

# State of the Art of Cellular Recovery

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The purpose of the protocols for cryo-preservation of umbilical cord stem cells is to concentrate as much CD34 + cells present in cord blood samples. This study aims to compare the modified protocol of Rubinstein and col22 with a technique for direct extraction the buffy coat.

## METHODS

Two methods were evaluated manual extraction of buffy coat, the first was performed using the plasma extractor and processing was carried out mixing the cell pack and the interface. In the second method directly extracted from the buffy coat layer avoiding mixing with the cell pack sedimented at the bottom of the bag after differential centrifugation.

We performed the counting of cells expressing CD34 marker membrane and cell viability using flow cytometry.

We had 2 groups: (1) 2868 samples with first method modified Rubinstein y col22 (2) 832 samples with second method of direct extraction of buffy coat. These samples also were divided into 3 sub-groups, with low volume <40 cc, average volume (40 to 80cc) and high volume (> 80cc).

All samples were process less than 36 hours.

## RESULTS

Values are averaged

Real Volumen	<40	40-80	>80
<b>% of Recuperation of Monocytes</b>			
New Protocol	109,0	97,1	82,8
Rubinstein y col22	93,5	73,0	71,0
P	<0,05	<0,05	<0,05

Viability %			
New Protocol	98,8	98,9	99,4
Rubinstein y col22	98,0	98,3	98,9
P	NS	NS	NS

Number os cases			
New Protocol	159,0	413,0	264,0
Rubinstein y col22	260,0	1.134,0	703,0

The new technique of manual extraction evidence a statistical significance of increment in the% recovery and increase in CD34+ cell count in all groups. Parameter of great importance when implementing an automated method.