



**FOOD AND DRUG ADMINISTRATION**  
**CENTER FOR BIOLOGICS EVALUATION AND RESEARCH**

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**MEMORANDUM**

NIH Building 29  
Room 330  
Phone: (301) 827-2008  
FAX: (301) 402-2780

**INTERNAL MEMORANDUM**

DATE: August 17, 2012

FROM: Xuan Chi, M.D., Ph.D.  
Lead reviewer  
Laboratory of Cellular Hematology  
DH/OBRR/CBER/FDA  
(301)-827-2008

THROUGH: Jaroslav Vostal, M.D., Ph.D.  
Chief, Laboratory of Cellular Hematology  
Division of Hematology/OBRR/CBER/FDA  
(301)-827-9655

To: Sonday Kelly, M.S.  
Regulatory Project Manager  
CBER/OBRR/DBA  
(301)-827-6122

SUBJECT: NDA BN110059 (The LEUKOSEP® HWB-600-XL Leukocyte Reduction Filtration System for Whole Blood with CPD Anticoagulant and SOLX® Additive also called "SOLX® System").

**Indications for Use:**

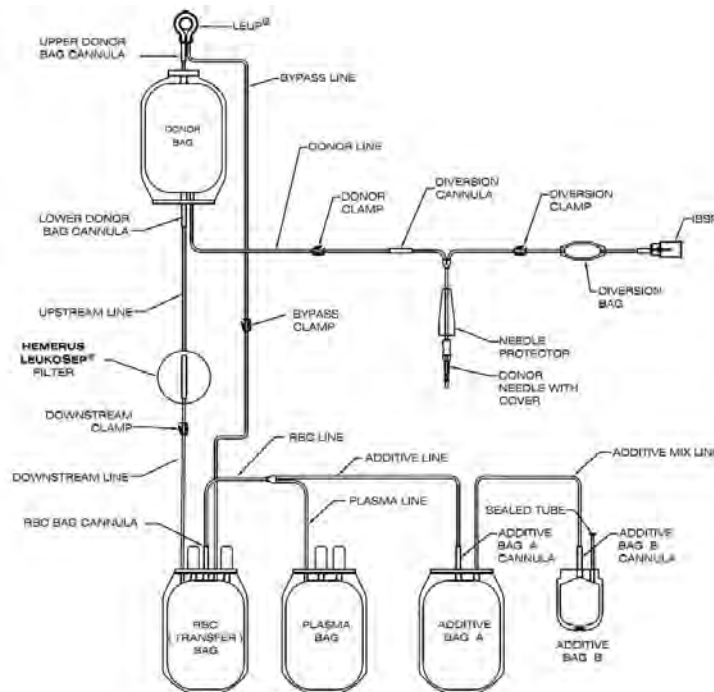
The LEUKOSEP® HWB-600-XL Leukocyte Reduction Filtration System for Whole Blood with CPD Anticoagulant and SOLX® Additive also called "SOLX® System" is intended for the manufacture of:

- CPD/AS-7 Red Blood Cells (RBC), Leukocytes Reduced prepared at ambient temperature and, placed at 1 to 6° C within 8 hours of collection. CPD/AS-7 Red Blood Cells, Leukocytes Reduced may be stored at 1 to 6° C for up to 42 days after collection.

- Fresh Frozen Plasma (FFP), Leukocytes Reduced prepared and placed in a freezer at -18° C or colder within 8 hours of collection. Fresh Frozen Plasma (FFP), Leukocytes Reduced may be stored at -18° C or colder for up to one year after collection.

### **Summary:**

HEMERUS Medical, LLC submitted an original NDA for the HEMERUS LEUKOSEP HWB-600-XL Leukocyte Reduction Filtration System for the Whole Blood with CPD anticoagulant and SOLX additive solutions (also called SOLX System). It is designed with an Integrated donor needle, blood diversion bag with integrated blood sampling port, whole blood collection bag, LEUKOSEP® leukoreduction filter, red blood cell storage bag, plasma storage bag and SOLX® additive solution bags. SOLX additive solution is a new red blood cell additive solution.



1. **Clinical studies:** *In vitro* feasibility testing of SOLX system was performed initially (PC387970, PC396220) followed by *in vivo* testing conducted under IND 14199.

1). IND 14199 was conducted at three U.S. investigational sites (Hoxworth Blood Center University of Cincinnati, Dartmouth Hitchcock Medical Center and American Red Cross Mid-Atlantic Research Facility;

2). Three processing groups were studied under different filtration and processing times:

- Group 1 (FFP8hrRT-WB2hr): Up to two hour room temperature hold prior to whole blood filtration and processing at room temperature (60 test units). RBCs refrigerated and plasma frozen within 8 hours.
- Group 2 (FFP8hrRT- WB6hr): Greater than six hour room temperature hold prior to whole blood filtration and processing at room temperature within eight hours (60 test and 60 control units). RBCs refrigerated and plasma frozen within 8 hours.



(b)(4)

- 6). BIMO inspection: All three clinical sites were inspected in support of this NDA and FDA-483 was issued for American Red Cross Mid-Atlantic Research Facility (Norfolk, Virginia). (Please see Carla Jordan's memo from June 20, 2012).

## 2. Manufacturing sites:

- ## Letter-ready comments

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stability specification, you should change the shelf life claim accordingly. You can request a shorter shelf life if it is supported by available data to prevent a delay in approval. When the ---(b)(4)--- storage study data become available you can then request an extension of the shelf life.

2. The 14-Day Repeat Dose Intravenous Toxicity Study (Module 4, Appendix 4-5):
  - a. As shown by Table 2, there were 3 blood clotting events in test groups (2 specimens in female test group and 1 specimen in male test group) and 0 clotting event in control specimens.
  - b. Both male and female test animals were observed to have significantly lower platelet counts ( $p=0.0033$  and  $p=0.0440$  respectively) when compared to controls. The presence of clots within 2 specimens from female mice contributed to the decrease observed in female test group, but in the male test group, the specimen with clots was already excluded from the platelet count.

In your response to the advice letter, the lower platelet count in test animals was speculated to result from *in vitro*, spontaneous platelet aggregation. We think this response is not acceptable. We recommend that you provide a risk assessment based on results from the previous extraction study (# 06-5803-N2) conducted according to procedures described in ISO 3826.

**Labeling:**

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