1. A method of selecting *ex-vivo* cultured umbilical cord blood cell fractions comprising CD133+/CD34+ selected cord blood cells for transplantation into a subject, comprising:

(a) determining in said *ex-vivo* cultured umbilical cord blood fraction following *ex-vivo* expansion the following parameters:

(i) $8X10^8$ to $15X10^8$ total viable cells;

(ii) 70%-85% viability of the cells;

(iii) 7-15% CD34+ cells;

(iv) $5.6X10^7$ to $5X10^8$ total CD34+ cells;

(v) $2.4X10^7$ to $2X10^8$ total CD133+ cells;

(vi) $8X10^5$ to $25X10^5$ CD133+/CD38- cells;

(vii) $8X10^7$ to $15X10^8$ total CD14+ cells,

(viii) $2X10^8$ to $2X10^9$ total CD15+ cells,

(ix) $8X10^7$ to $8X10^9$ total CD11b+ cells,

(x) $3.2X10^7$ to $3X10^8$ total CD1(a+c)+ cells,

(xi) No cultured mycoplasma or bacterial, yeast or mold growth, and

(b) selecting or excluding said *ex-vivo* cultured umbilical cord blood fraction according to said parameters, wherein said selected *ex-vivo* cultured umbilical cord blood fractions meet all of the criteria of (i)-(xi) and have a yellowish, cloudy to opaque color and are free of white clumps and foreign particles, thereby selecting an *ex-vivo* cultured CD133+/CD34+ umbilical cord blood fraction suitable for transplantation into the subject.

2. The method of claim 1, wherein said *ex-vivo* cultured umbilical cord blood fraction was cultured from a cryopreserved umbilical cord blood unit selected for *ex-vivo* expansion meeting all of the following pre-cryopreservation parameters:

(i) $8X10^6$ to about $15X10^6$ total CD34+ cells;

(ii) HLA-matched at at least 4 out of 6 HLA class I (HLA-A and HLA-B, low resolution) and HLA class II (HLA-DRB1, high resolution) loci with said subject;

(iii) $1.8X10^9$ to $3.0X10^9$ pre-cryopreserved total nucleated cells;

(iv) $1.5X10^7$ to $3.0X10^7$ pre-cryopreserved total nucleated cells per kilogram subject weight.