



Symmetry and Asymmetry in Biology

Guest Editor:

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Message from the Guest Editor

The lack of symmetry within the shapes of cell nuclei has long been a reliable criterion for diagnosing cancerous cells, but the reasons remain entirely mysterious. This is an extreme example of a general pattern of biological symmetry-breaking being discovered in particular instances, but the causal principles being left unexplained. One phenomenon that actually has been intensively studied is the causation of right-left asymmetry of vertebrate hearts and abdominal organs. This turns out to be controlled by the submicroscopic rotation symmetry of flagella. Another well-studied phenomenon is the causation of planes of right-left reflection symmetry by the (random) locations where sperm fuse with egg cells...





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Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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