CLAIMS

1. A method for polypeptide transfer into antigen presenting cells (APC), comprising the following steps:
   a) Incubating polypeptides in a solution comprising cyanate ions, wherein the cyanate ions are present at a concentration in the range from about 1 to about 1000 mmol/l, at temperatures in the range from about room temperature to about 96°C and at an incubation time of about several minutes up to several days, and
   b) Incubating antigen presenting cells (APC) with the polypeptides of step (a) in the presence of urea.

2. The method according to claim 1, wherein said antigen presenting cells (APC) are preferably dendritic cells (preferably Langerhans cells), monocytes, macrophages, B cells or vascular epithelial cells and epithelial, mesenchymal cells and microglia cells of the brain.

3. A method for the detection of polypeptide-specific immune cells, comprising the following steps:
   a) Incubating polypeptides in a solution comprising cyanate ions, wherein the cyanate ions are present at a concentration in the range from about 1 to about 1000 mmol/l, at temperatures in the range from about room temperature to about 96°C and at an incubation time of about several minutes up to several days, and
   b) Incubating APC-containing cell cultures or APC-containing body fluids with the polypeptides of step (a) in the presence of urea,
   c) Incubating the APC-containing cell cultures or APC-containing body fluids obtained according to step b) with immune cells or immune-cell-containing body fluids,
   d) Simultaneously and/or specifically detecting and/or quantifying various subtypes of immune cells which are specific against the polypeptides from step a).

4. A method according to claim 3, comprising the following steps:
   a) Incubating polypeptides in a solution comprising cyanate ions, wherein the cyanate ions are present at a concentration in the range from about 1 to about

1000 mmol/l, at temperatures in the range from about room temperature to about 96°C and at an incubation time of about several minutes up to several days, and

b) Incubating APC-containing cell cultures or APC-containing body fluids with the polypeptides of step (a) in the presence of urea and with immune cells or immune-cell-containing body fluids,

c) Simultaneously and/or specifically detecting and/or quantifying various subtypes of immune cells which are specific against the polypeptides from step a).

5. The method according to claim 3, wherein the APC-containing cell culture is a PBMC population, isolated monocytic cells or a separated APC population, preferably comprising dendritic cells (preferably Langerhans cells), monocytes, macrophages or B cells, and the APC-containing body fluid is whole blood or liquor, and/or wherein the polypeptide specific immune cells are T cells, preferably $CD4^+$ T cells, $CD8^+$ T cells, $CD4^+CD8^{dim}$ T cells or $CD4^+$ regulatory T cells, or other immunological cell populations, preferably $CD56^+CD8^+$, $CD56^-CD57^+CD8^+$ NKT cells or $CD56^+$ NK cells, or a mixture thereof and/or wherein the immune-cell-containing body fluids are whole blood and/or liquor.

6. The method according to claim 3 or 5, wherein the detection and/or the quantification is carried out by means of a detection of specific surface markers for the polypeptide-specific immune cells and the production of the marker cytokines TNF, IFNγ, IL-2, IL-4, IL-5, IL-10, IL-17 or TGF-ß.

7. A method for priming, expansion and/or reactivation of polypeptide-specific T cells comprising the following steps:

a) Incubating polypeptides in a solution comprising cyanate ions, wherein the cyanate ions are present at a concentration in the range from about 1 to about 1000 mmol/l, at temperatures in the range from about room temperature to about 96°C and at an incubation time of about several minutes up to several days, and

b) Incubating APCs with the polypeptides of step a) in the presence of urea and in absence or presence of immune-modulatory substances, wherein the polypeptide-specific T cells are preferably $CD4^+$ T cells and/or $CD8^+$ T cells.

8. The method according to anyone of the preceding claims, wherein the cyanate ions are present at a concentration in the range from about 5 mmol/l to about 900 mmol/l, from about 10 mmol/l to about 800 mmol/l, from about 20 mmol/l to about 700 mmol/l, from about 50 mmol/l to about 600 mmol/l or from about 100 mmol/l to about 500 mmol/l.

9. The method according to anyone of the preceding claims, wherein the solution of step a) comprises additionally urea, preferably in the range from about 0.01 mol/litre to about 8 mol/litre, from about 0.1 to about 0.5 mol/litre, from about 0.5 to about 5 mol/litre, or from about 5 to about 8 mol/litre.

10. The method according to claim 9, wherein the urea has been pretreated by incubation, wherein the incubation parameters are preferably heat and/or time.

11. The method according to anyone of the preceding claims, wherein the urea concentration in step b) is in the range from about 0.001 to about 0.8 mol/l, from about 0.01 to about 0.1 mol/l, from about 0.015 mol/l to about 0.09 mol/l, from about 0.02 mol/l to about 0.08 mol/l, from about 0.025 mol/l to about 0.07 mol/l, from about 0.03 mol/l to about 0.06 mol/l or from about 0.035 mol/l to about 0.05 mol/l and in particular wherein the urea concentration in step b) is about 0.04 mol/l.

12. The method according to any one of claims 9 to 11, wherein the urea solution additionally contains NaCl with a concentration in the range from about 0.25 mmol/l to about 200 mmol/l, or from about 0.25 mmol/l to about 75 mmol/l and/or DTE or DTT with a concentration in the range from about 0.25 nmol/l to about 200 nmol/l, or from about 0.25 nmol/l to about 75 nmol/l.

13. The method according to anyone of the preceding claims, wherein the polypeptides in

(i) step a) are present in a concentration in the range from about 0.1 to about 50 µg/ml, from about 1 to about 40 µg/ml, from about 3 to about 30 µg/ml, or from about 5 to about 20 µg/mL and in particular in a concentration of about 10 µg/ml.; and/or

(ii) step b) are present in an amount in the range from about 0.1 to about 200 µg or higher, or from about 0.1 to about 200 µg, or from about 0.1 to about 2 µg, or

from about 0.1 to about 10 µg, or from about 10 to about 50 µg or from about 50 to about 200 µg for approximately 10^6 cells.

14. The method according to anyone of the preceding claims, wherein the incubation of the polypeptides in step a) results in an increase of the molecular weight of the polypeptides and/or a shift of the pK_i-value of the polypeptides to a more acidic pK_i-value.