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# Highly Sensitive Serum miRNA Panel for the Diagnosis of Hepatocellular Carcinoma in Egyptian Patients with HCV-Related HCC

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## ABSTRAK (ENGLISH)

### Objective

This study aimed at exploring the potential role of a panel of serum micro-RNA (miRNA) markers in liver fibrosis and hepatocellular carcinoma (HCC) diagnosis in patients with chronic hepatitis C virus (HCV) infection.

### Methods

The study included 157 chronic HCV patients and 62 HCC patients who presented to the Cairo University Center for Hepatic Fibrosis, Endemic Medicine Department, from 2015 to 2017. Relevant clinical and laboratory data were collected and sera were subjected to miRNA expression profiling. Eleven miRNA markers were studied and receiver operating characteristic curves were constructed to investigate the best cutoff values of the miRNAs that showed altered expression in HCC compared to HCV-associated advanced fibrosis.

### Results

miRNA expression profiling revealed 5 miRNAs (miR-124, miR-141, miR-205, miR-208a, miR-499a) were significantly upregulated and 2 miRNAs were significantly downregulated (miR-103a, miR-15a) in HCC compared to advanced fibrosis patients. No significant difference was observed in miRNA expression between advanced fibrosis and early hepatic fibrosis apart from a significant downregulation of miR-155-5p in advanced fibrosis.

### Conclusion

Serum miRNAs could serve as potential diagnostic tools for the diagnosis of HCC.

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# Multiplex Microsphere PCR (mmPCR) Allows Simultaneous Gram Typing, Detection of Fungal

# DNA, and Antibiotic Resistance Genes

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## ABSTRAK (ENGLISH)

### Objective

To show the high analytical specificity of our multiplex microsphere polymerase chain reaction (mmPCR) method, which offers the simultaneous detection of both general (eg, Gram type) and specific (eg, *Pseudomonas* species) clinically relevant genetic targets in a single modular multiplex reaction.

### Materials and Methods

Isolated gDNA of 16S/rRNA Sanger-sequenced and Basic Local Alignment Tool-identified bacterial and fungal isolates were selectively amplified in a custom 10-plex Luminex MagPlex-TAG microsphere-based mmPCR assay. The signal/noise ratio for each reaction was calculated from flow cytometry standard data collected on a BD LSR Fortessa II flow cytometer. Data were normalized to the no-template negative control and the signal maximum. The analytical specificity of the assay was compared to single-plex SYBR chemistry quantitative PCR.

### Results

Both general and specific primer sets were functional in the 10-plex mmPCR. The general Gram typing and pan-fungal primers correctly identified all bacterial and fungal isolates, respectively. The species-specific and antibiotic resistance-specific primers correctly identified the species- and resistance-carrying isolates, respectively. Low-level cross-reactive signals were present in some reactions with high signal/noise primer ratios.

### Conclusion

We found that mmPCR can simultaneously detect specific and general clinically relevant genetic targets in multiplex. These results serve as a proof-of-concept advance that highlights the potential of high multiplex mmPCR diagnostics in clinical practice. Further development of specimen-specific DNA extraction techniques is required for sensitivity testing.

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Dokumen 3 dari 31

# Corrigendum to: A Simple and Applicable Method for Human Platelet Lysate Preparation Using Citrate Blood

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Dokumen 4 dari 31

## Chylomicronemia Due to the Rare Hyperlipoproteinemia Type 3 Complicated by a Circulating Monoclonal Protein

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### ABSTRAK (ENGLISH)

The polygenic variety of chylomicronemia occurs in adults in whom factors such as obesity, diabetes, alcoholism, renal disease, and certain drugs can precipitate chylomicronemia. A rare cause of polygenic chylomicronemia is hyperlipoproteinemia type 3 (HLP3). We report on a 54-year-old male who presented with chylomicronemia with triglycerides (TG) >2000 mg/dL. From admission, the ratio of total cholesterol to total triglycerides was not below 0.2 but was closer to 0.5, suggesting that his condition was not classic chylomicronemia. We confirmed that the patient had HLP3 based on his very-low-density lipoprotein cholesterol (VLDL-C)/TG ratio, which was  $\geq 0.3$ , and lipoprotein electrophoresis showing a broad beta band. Because he was not responsive to initial therapy, we considered an interferent impairing lipolysis and TG reduction. The interferent was an M-protein that may also have falsely elevated both apolipoprotein-B and direct-LDL-C levels. In this case study, we report on a patient with chylomicronemia resulting from HLP3 complicated by a circulating M-protein.

Dokumen 5 dari 31

## Elevated Lactate Dehydrogenase Concentrations in Plasma Compared to Serum

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## ABSTRAK (ENGLISH)

### Objective

To evaluate the difference in lactate dehydrogenase (LDH) concentrations in plasma vs serum specimens in our patient population.

### Materials and Methods

We measured LDH in 110 paired plasma and serum specimens over a 2-week period. Hemolytic indices were performed on each specimen. These paired specimens were drawn in a single setting and stored under the same conditions. For the last 14 paired specimens, cell counts were performed on the plasma/serum.

### Results

Plasma LDH was on average 22% higher than serum LDH. There was no difference in the hemolytic indices between the plasma and the serum specimens. In the last 14 specimens, cell counts revealed increased platelets in the plasma specimens compared to the serum specimens.

### Conclusion

We propose switching back to using serum for LDH testing because there was unpredictable elevation in plasma LDH concentrations. These elevations in LDH levels may be linked to the platelets present in plasma and that may lyse or become activated with storage at refrigerated temperature.

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Dokumen 6 dari 31

# Acquired FVII Deficiency and Acute Myeloid Leukemia: A Case Report and Literature Review

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## ABSTRAK (ENGLISH)

Factor VII (FVII) deficiency is the most common among all rare inherited bleeding disorders. However, acquired FVII deficiency (aFVIID) is uncommon. Only few cases in the literature have been reported. Herein, we present a case of an aFVIID associated with acute myeloid leukemia (AML), along with a literature review regarding this condition. A 50 year old Arab male patient was diagnosed with AML at the hematology department of our institution. At admission, coagulation tests showed a prolonged prothrombin time (PT) with a normal activated partial thromboplastin time (aPTT) and a slightly elevated fibrinogen level. Prothrombin complex coagulation factors dosing

(PCCFD) revealed a decrease only in FVII levels. The patient, however, did not experience any bleeding. The evolution of the health of the patient was marked by a normalization of PT and FVII levels and complete remission.

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Dokumen 7 dari 31

## Seasonal Variation of Ferritin among Swedish Blood Donors

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### ABSTRAK (ENGLISH)

#### Objective

Several biomarkers have been reported to exhibit a seasonal variation, which might also be associated with the seasonality observed for certain disorders, such as cardiovascular disease. Ferritin is a marker of iron stores but may be influenced by other factors including inflammation. The aim of this study was to determine whether there is a seasonal variation for plasma ferritin.

