RIN-m5f

305359

ЗАГАЛЬНА ІНФОРМАЦІЯ

Опис

RIN-m5F is a clonal rat insulinoma cell line derived from a transplantable islet cell tumor in a rat. It represents a neuroendocrine pancreatic β-cell model and was established as a continuous, clonable line capable of long-term in vitro propagation. The parental RIN line was shown to secrete primarily insulin and somatostatin, with only minimal glucagon production, reflecting a mixed but predominantly β-cell-like endocrine phenotype. RIN-m5F cells grow adherently under standard culture conditions and exhibit high proliferative capacity compared with primary islet cells.

Functional characterization demonstrated that RIN-m5F cells possess specific membrane receptors for insulin, glucagon, and somatostatin, supporting both autocrine and paracrine regulatory mechanisms. Quantitative binding analyses revealed measurable specific binding of all three hormones, with distinct receptor affinities and evidence of receptor downregulation following prolonged hormone exposure. Despite their endocrine origin, RIN-m5F cells are relatively poorly differentiated compared with adult pancreatic islets, secreting low basal levels of insulin and lacking robust glucose-stimulated insulin secretion. This limited glucose responsiveness distinguishes them from mature β-cells and makes them particularly useful for studies of β-cell differentiation and regulatory signaling pathways.

Studies examining surface ganglioside expression have further defined the differentiation status of RIN-m5F cells. Expression of A2B5-reactive gangliosides correlates directly with insulin content, insulin secretion, and insulin mRNA levels in derived sublines, indicating that A2B5 serves as an index of β-cell differentiation. Sublines selected for high A2B5 expression demonstrate markedly increased insulin production, whereas sublines enriched for alternative ganglioside profiles show reduced insulin output. Together, these properties establish RIN-m5F as a versatile in vitro model for investigating pancreatic β-cell biology, hormone receptor signaling, differentiation mechanisms, and islet tumor cell function.

Тканина	Pancreas, islets of Langerhans
Хвороба	Rat insulinoma

Синоніми

- RIN m5F
- Rin-M-5F
- Rin-m-5F
- RIN-m 5F
- RINm-5F
- RINm5F
- RIN-m clone 5F
- RIN Cl-5F
- RIN-5F
- Rin-5F
- RIN 5F
- RIN5F
- m5F
- 5F

КЛАСИФІКАЦІЯ

Організм	Щур
Секс	Чоловік
Характеристики росту	Прихильник
Рівень біобезпеки	1

ХАРАКТЕРИСТИКИ

Морфологія	Epithelial-like
Тип клітини	Pancreatic beta cell

ІДЕНТИФІКАТОРИ

Посилання

RIN-m5f (Cytion catalog number 305359)

Ідентифікаційний номер платника податків NCBI	10116
Целозавр	CVCL_0501

ОБРОБКА ТА ВИРОЩУВАННЯ

Живильне середовище

RPMI 1640, w: 2.0 mM stable Glutamine, w: 2.0 g/L NaHCO3 (Cytion article number 820700a)

Атмосфера інкубації	37°C, 5% CO_2, humidified atmosphere.

Добавки

Supplement the medium with 10% FBS

Реагент для дисоціації	Accutase
Щільність висіву	2-4*10^4/cm²
Оновлення рідини	2 to 3 times per week

Розморожування та культивування

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.

КОНТРОЛЬ ЯКОСТІ ТА КРІОКОНСЕРВАЦІЯ

Стерильність

Mycoplasma contamination is excluded using both PCR-based assays and luminescence-based mycoplasma detection methods.
To ensure there is no bacterial, fungal, or yeast contamination, cell cultures are subjected to daily visual inspections.

Середовище для заморожування	As a cryopreservation medium, we recommend CM-1 (Cytion catalog number 800100), which includes optimized osmoprotectants and metabolic stabilizers to enhance recovery and reduce cryo-induced stress.

Умови зберігання

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.

Умови доставки

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.

ДОНОР

Вік донора	666 days

ПРАВОВІ ПИТАННЯ ТА БЕЗПЕКА

Заходи безпеки

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Гарантія

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Необхідна угода про передачу матеріалів	Yes