**Supplemental Online Content**

**eMethods**

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**Detection of circulating biomarkers**

White Blood Cells (WBC), Neutrophils, Basophils, Eosinophils, Lymphocytes, Monocytes, Monocyte Distribution Width (MDW) and Red Cell Distribution Width (RDW) were detected by the Unicel DxH 900 Series (Beckman Coulter) Complete Blood Count analysis through Coulter Principle and VCS 360 Technology according to the manufacturer's instructions [1].

| Parameter | Method | Analytical Measuring Range | Operating Range | Units | CV (Repeatability) |
|---|---|---|---|---|---|
| WBC | Coulter Principle | 0.050–400.000 | 0.000–999.999 | $10^3$ cells/µL | (0.500 2.000) <5% (5.000–10.000) <3% |
| NE# | VCS 360 Technology (Calculated) | 0.000–400.000 | 0.000–600.000 | $10^3$ cells/µL | <3.5% |
| LY# | VCS 360 Technology (Calculated) | 0.000–400.000 | 0.000–600.000 | $10^3$ cells/µL | <5% |
| MO# | VCS 360 Technology (Calculated) | 0.000–400.000 | 0.000–600.000 | $10^3$ cells/µL | <10% |
| EO# | VCS 360 Technology (Calculated) | 0.000–400.000 | 0.000–600.000 | $10^3$ cells/µL | SD 0.5 or 13.5% CV @WBC > 4.0x103 cells/µL |
| BA # | VCS 360 Technology (Calculated) | 0.000–400.000 | 0.000–600.000 | $10^3$ cells/µL | SD 0.5 @WBC > 4.0x103 cells/µL |
| RDW | Derived from RBC Histogram | 10.00–40.00 | 0.00–70.00 | % | <2.5% |
| MDW | VCS 360 technology | 14.00-39.00 | 0.0 - 255.0 | N/A | <10% |

PCT was performed by VIDAS® 3 analyzer (Biomérieux) combining a one-step immunoassay sandwich method with a final fluorescent detection (ELFA, Enzyme-Linked Fluorescent Assay), according to the manufacturer's instructions., with 0.05 ng/mL as a limit of

quantification (LoQ) and a CV≤9.4% (repeatability). For PCT concentrations greater than 200 ng/mL sample can be diluted with Serum Free reagent by one 1:10 dilution, extending the measurement range up to 2000 ng/mL [2,3].

Clinical chemistry tests as Creatinine (CRE) for the eGFR index, Albumin (ALB), C Reactive Protein (CRP), Creatine Phosphokinase (CPK), Alkaline Phosphatase (ALP) were performed by cobas® 8000 modular analyzer series (Roche Diagnostics) according to the manufacturer's instructions [4].

| **Clinical chemistry test** | **Method** | Analytical Measuring Range | Units | CV% (Repeatability) |
|---|---|---|---|---|
| Creatinine | kinetic colorimetric assay (Jaffé method) | 0.17-24.9 | mg/dL | <2.5 |
| C Reactive Protein | particle-enhanced immunoturbidimetric assay | 0.6-350 | mg/L | <2.3 |
| Creatine kinase | UV-test (equimolar quantities of NADPH and ATP are formed at the same rate) | 7-2000 | U/L | <0.7 |
| Albumin | colorimetric assay | 2-60 | g/L | <1.2 |
| Alkaline phosphatase | colorimetric assay | 5-1200 | U/L | <0.9 |

**Modified Glasgow prognostic score**

The detection of modified Glasgow Prognosis Score (mGPS) was based on the serum levels of albumin and C-reactive protein (CRP). It was calculated as follows [5]:

- mGPS0a score, patients with CRP ≤1.0 mg/ dL and albumin ≥3.5 g/dL;
- mGPS0b score, patients with CRP ≤1.0 mg/ dL and albumin <3.5 g/dL;
- mGPS1 score, patients with CRP >1.0 mg/ dL and albumin ≥3.5 g/dL;
- mGPS2 score, patients with CRP >1.0 mg/ dL and albumin <3.5 g/dL;

**eMethods References**


1. https://www.beckmancoulter.com/it/products/hematology/dxh-900
2. https://fardavar.com/
3. https://www.biomerieux-nordic.com/product/vidasr-3
4. https://diagnostics.roche.com/
5. Fan, H., Shao, ZY., Xiao, YY. *et al.* Comparison of the Glasgow Prognostic Score (GPS) and the modified Glasgow Prognostic Score (mGPS) in evaluating the prognosis of patients with operable and inoperable non-small cell lung cancer. *J Cancer Res Clin Oncol* **142**, 1285–1297 (2016). https://doi.org/10.1007/s00432-015-2113-0