#### Methods

The study included all ferritin tests performed on blood donors between November 2009 and November 2016 in the county of Uppsala, Sweden.

#### Results

Median ferritin values were found to be highest in August to October (autumn) and lowest in April to May and December. The differences between the highest and lowest median values were 6 µg/L for males and 5 µg/L for females. This corresponds to approximately 12% difference for males and 15% difference for females.

#### Conclusion

A modest but statistically significant seasonal periodicity for ferritin was shown for blood donors.

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Dokumen 8 dari 31

## Acquired Factor VIII Inhibitors: A Case Study

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## ABSTRAK (ENGLISH)

The physiology of hemostasis is one of high complexity that involves the initiation, amplification, and propagation of the many moving parts of the hemostatic system and its regulatory mechanisms. It is imperative that clinical laboratory professionals have a strong understanding of the many intricacies of the physiology of coagulation and its in vitro testing. An elongated activated partial thromboplastin time can have several causes, and the correct cause must be elucidated in a timely manner for proper treatment. A mixing study with normal pooled plasma should be performed to evaluate for the presence of an inhibitor vs factor deficiency. Factor inhibitors, specifically factor VIII in this case study, should be titered so that the clinician can decide which treatment may work best for the patient. Continued monitoring of factor levels and inhibitor titers should be conducted to follow the resolution or progression of inhibitor presence.

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Dokumen 9 dari 31

# Usefulness of AFP, PIVKA-II, and Their Combination in Diagnosing Hepatocellular Carcinoma Based on Upconversion Luminescence Immunochromatography

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## ABSTRAK (ENGLISH)

### Objectives

To evaluate the prognostic values of serum PIVKA-II (prothrombin induced by vitamin K absence-II) and  $\alpha$ -fetoprotein (AFP) and the combination of these analytes for identifying hepatocellular carcinoma (HCC), and to analyze the correlation between biomarkers and clinicopathological features of HCC.

### Methods

The levels of PIVKA-II and AFP in 331 case individuals were determined by upconverting phosphor technology-based immune lateral flow (UPT-LF) assay. We used the ROC curve to determine the diagnostic value; the relationships between the biomarkers and clinicopathological features of HCC also were analyzed.

### Results

AFP and PIVKA-II have good diagnostic performance in the diagnosis of HCC; the best AUC was 0.76, 0.74. High levels of PIVKA-II were more advantageous than AFP in predicting tumor size, portal-vein embolism, and vascular invasion (all  $P < .05$ ).

### Conclusion

Levels of PIVKA-II and AFP showed good diagnostic value for HCC, but the level of PIVKA-II was more closely related to the clinicopathological features of HCC.

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Dokumen 10 dari 31

## Correction to: Quality Assessment and Clinical Utility of Plasma Obtained Via Apheresis vs That Obtained from Whole Blood

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Dokumen 11 dari 31

## Modified Proline Metabolism and Prolidase Enzyme in COVID-19

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### ABSTRAK (ENGLISH)

#### Objective

The aim of the study was to evaluate proline metabolism in patients affected by COVID-19.

#### Materials and Methods

This case-control study consisted of 116 patients with COVID-19 and 46 healthy individuals. Tests related to proline metabolism (prolidase, proline, hydroxyproline, glutamic acid, manganese) and copper and zinc tests were analyzed.

#### Results

The levels of proline and hydroxyproline amino acids and the prolidase enzyme were found to be lower and glutamic acid was found to be higher in the COVID-19 group compared to the healthy group ( $P = .012$ ,  $P < .001$ ,  $P < .001$ , and  $P < .001$ , respectively). The copper/zinc ratio was higher in patients with COVID-19 than in healthy individuals ( $P < .001$ ). Significant correlations were found between proline metabolism tests and inflammatory and hemostatic markers commonly used in COVID-19.

## Conclusion

The proline metabolic pathway was affected in COVID-19. Relationships between proline pathway-related tests and inflammatory/hemostatic markers supported the roles of proline metabolism in proinflammatory and immune response processes.

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Dokumen 12 dari 31

# Association of rs5742612 Polymorphism in the Promoter Region of IGF1 Gene with Nonalcoholic Fatty Liver Disease: A Case-Control Study

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## ABSTRAK (ENGLISH)

### Objective

Nonalcoholic fatty liver disease (NAFLD) is an emerging global chronic liver disease encompassing a wide spectrum of disorders ranging from simple steatosis to nonalcoholic steatohepatitis, fibrosis, cirrhosis, and hepatocellular carcinoma. Considering the strong association between NAFLD and insulin resistance, and the vital role of insulin-like growth factor 1 (IGF1) in IR, we hypothesized that *IGF1* gene polymorphism might be associated with NAFLD.

### Methods

A total of 302 subjects, including 149 patients with biopsy-proven NAFLD and 153 controls, were enrolled in this case-control study. All the subjects were genotyped for the rs5742612 polymorphism of the *IGF1* gene using the polymerase chain reaction-restriction fragment length polymorphism method.

### Results

The distribution of *IGF1* rs5742612 genotypes and alleles differed significantly between the cases with NAFLD and controls. The *IGF1* rs5742612 CC genotype compared with the TT genotype or the TT+TC genotype occurred more frequently in the cases than the controls and the differences remained significant after adjustment for confounding factors such as age and body mass index ( $P = .011$ , OR = 2.71, 95%CI = 1.16-5.85; and  $P = .032$ , OR = 2.29, 95% CI = 1.10-5.24, respectively).

## Conclusion

For the first time, this study uncovered that the *IGF1* rs5742612 CC genotype compared with the TT genotype or the TT+TC genotype had a 2.71-fold or 2.29-fold increased risk for NAFLD, respectively.

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Dokumen 13 dari 31

# A Novel *USP25::PDGFRA* Gene Fusion in a 78 Year Old Patient with a Myeloid Neoplasm

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## ABSTRAK (ENGLISH)

The World Health Organization category of myeloid/lymphoid neoplasms with eosinophilia and *PDGFRA* rearrangements is composed of a heterogeneous group of neoplasms that can present as a myeloproliferative neoplasm, acute myeloid leukemia, myeloid sarcoma, or lymphoblastic leukemia/lymphoma. The overall outcome of these neoplasms is favorable with imatinib therapy. Herein, we describe an adult female patient with a myeloid neoplasm accompanied by eosinophilia and a novel *USP25::PDGFRA* gene fusion.

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Dokumen 14 dari 31

# Multisite *Pseudomonas aeruginosa* Infections Detected by Metagenomic Next-Generation Sequencing in a Child with Aplastic Anemia: A Case Report

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## ABSTRAK (ENGLISH)

Microbial cultivation is the current gold standard for the clinical diagnosis of bacterial infections. However, this method sometimes produces false negative results. We present a case study of multisite *Pseudomonas aeruginosa* infections detected by metagenomic next-generation sequencing in a child with aplastic anemia, highlighting the rapid and accurate advantages of this technique.

