David R Walt

List of Publications by Year
in descending order

140	9,699	53794 45	42399 92
papers	citations	h-index	g-index

159	159	159	11758
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Single-molecule enzyme-linked immunosorbent assay detects serum proteins at subfemtomolar concentrations. Nature Biotechnology, 2010, 28, 595-599.	17.5	1,557
2	How many human proteoforms are there?. Nature Chemical Biology, 2018, 14, 206-214.	8.0	580
3	A chemical-detecting system based on a cross-reactive optical sensor array. Nature, 1996, 382, 697-700.	27.8	406
4	Advancing the speed, sensitivity and accuracy of biomolecular detection using multi-length-scale engineering. Nature Nanotechnology, 2014, 9, 969-980.	31.5	349
5	Randomly Ordered Addressable High-Density Optical Sensor Arrays. Analytical Chemistry, 1998, 70, 1242-1248.	6.5	318
6	Screening unlabeled DNA targets with randomly ordered fiber-optic gene arrays. Nature Biotechnology, 2000, 18, 91-94.	17.5	273
7	Nanosphereâ"Microsphere Assembly:Â Methods for Coreâ"Shell Materials Preparation. Chemistry of Materials, 2001, 13, 2210-2216.	6.7	232
8	Highly Sensitive and Multiplexed Protein Measurements. Chemical Reviews, 2019, 119, 293-321.	47.7	187
9	Optical Methods for Single Molecule Detection and Analysis. Analytical Chemistry, 2013, 85, 1258-1263.	6.5	185
10	Convergent, Self-Encoded Bead Sensor Arrays in the Design of an Artificial Nose. Analytical Chemistry, 1999, 71, 2192-2198.	6.5	179
11	Digital Concentration Readout of Single Enzyme Molecules Using Femtoliter Arrays and Poisson Statistics. Nano Letters, 2006, 6, 520-523.	9.1	177
12	Multisystem inflammatory syndrome in children is driven by zonulin-dependent loss of gut mucosal barrier. Journal of Clinical Investigation, 2021, 131, .	8.2	170
13	Ordered Nanowell Arrays. Chemistry of Materials, 1996, 8, 2832-2835.	6.7	146
14	Circulating Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Vaccine Antigen Detected in the Plasma of mRNA-1273 Vaccine Recipients. Clinical Infectious Diseases, 2022, 74, 715-718.	5.8	141
15	Single Molecule Protein Detection with Attomolar Sensitivity Using Droplet Digital Enzyme-Linked Immunosorbent Assay. ACS Nano, 2020, 14, 9491-9501.	14.6	138
16	Ultra-Sensitive Serial Profiling of SARS-CoV-2 Antigens and Antibodies in Plasma to Understand Disease Progression in COVID-19 Patients with Severe Disease. Clinical Chemistry, 2020, 66, 1562-1572.	3.2	134
17	Mechanistic Aspects of Horseradish Peroxidase Elucidated through Single-Molecule Studies. Journal of the American Chemical Society, 2009, 131, 6277-6282.	13.7	129
18	Finding useful biomarkers for Parkinsonâ€™s disease. Science Translational Medicine, 2018, 10, .	12.4	125

