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## DAFTAR ISI

# The Network That Never Sleeps

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## ABSTRAK (ENGLISH)

This review describes how Twitter is currently used by laboratory professionals for education, research, and networking. This platform has a global audience. It enables users to post information publicly, easily, rapidly, and free of charge. The absence of hierarchies enables interactions that may not be feasible offline. Laboratory professionals teach thousands of people using text, images, polls, and videos. Academic discussion flourishes without paywalls. Published research is shared faster than ever before, articles are discussed in online journal clubs, and research collaborations are facilitated. Pathologists network globally and make new friends within and beyond their specialty. Pathology departments and residency programs showcase trainees and faculty and celebrate graduations. As users in one time zone go to bed, others who are just waking up begin to read and tweet, creating a 24/7/365 live global online conference. We encourage others to plug into the power of Twitter, the network that never sleeps.



# Clinical Significance of Anti-Modified Citrullinated Vimentin Antibodies in Palindromic Rheumatism

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## ABSTRAK (ENGLISH)

**Objective**

This study evaluated anti-modified citrullinated vimentin (anti-MCV) performance in determining the clinical picture and outcomes of palindromic rheumatism (PR).

**Methods**

In a retrospective study, patients with PR with at least 1 year of follow-up diagnosed according to clinical criteria were enrolled. Anti-MCV antibodies were measured, and levels >20 IU/mL were considered positive. Disease prognosis was assessed according to patients acquiring remission and preventing PR from developing into rheumatoid arthritis (RA) or other diseases.

**Results**

Seventy-six patients with PR with a mean follow-up of 30.57 months (median = 21 months; minimum = 12 months; maximum = 48 months) were included in the study. Anti-MCV antibodies were positive in 69.7% of patients. Metacarpophalangeal (MCP) joint involvement and positive anti-cyclic citrullinated peptides were significantly higher in patients who were anti-MCV-positive, whereas ankle joint involvement was significantly lower. No significant correlation was observed between the anti-MCV titer and the severity of attacks. Remission in patients who were anti-MCV-positive and negative was 75.5% and 78.3%, respectively, with no significant difference. Evolution to RA was observed in only 3.8% of patients who were anti-MCV-positive. No patients who were anti-MCV-negative developed RA.

**Conclusion**

Except for MCP and ankle joint involvement, anti-MCV was not helpful in determining the clinical picture and outcome of PR.



# Incidence of Hepatotoxicity in Iranian Patients With HIV on Antiretroviral Therapies and Its Correlation with Virologic Response to HIV Treatment

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## ABSTRAK (ENGLISH)

**Objective**

To investigate hepatotoxicity in Iranian patients with HIV to assess the association between virologic response to HIV treatment and serum alanine aminotransferase (ALT).

**Methods**

This study was conducted with 200 control patients, 75 patients with HIV naïve to antiretroviral therapy (ART), and 443 patients who received ARTs with virologic response (≤1000 copies/mL) or virologic treatment failure (>1000 copies/mL). Serum ALT level and HIV viral load were determined in all patients.

**Results**

Patient ALT levels were significantly higher than those of control patients (45.1 ± 44.4 IU/L vs 23.8 ± 5.4 IU/L). Compared to patients who were ART-naïve, patients with ART experience had significantly higher ALT levels (38.2 ± 26.2 IU/L vs 46.3 ± 46.7 IU/L), and severe hepatotoxicity was only detected in those with ART experience (8 patients, 1.8%). Mean ALT had no significant difference between virologic response/failure groups. The ALT activity and HIV load had a negative correlation coefficient, but it was not significant.

**Conclusion**

Periodic monitoring for the possibility of hepatotoxicity is highly recommended in all patients with HIV, especially in those receiving ART treatment.



# The Impact of Mass Spectrometry on Patients' Medical and Nonmedical Lives

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## ABSTRAK (ENGLISH)

**Objective**

The various forms of mass spectrometry (MS) instrumentation have had a major impact on testing for analytes performed with clinical and forensic laboratories over the past decade. Improvements in MS instrumentation have led to the use of MS in many areas.

**Methods**

To highlight the value of MS testing, short reports are presented that are relevant to the following fields: pain management, transplant medicine, clinical toxicology, designer drug testing, genetic metabolic disorders, nutrition, dietary exposure to heavy metals, herbals and supplements, forensic pathology, pharmacogenomics, homeland security, performance enhancing drugs and peptides, clinical microbiology, physician licensing, and environmental exposures. These reports are based on real patients. The "stories" have been altered to comply with privacy regulations.