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Dokumen 15 dari 31

# Resolving Pseudohyponatremia: Validation of Plasma Sodium on Radiometer ABL800 Blood Gas Analyzers for Immediate Reflex Testing

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## ABSTRAK (ENGLISH)

### Objective

To perform validation of plasma sodium on blood gas analyzers to reflexively correct erroneous measurements by ion-selective electrodes (ISEs).

### Methods

We compared remnant specimens of whole blood and plasma collected by lithium heparin vacutainer with normal protein concentrations and no lipemia. Whole-blood specimens were tested for sodium concentration on the ABL800 Flex blood gas analyzer, followed by centrifugation for plasma separation, and repeat sodium determination on an aliquot of the plasma only. Also, plasma specimens were analyzed by indirect ISE on the Cobas 8000 series and by direct ISE on the ABL800 Flex for instrument comparison.

### Results

Plasma aliquots yielded comparable results to the parent whole-blood specimen, with an average change of  $-1.33$  mmol/L ( $R^2 = 0.9727$ ). Comparison of indirect ISE to direct ISE similarly yielded comparable results, with an average change of  $+0.8$  mmol/L ( $R^2 = 0.9016$ ).

## Conclusion

Plasma is a valid specimen matrix for use on blood gas analyzers for sodium determination, eliminating the need for re-collection of whole-blood specimens from patients with pseudohyponatremia.

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Dokumen 16 dari 31

# Quality Assessment and Clinical Utility of Plasma Obtained Via Apheresis vs That Obtained from Whole Blood

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## ABSTRAK (ENGLISH)

### Objective

We studied the impact of storage of thawed plasma (TP) on the in vitro coagulation quality and posttransfusion outcomes of apheresis plasma (AP) vs whole blood plasma (WBP).

### Methods

One hundred units of each product were analyzed. In vitro assays were performed on TP on day 0, day 2, and after refreezing, evaluating international normalized ratio (INR), activated partial thromboplastin time (aPTT), fibrinogen, and factors V and VIII. Transfusion of TP on day 2 was studied in 70 patients with liver cirrhosis and 25 patients with thrombotic thrombocytopenic purpura (TTP).

### Results

Refrozen specimens from both products showed a significant decline of all values, although AP had a considerably greater coagulation profile ( $P < .05$ ).

On day 0 and day 2, we observed significant decreases in coagulation values (except fibrinogen) with WBP, compared with AP ( $P < .05$ ). The WBP, however, provided similar INR for patients with liver cirrhosis and TTP, as compared with AP. The AP resulted in a significant correction of aPTT following plasma exchange in TTP ( $P < .05$ ).

### Conclusion

AP demonstrated considerably greater factor activity. This would be beneficial when manufacturing clotting factor concentrates. Large scale clinical trials are needed to further address the hemostatic outcomes of both products in massively transfused patients.

# Erythrocyte Sedimentation Rate in Patients with Renal Insufficiency and Renal Replacement Therapy

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## ABSTRAK (ENGLISH)

### Background

Determination of the erythrocyte sedimentation rate (ESR) is a simple diagnostic tool for estimating systemic inflammation. It remains unclear whether ESR is influenced by renal disease or renal replacement therapy (RRT).

### Objective

To report the incidence and extent of ESR elevations in patients with chronic kidney disease (CKD) and the possible impact of RRT.

### Methods

We performed a single-center, retrospective study in inpatients with or without renal disease and in those with RRT, comparing ESR levels and other laboratory and clinical information.

### Results

A total of 203 patients were included. On average, ESR was elevated (mean [SD], 51.7 [34.6] mm/h), with no statistically significant difference between the patient groups. Only those receiving PD showed significantly higher ESR (78.3 [33.1] mm/h;  $P < .001$ ).

### Conclusions

ESR testing can be used without restriction in patients with CKD and in patients undergoing hemodialysis and who have received kidney transplantation; however, this measurement should be monitored carefully in patients with PD.

# 5-Amino-4-Imidazolecarboxamide Ribonucleotide Transformylase/IMP Cyclohydrolase Polymorphisms Affect the Susceptibility to Multiple Myeloma

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## ABSTRAK (ENGLISH)

### Objective

The upregulation of 5-amino-4-imidazolecarboxamide ribonucleotide transformylase/IMP cyclohydrolase (ATIC) may affect tumorigenesis and multiple myeloma (MM) development.

### Materials and Methods

A total of 97 patients with MM and 102 healthy control patients were included in the study. The SNaPshot technique was used to detect the ATIC gene polymorphisms. Linkage disequilibrium (LD) and haplotype analyses were conducted using SHEsis software.

### Results

The genotype distribution or allele frequency of rs3772078 and rs16853834 was significantly different between the patients with MM and the healthy control patients (all  $P < .05$ ). The rs16853834 A allele, rs3772078 CT genotype, and C allele were associated with a decreased risk of MM (all  $P < .05$ ). Five single-nucleotide polymorphism combinations showed strong LD. Three haplotypes were associated with MM risk (all  $P < .05$ ). We found that ATIC rs7604984 was significantly associated with serum lactate dehydrogenase levels ( $P = .050$ ).

### Conclusion

We determined that the rs3772078 and rs16853834 polymorphisms are associated with a decreased risk of MM.

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Dokumen 19 dari 31

## Reduced Immune Response and Neutralizing Antibody Activity to the SARS-CoV-2 Vaccination in Patients with a History of Solid Organ Transplant

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## ABSTRAK (ENGLISH)

### Objective

Three SARS-CoV-2 vaccinations and boosters are available. We determined whether solid organ transplant patients mounted an immune response to the vaccinations and whether the antibodies had neutralizing activity compared to healthcare worker controls and monoclonal gammopathy patients.

### Methods

Remnant plasma was obtained from vaccinated solid organ transplant, allogeneic stem cell transplant, monoclonal gammopathy patients, and healthcare worker controls. Samples positive on a SARS-CoV-2 IgG assay (detects spike protein and nucleocapsid) were run on a SARS-CoV-2 in vitro neutralizing antibody assay and a nucleocapsid-specific SARS-CoV-2 IgG assay.

### Results

Only 25% of solid organ transplant patients produced antibodies to SARS-CoV-2 vaccination. Of these, 90% had neutralizing activity against wild type virus, but reduced activity to the variants compared to monoclonal gammopathy patients and healthcare worker controls, particularly the delta variant, for which only 50% had neutralizing antibody activity.

### Conclusion

Solid organ transplant patients should consider protecting themselves against future SARS-CoV-2 infection.

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Dokumen 20 dari 31

## EUS-FNA Diagnosis of a Metastatic Adult Granulosa Cell Tumor in the Stomach

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## ABSTRAK (ENGLISH)

Granulosa cell tumors are uncommon ovarian neoplasms, predominantly of the adult type (AGCT). In this report, we present a rare case of a patient with metastatic AGCT to the stomach diagnosed with endoscopic ultrasound-guided fine-needle aspiration (EUS-FNA). A 61-year-old woman without a history of AGCT underwent both a vaginal and an abdominal ultrasound that showed a solid and cystic ovarian mass along with a solid mass in the gastric antral wall.

