Case Study

Perceptive's Global Imaging Team Supports NMPA Approval of CAR-T Therapy for Multiple Myeloma

Background

Multiple myeloma is a common malignant hematological disease with abnormal proliferation of plasma cells in the bone marrow. Although 10-year survival rates have increased as a result of treatment options available over the last decade, most patients have a risk of recurrence, so chimeric antigen receptor (CAR) T-cell therapy has been investigated as a treatment option in recurrence settings.

The landscape of imaging in myeloma has also changed rapidly over the past few years. Routine clinical practice and clinical trial settings now utilize more advanced imaging modalities like PET-CT, whole-body MRI, and low-dose CT as compared to whole-body skeletal surveys (X-ray) which were more commonly used in the past. These high-resolution imaging modalities lead to higher lesion detection rates at screening and thereby require an ongoing imaging evaluation in a predefined manner to support the efficacy analysis of therapeutic interventions in clinical trials.

Regulators are looking for standardized methodologies to be applied upfront in trials to ensure the robustness of the data and its validity. Recently, global health authorities have been asking for centralized imaging to mitigate variability in data from site imaging interpretation and across myeloma trials.

Key Highlights

Perceptive Imaging supported Zevor-cel™ approval through:

- Optimal imaging strategy
- Global operational expertise
- Reliable independent reviewer network
- US and China-based imaging team collaboration
- Ability to meet pressing regulatory submission deadlines
- 24/7 support

Study Overview

CARsgen, a leading developer of CAR-T therapy in China was developing Zevor-cel™ (Zevorcabtagene Autoleucel), a single-cell infusion of fully human autologous CAR-BCMA T cells for the treatment of patients with relapsed refractory multiple myeloma after at least three prior therapies.

Based on Perceptive's extensive experience in multiple myeloma trial imaging, CARsgen selected Perceptive Imaging to support their phase I/II trial. The data collected from imaging, which included skeletal X-rays, localized and whole-body CT and MRI scans, and whole-body PET scans, would support the study's primary efficacy endpoint.

Challenge

Due to the complexity of myeloma trial imaging and the nuances of evolving regulations, this trial required close collaboration between Perceptive's imaging specialists and the CARsgen team throughout the trial's entire lifecycle.

Routine contact between Perceptive's China and US-based imaging teams was critical in developing and implementing the optimal imaging strategy to meet CARsgen's development goals. Significant challenges arose that required the teams to work closely across international borders to reach alignment on criteria interpretation, streamline complex processes, and meet pressing regulatory submission deadlines.

Additionally, as with all trials that involve imaging biomarkers, CARsgen's trial required a comprehensive plan to mitigate site/central discordance of imaging and clinical data reviews and proactive steps to be taken to keep discordance rates within an acceptable range.

Solution

Perceptive's team of oncology experts delivered comprehensive services, including imaging charter development, investigative site training on valid image collection, training and monitoring of independent image and oncology reviewers, and QC of final images and oncology clinical data for data analysis.

Perceptive's local team in China was the key contact point with CARsgen and was able to provide timely responses to all queries and issues. This team was the bridge of support between CARsgen and Perceptive's US-based team, delivering cultural and market knowledge in the local language.

During study conduct, multiple rounds of consultations were shared with the CARsgen team in which Perceptive's myeloma imaging specialists offered their suggestions, adapted previous lessons learned, and guided CARsgen's study effectively, efficiently, and where appropriate, in the most cost-effective manner.

During the submission process, Perceptive's local team had a full understanding of local regulations, the Center for Drug Evaluation's (CDE's) requests for supporting information on the discordance between site and central reviews, and the challenges CARsgen was facing. By coordinating with the global team, Perceptive was able to help CARsgen complete the response to CDE, delivering high-quality information and meeting their accelerated timelines.

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The accumulated experience Perceptive Imaging had gained from executing global clinical trials, the Key Opinion Leader (KOL) reviewer we recruited, and the hybrid approach adopted to provide 24/7 support enabled us to deliver the global execution expertise and reliable independent review committee evaluation that CARsgen needed to succeed.

Result

The independent review committee evaluation that Perceptive provided enabled CARsgen to demonstrate Zevor-cel's profound and enduring therapeutic efficacy in patients with relapsed refractory multiple myeloma. The National Medical Product Administration (NMPA) approved CARsgen's new drug application for Zevor-cel to treat adult patients with relapsed/ refractory multiple myeloma whose disease progressed after at least three lines of therapy in China with at least one proteasome inhibitor and immunomodulatory agent.

This approval expands the array of choices available to clinicians and brings hope to patients with multiple myeloma.

Contact hello@perceptive.com to learn how the scientific, medical, and operational expertise behind Perceptive Imaging can drive the success of your hematological treatment development programs.

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