PREDICTIVE BIOMARKER FOR CAR T-ASSOCIATED NEUROTOXICITY

Ances, Beau, Butt, Omar, DiPersio, John, Ghobadi, Armin

Richards, Jennifer

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Technology Description:

Researchers at Washington University in St. Louis have developed a biomarker screening assay to predict which patients receiving CAR T cell therapy will experience neurotoxicity. Patients can be screened well in advance of receiving the T cell therapy with a simple serum assay for neurofilament light chain (NfL), a marker of neuronal injury.

Patients with high levels of NfL in their blood prior to infusion are more likely to experience immune effector cell-associated neurotoxicity syndrome (ICANS), with symptoms ranging from encephalopathy to seizures and cerebral edema. By identifying patients likely to experience ICANS early, physicians can more closely monitor and provide supportive care more effectively.
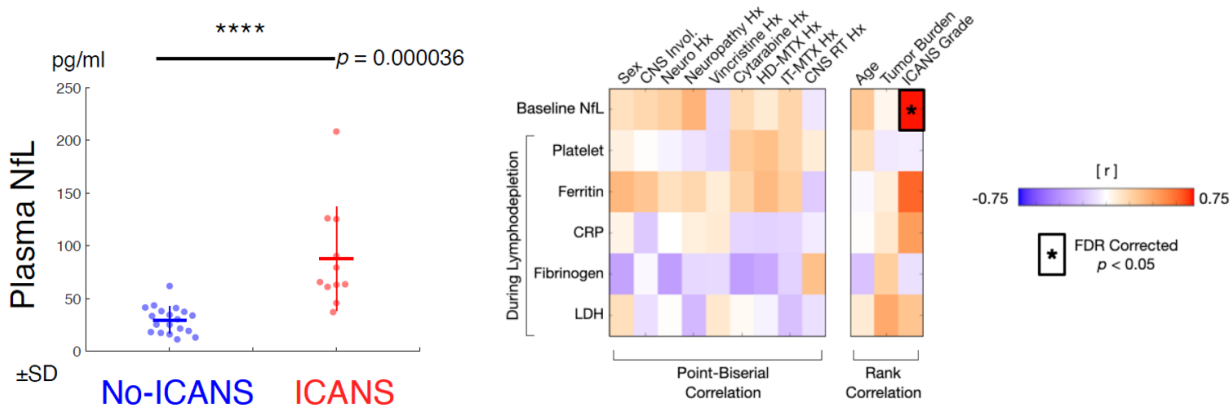
Stage of Research:

The inventors analyzed the biomarker levels from pre-infusion serum samples for 11 patients that later went on to receive CAR T cell therapy (tisagenlecleucel or axicabtagene ciloleucel). Those patients with higher serum levels of neurofilament light chain (NfL) experienced immune effector cell-associated neurotoxicity syndrome (ICANS).

Applications:

- Pre-infusion testing for all patients receiving CAR T cell therapy

Key Advantages:

- Biomarker is accessible from serum sample
- Pre-infusion screening can identify patients likely to experience neurotoxicity

Patents: Pending

Related Web Links: DiPersio [Profile](#) & [Lab](#); Ances [Profile](#) & [Lab](#); Ghobadi [Profile](#)