

From Systematics to Single Cell Biology—reprising Dobzhansky’s “Nothing in biology makes sense except in the light of evolution”

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In the title of his famous essay in “The American Biology Teacher”, Dobzhansky declared “Nothing in Biology Makes Sense Except in the Light of Evolution.” Here, he was rebutting anti-evolutionists view of an immutable world. He raised examples from the diversity of life, the unity of molecular processes, and surprising cases of adaptive radiation such as the Hawaiian *Drosophila* to emphasize that only the theory of evolution unifies all of these disparate examples of life into a coherent framework. Evolution is not only essential to understanding the variety of organismal life, but we now understand that the theory and models in evolutionary biology have wide impact in areas ranging from genomics to cancer biology. In this talk, I discuss some recent developments in the biomedical field of single cell and sub-cellular biology and how these fields are now trying to answer classic evolutionary questions from systematics to population genetics. Thus, evolutionary theory not only helps us make sense of natural diversity but also has direct impact on current biomedical practices.