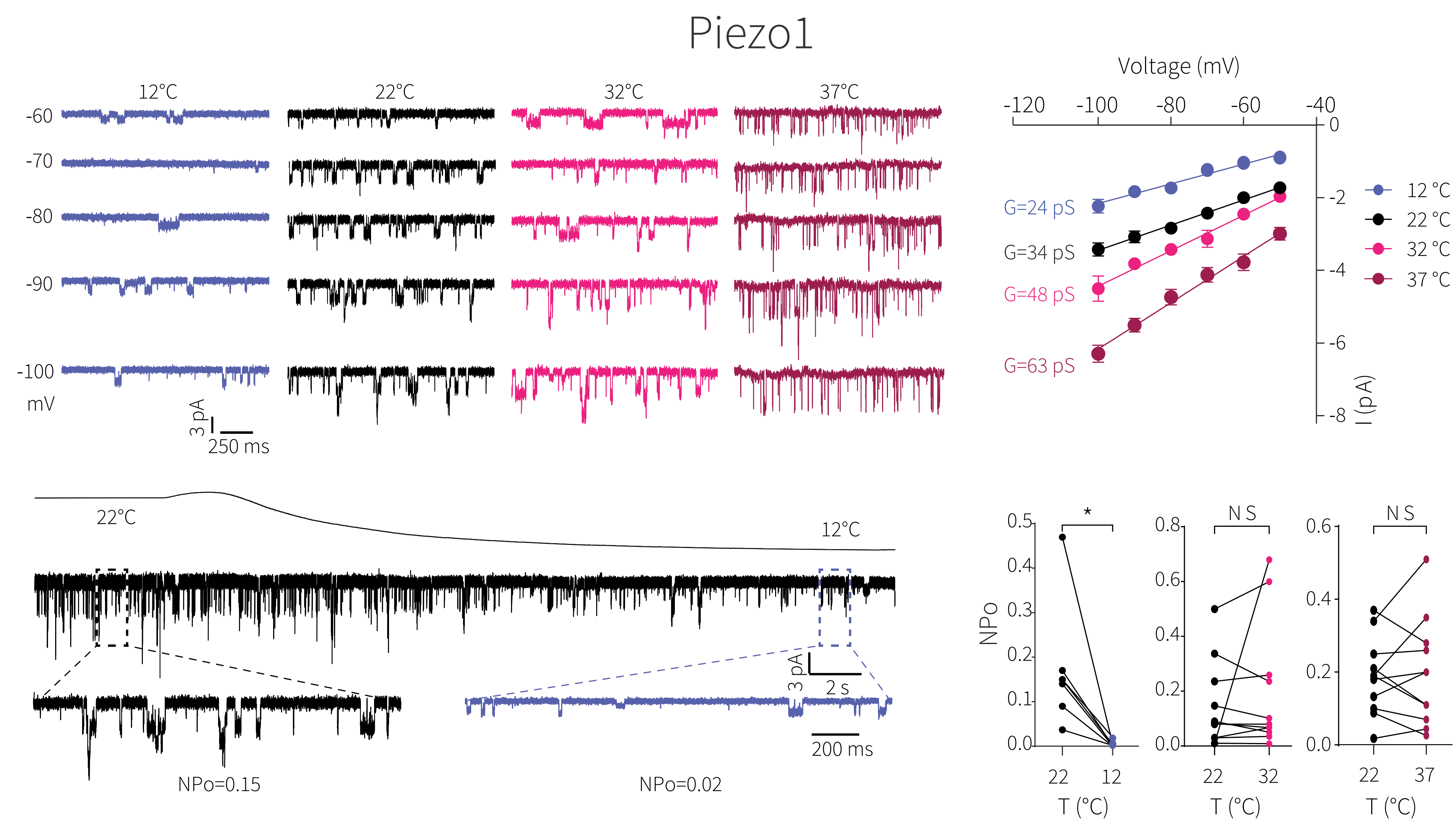
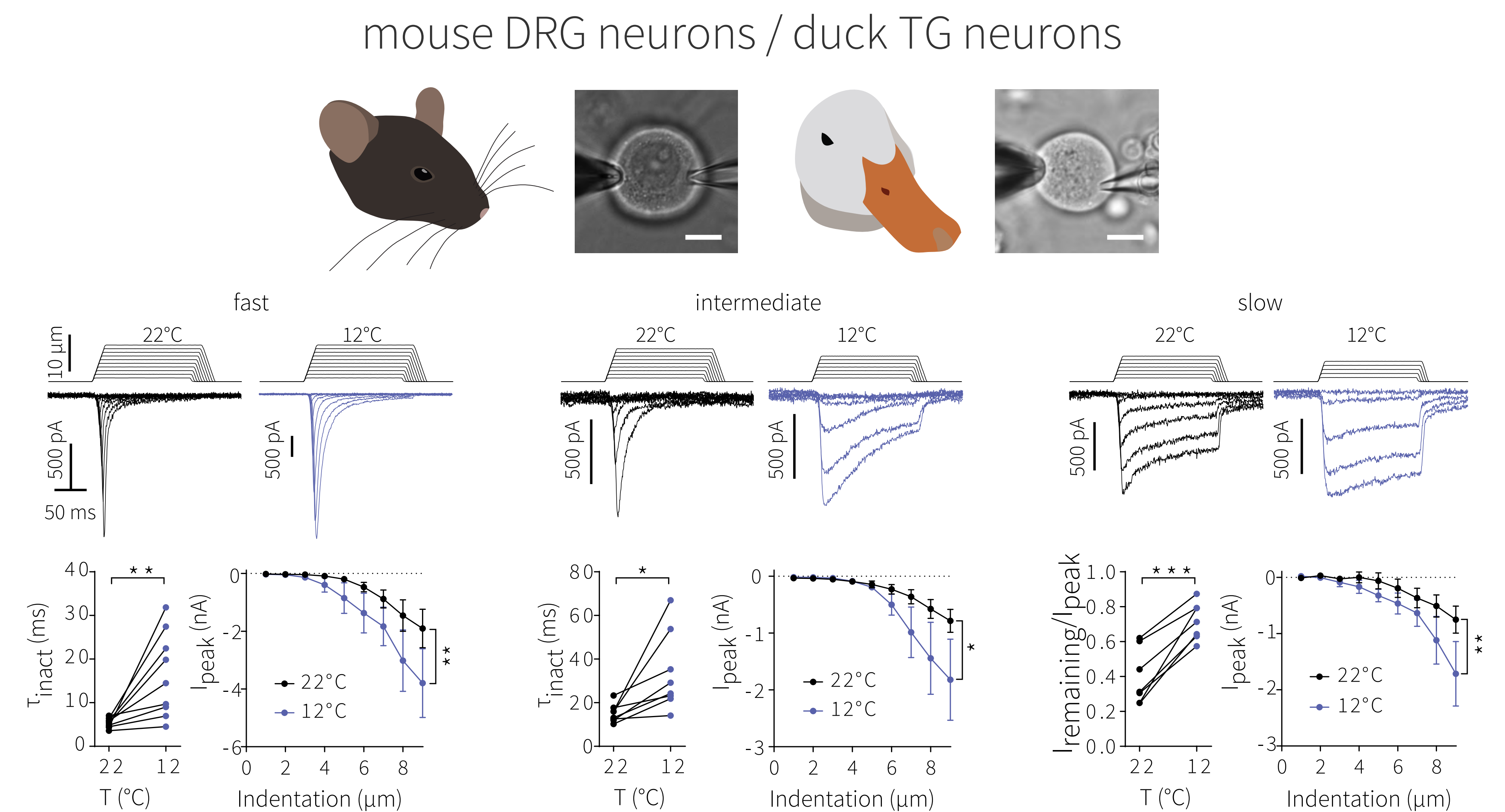