**Results**

Analysis of MS provides objective results that have an impact on many areas of medicine and society as a whole. Accurate analysis has an impact on guidance for medical practices.

**Conclusion**

The value of MS testing will continue to grow in the years to come.

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# Stable Plasma Sample Storage in Acetonitrile for Angiotensin and Aldosterone Analysis

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## ABSTRAK (ENGLISH)

**Background**

Angiotensin I, II (AI, AII) and aldosterone are unstable in plasma specimens at room temperature, making it difficult for collect samples for remote regions in centralized and collaborative studies. Here we introduce a stable storage method which do not require cold conditions..

**Methods**

Acetonitrile was added to the plasma to 60%, and then the supernatants were kept at 4°C and room temperature for 0, 1, 2, 3, 10 and 30 days. AI, AII and aldosterone were extracted and analyzed by chemiluminescence immunoassays.

**Results**

AI, AII and aldosterone were well retained in the supernatant under this method. The intra- and inter-day CVs of this method were all below 10%. The levels of AI, AII and aldosterone by this method remained stable for 30 days at room temperature.

### Conclusion

Addition of 60% acetonitrile in the plasma provides a stable storage method for clinical AI, AII and aldosterone.

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# Significant Operational Improvements with Implementation of Next Generation Laboratory Automation

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## ABSTRAK (ENGLISH)

### Objectives

To investigate the benefits and challenges of introducing next generation chemistry and coagulation automation.

### Methods

We replaced the Roche modular preanalytic system attached to Roche Cobas 6000 analyzers with the Roche 8100 preanalytical line attached to the Roche Cobas 8000 and Stago STA R Max analyzers. The system included 2 add-on buffers (AOBs) for automated specimen archival and retrieval and primary-tube specimen processing. We measured turnaround time (TAT) from specimen receipt to result for chemistry and coagulation tests before, during, and after system implementation. TAT for add-on tests was also measured.

### Results

We completed the system implementation during a 17-month period using existing laboratory space. The TAT for chemistry, coagulation, and add-on tests decreased significantly ($P$ <.005, $P$ <.001, and $P$ <.005, respectively). We encountered several challenges, including barcode-label errors, mechanical problems, and workflow issues due to lack of bidirectional track for coagulation testing.

### Conclusions

Next generation laboratory automation yielded significantly shortened and less-variable TAT, particularly for add-on

testing. Our approach could help other laboratories in the process of implementing and configuring automated systems.



# Light Chain Predominant Intact Immunoglobulin Monoclonal Gammopathy Disorders: Shorter Survival in Light Chain Predominant Multiple Myelomas

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## ABSTRAK (ENGLISH)

**Background**

A proportion of intact immunoglobulin (Ig)–producing multiple myelomas (MMs) was observed to secrete much higher amounts of free light chains (LCs) than usual.

**Objectives**

To determine the change point between usual and LC-predominant intact Ig-secreting MMs and other monoclonal gammopathic manifestations and the biological significance of the observation.

**Methods**

We conducted retrospective examination of laboratory findings in 386 MM, 27 smoldering MM, and 179 monoclonal gammopathy of undetermined significance (MGUS) cases that secreted intact Igs. We recorded the highest levels of involved serum free LC, highest ratio of involved to uninvolved LC, highest concentration of involved LC per g of monoclonal Ig, and highest value for ratio of involved to uninvolved LCs divided by the monoclonal Ig concentration. Each data set was sorted into kappa- and lambda LC-associated lesions. Length of time, in months, between diagnosis and last contact with the patients having myeloma was recorded.

**Results**

Change point analysis of data revealed a subgroup of cases with distinctly higher levels of free LCs. In myelomas, including plasma cell leukemias, 16.4% of myelomas with kappa LCs and 22.3% of myelomas with lambda LCs, the LC secretion was distinctly higher than in the remaining cases, by a combination of 4 parameters, listed herein. Corresponding figures for smoldering myeloma (SMM) and monoclonal gammopathy of undetermined significance (MGUS) were 12.5, 27.3, 3.8, and 6.8, respectively. Ten of the 13 (77%) cases of plasma cell leukemia) and all cases of IgD myeloma ($n$ = 4) showed excess secretion of serum free LCs. Among IgG and IgA myelomas, including plasma cell leukemias, the LC-predominant lesions had shorter survival, by an average of 22.5 months.

