Immunological signature

The term “immunological signature” typically refers to a unique pattern or profile of immune system activity associated with a particular condition, disease, or response to treatment. The immune system plays a crucial role in defending the body against infections, diseases, and abnormal cells. Various factors, such as genetics, environment, and individual health status, can contribute to the distinctive immunological signature of an individual or a specific medical condition.

Researchers often use advanced technologies like genomics, proteomics, and other high-throughput methods to analyze the immune system's components and their interactions. Understanding the immunological signature associated with diseases can have significant implications for diagnosis, prognosis, and the development of targeted therapies.

It's important to note that the field of immunology is dynamic, and ongoing research continues to uncover new insights into the complexity of the immune system and its role in health and disease. If you have a specific context or condition in mind, feel free to provide more details, and I can offer more tailored information.

Predicting resistance to first-generation Somatostatin Receptor Ligands (fg-SRL) in Acromegaly patients remains an ongoing challenge. Tumor-associated immune components participate in various pathological processes, including drug resistance. Luo et al. aimed to identify the immune components involved in resistance to fg-SRL and to investigate biomarkers that can be targeted to treat drug-resistant Acromegaly.

They conducted a retrospective study involving 35 Acromegaly patients with somatotropinomas treated postoperatively with fg-SRL. Gathering clinicopathological data, SSTR2 expression, and immunological profiles, we utilized univariate, binary logistic regression, and ROC analyses to assess their predictive roles in fg-SRL resistance. Spearman correlation analysis further examined interactions among interested characteristics.

19 patients (54.29%) exhibited resistance to postoperative fg-SRL. GH level at diagnosis, preoperative tumor volume, T2WI-MRI intensity, granularity, PD-L1, SSTR2, and CD8 + T cell infiltration showed association with clinical outcomes of fg-SRL. Notably, T2WI-MRI hyperintensity, PD-L1-IRS > 7, CD8 + T cell infiltration < 14.8/HPF and SSTR2-IRS < 5.4 emerged as reliable predictors for fg-SRL resistance. Correlation analysis highlighted a negative relationship between PD-L1 expression and CD8 + T cell infiltration while showcasing a positive correlation with preoperative tumor volume of somatotropinomas. Additionally, 5 patients with fg-SRL resistance who underwent re-operation were involved. Following fg-SRL treatment, significant increases in PD-L1 and SSTR5 expression were observed, while SSTR2 expression decreased in somatotropinoma.

PD-L1 expression and CD8 + T cell infiltration, either independently or combined with SSTR2 expression and T2WI-MRI intensity, could form a predictive model guiding clinical decisions on fg-SRL employment. Furthermore, targeting PD-L1 through immunotherapy and embracing second generations of SRL with higher affinity to SSTR5 represent promising strategies to tackle fg-SRL resistance in somatotropinomas [1].

1)

Luo M, Yu J, Tang R. Immunological signatures and predictive biomarkers for first-generation

somatostatin receptor ligand resistance in Acromegaly. J Neurooncol. 2024 Mar 5. doi: 10.1007/s11060-024-04620-7. Epub ahead of print. PMID: 38441839.