H Frederik Nijhout

List of Publications by Year
in descending order

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144 papers	10,877 citations	36203 51 h-index	32761 100 g-index
148 all docs	148 docs citations	148 times ranked	7731 citing authors

#	Article	IF	Citations
1	Development and evolution of adaptive polyphenisms. Evolution & Development, 2003, 5, 9-18.	1.1	523
2	The Development and Evolution of Exaggerated Morphologies in Insects. Annual Review of Entomology, 2000, 45, 661-708.	5.7	411
3	Two insulin receptors determine alternative wing morphs in planthoppers. Nature, 2015, 519, 464-467.	13.7	367
4	Evolution of a Polyphenism by Genetic Accommodation. Science, 2006, 311, 650-652.	6.0	358
5	Juvenile Hormone and the Physiological Basis of Insect Polymorphisms. Quarterly Review of Biology, 1982, 57, 109-133.	0.0	357
6	Control of Moulting and Metamorphosis in the Tobacco Hornworm, Manduca Sexta (L.): Cessation of Juvenile Hormone Secretion as A Trigger for Pupation. Journal of Experimental Biology, 1974, 61, 493-501.	0.8	348
7	Control Mechanisms of Polyphenic Development in Insects. BioScience, 1999, 49, 181-192.	2.2	332
8	Control of Moulting and Metamorphosis in the Tobacco Hornworm, Manduca Sexta (L.): Growth of the Last-Instar Larva and the Decision to Pupate. Journal of Experimental Biology, 1974, 61, 481-491.	0.8	328
9	The control of body size in insects. Developmental Biology, 2003, 261, 1-9.	0.9	323
10	Size and shape: the developmental regulation of static allometry in insects. BioEssays, 2007, 29, 536-548.	1.2	304
11	A THRESHOLD SIZE FOR METAMORPHOSIS IN THE TOBACCO HORNWORM, MANDUCA SEXTA (L.). Biological Bulletin, 1975, 149, 214-225.	0.7	301
12	Critical weight in the development of insect body size. Evolution & Development, 2003, 5, 188-197.	1.1	285
13	The biological significance of substrate inhibition: A mechanism with diverse functions. BioEssays, 2010, 32, 422-429.	1.2	272
14	The developmental control of size in insects. Wiley Interdisciplinary Reviews: Developmental Biology, 2014, 3, 113-134.	5.9	239
15	Pattern formation on lepidopteran wings: Determination of an eyespot. Developmental Biology, 1980, 80, 267-274.	0.9	212
16	Ultrabithorax function in butterfly wings and the evolution of insect wing patterns. Current Biology, 1999, 9, 109-115.	1.8	208
17	A Mathematical Model of the Folate Cycle. Journal of Biological Chemistry, 2004, 279, 55008-55016.	1.6	181
18	The Physiological Basis of Reaction Norms: The Interaction Among Growth Rate, the Duration of Growth and Body Size. Integrative and Comparative Biology, 2004, 44, 443-449.	0.9	178

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19	Nonlinear partial differential equations and applications: Bombyxin is a growth factor for wing imaginal disks in Lepidoptera. Proceedings of the National Academy of Sciences of the United States of America, 2002, 99, 15446-15450.	3.3	166
20	Food availability controls the onset of metamorphosis in the dung beetleOnthophagus taurus(Coleoptera: Scarabaeidae). Physiological Entomology, 2001, 26, 173-180.	0.6	162
21	Control of body size by oxygen supply reveals size-dependent and size-independent mechanisms of molting and metamorphosis. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 14664-14669.	3.3	152
22	Tradeâ€offs during the Development of Primary and Secondary Sexual Traits in a Horned Beetle. American Naturalist, 2004, 163, 184-191.	1.0	143
23	Rapid evolution of a polyphenic threshold. Evolution & Development, 2003, 5, 259-268.	1.1	133
24	A mathematical model of glutathione metabolism. Theoretical Biology and Medical Modelling, 2008, 5, 8.	2.1	131
