

Natal A W Van Riel

List of Publications by Year in descending order

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113
papers

2,953
citations

201674

27
h-index

182427

51
g-index

117
all docs

117
docs citations

117
times ranked

4084
citing authors

#	ARTICLE	IF	CITATIONS
1	An interlaboratory comparison of physiological and genetic properties of four <i>Saccharomyces cerevisiae</i> strains. <i>Enzyme and Microbial Technology</i> , 2000, 26, 706-714.	3.2	488
2	Dynamic modelling and analysis of biochemical networks: mechanism-based models and model-based experiments. <i>Briefings in Bioinformatics</i> , 2006, 7, 364-374.	6.5	220
3	The role of ammonia metabolism in nitrogen catabolite repression in <i>Saccharomyces cerevisiae</i> . <i>FEMS Microbiology Reviews</i> , 2000, 24, 67-83.	8.6	187
4	Parameter uncertainty in biochemical models described by ordinary differential equations. <i>Mathematical Biosciences</i> , 2013, 246, 305-314.	1.9	153
5	A Bayesian approach to targeted experiment design. <i>Bioinformatics</i> , 2012, 28, 1136-1142.	4.1	79
6	Mathematical modeling of vascular endothelial layer maintenance: the role of endothelial cell division, progenitor cell homing, and telomere shortening. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2004, 287, H2651-H2658.	3.2	74
7	A genome-scale metabolic network reconstruction of tomato (<i>Solanum lycopersicum</i> L.) and its application to photorespiratory metabolism. <i>Plant Journal</i> , 2016, 85, 289-304.	5.7	66
8	The role of ammonia metabolism in nitrogen catabolite repression in <i>Saccharomyces cerevisiae</i> . <i>FEMS Microbiology Reviews</i> , 2000, 24, 67-83.	8.6	65
9	The influence of temporal resolution in determining pharmacokinetic parameters from DCE-MRI data. <i>Magnetic Resonance in Medicine</i> , 2010, 63, 811-816.	3.0	63
10	An integrated strategy for prediction uncertainty analysis. <i>Bioinformatics</i> , 2012, 28, 1130-1135.	4.1	59
11	Poly(ADP-ribose) polymerase regulates myocardial calcium handling in doxorubicin-induced heart failure. <i>Biochemical Pharmacology</i> , 2005, 69, 725-732.	4.4	56
12	Intra-voxel heterogeneity influences the dose prescription for dose-painting with radiotherapy: a modelling study. <i>Physics in Medicine and Biology</i> , 2009, 54, 2179-2196.	3.0	55
13	On the identifiability of pharmacokinetic parameters in dynamic contrast-enhanced imaging. <i>Magnetic Resonance in Medicine</i> , 2007, 58, 425-429.	3.0	53
14	Mathematical modeling confirms the length-dependency of telomere shortening. <i>Mechanisms of Ageing and Development</i> , 2004, 125, 437-444.	4.6	52
15	Leukocytes of exceptionally old persons display ultra-short telomeres. <i>American Journal of Physiology - Regulatory Integrative and Comparative Physiology</i> , 2007, 293, R2210-R2217.	1.8	52
16	Quantifying the Composition of Human Skin for Glucose Sensor Development. <i>Journal of Diabetes Science and Technology</i> , 2010, 4, 1032-1040.	2.2	52
17	Visible Blue Light Therapy: Molecular Mechanisms and Therapeutic Opportunities. <i>Current Medicinal Chemistry</i> , 2019, 25, 5564-5577.	2.4	50
18	Magnitude and control of mitochondrial sensitivity to ADP. <i>American Journal of Physiology - Endocrinology and Metabolism</i> , 2009, 297, E774-E784.	3.5	41