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19	Distinct and Long-Lived Activity States of Single Enzyme Molecules. Journal of the American Chemical Society, 2008, 130, 5349-5353.	13.7	119
20	L1CAM is not associated with extracellular vesicles in human cerebrospinal fluid or plasma. Nature Methods, 2021, 18, 631-634.	19.0	118
21	Stochastic inhibitor release and binding from single-enzyme molecules. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 17680-17685.	7.1	115
22	CHEMISTRY: Miniature Analytical Methods for Medical Diagnostics. Science, 2005, 308, 217-219.	12.6	114
23	Ultrasensitive high-resolution profiling of early seroconversion in patients with COVID-19. Nature Biomedical Engineering, 2020, 4, 1180-1187.	22.5	110
24	Competitive Immunoassays for the Detection of Small Molecules Using Single Molecule Arrays. Journal of the American Chemical Society, 2018, 140, 18132-18139.	13.7	102
25	Single-Molecule Arrays for Protein and Nucleic Acid Analysis. Annual Review of Analytical Chemistry, 2017, 10, 345-363.	5.4	101
26	A fibre-optic chemical sensor with discrete sensing sites. Nature, 1991, 353, 338-340.	27.8	98
27	Fibre optic microarrays. Chemical Society Reviews, 2010, 39, 38-50.	38.1	97
28	Digital direct detection of microRNAs using single molecule arrays. Nucleic Acids Research, 2017, 45, e137-e137.	14.5	91
29	Digital Readout of Target Binding with Attomole Detection Limits via Enzyme Amplification in Femtoliter Arrays. Journal of the American Chemical Society, 2006, 128, 6286-6287.	13.7	90
30	Ultrasensitive Detection of Attomolar Protein Concentrations by Dropcast Single Molecule Assays. Journal of the American Chemical Society, 2020, 142, 12314-12323.	13.7	90
31	Donor Clonal Hematopoiesis and Recipient Outcomes After Transplantation. Journal of Clinical Oncology, 2022, 40, 189-201.	1.6	79
32	Microsphere-Based Rolling Circle Amplification Microarray for the Detection of DNA and Proteins in a Single Assay. Analytical Chemistry, 2009, 81, 5777-5782.	6.5	78
33	Plasma IL-6 changes correlate to PD-1 inhibitor responses in NSCLC. , 2020, 8, e000678.		78
34	Direct Detection of Bacterial Genomic DNA at Sub-Femtomolar Concentrations Using Single Molecule Arrays. Analytical Chemistry, 2013, 85, 1932-1939.	6.5	73
35	Analytical Chemistry on the Femtoliter Scale. Angewandte Chemie - International Edition, 2010, 49, 3880-3895.	13.8	72
36	Single molecule array (Simoa) assay with optimal antibody pairs for cytokine detection in human serum samples. Analyst, The, 2015, 140, 6277-6282.	3.5	69

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37	Can mHealth Technology Help Mitigate the Effects of the COVID-19 Pandemic?. IEEE Open Journal of Engineering in Medicine and Biology, 2020, 1, 243-248.	2.3	69
38	Detection of Single-Molecule DNA Hybridization Using Enzymatic Amplification in an Array of Femtoliter-Sized Reaction Vessels. Journal of the American Chemical Society, 2008, 130, 12622-12623.	13.7	67
39	A Combinatorial Approach To Discover New Chelators for Optical Metal Ion Sensing. Analytical Chemistry, 2000, 72, 5250-5257.	6.5	65
40	An olfactory neuronal network for vapor recognition in an artificial nose. Biological Cybernetics, 1998, 78, 245-251.	1.3	58
41	CMOS Microelectrode Array for Electrochemical Lab-on-a-Chip Applications. IEEE Sensors Journal, 2009, 9, 609-615.	4.7	58
42	Synthesis of gold-poly(methyl methacrylate) core-shell nanoparticles by surface-confined atom transfer radical polymerization at elevated temperature. Journal of Polymer Science Part A, 2005, 43, 3631-3642.	2.3	55
43	Lessons learned from the introduction of personalized genotyping into a medical school curriculum. Genetics in Medicine, 2011, 13, 63-66.	2.4	54
44	An automated integrated platform for rapid and sensitive multiplexed protein profiling using human saliva samples. Lab on A Chip, 2014, 14, 1087.	6.0	54
45	An imaging fiber-based optical tweezer array for microparticle array assembly. Applied Physics Letters, 2004, 84, 4289-4291.	3.3	53
46	Framework for rapid comparison of extracellular vesicle isolation methods. ELife, 2021, 10, .	6.0	51
47	High-Throughput, High-Multiplex Digital Protein Detection with Attomolar Sensitivity. ACS Nano, 2022, 16, 1025-1035.	14.6	51
48	Disease Detection by Ultrasensitive Quantification of Microdosed Synthetic Urinary Biomarkers. Journal of the American Chemical Society, 2014, 136, 13709-13714.	13.7	50
49	Parkinson's disease biomarkers: perspective from the NINDS Parkinson's Disease Biomarkers Program. Biomarkers in Medicine, 2017, 11, 451-473.	1.4	49
50	Imaging optical sensor arrays. Current Opinion in Chemical Biology, 2002, 6, 689-695.	6.1	46
51	An Autonomous Sensor and Telemetry System for Low-Level pCO2Measurements in Seawater. Analytical Chemistry, 1999, 71, 154-161.	6.5	45
52	Ultrasensitive Detection of Ricin Toxin in Multiple Sample Matrixes Using Single-Domain Antibodies. Analytical Chemistry, 2015, 87, 6570-6577.	6.5	45
53	Simultaneous detection of small molecules, proteins and microRNAs using single molecule arrays. Chemical Science, 2020, 11, 7896-7903.	7.4	45
54	A Fiber-Optic Carbon Dioxide Sensor for Fermentation Monitoring. Nature Biotechnology, 1995, 13, 597-601.	17.5	44

