Resource Summary Report

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Daphnia genomics consortium

RRID:SCR_008148
Type: Tool

Proper Citation

Daphnia genomics consortium (RRID:SCR_008148)

Resource Information

URL: https://wiki.cgb.indiana.edu/display/DGC/Home

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Description: The Daphnia Genomics Consortium (DGC) is an international network of investigators committed to mounting the freshwater crustacean Daphnia as a model system for ecology, evolution and the environmental sciences. Along with research activities, the DGC is: (1) coordinating efforts towards developing the Daphnia genomic toolbox, which will then be available for use by the general community; (2) facilitating collaborative cross-disciplinary investigations; (3) developing bioinformatic strategies for organizing the rapidly growing genome database; and (4) exploring emerging technologies to improve high throughput analyses of molecular and ecological samples. If we are to succeed in creating a new model system for modern life-sciences research, it will need to be a community-wide effort. Research activities of the DGC are primarily focused on creating genomic tools and information. When completed, the current projects will offer a first view of the Daphnia genome''s topography, including regions of high and low recombination, the distribution of transposable, repetitive and regulatory elements, the size and structure of genes and of their neighborhoods. This information is crucial in formulating testable hypotheses relating genetics and demographics to the evolutionary potential or constraints of natural populations. Projects aiming to compile identifiable genes with their function are also underway, together with robust methods to verify these findings. Finally, these tools are being tested, by exploring their uses in key ecological and toxicological investigations. Each project benefits from the leadership and expertise of many individuals. For further details, begin by contacting the project directors. The DGC consists of biologists from a broad spectrum of subdisciplines, including limnology, ecotoxicology, quantitative and population genetics, systematics, molecular biology and evolution, developmental biology, genomics and bioinformatics. In many regards, the rapid early success of the consortium results from its grass-roots origin promoting an international composition, under a cooperative model, with significant scientific breadth. We hold to this approach in building this network and

encourage more people to participate. All the while, the DGC is structured to effectively reach specific goals. The consortium includes an advisory board (composed of experts of the various subdisciplines), whose responsibility is to act as the research community''s agent in guiding the development of Daphnia genomic resources. The advisors communicate directly to DGC members, who are either contributing genomic tools or actively seeking funds for this function. The consortium''s main body (given the widespread interest in applying genomic tools in environmental studies) are the affiliates, who make use of these tools for their research and who are soliciting support.

Synonyms: DGC

Resource Type: data or information resource, database

Keywords: ecological, ecology, ecotoxicology, element, environmental science, evolution, evolutionary, freshwater, gene, genetic, basic research knowledge base, bioinformatic, biology, crustacean, daphnia, demographic, developmental, genomic, limnology, model, molecular, natural, recombination, regulatory, repetitive, size, structure, system, systematic, topography, toxicological, transposable

Funding:

Resource Name: Daphnia genomics consortium

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Alternate IDs: nif-0000-20973

Old URLs: http://daphnia.cgb.indiana.edu/

Record Creation Time: 20220129T080245+0000

Record Last Update: 20250521T061224+0000

Ratings and Alerts

No rating or validation information has been found for Daphnia genomics consortium.

No alerts have been found for Daphnia genomics consortium.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 21 mentions in open access literature.

Listed below are recent publications. The full list is available at dkNET.

Roccuzzo S, et al. (2020) Metabolic Insights Into Infochemicals Induced Colony Formation and Flocculation in Scenedesmus subspicatus Unraveled by Quantitative Proteomics. Frontiers in microbiology, 11, 792.

Toyota K, et al. (2015) NMDA receptor activation upstream of methyl farnesoate signaling for short day-induced male offspring production in the water flea, Daphnia pulex. BMC genomics, 16(1), 186.

Toyota K, et al. (2015) Methyl farnesoate synthesis is necessary for the environmental sex determination in the water flea Daphnia pulex. Journal of insect physiology, 80, 22.

Hiruta C, et al. (2014) Targeted gene disruption by use of transcription activator-like effector nuclease (TALEN) in the water flea Daphnia pulex. BMC biotechnology, 14, 95.

Otte KA, et al. (2014) Proteomic analysis of Daphnia magna hints at molecular pathways involved in defensive plastic responses. BMC genomics, 15, 306.

Heger P, et al. (2013) Successive gain of insulator proteins in arthropod evolution. Evolution; international journal of organic evolution, 67(10), 2945.

Hiruta C, et al. (2013) Development of a microinjection system for RNA interference in the water flea Daphnia pulex. BMC biotechnology, 13, 96.

Kato Y, et al. (2012) Genomic integration and germline transmission of plasmid injected into crustacean Daphnia magna eggs. PloS one, 7(9), e45318.

Kato Y, et al. (2011) Environmental sex determination in the branchiopod crustacean Daphnia magna: deep conservation of a Doublesex gene in the sex-determining pathway. PLoS genetics, 7(3), e1001345.

Dufresne F, et al. (2011) Diversity in the reproductive modes of European Daphnia pulicaria deviates from the geographical parthenogenesis. PloS one, 6(5), e20049.

Boucher P, et al. (2010) Unusual duplication of the insulin-like receptor in the crustacean Daphnia pulex. BMC evolutionary biology, 10, 305.

Spanier KI, et al. (2010) Predator-induced defences in Daphnia pulex: selection and evaluation of internal reference genes for gene expression studies with real-time PCR. BMC molecular biology, 11, 50.

Schaack S, et al. (2010) DNA transposons and the role of recombination in mutation accumulation in Daphnia pulex. Genome biology, 11(4), R46.

Rivera AS, et al. (2010) Gene duplication and the origins of morphological complexity in pancrustacean eyes, a genomic approach. BMC evolutionary biology, 10, 123.

Janssen R, et al. (2010) Conservation, loss, and redeployment of Wnt ligands in protostomes: implications for understanding the evolution of segment formation. BMC evolutionary biology, 10, 374.

Schurko AM, et al. (2009) Meiosis genes in Daphnia pulex and the role of parthenogenesis in genome evolution. BMC evolutionary biology, 9, 78.

Colson I, et al. (2009) Intragenic tandem repeats in Daphnia magna: structure, function and distribution. BMC research notes, 2, 206.

Wilson KH, et al. (2009) The genome sequence of the protostome Daphnia pulex encodes respective orthologues of a neurotrophin, a Trk and a p75NTR: evolution of neurotrophin signaling components and related proteins in the bilateria. BMC evolutionary biology, 9, 243.

Labbé P, et al. (2009) An ancient immunity gene duplication in Daphnia magna: RNA expression and sequence analysis of two nitric oxide synthase genes. Developmental and comparative immunology, 33(9), 1000.

Peñalva-Arana DC, et al. (2009) The chemoreceptor genes of the waterflea Daphnia pulex: many Grs but no Ors. BMC evolutionary biology, 9, 79.