CLAIMS

1. A method for synthesizing macromolecules made up of units U that are mostly monosaccharides or monosaccharide derivatives, which may be identical or different, said macromolecules having a first and a second end, said synthesis method proceeding by successive elongation of said second end by a monomer or oligomer M having at least two functions, and said method being characterized in that:
- in a first so-called anchoring step, the first unit U1 of said macromolecule, corresponding to a monomer M1 or a terminal unit of an oligomer M1, is attached by a covalent bond to an anchor molecule soluble in non-polar organic solvents, said covalent bond resulting from a reaction of a first of the functions of said monomer M1 or of said oligomer M1 with a function of said anchor molecule, the second termination possibly being another function of said monomer M1 or of said oligomer M1 that has been protected, prior to said reaction, by at least a first protecting group GP1, and possibly by a second protecting group GP2;
- in a second so-called deprotection step, one of said protecting groups GP1 or GP2 is removed, leaving a so-called free function on said monomer M1 or oligomer M1;
- in a third so-called coupling step, a second monomer M2 or oligomer M2, carrying at least one free function and at least one function protected by a protecting group GP3, is reacted so that its free function forms, by reaction with said free function of said first monomer M1 or oligomer M1, a covalent bond, thus creating a new molecule formed by said monomer M1 or oligomer M1, attached by its first end to said anchor molecule, and said monomer M2 or oligomer M2, attached to another of its terminations,
and said method being characterized in that said anchor molecule comprises a polyisobutene chain with at least 5 monomer units and having a mass average molecular mass between 300 and 20,000.

2. The method according to claim 1, characterized in that said polyisobutene chain has between 10 and 50 monomer units.

3. The method according to claim 1 or 2, characterized in that an n-th monomer Mn or oligomer Mn is added by coupling.

4. The method according to any of claims 1 to 3, characterized in that after coupling the last monomer or oligomer, deprotection of the protecting groups of the macromolecule is carried out.

5. The method according to any of claims 1 to 4, comprising at least one step in which said macromolecule attached to said anchor molecule is separated from the reaction medium by extraction in an apolar organic solvent, and/or by extraction or washing with a polar solvent, and/or by filtration.

6. The method according to any of claims 1 to 5, comprising a step in which said macromolecule is fully deprotected.

7. The method according to any of claims 1 to 6, characterized in that said monosaccharide units or monosaccharide derivatives are pentose (and in particular nucleoside) or hexose derivatives.

8. The method according to any of claims 1 to 7, characterized in that the bond between two successive units is a bond of the osidic type (and preferably of the glycosidic type or of the phosphorylated type (in particular of the ose-1-phosphate type)) or of the carbohydrate type or of the N-heteroside type or of the S-heteroside type.

9. The method according to any of claims 1 to 8, characterized in that said anchor molecule has a mass average molecular mass between 500 and 15,000.

10. The method according to any of claims 1 to 9, characterized in that said polyisobutene chain comprises a number of unsaturated carbon-carbon bonds not exceeding 5%.

11. The method according to any of claims 1 to 10, characterized in that said polyisobutene chain comprises a number of unsaturated carbon-carbon bonds not exceeding 3%.

12. The method according to any of claims 1 to 11, characterized in that said polyisobutene has been obtained by polymerization of a preferably biosourced monomer.

13. A use of a method according to any of claims 1 to 12, for synthesizing oligonucleotides or oligosaccharides.