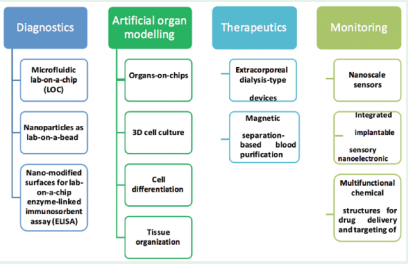
In this issue

Review Article

The protagonist of contemporary and emerging nanotechnology-based theranostics and therapeutic approaches in reshaping intensive care unit



Future potential for nanotechnology advancement in emergency medicine investigation and practice in the next years.

Xie & Chen explore the current impact of nanotechnology, with a particular focus on bacterial infections and severe acute respiratory syndrome coronavirus 2, which significantly strain healthcare systems, and then discuss how nanotechnology can enhance existing treatment methodologies. They have highlight the effectiveness of the nanotechnology-based bactericide Bio-Kil in reducing bacterial counts in an intensive care unit. The aim is to educate healthcare professionals on the existing role and prospects of nanotechnology in addressing prevalent infectious diseases. They concluded that innovative methods of analysis and artificial devices are always needed to integrate nanotechnology-based procedures into clinical practice. Various efforts are also necessary to equip chronic injury treatment in terms of area and targeted effectiveness to avoid unwanted occurrences and interventions that might hamper the biological behavior of nanotechnologies in the human body.

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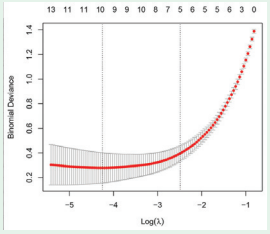
Original Article

Identification of effective diagnostic genes and immune cell infiltration characteristics in small cell lung cancer by integrating bioinformatics analysis and machine learning algorithms



Least absolute shrinkage and selection operator regression plot (the X-axis is logλ, and the Y-axis is the cross-validation error).

Chen et al identify potential diagnostic markers for small cell lung cancer (SCLC) and investigate the correlation with immune cell infiltration. Machine learning (ML) is used to identify candidate diagnostic genes for SCLC. The area under the receiver operating characteristic curves is applied to assess diagnostic efficacy. Immune cell infiltration analyses are carried out. The gene ontology analysis show that differentially expressed genes (DEGs) are enriched in 455 functional annotations, some of which are associated with immunity. The kyoto encyclopedia of genes and genomes analysis reveal that there are 9 signaling pathways enriched. The disease ontology analysis indicate that DEGs are related to 116 diseases. They concluded that this study identified 2 diagnostic genes, *ZWINT* and *NRCAM*, that were related to immune cell infiltration by integrating bioinformatics analysis and ML algorithms. These genes could serve as potential diagnostic biomarkers and provide possible molecular targets for immunotherapy in SCLC.

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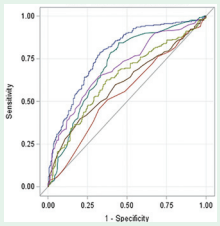
Inflammatory markers in systemic immune-inflammatory index and inflammatory response index to predict early pregnancy loss



Receiver operating characteristic curves for comparisons.

Çallıoğlu et al uncover the predictive value of systemic immune-inflammatory index and systemic inflammatory response index (SIRI) on early pregnancy loss. A total of 535 individuals are enrolled in this retrospective analysis. The early pregnancy losses (EPL) group include patients between 18-35 years old who experience EPL.The EPL group have significantly lower plateletcrit (p=0.04), platelet distribution width (p<0.0001), and red cell distribution width (p<0.0001) and higher monocyte (p<0.0001) and SIRI (p<0.0001) values than the control group. They concluded that this study provides compelling evidence that various inflammatory pathways may significantly contribute to EPL pathogenesis. Moreover, our findings suggest that SIRI could be a more effective marker in predicting EPL in an ongoing pregnancy, thereby potentially revolutionizing early pregnancy loss diagnostics.

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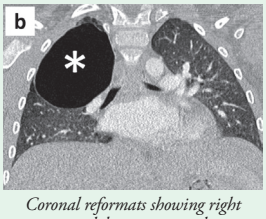
Case Report

Obstructive uropathy in STAT 3 hyper immunoglobulin E syndrome. *A 5 year old Middle Eastern boy*



Coronal reformats showing right upper lobe pneumatocele.

Bukhari & Alsaidalani present a 5-year-old Middle Eastern boy with symptoms suggestive of obstructive uropathy secondary to multiple large pelviabdominal abscesses and acute kidney injury with hyperkalemia that necessitated admission to the intensive care unit. Upon further investigation, the patient's genetic test demonstrated a heterozygous missense variant in the STAT3 gene. The patient completely recovered and did not require further admission after initiating prophylactic antibiotics. Although deep-seated infections are uncommon in STAT3 hyper IgE syndrome, skin and lung infections are most commonly observed. Multiple deep collections can occur and require prompt intervention and aggressive treatment. They concluded that an early referral to a clinical immunologist, especially with inborn errors of immunity are suspected, this leads to the early diagnosis of this syndrome, and early intervention.

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