25	The developmental and physiological basis of body size evolution in an insect. Proceedings of the Royal Society B: Biological Sciences, 2001, 268, 1589-1593.	1.2	130
26	A Mathematical Model Gives Insights into Nutritional and Genetic Aspects of Folate-Mediated One-Carbon Metabolism. Journal of Nutrition, 2006, 136, 2653-2661.	1.3	126
27	Developmental mechanisms of threshold evolution in a polyphenic beetle. Evolution & Development, 2002, 4, 252-264.	1.1	125
28	The rÃ1e of ecdysone in pupation of Manduca sexta. Journal of Insect Physiology, 1976, 22, 453-463.	0.9	112
29	Serotonin synthesis, release and reuptake in terminals: a mathematical model. Theoretical Biology and Medical Modelling, 2010, 7, 34.	2.1	110
30	Neural Tube Defects and Folate Pathway Genes: Family-Based Association Tests of Geneâ€“Gene and Geneâ€“Environment Interactions. Environmental Health Perspectives, 2006, 114, 1547-1552.	2.8	105
31	GENETICS OF FLUCTUATING ASYMMETRY: A DEVELOPMENTAL MODEL OF DEVELOPMENTAL INSTABILITY. Evolution; International Journal of Organic Evolution, 1999, 53, 358-375.	1.1	102
32	Homeostatic mechanisms in dopamine synthesis and release: a mathematical model. Theoretical Biology and Medical Modelling, 2009, 6, 21.	2.1	102
33	Soldier determination in Pheidole bicarinata: Inhibition by adult soldiers. Journal of Insect Physiology, 1984, 30, 127-135.	0.9	94
34	Competition among growing organs and developmental control of morphological asymmetry. Proceedings of the Royal Society B: Biological Sciences, 1998, 265, 1135-1139.	1.2	92
35	DYNAMICS OF JUVENILE HORMONE ACTION IN LARVAE OF THE TOBACCO HORNWORM, MANDUCA SEXTA (L.). Biological Bulletin, 1975, 149, 568-579.	0.7	91
36	Soldier determination in Pheidole bicarinata: Effect of methoprene on caste and size within castes. Journal of Insect Physiology, 1983, 29, 847-854.	0.9	91

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37	Developmental Mechanisms of Body Size and Wing-Body Scaling in Insects. Annual Review of Entomology, 2015, 60, 141-156.	5.7	91
38	A mathematical model of the methionine cycle. Journal of Theoretical Biology, 2004, 226, 33-43.	0.8	86
39	The control of growth. Development (Cambridge), 2003, 130, 5863-5867.	1.2	84
40	Long-Range Allosteric Interactions between the Folate and Methionine Cycles Stabilize DNA Methylation Reaction Rate. Epigenetics, 2006, 1, 81-87.	1.3	84
41	Ontogeny of the color pattern on the wings ofPrecis coenia (Lepidoptera: Nymphalidae). Developmental Biology, 1980, 80, 275-288.	0.9	83
42	The control of growth and differentiation of the wing imaginal disks of Manduca sexta. Developmental Biology, 2007, 302, 569-576.	0.9	82
43	Conflicting processes in the evolution of body size and development time. Philosophical Transactions of the Royal Society B: Biological Sciences, 2010, 365, 567-575.	1.8	72
44	Body size determination in insects: a review and synthesis of sizeâ€•and brainâ€•dependent and independent mechanisms. Biological Reviews, 2013, 88, 944-954.	4.7	72
45	Developmental Models and Polygenic Characters. American Naturalist, 1997, 149, 394-405.	1.0	70
46	The biochemistry of acetaminophen hepatotoxicity and rescue: a mathematical model. Theoretical Biology and Medical Modelling, 2012, 9, 55.	2.1	70
47	Polymorphic mimicry in Papilio dardanus: mosaic dominance, big effects, and origins. Evolution & Development, 2003, 5, 579-592.	1.1	66
48	The Cellular and Physiological Mechanism of Wing-Body Scaling in Manduca sexta. Science, 2010, 330, 1693-1695.	6.0	65