### Conclusions

In total, 18.4% of MMs, including plasma cell leukemias, secrete distinctly higher amounts of serum free LCs than other intact Ig-secreting myelomas and confer significantly lower survival. Quantification of monoclonal serum free LCs may be useful in this subgroup in monitoring progress and potentially in ascertaining minimal residual disease. The findings also stress the need for separate criteria for kappa and lambda LC associated monoclonal gammopathic manifestations. The significantly shorter survival of patients with LC-predominant myelomas warrants consideration in prospective trials of treatments.

Dokumen 8 dari 20

# About the Journal

Link dokumen ProQuest

Dokumen 9 dari 20

# Initial Clinical Laboratory Response to COVID-19: A Survey of Medical Laboratory Professionals

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Link dokumen ProQuest

## ABSTRAK (ENGLISH)

### Objective

To explore the experiences of medical laboratory professionals (MLPs) and their perceptions of the needs of clinical laboratories in response to COVID-19.

### Methods

We surveyed laboratory professionals working in United States clinical laboratories during the initial months of the pandemic.

### Results

Overall clinical laboratory testing and overtime work for laboratorians decreased during the first months of the pandemic. Laboratory professionals reported better or unchanged job satisfaction, feelings toward their work, and morale in their workplace, which were related to healthcare facility and laboratory leadership response. They

reported receiving in-kind gifts, but no hazard pay, for their essential work. Important supply needs included reagents and personal protective equipment (PPE).

**Conclusion**

The response by healthcare facilities and laboratory leadership can influence MLPs job satisfaction, feelings toward their work, and laboratory morale during a pandemic. Current COVID-19 laboratory testing management, in the absence of sufficient reagents and supplies, cannot fully address the needs of clinical laboratories.

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Dokumen 10 dari 20

# Daratumumab Interference in Flow Cytometry Producing a False Kappa Light Chain Restriction in Plasma Cells

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Link dokumen ProQuest

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## ABSTRAK (ENGLISH)

False kappa light chain restriction on hematogones (normal B-lineage precursors) has been described in patients on the therapeutic anti-CD38 monoclonal antibody daratumumab. In this article, we present a novel case report of pseudo-kappa light chain restriction on lambda-restricted neoplastic plasma cells in a patient with progressive plasma cell myeloma while on daratumumab. Flow cytometric technologists and pathologists need to be aware of this potential diagnostic pitfall.

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Dokumen 11 dari 20

# Pathology—The Beginnings of Laboratory Medicine: First in a Series

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Dokumen 12 dari 20

# Verification and Implementation of HIV Antibody Differentiation Testing to Improve Turnaround Time for the HIV Diagnostic Algorithm

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## ABSTRAK (ENGLISH)

**Background**

Relying on reference laboratories for HIV confirmation testing may lead to delays in treatment and can cause stress for patients who have positive HIV screening results.

**Objective**

To internalize HIV-1/HIV-2 antibody differentiation testing within the hospital laboratory.

**Methods**

We analytically verified an HIV antibody differentiation immunoassay and subsequently compared result turnaround times (TATs) for HIV antibody differentiation and HIV-1 qualitative RNA in the months before and after the test internalization.

**Results**

HIV antibody differentiation was successfully verified. TATs for HIV antibody differentiation and HIV-1 RNA significantly improved, from medians of 40.4 hours and 156.5 hours to medians of 17.7 hours and 56.5 hours, respectively, after the internalization. The 90$^{th}$-percentile turnaround times declined by 72% and 44%, respectively.

**Conclusions**

It is feasible for a hospital laboratory to verify HIV antibody-differentiation testing. Its implementation may considerably improve result TATs for the HIV diagnostic algorithm.

Dokumen 13 dari 20

# Hemolytic Disease of the Fetus and Newborn Caused by Maternal Autoantibody with Mimicking Anti-E Specificity

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## ABSTRAK (ENGLISH)

**Objective**

There are few reports of hemolytic disease of the fetus and newborn (HDFN) caused by maternal autoantibodies.

**Methods**

We describe the case of a pregnant patient aged 26 years with systemic lupus erythematosus without any transfusion history who developed autoantibody with mimicking anti-E specificity. Her newborn developed HDFN caused by the maternal autoantibody.

**Results**

The clinical symptoms of the newborn were not serious. After bilirubin light phototherapy and other symptomatic supportive treatment, the baby was discharged with a good prognosis.

