Product sheet

4T1-GFP Cells | 305625

Generel information

Description	4T1-GFP is a genetically modified derivative of the murine 4T1 mammary carcinoma cell line that constitutively expresses green fluorescent protein (GFP), enabling real-time visualization and tracking of tumor cells in vitro and in vivo. The parental 4T1 line was originally derived from a spontaneously arising mammary tumor in a BALB/c mouse and is characterized as a highly tumorigenic, triple-negative breast cancer model. When orthotopically injected into the mammary fat pad of syngeneic immunocompetent BALB/c mice, 4T1 cells form aggressive primary tumors that spontaneously metastasize to lung, liver, lymph nodes, and bone, closely recapitulating stage IV human breast cancer progression. Notably, the 4T1 model has been shown to produce osteolytic bone metastases following orthotopic implantation, making it a clinically relevant model for studying breast cancer dissemination and skeletal colonization. The GFP labeling of 4T1 cells enables sensitive detection of primary tumors, circulating tumor cells, and metastatic foci using fluorescence microscopy, flow cytometry, and in vivo imaging systems. This facilitates quantitative assessment of metastatic burden, intravital imaging of tumor cell dynamics, and tracking of tumor-stromal or tumor-immune cell interactions. In orthotopic and intracardiac models, GFP-expressing 4T1 derivatives allow precise identification of tumor cells within bone marrow, lung parenchyma, and other metastatic sites, overcoming limitations of histological detection alone. Because the parental 4T1 line retains intact immunogenic interactions in syngeneic BALB/c hosts, 4T1-GFP is particularly suitable for studies investigating immune modulation, tumor microenvironment remodeling, and metastatic niche formation under fully immunocompetent conditions. Molecularly, 4T1 cells exhibit features of aggressive, mesenchymal-like breast carcinoma, including high invasiveness, resistance to anoikis, and robust metastatic capability. Variants and subclones of 4T1 have been reported to display differential metastatic tropism and chemokine expression profiles, such as enhanced CCL4 production in bone-tropic derivatives, highlighting the model's utility in dissecting organ-specific metastasis mechanisms. As a fluorescently traceable counterpart of this established metastatic system, 4T1-GFP provides a powerful platform for quantitative metastasis research, therapeutic efficacy testing, immune-oncology studies, and analysis of tumor cell dissemination and colonization kinetics in vivo.
Organism	Mouse
Tissue	Mammary gland
Disease	Malignant neoplasms
Synonyms	4T1-A, 4T1.0, 4T1/WT

Karakteristika

Age	Age unspecified
Gender	Female

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Growth properties	Adherent

Regulatoriske data

Citation	4T1-GFP (Cytion catalog number 305625)
Biosafety level	1
NCBI_TaxID	10090
CellosaurusAccession	CVCL_0125
GMO Status	GMO-S1: This 4T1 mammary carcinoma line contains a GFP expression construct delivered by lentiviral vector, enabling fluorescent tumor-cell tracking. This classification applies only within Germany and may differ elsewhere.

Biomolekylære data

Surface antigens	GFP

Håndtering

Culture Medium	RPMI 1640, w: 2.1 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)
Supplements	Supplement the medium with 10% FBS
Dissociation Reagent	Accutase
Doubling time	12.6 hours
Seeding density	1 to 3 x 10^4 cells/cm^2
Fluid renewal	2 to 3 times per week
Freeze medium	As a cryopreservation medium, we use complete growth medium + 10% DMSO for adequate post-thaw viability.

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.

Kvalitetskontrol / Genetisk profil / HLA