

Publication

A genome for the environment

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Water fleas of the genus *Daphnia* are among the oldest model systems in biological research. Today, we know more about their natural history and ecology than of any other taxon. The *Daphnia* model also has left a notable mark on other fields. élie Metchnikoff used *Daphnia* to test his 1908 Nobel prize–winning idea that macrophages attack invading parasites as part of cellular immunity. August Weismann’s studies of water fleas were instrumental in developing his theory that only germ cells transmit heritable information in animals. Richard Woltereck used *Daphnia* to develop the notion of phenotypic plasticity—that an organism can change its characteristics in response to the environment—an idea that still guides experiments with many organisms that distinguish genetic from environmental effects. With all of these historical achievements, why did the National Institutes of Health (NIH) only recently add *Daphnia* to its list of model organisms for biomedical research? Moreover, why has *Daphnia*, at this point in time, become NIH’s 13th model system?

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