Subsequently, an EUS-FNA was performed to assess the gastric lesion. Cytologic findings showed high cellularity, and the groups of neoplastic cells invaded the muscle layer of the stomach. Notably, these cells formed Call-Exner bodies, whereas some nuclei exhibited nuclear grooves. Immunohistochemistry was performed, revealing positivity for  $\alpha$ -inhibin, calretinin, and CD56 in the neoplastic cells, whereas chromogranin, synaptophysin, CD117, and DOG1 were negative. The combination of clinical presentation, radiology, cytomorphology, and immunohistochemistry could facilitate the diagnosis of metastatic AGCT and the management of such patients.

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Dokumen 21 dari 31

# Evaluation of RNA Isolation Methods in Human Adipose Tissue

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## ABSTRAK (ENGLISH)

### Objective

Research has shown that RNA extraction from adipose tissue (AT) is challenging because of high lipid content and low RNA quantity. We compared a traditional RNA extraction with a column-based method in human AT to evaluate RNA quantity and quality.

### Materials and Methods

Human subcutaneous AT (n = 9) was collected through needle biopsy, and RNA was extracted using the phenol-chloroform traditional method and the RNeasy Lipid Tissue Mini Kit column-based method. The RNA quantity, quality, integrity, and expression of key AT genes were assessed.

### Results

We found that the RNA quantity and integrity were reduced by 40% and 15-20%, respectively, using the column-based method compared to the traditional method, but the findings were not statistically significant. The column-based method showed a higher 260/280 ratio (~2.0) compared to the traditional method (~1.8) ( $P < .05$ ), suggesting lower amounts of contaminants. The expression of AT genes was comparable between methods.

### Conclusion

The traditional extraction method provides adequate RNA yield and integrity compared to the column-based method, which is an advantage when AT specimens are small.

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Dokumen 22 dari 31

# Topical Application of Methyl Nicotinate Solution Enhances Peripheral Blood Collection

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## ABSTRAK (ENGLISH)

### Objective

The purpose of this study was to investigate whether local application of methyl nicotinate solution can change the content and proportion of blood cells in peripheral blood samples and to determine whether this treatment is a safe and reliable method for improving peripheral blood collection.

### Methods

Routine blood analysis and flow cytometry were used to analyze the contents and proportions of blood cells and T lymphocyte subsets in peripheral blood samples. Experimental blood specimens were collected from earlobes treated with different concentrations of methyl nicotinate solution, and the control group consisted of blood specimens collected from untreated earlobes.

### Results

The blood flow in the earlobe was significantly increased after methyl nicotinate solution stimulation, especially when the methyl nicotinate solution concentration was greater than  $10^{-4}$  mol/L. There were no significant changes in the proportions of white blood cells, red blood cells, platelets, neutrophils, eosinophils, basophils, monocytes, or lymphocytes in the peripheral blood obtained from earlobes treated with methyl nicotinate solution. The proportion of T lymphocytes increased in the experimental group, but this difference was not significant.

### Conclusion

Local application of methyl nicotinate solution is a feasible method for improving peripheral blood collection, especially for patients with venous blood collection phobia or an inability to provide venous blood samples.

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Dokumen 23 dari 31

# Macroprolactinoma-Induced Syndrome of Inappropriate Antidiuresis and Its Reversal with Dopamine Agonist Therapy

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## ABSTRAK (ENGLISH)

Hyponatremia is an uncommon manifestation of pituitary adenomas. Herein, I report a case of syndrome of inappropriate antidiuresis (SIAD) caused by a macroprolactinoma that rapidly resolved with dopamine agonist therapy. A 29-year-old White woman presented with euvoletic, hypotonic hyponatremia, normal thyroid and glucocorticoid axes, and inappropriately concentrated urine. She was found to have a 1.2-cm sellar mass. Investigation of additional pituitary axes revealed an elevated prolactin level of 193.7 ng/mL. The SIAD experienced by the patient corrected rapidly with initiation of cabergoline. The patient could not tolerate dopamine agonist therapy, and after 1 year, she underwent transsphenoidal resection of the mass after the prolactin began to increase. Pathological examination confirmed the diagnosis of macroprolactinoma. There was no recurrence of the tumor, and the patient continued to have normonatremia and normoprolactinemia 7 years after her operation. To my knowledge, this is the first report in the literature of pathology-confirmed macroprolactinoma marked by SIAD that showed rapid normalization of water metabolism with dopamine agonist therapy.

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Dokumen 24 dari 31

# Cutoff Value of Qualitative HBsAg for Confirmatory HBsAg Using the Chemiluminescence Microparticle Immunoassay Method

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## ABSTRAK (ENGLISH)

### Background

Confirmatory hepatitis B surface antigen (HBsAg) is an assay used to distinguish weakly reactive from false-positive HBsAg results.

### Objective

To determine the signal to cutoff (S/CO) value of chemiluminescence microparticle immunoassay (CMIA) HBsAg assay that should trigger follow-up confirmatory HBsAg testing.

### Methods

All specimens with an initial S/CO value of 0.90–100.00 were subjected to repeat HBsAg testing after high-speed

centrifugation. The specimens with an initial S/CO value in that range remained in the same range and were then followed up with confirmatory HBsAg testing.

## Result

In total, 132 specimens had an S/CO value between 0.90 and 100.00 after high-speed centrifugation, followed by confirmatory HBsAg retesting. The S/CO value of HBsAg specimens for which the results required verification with confirmatory HBsAg was 0.98 (100% sensitivity, 3.3% specificity) through 9.32 (47.1% sensitivity, 100% specificity).

## Conclusion

The HBsAg S/CO values (as determined by the chemiluminescent microparticle immunoassay [CMIA] method) that should trigger confirmatory HBsAg testing are 0.98–9.32.

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Dokumen 25 dari 31

# A Simple and Applicable Method for Human Platelet Lysate Preparation Using Citrate Blood

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## ABSTRAK (ENGLISH)

### Objectives

To determine and compare the platelet growth factors in human platelet lysate (HPL) prepared from citrated whole blood, with final centrifugations at 4°C and 25°C.

### Methods

We collected specimens of citrated whole blood from 27 healthy volunteers. The platelet-rich plasma (PRP) was separated to prepare the HPL, which was further divided into 2 portions for the final centrifugation, at 4°C and 25°C, respectively. Platelet growth factors were measured and compared between the 2 groups.

### Results

All platelet growth factors were higher than those in PRP prepared from citrated whole blood. Moreover, the final centrifugation at 25°C resulted in noninferiority of platelet-growth-factor level.

### Conclusion

This study provided a simple method for small-volume of HPL preparation using only 10–15 mL of citrated whole blood. Further, the entire process of centrifugation can be performed at room temperature of 25°C, which is more applicable than lower temperatures for other laboratories.