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19	Altered calcium handling is an early sign of streptozotocin-induced diabetic cardiomyopathy. <i>International Journal of Molecular Medicine</i> , 2006, 17, 1035-43.	4.0	40
20	System identification theory in pharmacokinetic modeling of dynamic contrast-enhanced MRI: Influence of contrast injection. <i>Magnetic Resonance in Medicine</i> , 2008, 59, 1111-1119.	3.0	39
21	Parameter estimation in models combining signal transduction and metabolic pathways: the dependent input approach. <i>IET Systems Biology</i> , 2006, 153, 263.	2.0	36
22	Altered Energetics of Exercise Explain Risk of Rhabdomyolysis in Very Long-Chain Acyl-CoA Dehydrogenase Deficiency. <i>PLoS ONE</i> , 2016, 11, e0147818.	2.5	35
23	Flux Balance Analysis of Plant Metabolism: The Effect of Biomass Composition and Model Structure on Model Predictions. <i>Frontiers in Plant Science</i> , 2016, 7, 537.	3.6	32
24	Optimal experiment design for model selection in biochemical networks. <i>BMC Systems Biology</i> , 2014, 8, 20.	3.0	31
25	Modeling Glucose and Water Dynamics in Human Skin. <i>Diabetes Technology and Therapeutics</i> , 2008, 10, 283-293.	4.4	30
26	Reliability of pharmacokinetic parameters: Small vs. medium-sized contrast agents. <i>Magnetic Resonance in Medicine</i> , 2009, 62, 779-787.	3.0	30
27	Methodologies for Quantitative Systems Pharmacology (QSP) Models: Design and Estimation. <i>CPT: Pharmacometrics and Systems Pharmacology</i> , 2017, 6, 496-498.	2.5	29
28	A Structured, Minimal parameter Model of the Central Nitrogen Metabolism in <i>Saccharomyces cerevisiae</i> : the Prediction of the Behaviour of Mutants. <i>Journal of Theoretical Biology</i> , 1998, 191, 397-414.	1.7	28
29	Parameter Trajectory Analysis to Identify Treatment Effects of Pharmacological Interventions. <i>PLoS Computational Biology</i> , 2013, 9, e1003166.	3.2	27
30	Prediction of Muscle Energy States at Low Metabolic Rates Requires Feedback Control of Mitochondrial Respiratory Chain Activity by Inorganic Phosphate. <i>PLoS ONE</i> , 2012, 7, e34118.	2.5	26
31	The glutamate synthase (GOGAT) of plays an important role in central nitrogen metabolism. <i>FEMS Yeast Research</i> , 2001, 1, 169-175.	2.3	25
32	Silencing of glycolysis in muscle: experimental observation and numerical analysis. <i>Experimental Physiology</i> , 2010, 95, 380-397.	2.0	25
33	Integration of the metabolic and cardiovascular effects of exercise. <i>Essays in Biochemistry</i> , 2006, 42, 193-210.	4.7	25
34	The use of a reference tissue arterial input function with low-temporal-resolution DCE-MRI data. <i>Physics in Medicine and Biology</i> , 2010, 55, 4871-4883.	3.0	24
35	Model-based analysis of postprandial glycemic response dynamics for different types of food. <i>Clinical Nutrition Experimental</i> , 2018, 19, 32-45.	2.0	23
36	β -Adrenergic activation reveals impaired cardiac calcium handling at early stage of diabetes. <i>Life Sciences</i> , 2005, 76, 1083-1098.	4.3	22