**Conclusion**

This is the first reported case of HDFN caused by maternal autoantibody with mimicking anti-E specificity. However, the real antigenic target of the autoantibody was not clear.



# Laboratory Predictors of COVID-19 Pneumonia in Patients with Mild to Moderate Symptoms

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## ABSTRAK (ENGLISH)

**Objective**

This research aims to develop a laboratory model that can accurately distinguish pneumonia from nonpneumonia in patients with COVID-19 and to identify potential protective factors against lung infection.

**Methods**

We recruited 50 patients diagnosed with COVID-19 infection with or without pneumonia. We selected candidate predictors through group comparison and punitive least absolute shrinkage and selection operator (LASSO) analysis. A stepwise logistic regression model was used to distinguish patients with and without pneumonia. Finally, we used a decision-tree method and randomly selected 50% of the patients 1000 times from the same specimen to verify the effectiveness of the model.

**Results**

We found that the percentage of eosinophils, a high–fluorescence-reticulocyte ratio, and creatinine had better discriminatory power than other factors. Age and underlying diseases were not significant for discrimination. The model correctly discriminated 77.1% of patients. In the final validation step, we observed that the model had an overall predictive rate of 81.3%.

**Conclusion**

We developed a laboratory model for COVID-19 pneumonia in patients with mild to moderate symptoms. In the clinical setting, the model will be able to predict and differentiate pneumonia vs nonpneumonia before any lung computed tomography findings. In addition, the percentage of eosinophils, a high–fluorescence-reticulocyte ratio, and creatinine were considered protective factors against lung infection in patients without pneumonia.



# Evaluation of the NG-Test CARBA 5 Kit for Rapid Detection of Carbapenemase Resistant Enterobacteriaceae

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## ABSTRAK (ENGLISH)

**Objective**

We evaluated NG-Test CARBA 5, a new phenotypic carbapenemase detection assay, and compared it to the routine Xpert CARBA-R polymerase chain reaction assay. Furthermore, we tested the kit’s performance after bacterial growth on 4 different solid media.

**Methods**

Seventy carbapenem resistant *Enterobacteriaceae* (CRE) isolates (60 were carbapenemase producers) were collected at the Poriya Baruch Padeh Medical Center. All isolates were grown on 4 types of agar media—BD BBL CHROMagar carbapenem resistant *Enterobacteriaceae*, BD CHROMagar Orientation, BD MacConkey II agar, and BD Trypticase Soy Agar II with 5% sheep blood—and were then subjected to NG-Test CARBA 5 kit analysis.

**Results**

The NG-Test CARBA 5 specificity was 100% for all 4 media. However, the sensitivity was higher when bacteria were grown on TSA with 5% sheep blood (98.3%) as compared with the Orientation medium (88.3%), the CPE medium (84.7%), and the MacConkey medium (83.6%). In addition, some of the carbapenemase mechanisms such as Verona Integron-Mediated Metallo-β-lactamase were detected with low agreement levels in specific media but higher agreement levels in the other media.

**Conclusion**

NG-Test CARBA 5 may enable faster detection of carbapenemase producing CRE, which will be of value for treatment adjustment and prevention control. However, the medium type on which the bacteria are grown affects kit sensitivity.

Dokumen 16 dari 20

# A High-Level Overview of the Regulations Surrounding a Clinical Laboratory and Upcoming Regulatory Challenges for Laboratory Developed Tests

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Link dokumen ProQuest

## ABSTRAK (ENGLISH)

**Objective**

Regulations for clinical laboratories in the United States are complex. The goal of this review is to improve the clarity of laboratory-developed test (LDT) regulation to facilitate innovation.

**Methods**

A literature and regulation review of current legislation for compliance by U.S. clinical laboratories was performed, and examples of the steps to implement LDTs within compliance with the regulatory environment are shared.

**Results**

Many federal and state jurisdictions are critical to the functionality of a laboratory in addition to upcoming potential promulgation of the Verifying Accurate Leading-Edge IVCT Development Act. Increased regulation, although imperative to maintain consistent, high-standard clinical care, could mean additional costs for developers and healthcare while also hindering innovation.

**Conclusion**

An extensive discussion of proposed regulations for LDTs needs to occur. Laboratory testing requires the sustained use of innovative methods at a cost that will permit continued, timely, uninterrupted high-quality service.



