecule of any of claims 1 to 9, wherein said pharmaceutical composition further comprises a pharmaceutically acceptable carrier, diluent and/or excipient.

12. A molecule according to any of claims 1 to 9 or a pharmaceutical composition according to claim 11 for use as a medicament.

13. A compound for use in the preparation of a molecule according to any of claims 1 to 9, wherein said compound comprises a solubility tag as defined in any of claims 1 to 4 linked to an activator group selected from the group consisting of a maleimide, halogen-acetamide, Michael acceptor, or a group suitable for cycloaddition selected from a ketone, hydrazone, semicarbazone, carboxylic acid, alkene or alkyne.

14. The molecule according to any of claims 1 to 9, wherein said molecule comprises an antibody-drug conjugate.

15. The molecule according to any of claims 1 to 9, wherein said molecule comprises a peptide-drug conjugate.