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Dokumen 26 dari 31

## Transient Pseudothrombocytopenia Detected 8 Months After COVID-19 Vaccination

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### ABSTRAK (ENGLISH)

Pseudothrombocytopenia is an in vitro phenomenon of platelet aggregation due to conformational changes and exposure of cryptic antigens on the platelet surface caused by anticoagulants, leading to the aggregation of platelets and falsely lower automated platelet counts. Although it has no clinical relevance, it can lead to unnecessary fear, diagnostic errors, or unnecessary tests and interventions when unrecognized.

Pseudothrombocytopenia was detected in a 25-year-old woman 8 months after the second dose of mRNA COVID-19 vaccine, BNT162b2. The pseudothrombocytopenia was transient and the duration was shorter than 3 months. As pseudothrombocytopenia is not detected unless blood is drawn for other objectives, it is difficult to determine its true occurrence among recipients of vaccines. This case shows that pseudothrombocytopenia may develop transiently even months after COVID-19 vaccination and should be considered when thrombocytopenia is found in recipients of the vaccine to avoid unnecessary fear, diagnostic errors, or unnecessary tests and interventions.

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Dokumen 27 dari 31

## Anticardiolipin IgA as a Potential Risk Factor for Pregnancy Morbidity in Patients with Antiphospholipid Syndrome

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### ABSTRAK (ENGLISH)

## Background

Antiphospholipid syndrome (APS) is an autoimmune disorder that is characterized by venous or arterial thrombosis and/or obstetric morbidity in the constant presence of persistent antiphospholipid antibodies (aPLs). In patients with APS, the relationship between production of immunoglobulin (Ig)A antiphospholipid antibodies and adverse events in pregnancy is still unclear. As a result of massive trials, the clinical efficiency of IgA-aPLs is used to evaluate pregnancy outcomes in patients with APS.

## Methods

We enrolled 381 female patients with APS and 93 healthy pregnant women. Silica clotting time ratio, dilute Russell viper venom time (dRVVT) ratio, and 6 aPLs, including IgA/IgG/IgM isotypes a $\beta$ 2GPI and IgA/IgG/IgM isotypes anticardiolipin (aCL), were detected using commercial kits.

## Results

We found no significant differences in laboratory parameters between patients with APS and the control group. The total prevalence of aCL IgA was 2.9%; the prevalence of a $\beta$ 2GPI IgA was 3.4%. Only 1.3% of the individuals who tested aCL-positive (5/381) had isolated aCL IgA. Similarly, isolated a $\beta$ 2GPI IgA was present in only 0.8% (3/381) of the a $\beta$ 2GPI-positive subjects. Meanwhile, aCL IgA showed the maximum area under the curve (AUC) of 0.666 (95% CI, 0.60–0.73;  $P < .001$ ), followed by dRVVT ratio (AUC = 0.649; 0.58–0.72;  $P < .001$ ).

## Conclusion

Positive aCL IgA and a $\beta$ 2GPI IgA ratios were extremely low for each isolated isotype of aPLs. For patients with APS who experienced fetal loss, aCL IgA may be utilized as a risk factor for pregnancy loss among patients with APS. Establishing a standardized diagnosis of IgA aPLs is also important for these patients.

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Dokumen 28 dari 31

# The Viability of Hematopoietic Progenitor Cell Grafts after Cryopreservation Does Not Predict Delayed Engraftment in Allogeneic Hematopoietic Stem Cell Transplantation

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## ABSTRAK (ENGLISH)

### Objective

Due to the COVID-19 pandemic, more peripheral blood stem cell (PBSC) allogeneic grafts are being frozen and

infused thawed. Our objective was to study the influence of graft viability on engraftment outcome in patients treated with PBSCs.

## Methods

Using trypan blue stain, we compared total nucleated cell (TNC) viability of both fresh and thawed grafts in allogeneic PBSCs.

## Results

The viability of thawed PBSC grafts median was 74%, and fresh was 99.0%. The median number of CD34 + cells/kg infused thawed was  $6.3 \times 10^6$ /kg and median time to neutrophil and platelet engraftment was 17.5 and 20 days. Median number of CD34 + cells/kg infused fresh was  $5.1 \times 10^6$ /kg and median time to neutrophil and platelet engraftment was 18 and 19 days. There were no statistically significant differences in the time to engraftment between the 2 groups.

## Conclusion

A low TNC viability of thawed PBSC grafts does not have an effect on time to neutrophil and platelet engraftment when more than  $2.85 \times 10^6$  CD34 + cells/kg are infused.

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Dokumen 29 dari 31

# Hospital and Laboratory Practice in an Integrated Medical System for HIV Infection Prevention Interventions at a Veteran Affairs Medical Center

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## ABSTRAK (ENGLISH)

### Objective

The impact of sexually transmitted infection (STI) results on prompting clinicians to consider pre-exposure prophylaxis (PrEP) indication is sparse in the literature, particularly for veterans.

### Methods

A retrospective search from June 2018 to February 2020 was performed to identify all patients who were HIV-negative at a regional Veteran Affairs Medical Center with a positive STI test result and review the medical chart of these patients.

### Results



We identified 220 veterans who were HIV-negative with a positive STI test result. Of these 220 veterans, 51 unique patients were identified by the clinicians. In a provider-initiated discussion, PrEP was discussed with all 51 patients. In the end, 27 of these 51 patients started PrEP after discussion with their clinical providers.

## Conclusion

Prior positive STI results successfully helped identify patients who may benefit from PrEP. Quality assurance studies on clinician reactions to test result reporting, particularly regarding highly effective preventive therapies, are important.

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Dokumen 30 dari 31

# A Balanced Robertsonian Translocation in a Patient with a Janus Kinase 2–Positive Polycythemia Vera

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## ABSTRAK (ENGLISH)

A male patient with a persistent, combined erythrocytosis, leukocytosis, and thrombocytosis without representative evidence of reactive increase emerged as having a myeloproliferative disorder. Molecular-biological assessment yielded Janus kinase 2–positive results, and the patient was diagnosed with polycythemia vera. In addition to these findings, further karyotyping accounted for a Robertsonian translocation. Because this rearrangement was a balanced variant, we concluded that this cytogenetic result might not significantly alter the diagnosis of polycythemia vera.

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Dokumen 31 dari 31

# Plasma LncRNA MALAT1 Expressions Are Negatively Associated with Disease Severity of Postmenopausal Osteoporosis

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## ABSTRAK (ENGLISH)

## Background

Long noncoding RNA metastasis-associated lung adenocarcinoma transcript 1 (LncRNA MALAT1) has been proven to promote osteogenesis in different health conditions. However, the role of plasma MALAT1 in postmenopausal osteoporosis (PMOP) has not been investigated.

## Objective

To investigate whether plasma MALAT1 expressions are associated with severity of PMOP.

