Product sheet

HCT116-GFP Cells | 305649

Renseignements généraux

Description	HCT116-GFP is a genetically modified derivative of the human colorectal carcinoma cell line HCT116, engineered to constitutively express green fluorescent protein (GFP). The parental HCT116 line originates from a colon carcinoma of an adult patient and is widely used as a model of mismatch repair–deficient (MMR-deficient) colorectal cancer. Cytogenetic analyses have shown that HCT116 cells typically exhibit a near-diploid karyotype with defined chromosomal alterations, including structural rearrangements and copy number variations characteristic of microsatellite instability–positive colorectal tumors. Introduction of the GFP reporter gene enables real-time visualization of cellular behavior without substantially altering the intrinsic genetic and phenotypic properties of the parental line. The GFP labeling in HCT116-GFP cells is commonly achieved through stable transfection, resulting in uniform fluorescence that facilitates live-cell imaging, cell tracking, and quantitative analysis of proliferation, migration, and tumor growth dynamics. This modification is particularly valuable in in vitro assays and in vivo xenograft models, where GFP expression allows non-invasive monitoring of tumor progression, metastatic dissemination, and response to therapeutic interventions. Fluorescence-based phenotypic profiling approaches have demonstrated that colon cancer cell lines, including HCT116, exhibit distinct intracellular signatures that can be captured through imaging-based methodologies, supporting the utility of fluorescent reporters such as GFP for high-content screening applications. HCT116-GFP serves as a robust tool for investigating colorectal cancer biology, enabling detailed analysis of tumor cell behavior, microenvironmental interactions, and therapeutic efficacy in both basic and translational research contexts.
Organism	Human
Tissue	Colon
Disease	Colon carcinoma
Synonyms	HCT-116, HCT.116, HCT_116, HCT116, HCT116wt, HCT-116/P, HCT-116/parental, CoCL2

Caractéristiques

Age	48 years
Gender	Male
Ethnicity	Caucasian
Growth properties	Adherent

Données réglementaires

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Citation	HCT116-GFP (Cytion catalog number 305649)
Biosafety level	1
NCBI_TaxID	9606
CellosaurusAccession	CVCL_0291
GMO Status	GMO-S1: This HCT116 colorectal carcinoma line contains a GFP construct enabling fluorescent monitoring of tumor-cell behavior. This classification applies only within Germany and may differ elsewhere.

Données biomoléculaires

Mutational profile	Mutation: p.Lys437Argfs*5, Homozygous; Mutation: p.Ile2675Aspfs*6, Heterozygous; Mutation: p.Arg24Serfs*20, Heterozygous; Mutation: p.Glu33Argfs*20, Heterozygous; Mutation: p.Asp74fs*21, Heterozygous; Mutation: p.Ser45del, Heterozygous; Mutation: p.Met1470Cysfs*22, Heterozygous; Mutation: p.Asn1700Thrfs*9, Heterozygous; Mutation: p.Gly13Asp, Heterozygous; Mutation: p.His1047Arg, Heterozygous; Mutation: p.Leu450Ter, Heterozygous; Mutation: p.Lys128Serfs*35, Homozygous

Manipulation

Culture Medium	McCoys 5a, w: 3.0 g/L Glucose, w: stable Glutamine, w: 2.0 mM Sodium pyruvate, w: 2.2 g/L NaHCO3 (Cytion article number 820200a)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase
Doubling time	27 hours ; 17.1 hours ; 22 hours ; 25.02 hours ; 36 hours ; 18.14 +- 0.051 hours ; ~25-48 hours ; 17.4 hours ; ~21 hours
Seeding density	2 to 4 x 10^4 cells/cm^2
Freeze medium	As a cryopreservation medium, we use complete growth medium + 10% DMSO for adequate post-thaw viability.

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Thawing and Culturing Cells	1. Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit. 2. Upon receipt, either store the cryovial immediately at temperatures below -150°C to ensure the preservation of cellular integrity, or proceed to step 3 if immediate culturing is required. 3. For immediate culturing, swiftly thaw the vial by immersing it in a 37°C water bath with clean water and an antimicrobial agent, agitating gently for 40-60 seconds until a small ice clump remains. 4. Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening. 5. Carefully open the disinfected vial and transfer the cell suspension into a 15 ml centrifuge tube containing 8 ml of room-temperature culture medium, mixing gently. 6. Centrifuge the mixture at 200 x g for 5 minutes, carefully discard the supernatant containing freezing medium. 7. Follow the procedure described under Post-Thaw Recovery
Incubation Atmosphere	37°C, 5% CO_2, humidified atmosphere.
Shipping Conditions	Cryopreserved cell lines are shipped on dry ice in validated, insulated packaging with sufficient refrigerant to maintain approximately −78 °C throughout transit. On receipt, inspect the container immediately and transfer vials without delay to appropriate storage.
Storage Conditions	For long-term preservation, place vials in vapor-phase liquid nitrogen at about −150 to −196 °C. Storage at −80 °C is acceptable only as a short interim step before transfer to liquid nitrogen.

Contrôle de la qualité et analyse moléculaire