Supporting information for:

Effect of Sample Slope on Image Formation in Scanning Ion Conductance Microscopy

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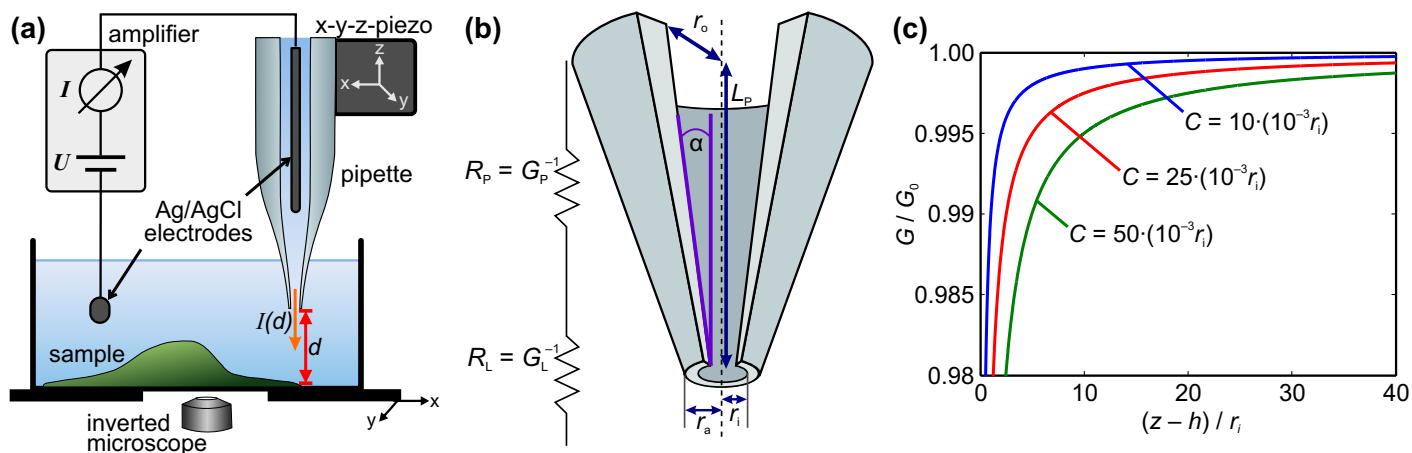[∥]Contributed equally

Figure S1: **(a)** Sketch of a SICM setup. **(b)** Sketch of the scanning pipette including the geometrical and electrical variables used in the main document. **(c)** Plots of the normalized conductance G/G_0 according to Equation 4 for different values of the parameter C. Larger values for C lead to less steep shapes of the approach curve.

raw:= SICM data

previous := raw
current := raw

sl:=slopes(current)

current :=
raw − d_n(sqrt(sl^2+1)−1)

ssd := (current−previous)^2

ssd > stop criterion

no

output current

yes

previous := current
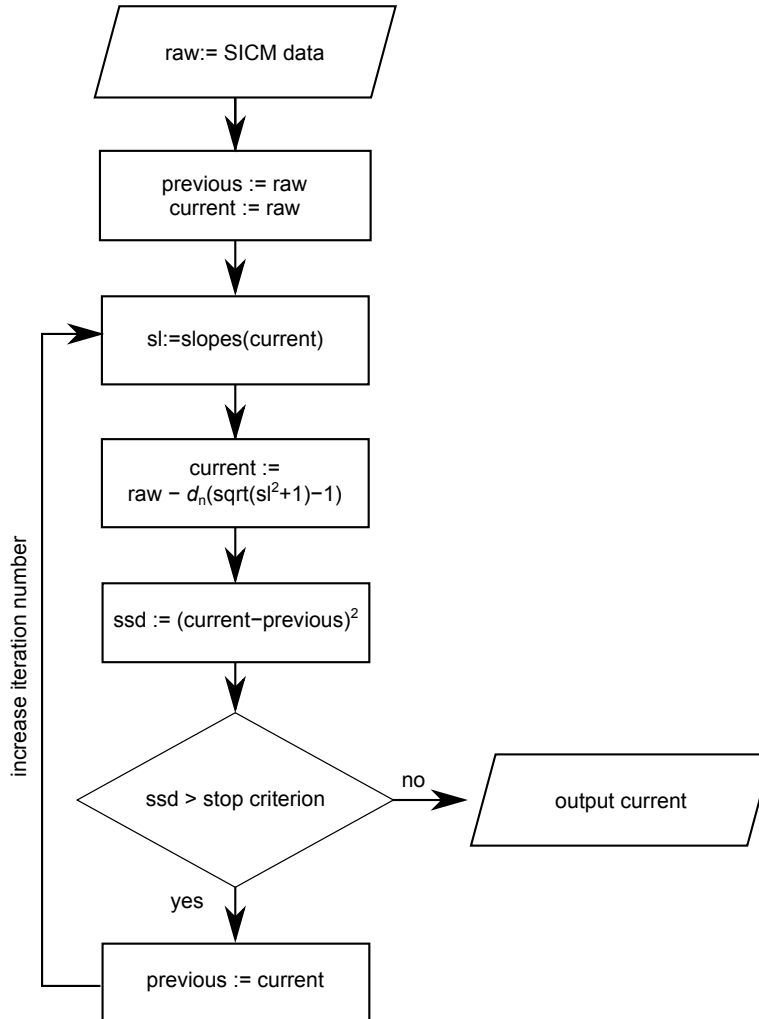
increase iteration number