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37	Systems biology from micro-organisms to human metabolic diseases: the role of detailed kinetic models. <i>Biochemical Society Transactions</i> , 2010, 38, 1294-1301.	3.4	22
38	Parameter adaptations during phenotype transitions in progressive diseases. <i>BMC Systems Biology</i> , 2011, 5, 174.	3.0	22
39	Metabolic Modeling of <i>Saccharomyces cerevisiae</i> Using the Optimal Control of Homeostasis: A Cybernetic Model Definition. <i>Metabolic Engineering</i> , 2000, 2, 14-33.	7.0	21
40	Requirements for multi-level systems pharmacology models to reach end-usage: the case of type 2 diabetes. <i>Interface Focus</i> , 2016, 6, 20150075.	3.0	21
41	The Impact of Amino Acids on Postprandial Glucose and Insulin Kinetics in Humans: A Quantitative Overview. <i>Nutrients</i> , 2020, 12, 3211.	4.1	20
42	Characterization of disease-specific cellular abundance profiles of chronic inflammatory skin conditions from deconvolution of biopsy samples. <i>BMC Medical Genomics</i> , 2019, 12, 121.	1.5	19
43	The glutamate synthase (GOGAT) of <i>Saccharomyces cerevisiae</i> plays an important role in central nitrogen metabolism. <i>FEMS Yeast Research</i> , 2001, 1, 169-175.	2.3	18
44	A systems biology approach reveals the physiological origin of hepatic steatosis induced by liver X receptor activation. <i>FASEB Journal</i> , 2015, 29, 1153-1164.	0.5	18
45	In Silico Analysis Identifies Intestinal Transit as a Key Determinant of Systemic Bile Acid Metabolism. <i>Frontiers in Physiology</i> , 2018, 9, 631.	2.8	18
46	Improved quantification of muscle insulin sensitivity using oral glucose tolerance test data: the MISI Calculator. <i>Scientific Reports</i> , 2019, 9, 9388.	3.3	18
47	Physical Activity and Nutrition Influences In ageing (PANINI): consortium mission statement. <i>Aging Clinical and Experimental Research</i> , 2018, 30, 685-692.	2.9	17
48	Dynamic Optimal Control of Homeostasis: An Integrative System Approach for Modeling of the Central Nitrogen Metabolism in <i>Saccharomyces cerevisiae</i> . <i>Metabolic Engineering</i> , 2000, 2, 49-68.	7.0	16
49	Altered bile acid kinetics contribute to postprandial hypoglycaemia after Roux-en-Y gastric bypass surgery. <i>International Journal of Obesity</i> , 2021, 45, 619-630.	3.4	16
50	A Computational Model for the Analysis of Lipoprotein Distributions in the Mouse: Translating FPLC Profiles to Lipoprotein Metabolism. <i>PLoS Computational Biology</i> , 2014, 10, e1003579.	3.2	15
51	Model-Based Quantification of the Systemic Interplay between Glucose and Fatty Acids in the Postprandial State. <i>PLoS ONE</i> , 2015, 10, e0135665.	2.5	15
52	A Physiology-Based Model Describing Heterogeneity in Glucose Metabolism. <i>Journal of Diabetes Science and Technology</i> , 2015, 9, 282-292.	2.2	15
53	Altered calcium handling is an early sign of streptozotocin-induced diabetic cardiomyopathy. <i>International Journal of Molecular Medicine</i> , 2006, 17, 1035.	4.0	14
54	Computational model of excitable cell indicates ATP free energy dynamics in response to calcium oscillations are undamped by cytosolic ATP buffers. <i>IET Systems Biology</i> , 2006, 153, 405.	2.0	12

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55	In vivo and in silico dynamics of the development of Metabolic Syndrome. PLoS Computational Biology, 2018, 14, e1006145.	3.2	12
56	Computational evidence for protein-mediated fatty acid transport across the sarcolemma. Biochemical Journal, 2006, 393, 669-678.	3.7	11
57	Effects of low-stearate palm oil and high-stearate lard high-fat diets on rat liver lipid metabolism and glucose tolerance. Nutrition and Metabolism, 2015, 12, 57.	3.0	11
58	A computational model of postprandial adipose tissue lipid metabolism derived using human arteriovenous stable isotope tracer data. PLoS Computational Biology, 2019, 15, e1007400.	3.2	11
59	An In Vivo Magnetic Resonance Spectroscopy Study of the Effects of Caloric and Non-Caloric Sweeteners on Liver Lipid Metabolism in Rats. Nutrients, 2017, 9, 476.	4.1	10
60	A Distance-Based Framework for the Characterization of Metabolic Heterogeneity in Large Sets of Genome-Scale Metabolic Models. Patterns, 2020, 1, 100080.	5.9	10
61	Intronic variant screening with targeted next-generation sequencing reveals first pseudoexon in LDLR in familial hypercholesterolemia. Atherosclerosis, 2021, 321, 14-20.	0.8	10
62	Left atrial reservoir strain as a predictor of cardiac outcome in patients with heart failure: the HaFaC cohort study. BMC Cardiovascular Disorders, 2022, 22, 104.	1.7	10
63	Computational modelling identifies the impact of subtle anatomical variations between amphibian and mammalian skeletal muscle on spatiotemporal calcium dynamics. IET Systems Biology, 2008, 2, 411-422.	1.5	8
64	Computational Modeling of Mitochondrial Energy Transduction. Critical Reviews in Biomedical Engineering, 2011, 39, 363-377.	0.9	8
65	Muscle-Type Specific Autophosphorylation of CaMKII Isoforms after Paced Contractions. BioMed Research International, 2014, 2014, 1-20.	1.9	8
66	Dietary nitrate does not reduce oxygen cost of exercise or improve muscle mitochondrial function in patients with mitochondrial myopathy. American Journal of Physiology - Regulatory Integrative and Comparative Physiology, 2017, 312, R689-R701.	1.8	8
67	Identifying User Preferences for a Digital Educational Solution for Young Seniors With Diabetes. Diabetes Spectrum, 2017, 30, 182-187.	1.0	8
68	Deep Learning with Convolutional Neural Networks for Histopathology Image Analysis. Computational Biology, 2019, , 453-469.	0.2	8
69	Personalized computational model quantifies heterogeneity in postprandial responses to oral glucose challenge. PLoS Computational Biology, 2021, 17, e1008852.	3.2	8
70	Metabolic Modeling Combined With Machine Learning Integrates Longitudinal Data and Identifies the Origin of LXR-Induced Hepatic Steatosis. Frontiers in Bioengineering and Biotechnology, 2020, 8, 536957.	4.1	7
71	Kinetic Modeling of Saccharomyces cerevisiae Central Carbon Metabolism: Achievements, Limitations, and Opportunities. Metabolites, 2022, 12, 74.	2.9	7
72	pH dependencies of glycolytic enzymes of yeast under <i>in vivo</i> -like assay conditions. FEBS Journal, 2022, 289, 6021-6037.	4.7	7