49	Systems Biology of Phenotypic Robustness and Plasticity. Integrative and Comparative Biology, 2017, 57, 171-184.	0.9	61
50	A Physiological Perspective on the Response of Body Size and Development Time to Simultaneous Directional Selection. Integrative and Comparative Biology, 2005, 45, 525-531.	0.9	59
51	Pigmentation pattern formation in butterflies: experiments and models. Comptes Rendus - Biologies, 2003, 326, 717-727.	0.1	56
52	Voltammetric and mathematical evidence for dual transport mediation of serotonin clearance in vivo. Journal of Neurochemistry, 2014, 130, 351-359.	2.1	53
53	In silico experimentation with a model of hepatic mitochondrial folate metabolism. Theoretical Biology and Medical Modelling, 2006, 3, 40.	2.1	51
54	Modeling folate, one-carbon metabolism, and DNA methylation. Nutrition Reviews, 2008, 66, S27-S30.	2.6	49

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55	Control of growth and differentiation of the wing imaginal disk of Precis coenia (Lepidoptera:) Tj ETQq1 1 0.784314 rgBT /Overlock 10	0.9	48
56	Molecular and Physiological Basis of Colour Pattern Formation. Advances in Insect Physiology, 2010, , 219-265.	1.1	48
57	A Quantitative Analysis of Growth and Size Regulation in Manduca sexta: The Physiological Basis of Variation in Size and Age at Metamorphosis. PLoS ONE, 2015, 10, e0127988.	1.1	48
58	In vivo Hippocampal Serotonin Dynamics in Male and Female Mice: Determining Effects of Acute Escitalopram Using Fast Scan Cyclic Voltammetry. Frontiers in Neuroscience, 2019, 13, 362.	1.4	46
59	Mathematical Modeling of Folate Metabolism: Predicted Effects of Genetic Polymorphisms on Mechanisms and Biomarkers Relevant to Carcinogenesis. Cancer Epidemiology Biomarkers and Prevention, 2008, 17, 1822-1831.	1.1	45
60	Homologies in the colour patterns of the genus Heliconius (Lepidoptera: Nymphalidae). Biological Journal of the Linnean Society, 1988, 33, 345-365.	0.7	44
61	Sex differences in hepatic one-carbon metabolism. BMC Systems Biology, 2018, 12, 89.	3.0	43
62	PHENOTYPIC CORRELATION STRUCTURE AMONG ELEMENTS OF THE COLOR PATTERN IN PRECIS COENIA (LEPIDOPTERA: NYMPHALIDAE). Evolution; International Journal of Organic Evolution, 1993, 47, 593-618.	1.1	41
63	Cryptic variation in butterfly eyespot development: the importance of sample size in gene expression studies. Evolution & Development, 2007, 9, 2-9.	1.1	41
64	A Mathematical Model Gives Insights into the Effects of Vitamin B-6 Deficiency on 1-Carbon and Glutathione Metabolism. Journal of Nutrition, 2009, 139, 784-791.	1.3	39
65	A new mathematical approach for qualitative modeling of the insulin-TOR-MAPK network. Frontiers in Physiology, 2013, 4, 245.	1.3	39
66	Developmental Perspectives on Evolution of Butterfly Mimicry. BioScience, 1994, 44, 148-157.	2.2	38
67	Developmental constraints on the evolution of wingâ€body allometry in Manduca sexta. Evolution & Development, 2010, 12, 592-600.	1.1	38
68	A Switch in the Control of Growth of the Wing Imaginal Disks of Manduca sexta. PLoS ONE, 2010, 5, e10723.	1.1	38
69	An analysis of the phenotypic effects of certain colour pattern genes in Heliconius (Lepidoptera:) Tj ETQq1 1 0.784314 rgBT /Overlock 1	0.7	36
70	Developmental Causes of Allometry: New Models and Implications for Phenotypic Plasticity and Evolution. Integrative and Comparative Biology, 2012, 52, 43-52.	0.9	36
71	Diverse nanostructures underlie thin ultra-black scales in butterflies. Nature Communications, 2020, 11, 1294.	5.8	36
72	Symmetry systems and compartments in Lepidopteran wings: the evolution of a patterning mechanism. Development (Cambridge), 1994, 1994, 225-233.	1.2	36

