

Genetic analysis in gene therapy research workflows

Genetic analysis is at the forefront of investigations aimed at improving scientific understanding of the development process for safer and more effective gene therapy to help accelerate time-to-patient. Thermo Fisher Scientific offers one of the most comprehensive ranges of genetic analysis technologies. Our microarray, Sanger sequencing, next-generation sequencing, and RT-PCR tools included in this guide enable reproducible research studies for greater insights throughout the gene therapy product development workflow. Learn more about the extensive Thermo Fisher Scientific portfolio of [genetic analysis solutions](#).

Proof of concept

Identification of molecular lesion

GWAS studies

Applied Biosystems™ Axiom™ genotyping microarrays

Confirmation of mutational allele

Applied Biosystems™ BigDye™ Sanger sequencing reagents

Predesigned Applied Biosystems™ TaqMan™ genotyping assays

Correction of lesion

Plasmid and vector construction

BigDye Sanger sequencing reagents

Custom TaqMan assays

Animal models of disease

Constructing model with genetic lesion

Invitrogen™ GeneArt™ CRISPR design tools

Invitrogen CRISPR/Cas9 gene editing tools

BigDye Sanger sequencing reagents

Applied Biosystems™ SeqScreener™ Gene Edit Confirmation

Colony management

Predesigned TaqMan genotyping assays

BigDye Sanger sequencing reagents

Transgene uptake and route of administration

Applied Biosystems™ Absolute Q™ custom dPCR assays

TaqMan genotyping assays

Phenotypic efficacy

Predesigned TaqMan gene expression assays and arrays

Applied Biosystems™ Clariom™ D and Applied Biosystems™ Clariom™ S microarrays

Response biomarker identification

Singe-gene expression analysis

Predesigned TaqMan gene expression assays

Expression signature analysis

Predesigned TaqMan gene expression arrays

Clariom D and Clariom S microarrays

Applied Biosystems™ Clariom™ GO Screen Assays

miRNA analysis

Applied Biosystems™ TaqMan MicroRNA Assays

Applied Biosystems™ TaqMan Advanced miRNA Assays

Clariom D microarrays

Delivery vector design and optimization

Vector construction and packaging

GeneArt™ Custom Gene Synthesis

BigDye Sanger sequencing reagents

Custom TaqMan assays

MOI titration and optimization

Cell line management

Applied Biosystems™ CLA Identifiler™ PCR amplification kits

Applied Biosystems™ CLA GlobalFiler™ PCR amplification kits

Virus detection and quantification

Custom TaqMan assays

Absolute Q dPCR assays

Vehicle toxicology

Tissue damage gene expression

Predesigned TaqMan gene expression arrays

Custom TaqMan gene expression arrays

Clariom GO Screen microarrays

Delivery vehicle production

Quantifying gene transfer vehicles

Titration functional entities

TaqMan dPCR assays

Custom TaqMan gene expression assays

Residual (unpacked) vector quantification

TaqMan dPCR assays

Cell culture quality control

Authenticating host cells

CLA Identifiler PCR amplification kits

CLA GlobalFiler PCR amplification kits

Mycoplasma detection

Applied Biosystems™ MycoSEQ™ Mycoplasma Detection Assay

Custom fragment analysis primers

Applied Biosystems™ TaqPath™ BactoPure™ Microbial Detection Master Mix

Contaminating microbial identification

Applied Biosystems™ MicroSEQ™ Rapid Microbial Identification System

BigDye Sanger sequencing reagents

TaqMan microbe assays

TaqPath BactoPure Microbial Detection Master Mix

Pre-clinical development

Dosing optimization

Predesigned TaqMan genotyping assays

TaqMan dPCR assays

Therapeutic efficacy

Gene expression analysis

Predesigned TaqMan gene expression assays and arrays

Clariom D and Clariom S microarrays

Ion AmpliSeq™ Transcriptome Human Gene Expression Kit

Biomarker tracking

Custom TaqMan assays

TaqMan MicroRNA Assays

TaqMan Advanced miRNA Assays

Clariom D microarrays

Toxicology and safety testing

Tissue damage gene expression

Predesigned TaqMan gene expression arrays

Custom TaqMan gene expression arrays

Clariom GO Screen microarrays

Off-target phenotype screening

Applied Biosystems™ TaqMan™ Array Human Inflammation Panel

Clariom GO Screen microarrays

TaqMan human DNA damage and repair panels

Confirmation of successful gene transfer

TaqMan genotyping assays

BigDye Sanger sequencing reagents

Ion AmpliSeq custom gene panels