## Methods

A total of 126 patients with PMOP and 126 healthy female control individuals were drafted into study participation. Plasma MALAT1 was detected using RT-PCR. Bone formation marker bone-specific alkaline phosphatase plasma concentration was determined using chemiluminescence immunoassay. Levels of bone absorption marker cross-linked N-telopeptidases of type I collagen were measured in duplicate using enzyme immunoassay. Bone mineral density (BMD) was examined in the total hips, femoral neck, and lumbar (L1–L4) spine using dual-energy x-ray absorptiometry. We used Genant semiquantitative (GSQ) criteria to assess the degree of vertebral deformity and fracture. Receiver operating characteristic (ROC) curve analysis was performed to evaluate the potential diagnostic value of MALAT1 with regard to the GSQ grading. We used the Visual Analog Scale (VAS) and Oswestry Disability Index (ODI) to evaluate the symptomatic severity in and functional ability of the study participants.

## Results

Plasma MALAT1 expressions were significantly lower in patients with PMOP, compared with healthy controls. Plasma MALAT1 expressions in patients with PMOP were positively associated with total hip, femoral neck, and lumbar (L1–L4) spine BMD. In total, 95 patients experienced vertebral deformity or fracture (VF), and 31 had no fractures. Plasma MALAT1 expressions were markedly decreased in patients with VF, compared with patients without fractures. Plasma MALAT1 expressions were negatively related to GSQ grading in patients with VF. ROC curve analysis demonstrated that decreased plasma MALAT1 expression exhibits decent diagnostic value with regard to GSQ grading. Finally, we discovered that plasma MALAT1 expression was also negatively associated with VAS and ODI.

## Conclusion

Plasma MALAT1 expressions are negatively associated with severity of PMOP.

## Daftar Pustaka

Citation style: APA 6th - Annotated with Abstracts - American Psychological Association, 6th Edition

Yosry, A., Zayed, N., Dawood, R. M., Ibrahim, M. K., Elsharkawy, M., Ekladious, S. M., . . . Abdellatif, Z. (2022). Highly sensitive serum miRNA panel for the diagnosis of hepatocellular carcinoma in Egyptian patients with HCV-related HCC. *Labmedicine*, 53(5), 523. doi:<https://doi.org/10.1093/labmed/lmac045>

**Objective** This study aimed at exploring the potential role of a panel of serum micro-RNA (miRNA) markers in liver fibrosis and hepatocellular carcinoma (HCC) diagnosis in patients with chronic hepatitis C virus (HCV) infection. **Methods** The study included 157 chronic HCV patients and 62 HCC patients who presented to the Cairo University Center for Hepatic Fibrosis, Endemic Medicine Department, from 2015 to 2017. Relevant clinical and laboratory data were collected and sera were subjected to miRNA expression profiling. Eleven miRNA markers were studied and receiver operating characteristic curves were constructed to investigate the best cutoff values of the miRNAs that showed altered expression in HCC compared to HCV-associated advanced fibrosis. **Results** miRNA expression profiling revealed 5 miRNAs (miR-124, miR-141, miR-205, miR-208a, miR-499a) were significantly upregulated and 2 miRNAs were significantly downregulated (miR-103a, miR-15a) in HCC compared to advanced fibrosis patients. No significant difference was observed in miRNA expression between advanced fibrosis and early hepatic fibrosis apart from a significant downregulation of miR-155-5p in advanced fibrosis. **Conclusion** Serum miRNAs could serve as potential diagnostic tools for the diagnosis of HCC.

Browne, D. J., Liang, F., Gartlan, K. H., Harris, P. N. A., Hill, G. R., Corrie, S. R., & Markey, K. A. (2022). Multiplex microsphere PCR (mmPCR) allows simultaneous gram typing, detection of fungal DNA, and antibiotic resistance genes. *Labmedicine*, 53(5), 459-464. doi:<https://doi.org/10.1093/labmed/lmac023>

**Objective** To show the high analytical specificity of our multiplex microsphere polymerase chain reaction (mmPCR) method, which offers the simultaneous detection of both general (eg, Gram type) and specific (eg, *Pseudomonas* species) clinically relevant genetic targets in a single modular multiplex reaction. **Materials and Methods** Isolated gDNA of 16S/rRNA Sanger-sequenced and Basic Local Alignment Tool-identified bacterial and fungal isolates were selectively amplified in a custom 10-plex Luminex MagPlex-TAG microsphere-based mmPCR assay. The signal/noise ratio for each reaction was calculated from flow cytometry standard data collected on a BD LSR Fortessa II flow cytometer. Data were normalized to the no-template negative control and the signal maximum. The analytical specificity of the assay was compared to single-plex SYBR chemistry quantitative PCR. **Results** Both general and specific primer sets were functional in the 10-plex mmPCR. The general Gram typing and pan-fungal primers correctly identified all bacterial and fungal isolates, respectively. The species-specific and antibiotic resistance-specific primers correctly identified the species- and resistance-carrying isolates, respectively. Low-level cross-reactive signals were present in some reactions with high signal/noise primer ratios. **Conclusion** We found that mmPCR can simultaneously detect specific and general clinically relevant genetic targets in multiplex. These results serve as a proof-of-concept advance that highlights the potential of high multiplex mmPCR diagnostics in clinical practice. Further development of specimen-specific DNA extraction techniques is required for sensitivity testing.

Khongjaroensakun, N., Paisooksantivatana, K., Santiwatana, S., Tawonsawatruk, T., Kusolthammarat, K., Kadegasem, P., . . . Chuansumrit, A. (2022). Corrigendum to: A simple and applicable method for human platelet lysate preparation using citrate blood. *Labmedicine*, 53(5) doi:<https://doi.org/10.1093/labmed/lmac015>

Basheer, H., Nakhaee, B., & Jialal, I. (2022). Chylomicronemia due to the rare hyperlipoproteinemia type 3 complicated by a circulating monoclonal protein. *Labmedicine*, 53(5), e117-e119. doi:<https://doi.org/10.1093/labmed/lmab127>

The polygenic variety of chylomicronemia occurs in adults in whom factors such as obesity, diabetes, alcoholism, renal disease, and certain drugs can precipitate chylomicronemia. A rare cause of polygenic chylomicronemia is hyperlipoproteinemia type 3 (HLP3). We report on a 54-year-old male who presented with chylomicronemia with triglycerides (TG) >2000 mg/dL. From admission, the ratio of total cholesterol to total triglycerides was not below 0.2 but was closer to 0.5, suggesting that his condition was not classic chylomicronemia. We confirmed that the patient

had HLP3 based on his very-low-density lipoprotein cholesterol (VLDL-C)/TG ratio, which was  $\geq 0.3$ , and lipoprotein electrophoresis showing a broad beta band. Because he was not responsive to initial therapy, we considered an interferent impairing lipolysis and TG reduction. The interferent was an M-protein that may also have falsely elevated both apolipoprotein-B and direct-LDL-C levels. In this case study, we report on a patient with chylomicronemia resulting from HLP3 complicated by a circulating M-protein.