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73	A Mathematical Model of Tryptophan Metabolism via the Kynurenine Pathway Provides Insights into the Effects of Vitamin B-6 Deficiency, Tryptophan Loading, and Induction of Tryptophan 2,3-Dioxygenase on Tryptophan Metabolites. Journal of Nutrition, 2013, 143, 1509-1519.	1.3	35
74	Escape from homeostasis. Mathematical Biosciences, 2014, 257, 104-110.	0.9	34
75	The relationship between intracellular and plasma levels of folate and metabolites in the methionine cycle: A model. Molecular Nutrition and Food Research, 2013, 57, 628-636.	1.5	33
76	Phenotypic Correlations Structure among Elements of the Color Pattern in Precis coenia (Lepidoptera: Nymphalidae). Evolution; International Journal of Organic Evolution, 1993, 47, 593.	1.1	32
77	Contrasting Roles of Transcription Factors Spineless and EcR in the Highly Dynamic Chromatin Landscape of Butterfly Wing Metamorphosis. Cell Reports, 2019, 27, 1027-1038.e3.	2.9	32
78	A Population Model of Folate-Mediated One-Carbon Metabolism. Nutrients, 2013, 5, 2457-2474.	1.7	31
79	Systems biology of robustness and homeostatic mechanisms. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2019, 11, e1440.	6.6	31
80	Origin of the mechanism of phenotypic plasticity in satyrid butterfly eyespots. ELife, 2020, 9, .	2.8	31
81	Imaginal wing discs in larvae of the soldier caste of Pheidole bicarinata vinelandica Forel (Hymenoptera : Formicidae). Arthropod Structure and Development, 1981, 10, 131-139.	0.4	30
82	Flavin-Dependent Thymidylate Synthase ThyX Activity: Implications for the Folate Cycle in Bacteria. Journal of Bacteriology, 2007, 189, 8537-8545.	1.0	30
83	Mathematical Insights into the Effects of Levodopa. Frontiers in Integrative Neuroscience, 2012, 6, 21.	1.0	29
84	Homeostasis and Dynamic Stability of the Phenotype Link Robustness and Plasticity. Integrative and Comparative Biology, 2014, 54, 264-275.	0.9	29
85	Synergism and Antagonism of Proximate Mechanisms Enable and Constrain the Response to Simultaneous Selection on Body Size and Development Time: An Empirical Test Using Experimental Evolution. American Naturalist, 2016, 188, 499-520.	1.0	29
86	Analysis of Homeostatic Mechanisms in Biochemical Networks. Bulletin of Mathematical Biology, 2017, 79, 2534-2557.	0.9	29
87	Using mathematical models to understand metabolism, genes, and disease. BMC Biology, 2015, 13, 79.	1.7	28
88	Fast serotonin voltammetry as a versatile tool for mapping dynamic tissue architecture: I. Responses at carbon fibers describe local tissue physiology. Journal of Neurochemistry, 2020, 153, 33-50.	2.1	28
89	Voltammetric evidence for discrete serotonin circuits, linked to specific reuptake domains, in the mouse medial prefrontal cortex. Neurochemistry International, 2019, 123, 50-58.	1.9	27
90	Mathematical Modeling: Epidemiology Meets Systems Biology. Cancer Epidemiology Biomarkers and Prevention, 2006, 15, 827-829.	1.1	26

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91	The distinct roles of insulin signaling in polyphenic development. Current Opinion in Insect Science, 2018, 25, 58-64.	2.2	26
92	Inflammation-Induced Histamine Impairs the Capacity of Escitalopram to Increase Hippocampal Extracellular Serotonin. Journal of Neuroscience, 2021, 41, 6564-6577.	1.7	26
93	Supply-Side Constraints Are Insufficient to Explain the Ontogenetic Scaling of Metabolic Rate in the Tobacco Hornworm, Manduca sexta. PLoS ONE, 2012, 7, e45455.	1.1	26
94	Mathematical Modeling Predicts the Effect of Folate Deficiency and Excess on Cancer-Related Biomarkers. Cancer Epidemiology Biomarkers and Prevention, 2011, 20, 1912-1917.	1.1	25