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55	Opticalâ€fiber bundles. FEBS Journal, 2007, 274, 5462-5470.	4.7	44
56	Fiber-optic array using molecularly imprinted microspheres for antibiotic analysis. Chemical Science, 2015, 6, 3139-3147.	7.4	44
57	A rapid triage test for active pulmonary tuberculosis in adult patients with persistent cough. Science Translational Medicine, 2019, 11, .	12.4	44
58	Toward a near-field optical array. Review of Scientific Instruments, 1997, 68, 1357-1359.	1.3	43
59	Ultra-sensitive protein detection via Single Molecule Arrays towards early stage cancer monitoring. Scientific Reports, 2015, 5, 11034.	3.3	43
60	Duplexed sandwich immunoassays on a fiber-optic microarray. Analytica Chimica Acta, 2006, 564, 34-39.	5.4	41
61	Oil-sealed femtoliter fiber-optic arrays for single molecule analysis. Lab on A Chip, 2012, 12, 2229.	6.0	41
62	Microsensor Arrays for Saliva Diagnostics. Annals of the New York Academy of Sciences, 2007, 1098, 389-400.	3.8	39
63	Protein Counting in Single Cancer Cells. Analytical Chemistry, 2016, 88, 2952-2957.	6.5	37
64	Singleâ€Molecule Analysis Determines Isozymes of Human Alkaline Phosphatase in Serum. Angewandte Chemie - International Edition, 2020, 59, 18010-18015.	13.8	36
65	Salivary Inflammatory Mediator Profiling and Correlation to Clinical Disease Markers in Asthma. PLoS ONE, 2014, 9, e84449.	2.5	35
66	Long-Term Measurements of Human Inflammatory Cytokines Reveal Complex Baseline Variations between Individuals. American Journal of Pathology, 2017, 187, 2620-2626.	3.8	34
67	Simplified Digital Enzyme-Linked Immunosorbent Assay Using Tyramide Signal Amplification and Fibrin Hydrogels. ACS Sensors, 2020, 5, 3037-3042.	7.8	34
68	Ultrasensitive Measurement of Both SARS-CoV-2 RNA and Antibodies from Saliva. Analytical Chemistry, 2021, 93, 5365-5370.	6.5	34
69	Protective heterologous TÂcell immunity in COVID-19 induced by the trivalent MMR and Tdap vaccine antigens. Med, 2021, 2, 1050-1071.e7.	4.4	33
70	Ubiquitous Sensors: When Will They Be Here?. ACS Nano, 2009, 3, 2876-2880.	14.6	32
71	Ectopic Lymphoid Follicle Formation and Human Seasonal Influenza Vaccination Responses Recapitulated in an Organâ€onâ€aâ€Chip. Advanced Science, 2022, 9, e2103241.	11.2	32
72	Protein measurements in microwells. Lab on A Chip, 2014, 14, 3195-3200.	6.0	31

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73	Incorporation of Slow Off-Rate Modified Aptamers Reagents in Single Molecule Array Assays for Cytokine Detection with Ultrahigh Sensitivity. Analytical Chemistry, 2016, 88, 8385-8389.	6.5	31
74	Fiber-optic Sensor for Continuous Monitoring of Fermentation pH. Nature Biotechnology, 1993, 11, 726-729.	17.5	30
75	Reverse Transcriptase Inhibition Disrupts Repeat Element Life Cycle in Colorectal Cancer. Cancer Discovery, 2022, 12, 1462-1481.	9.4	30
76	Systems Biology Methods Applied to Blood and Tissue for a Comprehensive Analysis of Immune Response to Hepatitis B Vaccine in Adults. Frontiers in Immunology, 2020, 11, 580373.	4.8	28
77	Ultrasensitive Detection of Enzymatic Activity Using Single Molecule Arrays. Journal of the American Chemical Society, 2020, 142, 15098-15106.	13.7	27
78	The American lobster genome reveals insights on longevity, neural, and immune adaptations. Science Advances, 2021, 7, .	10.3	27
79	Multiplexed Salivary Protein Profiling for Patients with Respiratory Diseases Using Fiber-Optic Bundles and Fluorescent Antibody-Based Microarrays. Analytical Chemistry, 2013, 85, 9272-9280.	6.5	26
80	Detection of amyloid Î² oligomers toward early diagnosis of Alzheimer's disease. Analytical Biochemistry, 2019, 566, 40-45.	2.4	25
81	Using Antigenâ€“antibody Binding Kinetic Parameters to Understand Single-Molecule Array Immunoassay Performance. Analytical Chemistry, 2016, 88, 11335-11339.	6.5	23
82	Single-Molecule Mechanistic Study of Enzyme Hysteresis. ACS Central Science, 2019, 5, 1691-1698.	11.3	23
83	Single-molecule measurements in microwells for clinical applications. Critical Reviews in Clinical Laboratory Sciences, 2020, 57, 270-290.	6.1	23
84	Bead-based optical fiber arrays for artificial olfaction. Current Opinion in Chemical Biology, 2010, 14, 767-770.	6.1	22
85	Evaluation of Antibody Biotinylation Approaches for Enhanced Sensitivity of Single Molecule Array (Simoa) Immunoassays. Bioconjugate Chemistry, 2018, 29, 3452-3458.	3.6	22
86	Genome-Wide SNP-Genotyping Array to Study the Evolution of the Human Pathogen Vibrio vulnificus Biotype 3. PLoS ONE, 2014, 9, e114576.	2.5	22
87	Single-Molecule Arrays for Ultrasensitive Detection of Host Immune Response to Dengue Virus Infection. Journal of Clinical Microbiology, 2015, 53, 1722-1724.	3.9	21
88	Salivary Diagnostics Using a Portable Point-of-Service Platform: A Review. Clinical Therapeutics, 2015, 37, 498-504.	2.5	21
89	A SARSâ€CoVâ€2 Neutralization Assay Using Single Molecule Arrays. Angewandte Chemie - International Edition, 2021, 60, 25966-25972.	13.8	21
90	Evaluation of serological lateral flow assays for severe acute respiratory syndrome coronavirus-2. BMC Infectious Diseases, 2021, 21, 580.	2.9	20