Bockoven, C., Benirschke, R. C., & Hong-Kee, L. (2022). Elevated lactate dehydrogenase concentrations in plasma compared to serum. *Labmedicine*, 53(5), 479-482. doi:<https://doi.org/10.1093/labmed/lmac026>

**Objective** To evaluate the difference in lactate dehydrogenase (LDH) concentrations in plasma vs serum specimens in our patient population. **Materials and Methods** We measured LDH in 110 paired plasma and serum specimens over a 2-week period. Hemolytic indices were performed on each specimen. These paired specimens were drawn in a single setting and stored under the same conditions. For the last 14 paired specimens, cell counts were performed on the plasma/serum. **Results** Plasma LDH was on average 22% higher than serum LDH. There was no difference in the hemolytic indices between the plasma and the serum specimens. In the last 14 specimens, cell counts revealed increased platelets in the plasma specimens compared to the serum specimens. **Conclusion** We propose switching back to using serum for LDH testing because there was unpredictable elevation in plasma LDH concentrations. These elevations in LDH levels may be linked to the platelets present in plasma and that may lyse or become activated with storage at refrigerated temperature.

Hammami, E., Borgi, W. E., Fatma, B. L., Sarra, F. S., Hend, B. N., & Gouider, E. (2022). Acquired FVII deficiency and acute myeloid leukemia: A case report and literature review. *Labmedicine*, 53(5), e120-e122. doi:<https://doi.org/10.1093/labmed/lmab120>

Factor VII (FVII) deficiency is the most common among all rare inherited bleeding disorders. However, acquired FVII deficiency (aFVIID) is uncommon. Only few cases in the literature have been reported. Herein, we present a case of an aFVIID associated with acute myeloid leukemia (AML), along with a literature review regarding this condition. A 50 year old Arab male patient was diagnosed with AML at the hematology department of our institution. At admission, coagulation tests showed a prolonged prothrombin time (PT) with a normal activated partial thromboplastin time (aPTT) and a slightly elevated fibrinogen level. Prothrombin complex coagulation factors dosing (PCCFD) revealed a decrease only in FVII levels. The patient, however, did not experience any bleeding. The evolution of the health of the patient was marked by a normalization of PT and FVII levels and complete remission.

Saldeen, J., Carlsson, L., & Larsson, A. (2022). Seasonal variation of ferritin among swedish blood donors. *Labmedicine*, 53(5), 530-532. doi:<https://doi.org/10.1093/labmed/lmac053>

**Objective** Several biomarkers have been reported to exhibit a seasonal variation, which might also be associated with the seasonality observed for certain disorders, such as cardiovascular disease. Ferritin is a marker of iron stores but may be influenced by other factors including inflammation. The aim of this study was to determine whether there is a seasonal variation for plasma ferritin. **Methods** The study included all ferritin tests performed on blood donors between November 2009 and November 2016 in the county of Uppsala, Sweden. **Results** Median ferritin values were found to be highest in August to October (autumn) and lowest in April to May and December. The differences between the highest and lowest median values were 6  $\mu\text{g/L}$  for males and 5  $\mu\text{g/L}$  for females. This corresponds to approximately 12% difference for males and 15% difference for females. **Conclusion** A modest but statistically significant seasonal periodicity for ferritin was shown for blood donors.

Walradth, E. A. (2022). Acquired factor VIII inhibitors: A case study. *Labmedicine*, 53(5), e126-e128. doi:<https://doi.org/10.1093/labmed/lmab125>

The physiology of hemostasis is one of high complexity that involves the initiation, amplification, and propagation of the many moving parts of the hemostatic system and its regulatory mechanisms. It is imperative that clinical laboratory professionals have a strong understanding of the many intricacies of the physiology of coagulation and its in vitro testing. An elongated activated partial thromboplastin time can have several causes, and the correct cause

must be elucidated in a timely manner for proper treatment. A mixing study with normal pooled plasma should be performed to evaluate for the presence of an inhibitor vs factor deficiency. Factor inhibitors, specifically factor VIII in this case study, should be titered so that the clinician can decide which treatment may work best for the patient. Continued monitoring of factor levels and inhibitor titers should be conducted to follow the resolution or progression of inhibitor presence.

Song-gao, Z., & Huang, Y. (2022). Usefulness of AFP, PIVKA-II, and their combination in diagnosing hepatocellular carcinoma based on upconversion luminescence immunochromatography. *Labmedicine*, 53(5), 488-494. doi:<https://doi.org/10.1093/labmed/lmac027>

**Objectives** To evaluate the prognostic values of serum PIVKA-II (prothrombin induced by vitamin K absence-II) and  $\alpha$ -fetoprotein (AFP) and the combination of these analytes for identifying hepatocellular carcinoma (HCC), and to analyze the correlation between biomarkers and clinicopathological features of HCC. **Methods** The levels of PIVKA-II and AFP in 331 case individuals were determined by upconverting phosphor technology-based immune lateral flow (UPT-LF) assay. We used the ROC curve to determine the diagnostic value; the relationships between the biomarkers and clinicopathological features of HCC also were analyzed. **Results** AFP and PIVKA-II have good diagnostic performance in the diagnosis of HCC; the best AUC was 0.76, 0.74. High levels of PIVKA-II were more advantageous than AFP in predicting tumor size, portal-vein embolism, and vascular invasion (all  $P < .05$ ). **Conclusion** Levels of PIVKA-II and AFP showed good diagnostic value for HCC, but the level of PIVKA-II was more closely related to the clinicopathological features of HCC.

Correction to: Quality assessment and clinical utility of plasma obtained via apheresis vs that obtained from whole blood. (2022). *Labmedicine*, 53(5), 542. doi:<https://doi.org/10.1093/labmed/lmac091>

Merve, E. T., Neselioglu, S., Emra, A. K., Inan, O., Meryem, S. A., Ates, I., & Erel, O. (2022). Modified proline metabolism and prolidase enzyme in COVID-19. *Labmedicine*, 53(5), 453-458. doi:<https://doi.org/10.1093/labmed/lmac017>

**Objective** The aim of the study was to evaluate proline metabolism in patients affected by COVID-19. **Materials and Methods** This case-control study consisted of 116 patients with COVID-19 and 46 healthy individuals. Tests related to proline metabolism (prolidase, proline, hydroxyproline, glutamic acid, manganese) and copper and zinc tests were analyzed. **Results** The levels of proline and hydroxyproline amino acids and the prolidase enzyme were found to be lower and glutamic acid was found to be higher in the COVID-19 group compared to the healthy group ( $P = .012$ ,  $P < .001$ ,  $P < .001$ , and  $P < .001$ , respectively). The copper/zinc ratio was higher in patients with COVID-19 than in healthy individuals ( $P < .001$ ). Significant correlations were found between proline metabolism tests and inflammatory and hemostatic markers commonly used in COVID-19. **Conclusion** The proline metabolic pathway was affected in COVID-19. Relationships between proline pathway-related tests and inflammatory/hemostatic markers supported the roles of proline metabolism in proinflammatory and immune response processes.