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73	Applications of analysis of dynamic adaptations in parameter trajectories. <i>Interface Focus</i> , 2013, 3, 20120084.	3.0	6
74	Computational modelling of energy balance in individuals with Metabolic Syndrome. <i>BMC Systems Biology</i> , 2019, 13, 24.	3.0	6
75	Model-based data analysis of individual human postprandial plasma bile acid responses indicates a major role for the gallbladder and intestine. <i>Physiological Reports</i> , 2020, 8, e14358.	1.7	6
76	Aging and Allostasis: Using Bayesian Network Analytics to Explore and Evaluate Allostatic Markers in the Context of Aging. <i>Diagnostics</i> , 2021, 11, 157.	2.6	6
77	Concept Development of the Eindhoven Diabetes Education Simulator Project. <i>Games for Health Journal</i> , 2016, 5, 120-127.	2.0	5
78	Metabolic Health Index (MHI): Assessment of Comorbidity in Bariatric Patients Based on Biomarkers. <i>Obesity Surgery</i> , 2020, 30, 714-724.	2.1	5
79	Fecal microbiota transplantation as tool to study the interrelation between microbiota composition and miRNA expression. <i>Microbiological Research</i> , 2022, 257, 126972.	5.3	5
80	Mathematical modelling of the calcium-left ventricular pressure relationship in the intact diabetic rat heart. <i>Acta Physiologica</i> , 2008, 193, 205-217.	3.8	4
81	Domain intelligible models. <i>Methods</i> , 2018, 149, 69-73.	3.8	4
82	The cell factory needs a model of a factory. <i>Trends in Biotechnology</i> , 1999, 17, 383-384.	9.3	3
83	In vivo heat shock preconditioning mitigates calcium overload during ischaemia/reperfusion in the isolated, perfused rat heart. <i>Pflugers Archiv European Journal of Physiology</i> , 2005, 449, 518-525.	2.8	3
84	HYBRID IDENTIFICATION OF NONLINEAR BIOCHEMICAL PROCESSES. <i>IFAC Postprint Volumes IPPV / International Federation of Automatic Control</i> , 2006, 39, 350-355.	0.4	3
85	A Dynamic Model for Prediction of Psoriasis Management by Blue Light Irradiation. <i>Frontiers in Physiology</i> , 2017, 8, 28.	2.8	3
86	Use of deep learning methods to translate drug-induced gene expression changes from rat to human primary hepatocytes. <i>PLoS ONE</i> , 2020, 15, e0236392.	2.5	3
87	Detecting patients with PMI post-CABG based on cardiac troponin-T profiles: A latent class mixed modeling approach. <i>Clinica Chimica Acta</i> , 2020, 504, 23-29.	1.1	3
88	Qualitative Analysis of Nonlinear Biochemical Networks with Piecewise-Affine Functions. <i>Lecture Notes in Computer Science</i> , 2007, , 727-730.	1.3	2
89	A Markov model for inferring event types on diabetes patients data. <i>Healthcare Analytics</i> , 2022, 2, 100024.	4.3	2
90	Computational analysis of calcium transients in the intact rat heart; model identification. , 0, , .		1