# Trimethylamine N-Oxide is Associated with Heart Failure Risk in Patients with Preserved Ejection Fraction

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## ABSTRAK (ENGLISH)

**Background**

Trimethylamine N-oxide (TMAO) has been considered to be an independent risk factor of heart failure (HF).

**Objectives**

To further determine the plasma levels of TMAO in patients who have HF with preserved ejection fraction (HFpEF), and to analyze the relationship between TMAO and HFpEF risk.

**Methods**

A total of 57 control participants and 61 patients with HFpEF were recruited. We measured and analyzed plasma levels of TMAO and performed biochemical examination of all patients.

**Results**

The mean (SD) plasma levels of TMAO in patients with HFpEF (6.84 [1.12] μmol/L) were significantly higher than in controls (1.63 [0.08] μmol/L; *P* <.01). The area under the curve (AUC) of TMAO and N-terminal pro b-type natriuretic peptide (NT-proBNP) was 0.817 and 0.924, respectively, which were determined by receiver operating characteristic (ROC) analysis. TMAO was an independent risk factor in patients with HFpEF, as revealed by univariate and

multivariate logistic regression analysis. The level of TMAO was correlated with blood urea nitrogen (BUN), creatinine, and NT-proBNP.

**Conclusions**

TMAO level was highly associated with HFpEF risk.

Dokumen 18 dari 20

# Point-of-Care Testing Effectiveness on Blood Donor Hemoglobin Testing

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## ABSTRAK (ENGLISH)

**Background**

Hemoglobin (Hb) evaluation by point-of-care testing (POCT) identifies borderline or anaemic asymptomatic blood donors. Although quality control checks confirm that this device is fit for use, it is still not clear whether the analyser is performing effectively. A protocol comparing the POCT EKF Diagnostics with the Sysmex XN-550 automated cell counter (ACC) has been designed.

**Methods**

Various scenarios of Hb measurements from the ACC and the POCT device are compared using the Spearman correlation and Intraclass correlation. The Bland-Altman method was used to analyse the level of agreement between the two devices.

**Results**

Correlation between the two devices was best observed in the venous vs venous blood scenario.

**Conclusion**

The POCT device overestimates the Hb levels in capillary blood, meaning that Hb requirements should be adjusted and when feasible testing repeated on venous blood using an ACC. Furthermore, it is suggested thar each Facility determine their own Hb threshold.

Dokumen 19 dari 20

# Clinical Predictors of SARS-CoV-2 Testing Pressure on Clinical Laboratories: A Multinational Study Analyzing Google Trends and Over 100 Million Diagnostic Tests

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## ABSTRAK (ENGLISH)

**Objective**

Evidence has shown that Google searches for clinical symptom keywords correlates with the number of new weekly patients with COVID-19. This multinational study assessed whether demand for SARS-CoV-2 tests could also be predicted by Google searches for key COVID-19 symptoms.

**Methods**

The weekly number of SARS-CoV-2 tests performed in Italy and the United States was retrieved from official sources. A concomitant electronic search was performed in Google Trends, using terms for key COVID-19 symptoms.

**Results**

The model that provided the highest coefficient of determination for the United States ($R^2$ = 82.8%) included a combination of searching for cough (with a time lag of 2 weeks), fever (with a time lag of 2 weeks), and headache (with a time lag of 3 weeks; the time lag refers to the amount of time between when a search was conducted and when a test was administered). In Italy, headache provided the model with the highest adjusted $R^2$ (86.8%), with time lags of both 1 and 2 weeks.

**Conclusion**

Weekly monitoring of Google Trends scores for nonspecific COVID-19 symptoms is a reliable approach for anticipating SARS-CoV-2 testing demands ~2 weeks in the future.

Dokumen 20 dari 20

# Evaluation of Serum GDF15, AFP, and PIVKA-II as Diagnostic Markers for HBV-Associated

# Hepatocellular Carcinoma

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## ABSTRAK (ENGLISH)

### Objective

To evaluate the potential diagnostic value of growth differentiation factor 15 (GDF15) alone and its combination with protein induced by vitamin K absence-II (PIVKA-II) and alpha-fetoprotein (AFP) for hepatitis B virus (HBV)-associated hepatocellular carcinoma (HCC).

### Methods

Serum levels of GDF15, PIVKA-II, and AFP were measured in 110 patients with HBV-associated HCC, 70 patients with HBV-related liver cirrhosis (LC), 70 patients with chronic hepatitis B (CHB), and 110 healthy patients.

