FLAG EXPLANATIONS

Contaminants and additives

Flag name	Occurrence	Description
Medium ethanol	Typical	This arises potentially due to disinfectant contaminations in the blood donation/collection process and/or contamination in air from lab handling, such as cleaning of well-plates. In higher concentrations, ethanol prohibits the quantification of glycerol and 3-hydroxybutyrate, and therefore the sample has been flagged with this tag, and no concentration has been provided for the sample. In lower concentrations, it may interfere with the reliable quantification of glycerol and 3-hydroxybutyrate, and result in artificially distorted glycerol and 3-hydroxybutyrate levels. We recommend caution when interpreting absolute glycerol and 3-hydroxybutyrate concentrations. It is also good to note that high alcohol in the sample might artificially increase the acetate concentration.
High ethanol	Typical	This arises potentially due to disinfectant contaminations in the blood donation/collection process and/or contamination in air from lab handling, such as cleaning of well-plates. In higher concentrations, ethanol prohibits the quantification of glycerol, 3-hydroxybutyrate and valine, and therefore the sample has been flagged with this tag, and no concentration has been provided for the sample. In lower concentrations, it may interfere with the reliable quantification of glycerol, 3-hydroxybutyrate and valine, and result in artificially distorted glycerol, 3-hydroxybutyrate and valine levels. We recommend caution when interpreting absolute glycerol, 3-hydroxybutyrate and valine concentrations. It is also good to note that high alcohol in the sample might artificially increase the acetate concentration.
Isopropyl alcohol	Typical	Isopropyl alcohol signals detected. In higher concentrations, this compound prohibits the quantification of creatinine, and therefore the sample has been flagged with this tag, and no concentration has been provided for the sample. In lower concentrations, it may interfere with the reliable quantification of creatinine and result in artificially distorted creatinine levels. We recommend caution when interpreting absolute creatinine concentrations.
Polysaccharides	Rare	Polysaccharide or some other type of carbohydrate signals detected. Most commonly observed along with other signs of suboptimal sample quality, but may also indicate presence of heparin. In higher concentrations, this compound prohibits the quantification of creatinine, and therefore the sample has been flagged with this tag, and no concentration has been provided for the sample. In lower concentrations, it may interfere with the reliable quantification of creatinine and result in artificially distorted creatinine levels. We recommend caution when interpreting absolute creatinine concentrations.

Nightingale

Sample collection related

Tag name	Occurrence	Description
Low glucose / High pyruvate / High lactate	Typical	Low glucose is tagged since the physiological concentration is commonly well controlled, particularly in the low concentration end. However, glucose is metabolised to pyruvate and lactate if the blood sample is kept with the cells during the sample collection process, in particular at room temperature but also to some extent at fridge temperature. The low glucose tag thus commonly reflects extended time periods prior to preparation to serum/plasma. As a result of the glycolysis, high lactate and/or high pyruvate is commonly observed along with low glucose levels.

Sample storage related

Tag name	Occurrence	Description
Low glutamine / high glutamate	Typical	In these samples most of the glutamine appears to have degraded into glutamate. This can take place, e.g., during the sample collection process, if the sample is kept at room temperature for a prolonged period of time, there are multiple freeze-thaw cycles, or there are oxidative conditions / oxidation occurs in the sample. In these samples, glutamine is not quantified. In higher concentrations, glutamate prohibits the quantification of pyruvate, and therefore the sample has been flagged with this tag, and no concentration has been provided for the sample. In lower concentrations, glutamate may interfere with the reliable quantification of pyruvate and result in artificially distorted pyruvate levels. We recommend caution when interpreting absolute pyruvate concentrations.
Low protein	Rare	Unexpected protein features have been identified during the analysis. This quality observation is related to unexpectedly low total protein concentration in the sample and may be an indication of potential sample dilution. Sample dilution may occur due to water contamination, or prolonged storage in freezer in combination with loosely closed tube caps, which exposes the sample to collect ice and increases the chances of dilution. In case there is reason to assume sample dilution, we recommend caution when analyzing absolute concentrations.

Informative

Tag name	Occurrence	Description
Below limit of quantification	Typical	Below Limit-Of-Quantification (LOQ) means that the concentration of the given biomarker is smaller than the range where the Nightingale platform offers highly accurate quantification. For instance, the LOQ for lipoprotein lipid measures is < 0.01 mmol/L. The estimated biomarker concentration is reported for use in certain epidemiological analyses, but it may be advisable to conduct sensitivity analyses with all values below LOQ excluded.

Detected sample type

Tag name	Occurrence	Description
Citrate plasma	Typical	A non-physiological citrate concentration. This may result from the sample being citrate plasma.