U2OS-CRISPR-TPR-SNAP

300667

GENERAL INFORMATION

Description

U2OS-CRISPR-TPR-SNAP□一种基因组编辑的人类骨肉瘤细胞系，源自U2OS细胞。其中内源性TPR（转位启动子区域）基因通过CRISPR/Cas9技术进行修饰，以编码一个同框SNAP标签。 TPR□一种大型螺旋卷曲核孔蛋白，定位于核孔复合体（NPC）核质侧的核篮结构。通过在TPR内源性基因座添加标签，融合蛋白在天然调控机制下表达，既保持生理表达水平，又维持其在核篮结构中的正常整合。

SNAP标签使TPR能够在活细胞或固定细胞中与苄基鸟嘌呤荧光底物发生共价标记，实现高度特异且稳定的可视化。 在U2OS-CRISPR-TPR-SNAP细胞中，标记的TPR于核膜呈现特征性点状环状分布，与NPC相关核篮结构相吻合。该系统特别适用于定量荧光显微镜、超分辨成像、脉冲追踪标记及核篮组装与更新的动态研究。 U2OS细胞扁平形态与大核特性，为核膜相关结构的高分辨成像提供便利。

TPR在mRNA输出、核运输调控、核周染色质组织及基因组空间布局中发挥关键作用。该蛋白还参与核运输相关亚区室的形成，并介导异染色质从核孔相关区域的排斥。 U2OS-CRISPR-TPR-SNAP模型在生理相关条件下，为解析核篮结构与动态特性、探究核质间运输机制、研究核膜相关染色质相互作用提供了理想平台。

Tissue	骨质
Disease	骨肉瘤
Metastatic site	原发肿瘤部位（骨）

Applications

核篮子生物学；TPR介导的mRNA输出；核质转运调控；核周区域的染色质组织；核转运亚区室；基因组空间组织；超分辨率显微镜； SNAP脉冲-追踪标记法；异染色质从孔相关区域的排斥

CLASSIFICATION

Organism	Human
Sex	Female
Growth properties	Adherent
GMO status	GMO-S1

GMO status details

GMO-S1: This human osteosarcoma cell line (U2OS-CRISPR-TPR-SNAP) contains a CRISPR-engineered TPR-SNAP fusion enabling fluorescent and chemical labeling of the TPR nuclear basket protein. The construct is stably integrated. This classification applies only within Germany and may differ elsewhere.

Biosafety level	1

CHARACTERISTICS

Morphology	上皮样
Cell type	上皮细胞（骨肉瘤）
Doubling time	约24至36小时

IDENTIFIERS

Citation

U2OS-CRISPR-TPR-SNAP（Cytion 目录号 300667）

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Banking information
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IBAN: DE35 6725 0020 0009 2076 86
BIC: SOLADES1HDB

NCBI TaxID	9606
Cellosaurus	Not assigned (CRISPR-modified U2OS derivative; parental U2OS CVCL_0042)
Depositor	□□□□□□□□EMBL□

EXPRESSION AND SUSCEPTIBILITY

Protein expression

TPR, SNAP-tag

HANDLING AND CULTURE

Culture medium

McCoys 5a□w□3.0 □/□□□□□w□□□□□□□□w□2.0 □□□□□□□□w□2.2 □/□ NaHCO3□Cytion □□□□ 820200a□□

Incubation atmosphere	37°C, 5%CO2, □□□□□

Supplements

□□□□□□□ 10% FBS□3.0 g/L □□□□□□□□□□□□□2.0 mM □□□□□2.2 g/L NaHCO3□1% NEAA

Dissociation reagent	Accutase

Subculturing

□□□□□□□□□□□□□□□□□□□□ PBS □□□T25 □□□ 3-5 □□ PBS□T75 □□□ 5-10 □□□□□□ Accutase □□□□□□□T25 □□□ 1-2 □□□T75 □□□ 2.5 □□□□□□□□□□□□ 8-10 □□□□□□□□□□□□□ 10 □□□□□□□□□□□□□□□□□□□□ 300xg □□ 3 □□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□

Split ratio	1 □ 3
Seeding density	1 □ 3 × 10^4 □□□/cm^2
Fluid renewal	□□ 2 □ 3 □

Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit. 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.

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.

Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.

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.

Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.

Gently resuspend the cell pellet in 10 ml of fresh culture medium. For adherent cells, divide the suspension between two T25 culture flasks; for suspension cultures, transfer all the medium into one T25 flask to promote effective cell interaction and growth.

Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

Sterility

□□□□ PCR □□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
□□

Freeze medium	□□□□□□□□□□□□□□□ FBS□+10% DMSO □ CM-1□Cytion □□□□□□ 800100□□□□□□□□□ □□□□□□□□□□□□□□□□□CM-1□Cytion □□□□□□ 800100□□□□□□□□□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□

Storage conditions

如需长期保存，可将样品瓶放入气相液氮中，温度约为 -150 至 -196 ℃。在-80 °C下保存只能作为转入液氮前的短暂过渡。

Shipping conditions

冷冻保存的细胞系用干冰装运，并用经过验证的隔热包装和足够的制冷剂在整个运输过程中保持约 -78 °C 的温度。收到货后，应立即检查容器，并立即将小瓶转移到适当的储藏室。

DONOR

Donor age	15 年
Ethnicity	高加索人

LEGAL AND SAFETY

Safety precautions

计划将低温样品储存在液氮中以便将来解冻时，必须遵守严格的安全措施。在将冷冻样本移入或移出液氮罐时，必须穿戴适当的防护手套和防护服，并使用面罩或安全护目镜。这样做 □为了降低在移出时因冷冻样品爆炸而造成伤害的风险，因为爆炸可能导致锋利的碎片飞溅。

Warranty

在Cytion，我们保证产品的质量和活力。

我们保证，从我们的工厂发货后 60 天内，我们的细胞在开始培养时都 □存活的。

我们保证所有材料均符合分析证书和 /或产品说明书中描述的规格。

有关详细信息，请参阅我们的 <a href="" /Who-we-are/Warranty/"" hreflang=""x-default"">保修声明。

Third-party agreements apply	Yes

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