CLAIMS

1. A method for preparing a library of peptides or an isolated peptide comprising
(a) releasing one or more linear dithiol peptides carrying a sulfhydryl group in the N-terminal region of the one or more peptides and being immobilized via a disulfide bridge in the C-terminal region of the one or more peptides on a solid phase from the solid phase by
(i) an agent reducing the disulfide bridge, thereby releasing the one or more linear dithiol peptides from the solid phase, wherein the agent is volatile and is removable by evaporation, or
(ii) a base that deprotonates the sulfhydryl group in the N-terminal region of the one or more linear dithiol peptides, thereby inducing an intramolecular disulfide exchange thereby releasing the one or more linear dithiol peptides from the solid phase in the form of one or more cyclic peptides.

2. The method of claim 1, further comprising after step (a) the step of removing the agent by evaporation.

3. The method of claims 1 or 2, further comprising step (b) of cyclizing the one or more linear dithiol peptides being released by the agent.

4. The method of claim 3, wherein the one or more dithiol peptides are cyclized by at least one bis-electrophilic reagent or by disulfide oxidation.

5. The method of claim 1, wherein the disulfide bonds of the one or more cyclic peptides of item (ii) are reduced and the peptides are recyclized by a bis-electrophilic reagent.

6. The method of any one of claims 1 to 5, wherein
the agent is selected from 1,3-propanedithiol, 1,4-butanedithiol, 2,4-pentanedithiol, ethane-1-thiol, propane-1-thiol, butane-1-thiol, propane-2-thiol, 2-methyl-1-propanethiol, butane-2-thiol, 2-methylpropane-2-thiol, 2-hydroxy-1-ethanethiol, 1,2-ethanedithiol, 2-propene-1-thiol, 3-methyl-1-butanethiol, thiophenol, benzylthiol, 2-butene-1-thiol, 3-butene-1-thiol, 2-methyl-2-propene-1-thiol and 3-methyl-2-butene-1-thiol, and is preferably 1,3-propanedithiol, 1,4-butanedithiol or 2,4-pentanedithiol and is most preferably 1,4-butanedithiol (BDT)
and/or
the base is selected from a tertiary, secondary or primary amine, a boron, aluminium or silicon hybride, and a base with an oxygen, nitrogen or carbon anion, and is preferably a tertiary, secondary or primary amine, more preferably a tertiary amine, even more preferably a tri-alkyl amine and most preferably N,N-diisopropylethylamine (DIPEA).

7. The method of any one of claims 1 to 6, comprising prior to step (a)
step (a') the synthesis of the linear dithiol peptides on the solid phase.

8. The method of any one of claims 1 to 7, wherein the side chains of the amino acids of the linear dithiol peptides are protected by protecting groups and the method further comprises prior to step (a) and, if present, after step (a') the removal of the protecting groups while the linear dithiol peptides are immobilized on the solid phase.

9. The method of any one of claim 1 to 8, wherein at least some of the linear dithiol peptides comprise a primary or secondary amine and the method further comprises modifying the primary or secondary amine with a carboxylic acid, wherein the cyclic peptides comprising a primary or secondary amine and the carboxylic acids are preferably transferred by acoustic dispensing.

10. The method of any one of claims 1 to 9, further comprising
(c) contacting the peptide library preferably without prior purification of the peptide library with a target molecule, and
(d) screening the peptide library for a peptide binding to and preferably inhibiting the target molecule.

11. The method of claim 10, wherein steps (c) and (d) are carried out in the same wells in which the primary or secondary amine has been modified with a carboxylic acid.

12. The method of claim 10 or 11, wherein the target molecule is a protein, peptide, nucleic acid molecule, carbohydrate or fatty acid, and is preferably a protein or peptide.

13. The method of any one of claims 1 to 12, wherein the solid phase comprises a resin, preferably an apolar resin and more preferably a polystyrene resin.

14. The method of any one of claims 1 to 13, wherein the linear dithiol peptides comprise
linear dithiol peptides having a molecular weight of less than 1000 Da and preferably of less than 600 Da, and/or
linear dithiol peptides comprising 3 or 4 amino acids and preferably 3 amino acids.