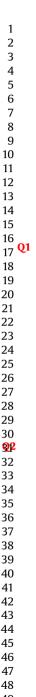
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Data in Brief



Data Article

Data on calcium increases depending on stretch in dystrophic cardiomyocytes

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ARTICLE INFO

ABSTRACT

In this data article, intracellular Ca^{2+} concentration $([Ca^{2+}]_i)$ was measured in isolated ventricular Wild Type (WT) and *mdx* cardiomyocytes in two different conditions: at rest and during the application of an axial stretch. Using a carbon microfibers technique, axial stretch was applied to mimic effects of physiological conditions of ventricular filling. A study of cation entry with the same experimental model and the manganese quenching method reported (i) a constitutive cation entry in *mdx* cardiomyocytes and (ii) the involvement of TRPV2 channels in axial-stretch dependant cation entry, "Axial stretch-dependent cation entry in dystrophic cardiomyopathy: involvement of several TRPs channels" (Aguettaz et al., 2016) [1].

Here, the Ca^{2+} dye fluo-8 was used for $[Ca^{2+}]_i$ measurement, in both resting and stretching conditions, using a perfusion protocol starting initially with a calcium free Tyrode solution followed by the perfusion of 1.8 mM Ca^{2+} Tyrode solution. The variation of $[Ca^{2+}]_i$ was found higher in *mdx* cardiomyocytes.

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55 Specifications Table

Subject area	Biology
More specific subject area	Calcium regulation in cardiomyopathy
Type of data	Figures
How data was acquired	Confocal microscopy, BIORAD 1024
Data format	Raw, analysed
Experimental factors	Isolated mouse cardiomyocytes were axial stretche
Experimental features	Intracellular calcium changes were recorded
Data source location	Poitiers, France
Data accessibility	Data is within this article

Value of the data

- Protocol used in these experiments could activate Store-operated calcium channels (SOCs) and stretch-activated calcium channels (SACs).
- This protocol can be used to investigate stretch-dependent calcium increases in cardiomyocytes and other cells.
- The effects of SOCs and SACs inhibitors and activators may help to understand stretch-dependent calcium increases.

1. Data

81 These data mainly focus on describing intracellular calcium concentration ([Ca²⁺]_i) measured in 82 **Q3** Wild Type (WT) and *mdx* cardiomyocytes in two different conditions: at rest and during the appli-83 cation of an axial stretch. Calcium measurement was performed using the Ca^{2+} dye fluo-8 and during 84 a perfusion protocol starting initially with a calcium free Tyrode solution followed by the perfusion of 85 1.8 mM Ca^{2+} Tyrode solution. In these conditions, $[Ca^{2+}]_i$ kinetics are described (Fig. 1A) and 86 87 amplitudes are compared in the presence of SACs inhibitors (Fig. 1B). The effect of TRPV2 inhibitors 88 (Fig. 2) and Probenecid (Fig. 3) is also described. 89

2. Experimental design, materials and methods

94 2.1. Cells isolation, mechanical stimulation and Mn^{2+} -quenching experiments are described in [1] 95

96 2.1.1. Solutions and chemicals

Before experiments, cells were stored in culture medium containing Dulbecco's modified Eagle's medium (DMEM – Lonza: 12-604F), complemented with 10 μg/mL insulin, 10 μg/mL gentamycin, 4 mM NaHCO₃, 10 mM Hepes, 0.2% BSA and 12.5 μM blebbistatin (all from Sigma). During experiments, cardiomyocytes were superfused with Tyrode solution containing 140 mM NaCl, 5.4 mM KCl, 1.8 mM CaCl₂, 1.8 mM MgCl₂, 10 mM Hepes and 11 mM glucose or with calcium-free Tyrode solution containing 140 mM NaCl, 5.4 mM KCl, 1.8 mM MgCl₂, 10 mM Hepes, 11 mM glucose, 1 g/L BSA and 20 mM Taurine.

Tranilast (Trn) was purchased from Calbiochem (53902-12-8), GsMTx-4 from Abcam (ab141871), probenecid (Prb, P8761), Streptomycin sulfate (Strp, s9137) and 4-methyl-4'-[3.5-bis(trifluoromethyl)-1H-pyrazol-1-yl]-1.2.3-thiadiazole-5-carboxanilide (YM-58483, y4895) from Sigma, ryanodine from Merck (15662-33-6), fura-2-AM (108964-32-5) and fluo-8-AM (sc-362561) from Santa-Cruz. Download English Version:

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