Atezolizumab

- LMNB2-mediated high PD-L1 transcription triggers the immune escape of hepatocellular carcinoma
- Photoimmuno-Lure Nanoplatform for Enhancing T Cell Expansion in Glioblastoma via Synergistic Treatment of Photodynamic Therapy and Immune Checkpoint Inhibition
- Monocyte-lineage tumor infiltration predicts immunoradiotherapy response in advanced pretreated soft-tissue sarcoma: phase 2 trial results
- Atezolizumab following definitive chemoradiotherapy in patients with unresectable locally advanced esophageal squamous cell carcinoma - a multicenter phase 2 trial (EPOC1802)
- Comparing PD-L1 and PD-1 inhibitors plus bevacizumab combined with hepatic arterial interventional therapies in unresetable hepatocellular carcinoma: A single-center, real-world study
- A Case of Primary Lung Adenocarcinoma With Recurrent Brain Metastasis due to Transformation to Small Cell Carcinoma During Adjuvant Atezolizumab Therapy
- Imaging PD-L1 in the brain-Journey from the lab to the clinic
- DNp73 enhances tumor progression and immune evasion in multiple myeloma by targeting the MYC and MYCN pathways

Atezolizumab (trade name Tecentriq) is a fully humanized, engineered monoclonal antibody of IgG1 isotype against the protein Programmed death ligand 1.

Key points about atezolizumab include:

Mechanism of Action: Atezolizumab works by blocking the interaction between PD-L1, a protein found on the surface of cancer cells, and PD-1 (programmed cell death protein 1), a receptor on immune cells. This interaction inhibits the immune system's ability to recognize and attack cancer cells. By blocking this interaction, atezolizumab “releases the brakes” on the immune system, allowing it to mount a more effective anti-cancer response.

Indications: Atezolizumab is approved by regulatory agencies for the treatment of various cancer types, including non-small cell lung cancer (NSCLC), small cell lung cancer, urothelial carcinoma, triple-negative breast cancer, hepatocellular carcinoma, and more. It is often used as a part of combination therapy with other cancer drugs.

Clinical Efficacy: Atezolizumab has demonstrated clinical efficacy in extending the survival and improving the outcomes of patients with certain types of cancer. It is particularly effective in cancers where the PD-L1/PD-1 pathway plays a significant role in immune evasion.

Side Effects: Like other immunotherapies, atezolizumab can cause immune-related adverse events (irAEs). These side effects may affect various organs and systems in the body, including the skin, gastrointestinal tract, lungs, liver, and more. Prompt recognition and management of these side effects are essential.

Personalized Medicine: The use of atezolizumab and other checkpoint inhibitors is often based on the assessment of biomarkers, such as PD-L1 expression, to determine a patient's suitability for treatment. Personalized medicine approaches help identify patients who are more likely to benefit from atezolizumab.

Clinical Trials: Ongoing clinical trials continue to explore the use of atezolizumab in various cancer types and in combination with other therapies. Research is aimed at expanding its indications and optimizing treatment strategies.

Atezolizumab is part of the broader family of immune checkpoint inhibitors and represents a significant advancement in the treatment of certain cancers. Its use is continually evolving, and it has become an important option for many cancer patients, particularly those with advanced or metastatic disease.

INTERCEPT H3 is an open-label, single-arm study, multicenter national phase 1 trial to assess the safety, tolerability and immunogenicity of H3K27M-vaccine in combination with standard radiotherapy and the immune checkpoint inhibitor atezolizumab (ATE). 15 adult patients with newly diagnosed K27M-mutant histone-3.1 (H3.1K27M) or histone-3.3 (H3.3K27M) DMG will be enrolled in this trial. The 27mer peptide vaccine H3K27M-vac will be administered concomitantly to standard radiotherapy (RT) followed by combinatorial treatment with the programmed death-ligand 1 (PD-L1) targeting antibody ATE. The first three vaccines will be administered bi-weekly (q2w) followed by a dose at the beginning of recovery after RT and six-weekly administrations of doses 5 to 11 thereafter. In a safety lead-in, the first three patients (pts. 1-3) will be enrolled sequentially.

Perspective: H3K27M-vac is a neoepitope targeting long peptide vaccine derived from the clonal driver mutation H3K27M in DMG. The INTERCEPT H3 trial aims at demonstrating (1) safety and (2) immunogenicity of repeated fixed dose vaccinations of H3K27M-vac administered with RT and ATE in adult patients with newly diagnosed H3K27M-mutant DMG.

Trial registration: NCT04808245 [1].

The INTERCEPT H3 trial represents a significant step in the ongoing exploration of immunotherapy for DMG patients. The strategy of targeting the H3K27M mutation using H3K27M-vac and ATE is innovative and promises new insights into the management of this devastating disease. While the trial's design and small sample size pose limitations, its emphasis on safety and immunogenicity is crucial for a novel approach to treating H3K27M-mutant DMG. Future results from this trial may inform further research and potentially pave the way for a more effective and personalized treatment strategy for DMG patients. This trial underscores the importance of innovative approaches in the fight against rare and aggressive brain tumors.

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Grassl N, Sahm K, Süße H, Poschke I, Bunse L, Bunse T, Boschert T, Mildenberger I, Rupp AK, Ewinger MP, Lanz LM, Denk M, Tabatabai G, Ronellenfitsch MW, Herrlinger U, Glas M, Krex D, Vajkoczy P, Wick A, Harting I, Sahm F, von Deimling A, Bendszus M, Wick W, Platten M. INTERCEPT H3: a multicenter phase I peptide vaccine trial for the treatment of H3-mutated diffuse midline gliomas. Neurol Res Pract. 2023 Oct 19;5(1):55. doi: 10.1186/s42466-023-00282-4. PMID: 37853454.