Figure S2: **Flow chart of the correction procedure as used in the present study.** The slopes of the sample were calculated first using the raw data and the heights of the pixels were corrected according to eq. 6. Subsequently, the corrected heights were used to determine corrected slopes of the sample and they were used to correct the data a second time. This was repeated until two consecutive corrections only showed differences below a preselected threshold.
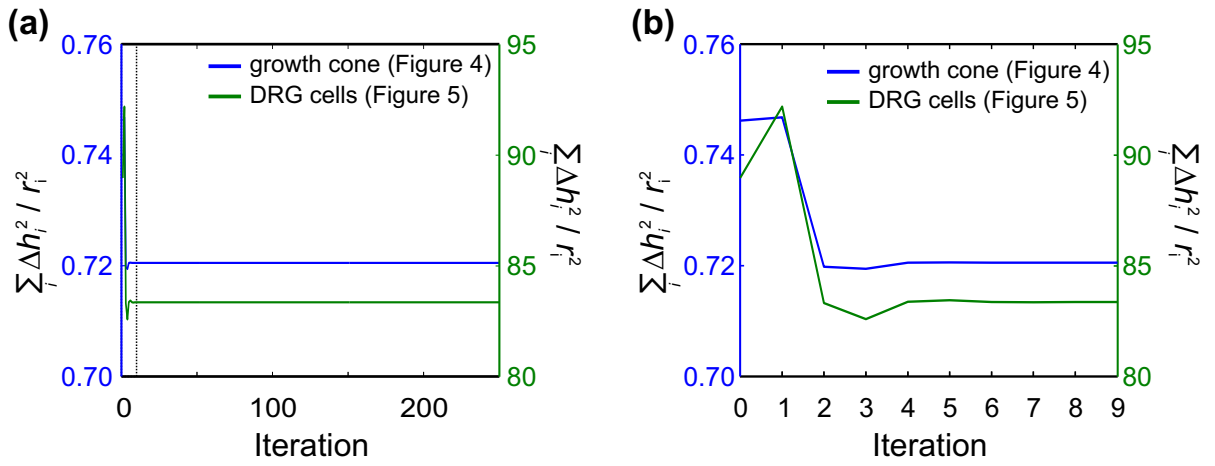
Figure S3: **Robustness of the correction procedure.** **(a)** The squared total height differences $\Delta h_i^2 = \left(h_{i,\mathrm{it}} - h_{i,\mathrm{raw}} \right)^2$ between the original data (raw) and the data after each step of the iteration (it) process were summed for all pixels i of the scans shown in the Figures 4 and 5 for 250 iterations. After fluctuations in the first iterations, the corrections in both cases converge to a constant value, showing that the procedure is robust. **(b)** Magnification of the first 10 iteration steps. Differences only occurred during the first 5 iterations (growth cone, Figure 4) and the first 9 iterations (DRG cells, Figure 5), respectively.