Nobakht, H., Mahmoudi, T., Rezamand, G., Seidamir, P. T., Jeddi, G., Asadi, A., . . . Zali, M. R. (2022). Association of rs5742612 polymorphism in the promoter region of IGF1 gene with nonalcoholic fatty liver disease: A case-control study. *Labmedicine*, 53(5), 504-508. doi:<https://doi.org/10.1093/labmed/lmac039>

**Objective** Nonalcoholic fatty liver disease (NAFLD) is an emerging global chronic liver disease encompassing a wide spectrum of disorders ranging from simple steatosis to nonalcoholic steatohepatitis, fibrosis, cirrhosis, and hepatocellular carcinoma. Considering the strong association between NAFLD and insulin resistance, and the vital role of insulin-like growth factor 1 (IGF1) in IR, we hypothesized that IGF1 gene polymorphism might be associated with NAFLD. **Methods** A total of 302 subjects, including 149 patients with biopsy-proven NAFLD and 153 controls, were enrolled in this case-control study. All the subjects were genotyped for the rs5742612 polymorphism of the IGF1 gene using the polymerase chain reaction-restriction fragment length polymorphism method. **Results** The distribution of IGF1 rs5742612 genotypes and alleles differed significantly between the cases with NAFLD and controls. The IGF1 rs5742612 CC genotype compared with the TT genotype or the TT+TC genotype occurred more frequently in the cases than the controls and the differences remained significant after adjustment for confounding

factors such as age and body mass index ( $P = .011$ ,  $OR = 2.71$ ,  $95\%CI = 1.16-5.85$ ; and  $P = .032$ ,  $OR = 2.29$ ,  $95\% CI = 1.10-5.24$ , respectively). Conclusion For the first time, this study uncovered that the IGF1 rs5742612 CC genotype compared with the TT genotype or the TT+TC genotype had a 2.71-fold or 2.29-fold increased risk for NAFLD, respectively.

Dalland, J. C., Blackburn, P. R., Reichard, K. K., Johnson, S. H., Smadbeck, J. B., Vasmatzis, G., . . . Peterson, J. F. (2022). A novel USP25::PDGFRA gene fusion in a 78 year old patient with a myeloid neoplasm. *Labmedicine*, 53(5), e134-e138. doi:<https://doi.org/10.1093/labmed/lmac010>

The World Health Organization category of myeloid/lymphoid neoplasms with eosinophilia and PDGFRA rearrangements is composed of a heterogeneous group of neoplasms that can present as a myeloproliferative neoplasm, acute myeloid leukemia, myeloid sarcoma, or lymphoblastic leukemia/lymphoma. The overall outcome of these neoplasms is favorable with imatinib therapy. Herein, we describe an adult female patient with a myeloid neoplasm accompanied by eosinophilia and a novel USP25::PDGFRA gene fusion.

Shu-yu, L., Liu, F., Chang, L., Guang-lu Che, Qiu-xia, Y., Yong-mei, J., & Teng, J. (2022). Multisite pseudomonas aeruginosa infections detected by metagenomic next-generation sequencing in a child with aplastic anemia: A case report. *Labmedicine*, 53(5), e123-e125. doi:<https://doi.org/10.1093/labmed/lmab123>

Microbial cultivation is the current gold standard for the clinical diagnosis of bacterial infections. However, this method sometimes produces false negative results. We present a case study of multisite *Pseudomonas aeruginosa* infections detected by metagenomic next-generation sequencing in a child with aplastic anemia, highlighting the rapid and accurate advantages of this technique.

Vera, M. A., Sutphin, A., Hansen, L., & El-Khoury, J. (2022). Resolving pseudohyponatremia: Validation of plasma sodium on radiometer ABL800 blood gas analyzers for immediate reflex testing. *Labmedicine*, 53(5), e105-e108. doi:<https://doi.org/10.1093/labmed/lmab114>

**Objective** To perform validation of plasma sodium on blood gas analyzers to reflexively correct erroneous measurements by ion-selective electrodes (ISEs). **Methods** We compared remnant specimens of whole blood and plasma collected by lithium heparin vacutainer with normal protein concentrations and no lipemia. Whole-blood specimens were tested for sodium concentration on the ABL800 Flex blood gas analyzer, followed by centrifugation for plasma separation, and repeat sodium determination on an aliquot of the plasma only. Also, plasma specimens were analyzed by indirect ISE on the Cobas 8000 series and by direct ISE on the ABL800 Flex for instrument comparison. **Results** Plasma aliquots yielded comparable results to the parent whole-blood specimen, with an average change of  $-1.33$  mmol/L ( $R^2 = 0.9727$ ). Comparison of indirect ISE to direct ISE similarly yielded comparable results, with an average change of  $+0.8$  mmol/L ( $R^2 = 0.9016$ ). **Conclusion** Plasma is a valid specimen matrix for use on blood gas analyzers for sodium determination, eliminating the need for re-collection of whole-blood specimens from patients with pseudohyponatremia.

Hussein, E., & Azza, A. E. (2022). Quality assessment and clinical utility of plasma obtained via apheresis vs that obtained from whole blood. *Labmedicine*, 53(5), 439-445. doi:<https://doi.org/10.1093/labmed/lmac029>

**Objective** We studied the impact of storage of thawed plasma (TP) on the in vitro coagulation quality and posttransfusion outcomes of apheresis plasma (AP) vs whole blood plasma (WBP). **Methods** One hundred units of each product were analyzed. In vitro assays were performed on TP on day 0, day 2, and after refreezing, evaluating international normalized ratio (INR), activated partial thromboplastin time (aPTT), fibrinogen, and factors V and VIII. Transfusion of TP on day 2 was studied in 70 patients with liver cirrhosis and 25 patients with thrombotic thrombocytopenic purpura (TTP). **Results** Refrozen specimens from both products showed a significant decline of all values, although AP had a considerably greater coagulation profile ( $P < .05$ ). On day 0 and day 2, we observed significant decreases in coagulation values (except fibrinogen) with WBP, compared with AP ( $P < .05$ ). The WBP, however, provided similar INR for patients with liver cirrhosis and TTP, as compared with AP. The AP resulted in a significant correction of aPTT following plasma exchange in TTP ( $P < .05$ ). **Conclusion** AP demonstrated

considerably greater factor activity. This would be beneficial when manufacturing clotting factor concentrates. Large scale clinical trials are needed to further address the hemostatic outcomes of both products in massively transfused patients.

Buckenmayer, A., Dahmen, L., Hoyer, J., Kamalanabhaiah, S., & Haas, C. S. (2022). Erythrocyte sedimentation rate in patients with renal insufficiency and renal replacement therapy. *Labmedicine*, 53(5), 483-487.

doi:<https://doi.org/10.1093/labmed/lmac018>

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