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91	System identification to analyse changed kinetics of SERCA in intact rat heart. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2003, 36, 123-128.	0.4	1
92	Identification of a switching model of calcium cycling in isolated rat hearts. , 2004, 2004, 841-4.		1
93	ONE-STEP AHEAD PREDICTION FOR PARAMETER ESTIMATION IN PHYSIOLOGICAL HYBRID MODELS. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2005, 38, 43-48.	0.4	1
94	<i>In Silico</i> Clinical Studies on the Efficacy of Blue Light for Treating Psoriasis in Virtual Patients. Systems Medicine (New Rochelle, N Y), 2019, 2, 10-18.	1.1	1
95	Simulating Metabolic Flexibility in Low Energy Expenditure Conditions Using Genome-Scale Metabolic Models. Metabolites, 2021, 11, 695.	2.9	1
96	OUP accepted manuscript. journal of applied laboratory medicine, The, 2022, , .	1.3	1
97	The Physical Activity and Nutritional Influences in Ageing (PANINI) Toolkit: A Standardized Approach towards Physical Activity and Nutritional Assessment of Older Adults. Healthcare (Switzerland), 2022, 10, 1017.	2.0	1
98	Computational modeling of cardiac fatty acid uptake and utilization. Advances in Molecular and Cell Biology, 2003, 33, 173-221.	0.1	0
99	Identifiability analysis of the standard pharmacokinetic models in DCE MR imaging of tumours. , 2004, 2004, 1040-3.		0
100	Prediction of Twitch and High Frequency Local Calcium Dynamics in Mouse EDL Fibers at 15-35Å°C. Biophysical Journal, 2009, 96, 233a.	0.5	0
101	PS12 - 60. The effects of skin composition on glucose sensing. Nederlands Tijdschrift Voor Diabetologie, 2011, 9, 132-132.	0.0	0
102	PS5 - 27. In vivo magnetic resonance spectroscopy of lipid handling in steatotic rat liver. Nederlands Tijdschrift Voor Diabetologie, 2012, 10, 116-116.	0.0	0
103	PS9 - 44. Unravelling the kinetics of insulin signalling in skeletal muscle cells. Nederlands Tijdschrift Voor Diabetologie, 2012, 10, 129-129.	0.0	0
104	PS15 - 1. Incorporating different food products and composite meals in the Eindhoven Diabetes Education Simulator. Nederlands Tijdschrift Voor Diabetologie, 2013, 11, 187-188.	0.0	0
105	Identification of sources and functions of metabolic capacitance in the ATP metabolic network in muscle. FASEB Journal, 2006, 20, A410.	0.5	0
106	Systems biology of the mammalian Unfolded Protein Response. FASEB Journal, 2008, 22, 1021.1.	0.5	0
107	Computational modelling identifies impact of subtle anatomical variation on skeletal muscle local calcium dynamics. FASEB Journal, 2008, 22, 756.11.	0.5	0
108	Computational modeling indicates anaerobic glycogenolytic ATP synthesis contributes little to quadriceps energy balance during exhaustive bicycling exercise. FASEB Journal, 2008, 22, 756.1.	0.5	0

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109	In vitro and in silico experiments to identify the influence of temperature on skeletal muscle calcium and force dynamics. FASEB Journal, 2008, 22, 756.5.	0.5	0
110	Prediction of murine liver kinetics from plasma lipoprotein distributions. FASEB Journal, 2010, 24, 1065.11.	0.5	0
111	Relating muscle phenotype to in vivo mitochondrial function. FASEB Journal, 2010, 24, 1045.10.	0.5	0
112	Regulation of Force Dynamics in Fast Twitch Muscle. FASEB Journal, 2010, 24, 801.1.	0.5	0
113	In vivo magnetic resonance spectroscopy of lipid handling in steatotic rat liver. FASEB Journal, 2012, 26, 242.7.	0.5	0