

Spatial Symmetry Breaking Determines Spiral Wave Chirality

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Chirality represents a fundamental property of spiral waves. Introducing obstacles into cardiac monolayers leads to the initiation of clockwise-rotating, counterclockwise-rotating, and pairs of spiral waves. Simulations show that the precise location of the obstacle and the pacing frequency determine spiral wave chirality. Instabilities predicted by curves relating the action potential duration and the pacing frequency at different spatial locations predict sites of wave break initiation and, hence, spiral wave chirality.

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