

CHARACTERIZATION OF CAR-T TRANSDUCTION PARAMETERS USING A LENTIVIRAL VECTOR

Stefanie Shahan, Celgene Corporation
sshahan@celgene.com
Sherry Zhou, Celgene Corporation
Ryan Shorr, Celgene Corporation
Thomas Brieva, Celgene Corporation

Key Words: CAR-T, transduction, lentivirus, cell process development

Production of chimeric antigen receptor T cells (CAR-T) can be accomplished using a viral vector to deliver the transgene. Lentiviral vectors (LVV) are commonly used for transduction due to their safety profile, stable transduction, ease of use, and ability to transduce both dividing and nondividing cells. Characterization studies were conducted to identify parameters within the manufacturing process that could impact transduction efficiency, such as the multiplicity of infection (MOI), application time after T cell activation, and LVV degradation profile. Optimizing these parameters will result in improved reproducibility within the manufacturing process and the efficient use of LVV material. Response curves for transduction efficiency, vector copy number and potency exhibited similar patterns to one another; signals increased with increasing MOI until reaching a plateau.