95	Development of polyploidy of scale-building cells in the wings of Manduca sexta. Arthropod Structure and Development, 2013, 42, 37-46.	0.8	25
96	A voltammetric and mathematical analysis of histaminergic modulation of serotonin in the mouse hypothalamus. Journal of Neurochemistry, 2016, 138, 374-383.	2.1	24
97	The development of wing shape in Lepidoptera: mitotic density, not orientation, is the primary determinant of shape. Evolution & Development, 2014, 16, 68-77.	1.1	23
98	Evolutionary divergence of field and laboratory populations of Manduca sexta in response to hostâ€plant quality. Ecological Entomology, 2010, 35, 166-174.	1.1	22
99	PREDICTING THE RESPONSE TO SIMULTANEOUS SELECTION: GENETIC ARCHITECTURE AND PHYSIOLOGICAL CONSTRAINTS. Evolution; International Journal of Organic Evolution, 2012, 66, 2916-2928.	1.1	22
100	Big or fast: two strategies in the developmental control of body size. BMC Biology, 2015, 13, 57.	1.7	22
101	Mathematical analysis of the regulation of competing methyltransferases. BMC Systems Biology, 2015, 9, 69.	3.0	21
102	Passive and active stabilization of dopamine in the striatum. Bioscience Hypotheses, 2009, 2, 240-244.	0.2	20
103	Dependence of morphometric allometries on the growth kinetics of body parts. Journal of Theoretical Biology, 2011, 288, 35-43.	0.8	20
104	A mathematical model for the regulation of juvenile hormone titers. Journal of Insect Physiology, 2008, 54, 255-264.	0.9	19
105	Size Matters (but So Does Time), and It's OK to Be Different. Developmental Cell, 2008, 15, 491-492.	3.1	19
106	Plasticity of insect body size in response to oxygen: integrating molecular and physiological mechanisms. Current Opinion in Insect Science, 2014, 1, 59-65.	2.2	19
107	Hormonal control of growth in the wing imaginal disks of Junonia coenia: the relative contributions of insulin and ecdysone. Development (Cambridge), 2018, 145, .	1.2	19
108	Mathematical model insights into arsenic detoxification. Theoretical Biology and Medical Modelling, 2011, 8, 31.	2.1	18

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109	Mechanism of threshold size assessment: Metamorphosis is triggered by the TGF-beta/Activin ligand Myoglianin. Insect Biochemistry and Molecular Biology, 2020, 126, 103452.	1.2	18
110	Genetic assimilation and accommodation: Models and mechanisms. Current Topics in Developmental Biology, 2021, 141, 337-369.	1.0	17
111	A Possible Link Between Pyriproxyfen and Microcephaly. PLOS Currents, 2017, 9, .	1.4	16
112	Mathematical modeling of the effects of glutathione on arsenic methylation. Theoretical Biology and Medical Modelling, 2014, 11, 20.	2.1	15
113	Unmodern Synthesis: Developmental Hierarchies and the Origin of Phenotypes. BioEssays, 2018, 40, 1600265.	1.2	15
114	Propagation of Fluctuations in Biochemical Systems, I: Linear SSC Networks. Bulletin of Mathematical Biology, 2007, 69, 1791-1813.	0.9	14
115	Targeted metabolomics and mathematical modeling demonstrate that vitamin B-6 restriction alters one-carbon metabolism in cultured HepG2 cells. American Journal of Physiology - Endocrinology and Metabolism, 2014, 307, E93-E101.	1.8	13
116	Constraint and developmental dissociation of phenotypic integration in a genetically accommodated trait. Evolution & Development, 2008, 10, 690-699.	1.1	11
117	Exploring the Role of Insulin Signaling in Relative Growth: A Case Study on Wing-Body Scaling in Lepidoptera. Integrative and Comparative Biology, 2019, 59, 1324-1337.	0.9	10