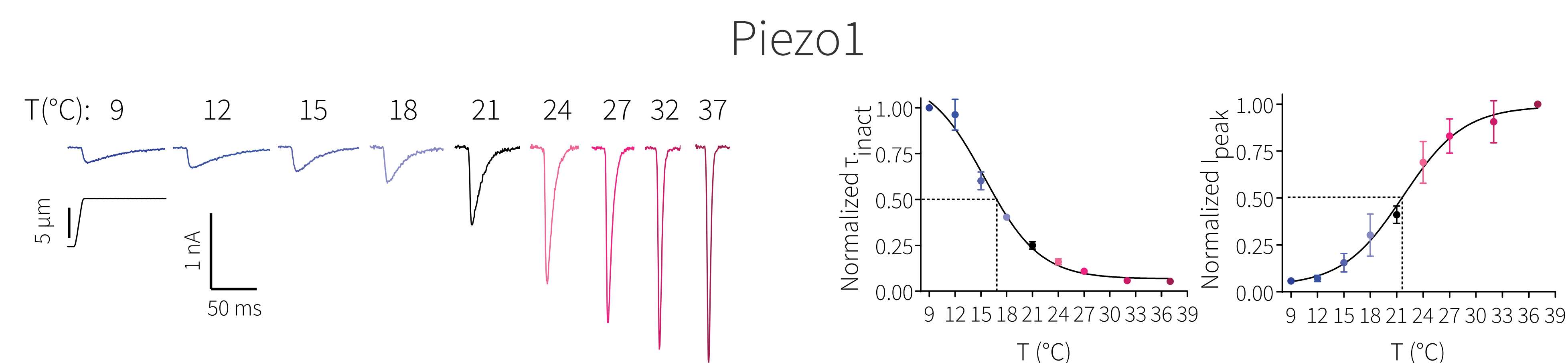
# Cold potentiates current through mechanosensitive Piezo2 ion channel, but inhibits Piezo1.