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91	Activity of mRNA COVID-19 vaccines in patients with lymphoid malignancies. Blood Advances, 2021, 5, 3062-3065.	5.2	20
92	Personal microbiomes and next-generation sequencing for laboratory-based education. FEMS Microbiology Letters, 2016, 363, fnw266.	1.8	19
93	Correlations of Salivary Biomarkers with Clinical Assessments in Patients with Cystic Fibrosis. PLoS ONE, 2015, 10, e0135237.	2.5	18
94	Ultrasensitive Single-Molecule Enzyme Detection and Analysis Using a Polymer Microarray. Analytical Chemistry, 2018, 90, 3091-3098.	6.5	18
95	Impact of clinical sample handling and processing on ultra-low level measurements of plasma cytokines. Clinical Biochemistry, 2019, 65, 38-44.	1.9	18
96	Hypothermic Ex Situ Perfusion of Human Limbs With Acellular Solution for 24 Hours. Transplantation, 2020, 104, e260-e270.	1.0	18
97	SARS-CoV-2 mRNA Vaccines in Allogeneic Hematopoietic Stem Cell Transplant Recipients: Immunogenicity and Reactogenicity. Clinical Infectious Diseases, 2021, , .	5.8	18
98	Observing Single Enzyme Molecules Interconvert between Activity States upon Heating. PLoS ONE, 2014, 9, e86224.	2.5	17
99	New Views of Old Proteins: Clarifying the Enigmatic Proteome. Molecular and Cellular Proteomics, 2022, 21, 100254.	3.8	16
100	Fluorescence monitoring of the microenvironmental pH of highly charged polymers. Journal of Polymer Science Part A, 1997, 35, 2105-2110.	2.3	15
101	Zonulin Antagonist, Larazotide (AT1001), As an Adjuvant Treatment for Multisystem Inflammatory Syndrome in Children: A Case Series. , 2022, 10, e0641.		15
102	Bottom-up single-molecule strategy for understanding subunit function of tetrameric Î²-galactosidase. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 8346-8351.	7.1	14
103	Evaluation of Three Commercial and Two Non-Commercial Immunoassays for the Detection of Prior Infection to SARS-CoV-2. journal of applied laboratory medicine, The, 2021, 6, 1561-1570.	1.3	14
104	Sequential Protein Capture in Multiplex Single Molecule Arrays: A Strategy for Eliminating Assay Crossâ€Reactivity. Advanced Healthcare Materials, 2021, 10, e2001111.	7.6	13
105	Accumulation mechanism of indigo and indirubin in Polygonum tinctorium revealed by metabolite and transcriptome analysis. Industrial Crops and Products, 2019, 141, 111783.	5.2	11
106	Elucidating the relationship between substrate and inhibitor binding to the active sites of tetrameric Î²-galactosidase. Chemical Science, 2014, 5, 4467-4473.	7.4	10
107	Stoichiometry of the Î±-Complementation Reaction ofEscherichia coliÎ²-Galactosidase As Revealed through Single-Molecule Studies. Biochemistry, 2015, 54, 1583-1588.	2.5	10
108	Rapid and ultrasensitive detection of botulinum neurotoxin serotype A1 in human serum and urine using single-molecule array method. Forensic Toxicology, 2017, 35, 179-184.	2.4	10

