PRC Biomedical Ltd. A Unified Diagnostic Kit for Blood Quality and Efficient Blood Match for Transfusion

Background:

Blood transfusion is a common life-saving procedure in many cases. Therefore, medical services collect and store blood in blood banks. However, Red-Blood-Cells (RBC) have a limited life-span in the body as well as under storage condition. Therefore, storage regulation of donated blood is set for up to 42 days adopting First-in-First-out ("FIFO") which is <u>meaningless</u> criterion. In addition, there is a mandatory requirement (with no tool to validate it) that 75% of transfused RBCs will survive in the patient's body after 24 hours.

The problem:

The characteristics of RBC from different donors vary, thus resulting in different scored quality level of each blood unit and different functionality after transfusion. In addition, in some cases, the patient receives blood with RBC's that have lower quality than his own. Thus, in many cases, there is a poor transfusion outcome (e.g. low survivability of transfused RBC), different side effects (e.g. iron overload) and repetitive transfusions that are leading to longer treatments and increase in medical costs.

Solution:

PRC Biomedical has developed a KIT array that addresses these problems by characterizing RBC quality of each sample (of the blood unit or recipient). It predicts the maximum storage period of each blood unit and enables to determine the right match between the blood unit and the recipient patient (according to their RBC characteristics) prior to transfusion.

Technology:

A Diagnostic KIT array that uses special antibodies to target proteins (biomarkers). These biomarkers determine the characteristics of RBC. The KIT's test will be implemented in parallel to the other blood tests at the blood bank. The core of the kit is based on antibodies array that are bounded to a surface and the KIT's production uses advanced accurate non-contact printer machine.

The algorithm of the KIT is being developed, purposing to convert the biomarkers fingerprint into a specific quality score for each blood unit. In parallel, the KIT can determine and score the quality of RBC of the recipient patient. Thus, these two tests are enabling to determine the maximum blood storage period and which specific blood unit is the optimal matched unit to be transfused for a specific patient. The KIT predicts the survivability of RBC's (minimum 75% 24 hours after transfusion according to the FDA).

Current status:

The company is conducting a clinical trial in order to correlate between the survivability of transfused RBC and the level of different proteins (biomarkers) that were disclosed to be significant for RBC vitality.

The company upgrades its first prototype KIT for characterising RBC vitality and viability from non-contact (highly reproducible cost-effective and efficient) technology at the company's Pharmaceutical Partner.

Regulation

The company will conduct a regulatory strategy process aiming to present similarity to available systems in the market and to address the available standards and requirements.

The Market:

There are about 130 Million donated blood units worldwide per annum. This amount represents potential market size of up to US\$ 10 Billion on that niches or <u>US\$ 4 Billion</u> based on the company business model. Furthermore, the demand for blood is growing since more than 50% of the blood transfusions are for old people.

Revenue sources:

- Revenue sharing through partnership with big medical company
- Revenue from sale of certain components of the Kit
- Revenue from after sale support and services for the Kit

Competition:

The present available systems do not determine the donated Blood unit quality, specific (effective) storage period and microcirculation characters. The new Kit provides new diagnostic options for better quality of transfused blood.

Management & Advisory:

The team includes physicians, PhDs in biology with deep understanding of RBC characteristics and the work in the blood bank, international business managers and supported Labs with non-contact KIT printing capabilities.

Intellectual Property:

- •Pending National phase patent on Unified tests KIT.
- •Provisional application on prediction of Survivability of RBC's.
- Further knowhow



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