Supplementary Data

Computational assessment of the functional role of sinoatrial node exit pathways in the human heart

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Supplementary Methods

A: 3D voltage distribution and AP recording location

C: Autocorrelation of AP to identify optimal $\tau$

B: Oscillation of the recorded AP from location X

D: Phase plot of AP at optimal $\tau$ to identify phase calculation parameters

E: Phase distribution with estimate of scroll wave filament location
S3 Fig. Illustration of the filament tracing method. A: Representative scroll wave in the 3D model. The “X” shows the arbitrarily chosen action potential recording location in the atrial part of the model. B: The recorded action potential. Correlation was computed for several values of delay, $\tau$, between voltages at a fixed time, $t$, and voltages after a delay at time $t + \tau$. C: Correlation between voltage at time $t$ and time $t + \tau$ of the recorded action potential. The optimal delay between consecutive frames was identified as 15.2 ms from the correlation. D: A phase plot of the 10 s long action potential was used to identify the parameters to be used in computation of phase. $V^*(t) = 0.509$, $V^*(t + \tau) = 0.59$ were identified. E: The colour coding shows the phase of a representative scroll wave between $-\pi$ and $+\pi$. Solid red shows the SAN to provide an anatomical reference to the reader. The phase singularity is shown as the black transmural filament [1].

References