### Results

Serum GDF15 was positively related to the levels of PIVKA-II and AFP in patients with HCC ($r$ = 0.352 and $r$ = 0.378; all $P$ <.0001). When the receiver operating characteristic (ROC) curve was plotted for patients with HCC vs all control patients, serum GDF15 had diagnostic parameters of an area under the curve (AUC) of 0.693, a sensitivity of 67.30%, and a specificity of 66.70%, which were lower than parameters for PIVKA-II and AFP (all $P$ <.0001). When the ROC curve was plotted for patients with HCC vs patients with LC, the combination of GDF15 and PIVKA-II had the highest diagnostic accuracy of AUC and specificity as compared with other combinations (all $P$ <.0001).

### Conclusion

We found that GDF15 is a potent serum marker for the detection of HBV-associated HCC and that PIVKA-II combined with GDF15 can improve diagnostic accuracy for HBV-associated HCC.

# Daftar Pustaka

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

Mukhopadhyay, S., Kanakis, C., Golab, K., Hermelin, D., Crane, G. M., & Mirza, K. M. (2021). The network that never sleeps. Labmedicine, 52(4), e83-e103. doi:https://doi.org/10.1093/labmed/lmaa113

This review describes how Twitter is currently used by laboratory professionals for education, research, and networking. This platform has a global audience. It enables users to post information publicly, easily, rapidly, and free of charge. The absence of hierarchies enables interactions that may not be feasible offline. Laboratory professionals teach thousands of people using text, images, polls, and videos. Academic discussion flourishes without paywalls. Published research is shared faster than ever before, articles are discussed in online journal clubs, and research collaborations are facilitated. Pathologists network globally and make new friends within and beyond their specialty. Pathology departments and residency programs showcase trainees and faculty and celebrate graduations. As users in one time zone go to bed, others who are just waking up begin to read and tweet, creating a 24/7/365 live global online conference. We encourage others to plug into the power of Twitter, the network that never sleeps.

Aida, M. M., Rashtchizadeh, N., Khaknejad, M., Sakhinia, E., Khabbazi, A., & Kolahi, S. (2021). Clinical significance of anti-modified citrullinated vimentin antibodies in palindromic rheumatism. Labmedicine, 52(4), 357. doi:https://doi.org/10.1093/labmed/lmaa095

Objective This study evaluated anti-modified citrullinated vimentin (anti-MCV) performance in determining the clinical picture and outcomes of palindromic rheumatism (PR). Methods In a retrospective study, patients with PR with at least 1 year of follow-up diagnosed according to clinical criteria were enrolled. Anti-MCV antibodies were measured, and levels >20 IU/mL were considered positive. Disease prognosis was assessed according to patients acquiring remission and preventing PR from developing into rheumatoid arthritis (RA) or other diseases. Results Seventy-six patients with PR with a mean follow-up of 30.57 months (median = 21 months; minimum = 12 months; maximum = 48 months) were included in the study. Anti-MCV antibodies were positive in 69.7% of patients. Metacarpophalangeal (MCP) joint involvement and positive anti-cyclic citrullinated peptides were significantly higher in patients who were anti-MCV-positive, whereas ankle joint involvement was significantly lower. No significant correlation was observed between the anti-MCV titer and the severity of attacks. Remission in patients who were anti-MCV-positive and negative was 75.5% and 78.3%, respectively, with no significant difference. Evolution to RA was observed in only 3.8% of patients who were anti-MCV-positive. No patients who were anti-MCV-negative developed RA. Conclusion Except for MCP and ankle joint involvement, anti-MCV was not helpful in determining the clinical picture and outcome of PR.

Hashempour, T., Moayedi, J., Mousavi, Z., Esmaeli, M., Asadzadeh, A., Hasanshahi, Z., & Dehghani, B. (2021). Incidence of hepatotoxicity in iranian patients with HIV on antiretroviral therapies and its correlation with virologic response to HIV treatment. Labmedicine, 52(4), 369-374. doi:https://doi.org/10.1093/labmed/lmaa106

Objective To investigate hepatotoxicity in Iranian patients with HIV to assess the association between virologic response to HIV treatment and serum alanine aminotransferase (ALT). Methods This study was conducted with 200 control patients, 75 patients with HIV naïve to antiretroviral therapy (ART), and 443 patients who received ARTs with virologic response (≤1000 copies/mL) or virologic treatment failure (>1000 copies/mL). Serum ALT level and HIV viral load were determined in all patients. Results Patient ALT levels were significantly higher than those of control patients (45.1 ± 44.4 IU/L vs 23.8 ± 5.4 IU/L). Compared to patients who were ART-naïve, patients with ART experience had significantly higher ALT levels (38.2 ± 26.2 IU/L vs 46.3 ± 46.7 IU/L), and severe hepatotoxicity was only detected in those with ART experience (8 patients, 1.8%). Mean ALT had no significant difference between virologic response/failure groups. The ALT activity and HIV load had a negative correlation coefficient, but it was not significant. Conclusion Periodic monitoring for the possibility of hepatotoxicity is highly recommended in all patients with HIV, especially in those receiving ART treatment.

