

747 **SUPPLEMENTAL MOVIE LEGENDS**

748 **Supplemental Movie 1. Time-lapse fluorescent microscopy reveals a critical role for extracellular**
749 **calcium and Orai1 in maintenance of cytosolic sodium.** Sequential fluorescent images of dynamic
750 intracellular sodium signals of confluent PAEC monolayers taken **[A]** in the presence of both Orai1 and 2
751 mM extracellular calcium, **[B]** in the presence of Orai1 in low extracellular calcium (≈ 100 nM), **[C]** in the
752 presence of 2 mM extracellular calcium but in the absence of Orai1, and **[D]** in the absence of Orai1 in
753 low extracellular calcium (≈ 100 nM). The images were taken using Zeiss Axiovert D-1 fluorescent
754 microscope with a 40 \times oil immersion objective at the rate of 1 frame every 5 seconds. The duration of
755 the time course was 1200 seconds. Before imaging, the cells were incubated with 5.05 μ M ANG-2 / AM
756 (TEFLABS, 3502) intracellular sodium indicator and 8 μ l Pluronic F-127 10% solution (Invitrogen,
757 P6866) in 2 ml Krebs-Henseleit Buffer (Sigma, K3753) at 37 $^{\circ}$ C and 5% CO₂ for 1 hour.

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759 **Supplemental Movie 2. Time-lapse fluorescent microscopy demonstrates the importance of Orai1 in**
760 **the anomalous mole fraction effect, e.g., calcium inhibition of sodium entry.** Sequential fluorescent
761 images of dynamic intracellular sodium signals of confluent PAEC monolayers in nominal calcium-free
762 (~ 100 nM extracellular calcium) buffer taken **[A]** in the presence, or **[B]** in the absence, of Orai1.
763 Images were captured using a Zeiss Axiovert D-1 fluorescent microscope with a 40 \times oil immersion
764 objective. The imaging speed was 1 frame per 5 seconds. Thapsigargin (1 μ M) was added at 200
765 seconds. Extracellular calcium 500 μ M was added back at 700 seconds. The duration of the sequential
766 imaging was 1200 seconds. Before imaging, the cells were incubated with 5.05 μ M ANG-2 / AM
767 (TEFLABS, 3502) intracellular sodium indicator and 8 μ l Pluronic F-127 10% solution (Invitrogen,
768 P6866) in 2 ml Krebs-Henseleit Buffer (Sigma, K3753) at 37 $^{\circ}$ C and 5% CO₂ for 1 hour.