**CASE STUDY 3**

**Initial Data:**

Best Friend (BF), a 37-year-old male, is scheduled for a same-day surgical procedure for hernia repair. He has no history of significant medical problems, with the exception of injuries received during his service in the military. He was given 6 units of blood following a land mine explosion 4 years ago. At that time, his transfusions were uneventful.

A sample for “type and screen” was sent to the laboratory on the morning of the procedure. The following results were obtained.

**ABO and RH Typing:**

|  |  |
| --- | --- |
| **Forward (Cell) Typing** | **Reverse (Serum) Typing** |
| **Anti-A** | **Anti-B** | **Anti-D** | **A1 Cells** | **B Cells** |
| **0** | **0** | **4+** | **4+** | **4+** |

 **Antibody Detection Test (Screen):**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **RH** | **MNS** | **LU** | **P** | **Lewis** | **Kell** | **Duffy** | **Kidd** | **Gel Test** |
|  | **D** | **C** | **E** | **c** | **e** | **f** | M | N | S | s | Lua | Lub | **P1** | Lea | Leb | K | k | Fya | Fyb | Jka | Jkb | **IAT** |
| **1** | + | + | 0 | 0 | + | 0 | + | + | + | + | 0 | + | + | + | 0 | + | + | + | 0 | 0 | + | **2+** |
| **2** | + | 0 | + | + | 0 | 0 | + | 0 | + | 0 | 0 | + | + | 0 | + | 0 | + | + | + | + | 0 | **4+** |

1. **What is BF’s ABO type?**
	1. Group O.
	2. Group A.
	3. Group B.
	4. Group AB.
2. **What is BF’s RH type?**
	1. D+.
	2. D-.
	3. Weak D+.
	4. Cannot determine with the data provided.
3. **Given the results of the antibody detection test, what hypothesis can be developed?**
	1. One or more alloantibodies are present.
	2. One or more autoantibodies are present.
	3. Both A and B are potential solutions.
	4. Neither A nor B is supported by the evidence.
4. **Given the initial serologic findings, what should the CLS do next?**
	1. Perform an eluate on the patient’s cells.
	2. Report the findings and do no further testing.
	3. Crossmatch 2 units of group O Red Blood Cells.
	4. Test an antibody identification panel.



**Laboratory Protocol:**

The following antibodies can be initially ruled out **ONLY** if the patient’s serum is **NOT** reactive with the panel cells that have a double dose of the antigen: **anti-C, -c, -E, -M, -N, -S, -s, -Fya, -Fyb, -Jka,** and **-Jkb.**

Other antibodies listed on the antigen matrix can be initially ruled out if the patient’s serum is **NOT** reactive with the panel cells that are positive for the corresponding antigen. Keep in mind that weakly reactive antibodies may not be reactive with all antigen-positive cells.

If any of the following antibodies are **NOT** ruled out using the initial screen and panel results, additional cells must be tested to provide data for rule-out decisions: **anti-D, -C, -c, -E, -e, -M, -N, -S, -s, -Lea, -Leb, -K, -k, -Fya, -Fyb, -Jka, -Jkb, and -P1.**

1. **Based on the antibody identification test results and the laboratory rule-out criteria listed above, which of the following cells would rule out anti-c?**
	1. Cell 3.
	2. Cell 5.
	3. Cell 7.
	4. Cell 9.



1. **Note there are no cells on this panel that have a double does of the K antigen. Which of the following statements is true regarding the K+k- phenotype?**
	1. Although the phenotype is not represented on this antibody identification panel, it is fairly common in the population.
	2. The phenotype occurs in about 50%of the population.
	3. The phenotype is uncommon but does occur in about 10% of the population.
	4. The phenotype is rare due to the high prevalence of the k antigen in the population.
2. **Given the results of the antibody detection and antibody identification testing, what is/are the most likely antibody (ies) present in BF’s serum?**
	1. Anti-C and anti-E.
	2. Anti-E and anti-K.
	3. Anti-C and anti-K.
	4. Anti-E only.
3. **How many additional cells must be tested to meet the “3+3 rule” for anti-E?**
	1. 0
	2. 1
	3. 2
	4. 3
4. **Given the combined results of the antibody detection and antibody identification tests, which of the following antibodies has NOT been ruled out?**
	1. Anti-C.
	2. Anti-M.
	3. Anti-Fya.
	4. None of the above.
5. **It is the policy of this laboratory to identify two antigen-negative units for patient with antibodies, even if the original order was for type and screen only. There are 30 group O+ units in the laboratory’s inventory. The antigen frequencies are E antigen = 30% and K antigen = 9%. APPROXIMATELY how many of these units would be expected to be negative for the antigens to the antibodies that have been identified?**
	1. 0-1.
	2. 3-4.
	3. 10-11.
	4. 19-20.

Employee Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Competency Score: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_