Wu, A. H. B. (2021). The impact of mass spectrometry on patients' medical and nonmedical lives. Labmedicine, 52(4), e58-e65. doi:https://doi.org/10.1093/labmed/lmaa083

Objective The various forms of mass spectrometry (MS) instrumentation have had a major impact on testing for analytes performed with clinical and forensic laboratories over the past decade. Improvements in MS instrumentation have led to the use of MS in many areas. Methods To highlight the value of MS testing, short reports are presented that are relevant to the following fields: pain management, transplant medicine, clinical toxicology, designer drug testing, genetic metabolic disorders, nutrition, dietary exposure to heavy metals, herbals and supplements, forensic pathology, pharmacogenomics, homeland security, performance enhancing drugs and peptides, clinical microbiology, physician licensing, and environmental exposures. These reports are based on real patients. The "stories" have been altered to comply with privacy regulations. Results Analysis of MS provides objective results that have an impact on many areas of medicine and society as a whole. Accurate analysis has an impact on guidance for medical practices. Conclusion The value of MS testing will continue to grow in the years to come.

Wei, X., Wang, Y., Zhu, W., Li, J., Lu, P., Gao, Z., & Bai, B. (2021). Stable plasma sample storage in acetonitrile for angiotensin and aldosterone analysis. Labmedicine, 52(4), 352-356. doi:https://doi.org/10.1093/labmed/lmaa079

Background Angiotensin I, II (AI, AII) and aldosterone are unstable in plasma specimens at room temperature, making it difficult for collect samples for remote regions in centralized and collaborative studies. Here we introduce a stable storage method which do not require cold conditions.. Methods Acetonitrile was added to the plasma to 60%, and then the supernatants were kept at 4°C and room temperature for 0, 1, 2, 3, 10 and 30 days. AI, AII and aldosterone were extracted and analyzed by chemiluminescence immunoassays. Results AI, AII and aldosterone were well retained in the supernatant under this method. The intra- and inter-day CVs of this method were all below 10%. The levels of AI, AII and aldosterone by this method remained stable for 30 days at room temperature. Conclusion Addition of 60% acetonitrile in the plasma provides a stable storage method for clinical AI, AII and aldosterone.

Tanasijevic, M. J., Melanson, S. E. F., Tolan, N. V., Ransohoff, J. R., Conrad, M. J., Hyun-il Paik, & Petrides, A. K. (2021). Significant operational improvements with implementation of next generation laboratory automation. Labmedicine, 52(4), 329-337. doi:https://doi.org/10.1093/labmed/lmaa108

Objectives To investigate the benefits and challenges of introducing next generation chemistry and coagulation automation. Methods We replaced the Roche modular preanalytic system attached to Roche Cobas 6000 analyzers with the Roche 8100 preanalytical line attached to the Roche Cobas 8000 and Stago STA R Max analyzers. The system included 2 add-on buffers (AOBs) for automated specimen archival and retrieval and primary-tube specimen processing. We measured turnaround time (TAT) from specimen receipt to result for chemistry and coagulation tests before, during, and after system implementation. TAT for add-on tests was also measured. Results We completed the system implementation during a 17-month period using existing laboratory space. The TAT for chemistry, coagulation, and add-on tests decreased significantly ($P < .005$, $P < .001$, and $P < .005$, respectively). We encountered several challenges, including barcode-label errors, mechanical problems, and workflow issues due to lack of bidirectional track for coagulation testing. Conclusions Next generation laboratory automation yielded significantly shortened and less-variable TAT, particularly for add-on testing. Our approach could help other laboratories in the process of implementing and configuring automated systems.