118	Expanding the nymphalid groundplanâ€™s domain of applicability: pattern homologies in an arctiid moth (Utetheisa ornatrix). Biological Journal of the Linnean Society, 2019, 126, 912-924.	0.7	10
119	Anteriorâ€“Posterior Patterning in Lepidopteran Wings. Frontiers in Ecology and Evolution, 2020, 8, .	1.1	10
120	To plasticity and back again. ELife, 2015, 4, .	2.8	10
121	Wing morphogenesis in Lepidoptera. Progress in Biophysics and Molecular Biology, 2018, 137, 88-94.	1.4	8
122	A Developmental-Physiological Perspective on the Development and Evolution of Phenotypic Plasticity. Boston Studies in the Philosophy and History of Science, 2015, , 147-173.	0.4	7
123	The Origin of Novelty Through the Evolution of Scaling Relationships. Integrative and Comparative Biology, 2017, 57, 1322-1333.	0.9	7
124	Allometry, Scaling, and Ontogeny of Formâ€”An Introduction to the Symposium. Integrative and Comparative Biology, 2019, 59, 1275-1280.	0.9	6
125	Color pattern specific proteins in black scales in developing wings ofPrecis coenia HÃ¼bner (Nymphalidae, Lepidoptera). Roux's Archives of Developmental Biology, 1990, 199, 289-294.	1.2	5
126	Developmental Phenotypic Landscapes. Evolutionary Biology, 2008, 35, 100-103.	0.5	5

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127	Environment and Genetic Accommodation. Biological Theory, 2008, 3, 204-212.	0.8	5
128	Autoreceptor control of serotonin dynamics. BMC Neuroscience, 2020, 21, 40.	0.8	5
129	The roles of growth regulation and appendage patterning genes in the morphogenesis of treehopper pronota. Proceedings of the Royal Society B: Biological Sciences, 2022, 289, .	1.2	5
130	A Day in the Life of Cell Metabolism. Biological Theory, 2007, 2, 124-127.	0.8	4
131	Larval Development: Making Ants into Soldiers. Current Biology, 2019, 29, R32-R34.	1.8	4
132	Regulation of phenotypic plasticity from the perspective of evolutionary developmental biology. , 2020, , 403-442.		4
133	The genetic control paradigm in biology: What we say, and what we are entitled to mean. Progress in Biophysics and Molecular Biology, 2022, 169-170, 89-93.	1.4	4
134	Spiracular fluttering increases oxygen uptake. PLoS ONE, 2020, 15, e0232450.	1.1	3
135	Voltammetric Approach for Characterizing the Biophysical and Chemical Functionality of Human Induced Pluripotent Stem Cell-Derived Serotonin Neurons. Analytical Chemistry, 2022, 94, 8847-8856.	3.2	3
136	One-carbon metabolism during the menstrual cycle and pregnancy. PLoS Computational Biology, 2021, 17, e1009708.	1.5	2
137	Evaluating old truths: Final adult size in holometabolous insects is set by the end of larval development. Journal of Experimental Zoology Part B: Molecular and Developmental Evolution, 2023, 340, 270-276.	0.6	2
138	Mathematical modeling of perifusion cell culture experiments on GnRH signaling. Mathematical Biosciences, 2016, 276, 121-132.	0.9	1
139	The multistep morphing of beetle horns. Science, 2019, 366, 946-947.	6.0	1
140	Mathematical Models of Neuromodulation and Implications for Neurology and Psychiatry. Springer Series in Bio-/neuroinformatics, 2017, , 191-225.	0.1	1
141	The development of shape. Modular control of growth in the lepidopteran forewing. Journal of Experimental Zoology Part B: Molecular and Developmental Evolution, 2022, 338, 170-180.	0.6	1
142	Mathematical model gives insights into vitamin B6 and kynurenine metabolism. FASEB Journal, 2012, 26, 1020.5.	0.2	0
143	Metabolic Networks, Modeling. , 2015, , 895-903.		0
144	Spiracular fluttering decouples oxygen uptake and water loss: a stochastic PDE model of respiratory water loss in insects. Journal of Mathematical Biology, 2022, 84, 40.	0.8	0