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DATASHEET

Cesium methanesulfonate (CsMeSO3) with QX314 internal solution kit

Product overview

Name Cesium methanesulfonate (CsMeSO3) with QX314 internal solution kit

Cat No HB31291

Biological description Cesium methanesulfonate (CsMeSO3) internal solutions are widely used in patch-clamp electrophysiology for voltage clamp (V_{clamp}) recordings of individual neurons to isolate specific synaptic currents in the absence of any potassium mediated currents. QX314 and spermine are adittionally included in this kit for blocking of sodium channel currents to allow the recording of other receptor mediated currents such as AMPA or NMDA mediated currents.

This kit contains all the components necessary to make your internal solution, no weighing necessary. Simply dissolve the supplied powder in dH_2O, adjust pH using the supplied CsOH and then adjust osmolarity to that desired.

When reconstituted contains (in mM): $CsMeSO_3$ 130, HEPES 10, EGTA 0.5, Mg-ATP 4, Na-GTP 0.3, NaCl 8, QX314 5, Spermine 0.1

Please note we also supply internal solutions of different formulations for differing experimental needs:

- HB7783 - Cesium methanesulfonate (CsMeSO3) internal solution kit
- HB8198 - Cesium Gluconate internal solution kit
- HB8727- Potassium methanesulfonate (KMeSO3) internal solution kit
- HB8297 - Potassium gluconate internal solution kit

Description No weigh kit for making a Cesium methanesulfonate (CsMeSO3) based internal solution with QX314 and spermine for patch-clamp electrophysiology

Biological Data

Application notes To make your internal solution:

1. Dissolve the 1g of CsOH in 6.67ml dH_2O to make a 1M CsOH solution
2. Dissolve the Cesium methanesulfonate (CsMeSO3) with QX-314 internal solution kit base in 80ml dH_2O for the 100ml kit and 160ml dH_2O for the 200ml kit. Ensure that it is thoroughly mixed and do not allow to excessively stand around as the solution degrades at room temperature.
3. Use the 1M CsOH solution to adjust the pH of the internal solution to pH 7.2, do this extremely carefully in a dropwise manner as to not overshoot the desired pH.
4. Measure the current solution osmolarity (it will be currently too high) then add dH_2O slowly to adjust the osmolarity down to the desired osmolarity for your experiments (290-295 mOsm is a good place to aim and it should be around 10mOsm less than the external solution)
5. Aliquot into the amount of internal solution needed for a days' experiments, snap freeze and store at -20°C.

To use your internal solution:

1. Remove the aliquot from the freezer and warm to room temperature before using to load your patch pipette.
2. Make sure to only use a fresh aliquot each day and do not reuse for multiple days due to the degradation of the solution at room temperature.

Solubility & Handling

Storage instructions	-20°C
Handling	Only remove from the freezer when ready to make up the internal solution as components of this kit degrade at room temperature.
Solution stability	Do not store solution at room temperature for over 1 day
Important	This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use

Chemical Data

Kit contents This kit contains:

- Cesium methanesulfonate (CsMeSO3) with QX314 internal solution kit base as a ready to dissolve powder
- Cesium hydroxide (CsOH, 1g) for adjusting pH of the final internal solution. This will need dissolving in 6.67ml dH_2O to make a 1M solution for pH adjustment.

References

PKA drives an increase in AMPA receptor unitary conductance during LTP in the hippocampus

Park P, Georgiou J, Sanderson TM, Ko KH, Kang H, Kim JI, Bradley CA, Bortolotto ZA, Zhuo M, Kaang BK, Collingridge GL (2021) Nat Commun.

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