WHAT IS CLAIMED IS:

1. Use of a~~A~~n expanded CD3-depleted haploidentical or mismatched NK cell fraction, ~~and~~ obinutuzumab, IL-2 and at least one chemotherapeutic immunosuppressive agent in the manufacture of a medicament for combination therapy of~~for use in treating~~ a hematological disease in a subject in need thereof, wherein:

(i) said expanded CD3-depleted HLA-haploidentical or ~~HLA-~~mismatched NK cell fraction is an~~has been~~ expanded cell fraction ~~by~~ *ex-vivo* cultured~~ing~~ with nutrients, serum, IL-15 and nicotinamide in an amount between 1.0 mM to 10 mM and harvested in a first portion after 14 days of culture and a second portion after 16 days of culture;

(ii) said first portion comprises about 50% of the expanded CD3-depleted NK cell fraction and the second portion comprises the remainder of the expanded CD3-depleted NK cell fraction,

(iii) said first and second portions are provided for administration no more than 10 hours following final product release

(iv)~~, and~~ -wherein said IL-2 is to be administered on the day of the administration of the expanded CD3-depleted NK cell fraction, two days after administration of the expanded CD3-depleted NK cell fraction, and four days after expanded CD3-depleted NK cell fraction, and

(v) said obinutuzumab is to be administered twice before administration of said expanded NK cell fraction and once after administration of said expanded NK cell fraction~~subject is being treated with at least one immunosuppressive agent and IL-2~~.

2. The ~~expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for~~ use of claim 1, wherein said subject and said NK cell fraction are a human subject and a human NK cell fraction.

3. The ~~expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for~~ use of any one of claims 1 or 2, wherein said subject has been treated with ~~immunosuppressive agent is a chemotherapeutic immunosuppressive agent and/or~~ irradiation.

4. The ~~expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for~~ use of any one of claims 1-3, wherein said hematological disease is a hematological malignancy~~, optionally a CD20-positive lymphoid malignancy~~.

5. The use of claim 4, wherein said hematological malignancy is a CD20-positive lymphoid malignancy

6~~5~~. The ~~expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for~~ use of any one of claims 1-3, wherein said hematological disease is a multiple myeloma.

7~~6~~. The ~~expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for~~ use of any one of claims 1-3, wherein said hematological disease is non-Hodgkins lymphoma (NHL)~~, and optionally a CD20-positive B cell NHL~~.

8~~7~~. The ~~expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for~~ use ~~method of any one~~ of claim~~s~~ 7~~1-6~~, wherein said NHL is a CD20-positive B cell NHL~~expanded CD3-depleted haploidentical or mismatched NK cell fraction is provided in a first and a second dose~~.

~~8. The expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for use of any one of claims 1-6, wherein said NK cell fraction comprises between $1X10^7$/kg and $5X10^8$/kg expanded CD3-depleted HLA-haploidentical or HLA-mismatched NK cells.~~

9. The ~~expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for~~ use of claim 1~~7~~, wherein the combined said first and said second portions~~doses~~ comprise $2X10^7$/kg to $2X10^8$/kg total expanded CD3-depleted HLA-haploidentical or ~~HLA-~~ mismatched NK cells.

10. The ~~expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for~~ use of any one of claims 1-9~~7~~, wherein:

(a) said first portion~~dose~~ and said second portion~~dose~~ of said NK cell fraction each comprise $1X10^7$/kg expanded CD3-depleted haploidentical or mismatched NK cells, for a total dose of $2X10^7$/kg expanded CD3-depleted haploidentical or mismatched NK cells, or

(b) said first portion~~dose~~ and said second portion~~dose~~ of said NK cell fraction each comprise $5X10^7$/kg expanded CD3-depleted haploidentical or mismatched NK cells, for a total dose of $1X10^8$/kg expanded CD3-depleted haploidentical or mismatched NK cells, or

(c) said first portion~~dose~~ and said second portion~~dose~~ of said NK cell fraction each comprise $1X10^8$/kg expanded CD3-depleted haploidentical or mismatched NK cells, for a total dose of $2X10^8$/kg expanded CD3-depleted haploidentical or mismatched NK cells.

11. The ~~expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for~~ use of any one of claims 1-10, wherein said at least one chemotherapeutic immunosuppressive agent comprises cyclophosphamide and/or fludarabine~~, and optionally wherein::~~

~~said at least one immunosuppressive agent comprises both cyclophosphamide (40 mg/kg) and fludarabine (25 mg/m^2)~~.

12. The ~~expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for~~ use of ~~any one of~~ claim ~~1~~-11, wherein wherein said at least one immunosuppressive agent comprises both cyclophosphamide (40 mg/kg) and fludarabine (25 mg/m^2)~~said IL-2 is provided on each one of days 5, 4 and 3 following treatment with said expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab~~.

13. The ~~expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for~~ use of any one of claims 1-12, wherein said expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for use is prepared by:

~~(a) obtaining a CD3-depleted NK cell fraction HLA-haploidentical or HLA-mismatched for said subject;~~

(ab) *ex vivo* culturing asaid CD3-depleted NK cell fraction HLA-haploidentical or mismatched for said subject under conditions allowing for cell proliferation, wherein said conditions comprise providing nutrients, serum, IL-15 and nicotinamide in an amount between 1.0 mM to 10 mM;

(be) supplementing said CD3- depleted NK cell fraction with fresh nutrients, human serum, IL-15 and nicotinamide 8-10 days following step (b) to produce an expanded CD3- depleted NK cell fraction;

(cd) harvesting said expanded CD3-depleted NK cell fraction in a first portion on day 14 and a second portion on day-16 days following step (ab), wherein said first portion comprises about 50% of the expanded CD3-depleted NK cell fraction and the second portion comprises the remainder of the expanded CD3-depleted NK cell fraction; and

(de) washing and concentrating said expanded CD3-depleted NK cell fraction of step (cd).

14. The expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for use of claim 13, wherein said HLA-haploidentical or mismatched CD3-depleted NK cell fraction is from apheresis.

15. The expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for use of any one of claims 13 or1--14, wherein said serum is 10% human serum.

16. The expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for use of any one of claims 1-1513-15, wherein said IL-15 comprises 20 ng/ml IL-15.

17. The expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for use of any one of claims 1-16 13-16, wherein said nicotinamide comprises 5.0 mM nicotinamide.

18. The ~~expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for~~ use of any one of claims 13-17, wherein said NK cells of step (a) comprise at least 40-90% CD56+/CD3- cells.

19. The ~~expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for~~ use of any one of claims 1-18, wherein said expanded CD3-depleted HLA-haploidentical or mismatched NK cell fraction is selected according to ~~characterized by~~ all of the following parameters:

(a) at least 70% CD56+/CD3- cells;

(b) at least 70% viability;

(c) fewer than $5.0X10^5$ CD3+ cells/Kg mass of patient;

(d) no more than 5 EU endotoxin/Kg mass of patient; and

(e) no Gram-positive micro-organisms.

20. The ~~expanded CD3-depleted haploidentical or mismatched NK cell fraction and obinutuzumab for~~ use of any one of claims 1-19, wherein said first portion and said second portion of said expanded CD3-depleted HLA-haploidentical or ~~HLA~~ mismatched NK cell fraction are~~is~~ provided in ~~a~~ fluorinated ethylene propylene (FEP) culture bags.