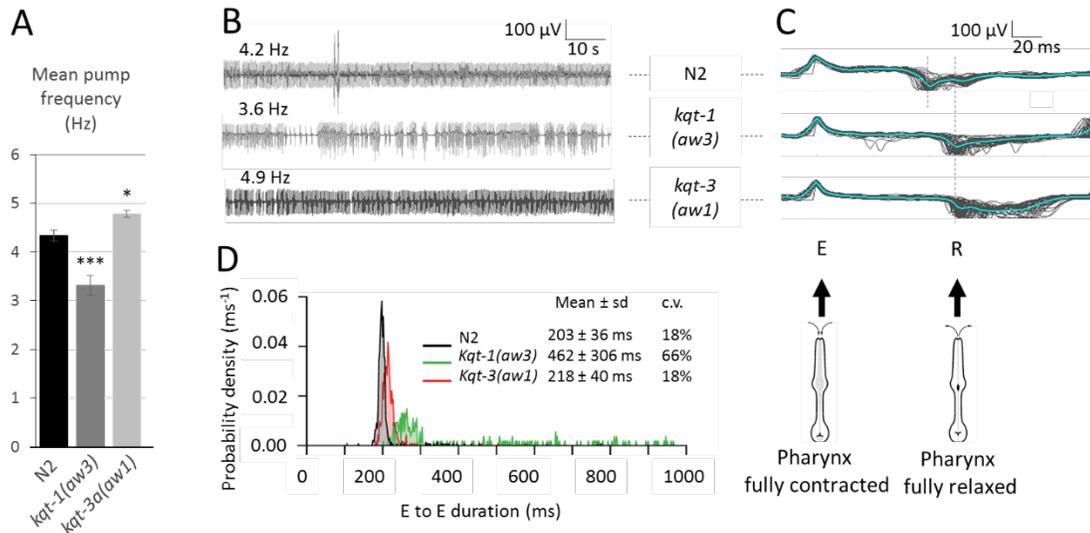


# Mutations in KCNQ potassium channels cause pharyngeal pumping defects in *C. elegans*

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I. NemaMetrix, Inc., 44 W 7th Ave., Eugene, OR 97401 USA. www.nemamatrix.com



## Description:

Pumps were stimulated with 10mM [5HT](#) in M9 recorded as electropharyngeograms (EPGs) for 2 minutes in a NemaMetrix ScreenChip, and analyzed using NemaAnalysis software (NemaMetrix). The null mutant strains [kqt-1\(aw3\)](#) and [kqt-3\(aw1\)](#) were kindly donated by Dr. Aguan Wei (Wei et al., 2002)

A) Pump frequency in [kqt-1\(aw3\)](#) animals was significantly lower than in [N2s](#), while [kqt-3\(aw1\)](#) worms showed an increase in pump frequency (\* $p < 0.05$ ; \*\*\* $p < 0.01$ ; 1-tailed Mann-Whitney U-test;  $n = 21-23$  worms in each strain).

B) Microfluidic EPG recordings show that pumping pattern in [kqt-1\(aw3\)](#) mutants is arrhythmic, with frequent drops in frequency.

C) Overlay of first 50 pumps of recordings show that pump duration is higher in [kqt-1\(aw3\)](#) and [kqt-3\(aw1\)](#) animals than in [N2s](#). Pumps are shown aligned on E spikes, which occur when the pharynx is fully contracted.

D) Duration histogram illustrating the probability of occurrence of inter-pump interval (E to E duration) for each mutant strain. Histograms were binned to 4 ms width and normalized to reach an area underneath the curve equal to 1 (duration 100% likelihood to occur). In [kqt-1\(aw3\)](#) animals, the time between two pumps is significantly increased compared to [N2s](#) ( $p < 0.01$ ).

## References

Wei, A., Yuan, A., Fawcett, G., Butler, A., Davis, T., Xu, S. Y., & Salkoff, L. Efficient isolation of targeted *Caenorhabditis elegans* deletion strains using highly thermostable restriction endonucleases and PCR. *Nucleic Acids Res.* 30, e110 (2002).

## Reagents

Molecule: [Serotonin](#)

Control Strain: [N2](#)

## Funding:

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