**Product sheet**

# Lovo-Luc | 305682

## General information

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| **Description** | LoVo-Luc is a bioluminescent derivative of the human LoVo colorectal adenocarcinoma cell line, engineered to stably express a firefly luciferase reporter gene. The parental LoVo cell line was established from a metastatic left supraclavicular lymph node of a colorectal adenocarcinoma in a 56-year-old male patient and is one of the most widely used colorectal cancer cell lines in cancer research. LoVo cells exhibit epithelial-like morphology and are characterized by microsatellite instability (MSI), deficient mismatch repair (dMMR), and expression of oncogenes including Myc, myb, ras, fos, and p53. These features make LoVo a relevant model for studying mismatch repair-deficient colorectal cancer biology and therapeutic responses, including sensitivity to immunotherapy.<br><br>The stable luciferase integration in LoVo-Luc enables sensitive, quantitative bioluminescence imaging (BLI) of tumor burden in xenograft models using immunocompromised hosts. The luminescent signal correlates with viable tumor cell number, supporting noninvasive longitudinal monitoring of tumor engraftment, growth kinetics, and treatment response. LoVo-Luc is particularly valuable for preclinical studies evaluating immune checkpoint inhibitors, chemotherapeutic agents, and targeted therapies in the context of MMR-deficient colorectal cancer, as well as for high-throughput drug screening and mechanistic investigations of colorectal cancer biology.<br><br>LoVo-Luc retains the established molecular characteristics of the parental LoVo line, including its MSI phenotype, oncogene expression profile, and production of carcinoembryonic antigen (CEA). The luciferase reporter substantially enhances experimental throughput and enables real-time pharmacodynamic assessment of treatment efficacy. Researchers should verify luciferase activity, MMR status, and growth kinetics under their specific experimental conditions prior to use in large-scale preclinical studies. |
| **Organism** | Human |
| **Tissue** | Metastatic |
| **Disease** | Colon adenocarcinoma |
| **Metastatic site** | Left supraclavicular lymph node |

## Characteristics

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| **Age** | 56 years |
| **Gender** | Male |
| **Ethnicity** | Caucasian |
| **Morphology** | Epithelial-like |

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| **Growth properties** | Adherent |

## Regulatory Data

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| **Citation** | Lovo-Luc (Cytion catalog number 305682) |
| **Biosafety level** | 1 |
| **NCBI_TaxID** | 9606 |
| **CellosaurusAccession** | CVCL_4Y03 |
| **GMO Status** | GMO-S1: This cell line contains a stably integrated firefly luciferase reporter cassette (Luc2, codon-optimized) introduced via replication-incompetent lentiviral transduction. The resulting polyclonal cell population was maintained under puromycin selection (1–5 µg/mL). S1 containment is required. This classification applies only within Germany and may differ elsewhere. |

## Biomolecular Data

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| **Antigen expression** | HLA A11, B15, B17, Cw1, Cw3, blood type B, Luc2 (firefly, codon-optimized) |
| **Isoenzymes** | G6PD, B, PGM1, 2, PGM3, 1-2, 6PGD, A, ES-D, 1 |
| **Oncogenes** | Myc +, myb + , ras +, fos +, p53 +, sis -, abl -, ros -, src - |
| **Tumorigenic** | Yes, in nude mice |
| **Reverse transcriptase** | Negative |
| **Products** | Carcinoembryonic antigen (CEA) 908 ng/106 cells/10 days |
| **Mutational profile** | Mutation: p.Lys437Argfs*5, Heterozygous; Mutation: p.Arg1114Ter, Heterozygous; Mutation: p.Met1431fs*42, Heterozygous; Mutation: p.Arg2816Gln, Heterozygous; Mutation: p.Leu15Phefs*41, Heterozygous; Mutation: p.Arg505Cys, Heterozygous; Mutation: p.Gly13Asp, Heterozygous; Mutation: p.Ala292Val, Heterozygous; Mutation: p.Lys128Serfs*35, Homozygous |

## Handling

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| **Culture Medium** | Ham's F12K Medium, w: 2.0 mM L-Glutamine, w: 2.0 mM Sodium pyruvate, w: 2.5 g/L NaHCO3 (Cytion article number 820608a) |
| **Supplements** | Supplement the medium with 10% FBS |
| **Dissociation Reagent** | Accutase |
| **Doubling time** | 24-48 hours |
| **Subculturing** | Remove the old medium from the adherent cells and wash them with PBS that lacks calcium and magnesium. For T25 flasks, use 3-5 ml of PBS, and for T75 flasks, use 5-10 ml. Then, cover the cells completely with Accutase, using 1-2 ml for T25 flasks and 2.5 ml for T75 flasks. Let the cells incubate at room temperature for 8-10 minutes to detach them. After incubation, gently mix the cells with 10 ml of medium to resuspend them, then centrifuge at 300xg for 3 minutes. Discard the supernatant, resuspend the cells in fresh medium, and transfer them into new flasks that already contain fresh medium. |
| **Split ratio** | 1 to 3 |
| **Seeding density** | 1-3*10^4/cm² |
| **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. |

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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.<br>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.<br>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.<br>4. Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.<br>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.<br>6. Centrifuge the mixture at 200 x g for 5 minutes, carefully discard the supernatant containing freezing medium.<br>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. |

## Quality Control & Molecular Analysis