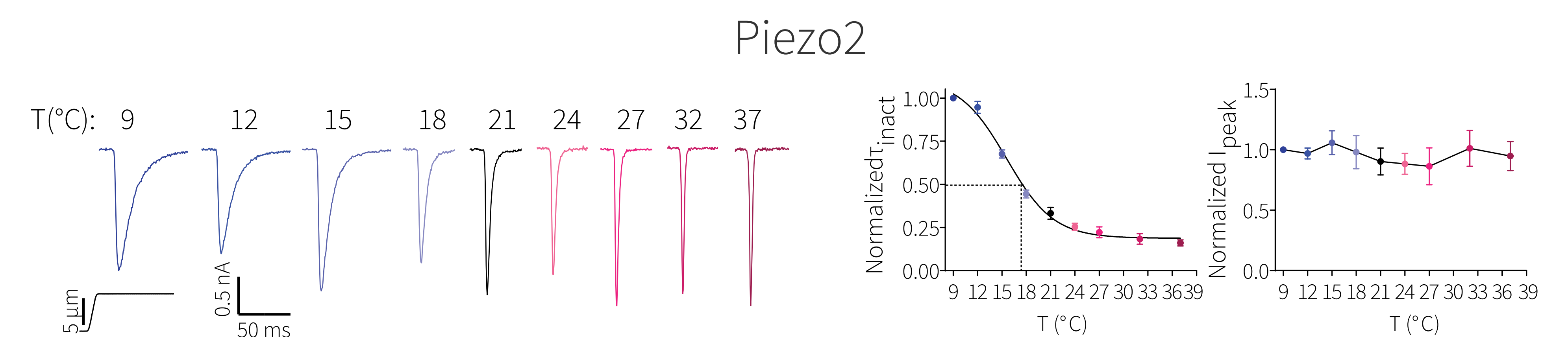
**Cooling inhibits Piezo1 single channel activity.** Top: single-channel recordings of mPiezo1 in HEK293TΔP1 cells in cell-attached mode. Downward deflections represent inward current. Right: Current-voltage relationships for single Piezo1 channel at indicated temperatures with single channel conductances. Bottom: representative Piezo1 single-channel recording with temperature cooled from 22°C to 12°C. Enlarged sections of the current trace are shown at 22°C and 12°C with corresponding open probabilities (NPO). Quantification of the temperature effect on NPO of Piezo1 channel by cooling and warming.



**Cooling potentiates mechanotransduction in somatosensory neurons from mouse DRG and duck TG.** Top: images of neurons dissociated from mouse DRG and duck TG, with the recording pipette and the glass probe in the working positions. Scale bar, 10µm. Lower panels, representative whole-cell current traces recorded in mechanoreceptors from duck TG at 22°C or 12°C in response to mechanical indentation of the soma to the indicated depth.  $E_{hold} = -60$  mV. Currents are classified based on inactivation rate ( $\tau_{inact}$ ) at 22°C. Bottom: quantification of the effect of cooling on current inactivation and peak amplitude.



**Cooling inhibits Piezo1-mediated mechano activated current.** Representative whole-cell mechano activated current traces recorded from mouse Piezo1 in HEK293TΔP1 cells at indicated temperatures during cooling from 32°C to 9°C.  $E_{hold} = -80$  mV. Right: quantification of the effect of cooling on mouse Piezo1 MA current  $\tau_{inact}$  and  $I_{peak}$  in HEK293TΔP1.



**Cooling potentiates Piezo2-mediated mechano-activated current.** Representative whole-cell current traces recorded from mouse Piezo2 in the same HEK293TΔP1 cell at indicated temperatures during cooling from 32°C to 9°C.  $E_{hold} = -80$  mV. Right: quantification of the effect of cooling on mouse Piezo2 MA current  $\tau_{inact}$  and  $I_{peak}$  in HEK293TΔP1.



**Piezo2 integrates mechanical and thermal cues in vertebrate mechanoreceptors**

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