

Luciferase-Based Analytical Methods

Luciferase-based assays provide highly sensitive and versatile tools to evaluate biodistribution, expression, and functional activity of mRNA and gene therapy candidates.

Established Luciferase-Based Methods

All assays are developed and validated according to study-specific requirements.

Method	Description
Luciferase Reporter Gene Analysis	Sensitive reporter gene assay to evaluate transgene expression and functional activity of mRNA or gene therapy candidates <i>in vitro</i> and <i>in vivo</i> .
<i>In vivo</i> Bioluminescence Imaging	Non-invasive, longitudinal monitoring of luciferase expression in live animals to assess biodistribution and expression kinetics over time.
<i>Ex vivo</i> Organ Imaging	Imaging of dissected organs to localize and semi-quantitatively assess luciferase expression at the tissue level.
Luciferase Enzyme Activity Quantification	Quantitative measurement of luciferase enzymatic activity in tissue or cell lysates as a readout of functional protein expression.
Luciferase DNA/RNA Quantification (ddPCR)	Absolute and highly sensitive quantification of luciferase DNA or RNA using droplet digital PCR to support biodistribution and expression analyses.