Singh, G., & Xu, H. (2021). Light chain predominant intact immunoglobulin monoclonal gammopathy disorders: Shorter survival in light chain predominant multiple myelomas. Labmedicine, 52(4), 390-398. doi:https://doi.org/10.1093/labmed/lmaa057

Background A proportion of intact immunoglobulin (Ig)–producing multiple myelomas (MMs) was observed to secrete much higher amounts of free light chains (LCs) than usual. Objectives To determine the change point between usual and LC-predominant intact Ig-secreting MMs and other monoclonal gammopathic manifestations and the biological significance of the observation. Methods We conducted retrospective examination of laboratory

findings in 386 MM, 27 smoldering MM, and 179 monoclonal gammopathy of undetermined significance (MGUS) cases that secreted intact Igs. We recorded the highest levels of involved serum free LC, highest ratio of involved to uninvolved LC, highest concentration of involved LC per g of monoclonal Ig, and highest value for ratio of involved to uninvolved LCs divided by the monoclonal Ig concentration. Each data set was sorted into kappa- and lambda LC-associated lesions. Length of time, in months, between diagnosis and last contact with the patients having myeloma was recorded. Results Change point analysis of data revealed a subgroup of cases with distinctly higher levels of free LCs. In myelomas, including plasma cell leukemias, 16.4% of myelomas with kappa LCs and 22.3% of myelomas with lambda LCs, the LC secretion was distinctly higher than in the remaining cases, by a combination of 4 parameters, listed herein. Corresponding figures for smoldering myeloma (SMM) and monoclonal gammopathy of undetermined significance (MGUS) were 12.5, 27.3, 3.8, and 6.8, respectively. Ten of the 13 (77%) cases of plasma cell leukemia) and all cases of IgD myeloma (n = 4) showed excess secretion of serum free LCs. Among IgG and IgA myelomas, including plasma cell leukemias, the LC-predominant lesions had shorter survival, by an average of 22.5 months. Conclusions In total, 18.4% of MMs, including plasma cell leukemias, secrete distinctly higher amounts of serum free LCs than other intact Ig-secreting myelomas and confer significantly lower survival. Quantification of monoclonal serum free LCs may be useful in this subgroup in monitoring progress and potentially in ascertaining minimal residual disease. The findings also stress the need for separate criteria for kappa and lambda LC associated monoclonal gammopathic manifestations. The significantly shorter survival of patients with LC-predominant myelomas warrants consideration in prospective trials of treatments.

About the journal. (2021). Labmedicine, 52(4), 309-310. doi:https://doi.org/10.1093/labmed/lmab044

Nuñez-Argote, L., Baker, D. P., & Jones, A. P. (2021). Initial clinical laboratory response to COVID-19: A survey of medical laboratory professionals. Labmedicine, 52(4), e115-e124. doi:https://doi.org/10.1093/labmed/lmab021

Objective To explore the experiences of medical laboratory professionals (MLPs) and their perceptions of the needs of clinical laboratories in response to COVID-19. Methods We surveyed laboratory professionals working in United States clinical laboratories during the initial months of the pandemic. Results Overall clinical laboratory testing and overtime work for laboratorians decreased during the first months of the pandemic. Laboratory professionals reported better or unchanged job satisfaction, feelings toward their work, and morale in their workplace, which were related to healthcare facility and laboratory leadership response. They reported receiving in-kind gifts, but no hazard pay, for their essential work. Important supply needs included reagents and personal protective equipment (PPE). Conclusion The response by healthcare facilities and laboratory leadership can influence MLPs job satisfaction, feelings toward their work, and laboratory morale during a pandemic. Current COVID-19 laboratory testing management, in the absence of sufficient reagents and supplies, cannot fully address the needs of clinical laboratories.

Kleinot, W., Aguilera, N., & Courville, E. L. (2021). Daratumumab interference in flow cytometry producing a false kappa light chain restriction in plasma cells. Labmedicine, 52(4), 403-409. doi:https://doi.org/10.1093/labmed/lmaa107

False kappa light chain restriction on hematogones (normal B-lineage precursors) has been described in patients on the therapeutic anti-CD38 monoclonal antibody daratumumab. In this article, we present a novel case report of pseudo-kappa light chain restriction on lambda-restricted neoplastic plasma cells in a patient with progressive plasma cell myeloma while on daratumumab. Flow cytometric technologists and pathologists need to be aware of this potential diagnostic pitfall.

Angela, T. R. (2021). Pathology—The beginnings of laboratory medicine: First in a series. Labmedicine, 52(4), e66-e82. doi:https://doi.org/10.1093/labmed/lmaa098