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109	Single Molecule Arrays for ultra-sensitive detection of rat cytokines in serum. Journal of Immunological Methods, 2018, 452, 20-25.	1.4	10
110	A Modular Biomaterial Scaffoldâ€Based Vaccine Elicits Durable Adaptive Immunity to Subunit SARSâ€CoVâ€2 Antigens. Advanced Healthcare Materials, 2021, 10, e2101370.	7.6	10
111	Using Next-Generation Sequencing to Explore Genetics and Race in the High School Classroom. CBE Life Sciences Education, 2017, 16, ar22.	2.3	9
112	Fluorescent Excitation Transfer Immunoassay for the Determination of Spinosyn A in Water. Journal of Agricultural and Food Chemistry, 1999, 47, 2766-2770.	5.2	8
113	Synthesis and Biological Testing of Penicillins: An Investigative Approach to the Undergraduate Teaching Laboratory. Journal of Chemical Education, 2010, 87, 634-636.	2.3	8
114	High-Sensitivity Single Molecule Array Assays for Pathological Isoforms in Parkinsonâ€™s Disease. Clinical Chemistry, 2022, 68, 431-440.	3.2	8
115	Catalytic kinetics of single gold nanoparticles observed via optical microwell arrays. Nanotechnology, 2015, 26, 055704.	2.6	7
116	Development of a Rapid Salivary Proteomic Platform for Oral Feeding Readiness in the Preterm Newborn. Frontiers in Pediatrics, 2017, 5, 268.	1.9	7
117	Single-molecule studies reveal method for tuning the heterogeneous activity of alkaline phosphatase. Biophysical Journal, 2022, 121, 2027-2034.	0.5	6
118	Progress toward the determination of Sr2+ in highly basic solutions using imaging optical fiber sensor arrays. Journal of Materials Chemistry, 2005, 15, 4361.	6.7	5
119	A SARSâ€CoVâ€2 Neutralization Assay using Single Molecule Arrays. Angewandte Chemie, 0, , .	2.0	5
120	Clinical testing should be individualized, not based on populations. Journal of Clinical Investigation, 2019, 129, 3472-3473.	8.2	5
121	Single-Molecule Arrays for Ultrasensitive Detection of Blood-Based Biomarkers for Immunotherapy. Methods in Molecular Biology, 2020, 2055, 399-412.	0.9	5
122	Oxygen Sensing Properties of a New Ruthenium (II) Compound. Analytical Letters, 1997, 30, 2289-2299.	1.8	4
123	Multiplexed Fluorescent Microarray for Human Salivary Protein Analysis Using Polymer Microspheres and Fiber-optic Bundles. Journal of Visualized Experiments, 2013, , .	0.3	4
124	Protein Detection by Counting Molecules. Clinical Chemistry, 2019, 65, 809-810.	3.2	4
125	Singleâ€Molecule Enzymology for Diagnostics: Profiling Alkaline Phosphatase Activity in Clinical Samples. ChemBioChem, 2022, 23, .	2.6	4
126	Harmonization of Multiple SARS-CoV-2 Reference Materials Using the WHO IS (NIBSC 20/136): Results and Implications. Frontiers in Microbiology, 2022, 13, .	3.5	4

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127	pH-Dependent fluorescence and singlet energy transfer in water-soluble polymers containing eosin and phenol red chromophores. Journal of Fluorescence, 1992, 2, 231-235.	2.5	3
128	The Use of Optical-Imaging Fibers for the Fabrication of Array Sensors. ACS Symposium Series, 1998, , 273-289.	0.5	3
129	Cross-Reactive Optical Sensing Arrays. ACS Symposium Series, 2002, , 318-329.	0.5	3
130	Singleâ€Molecule Analysis Determines Isozymes of Human Alkaline Phosphatase in Serum. Angewandte Chemie, 2020, 132, 18166-18171.	2.0	3
131	Optical Immunosensors Using Controlled- Release Polymers. ACS Symposium Series, 1992, , 310-320.	0.5	2
132	Systematic Approach to Address Early Pandemic's Diagnostic Unmet Needs. Frontiers in Microbiology, 0, 13, .	3.5	2
133	Optical Electronic Noses. , 0, , 181-199.		1
134	Randomly-Ordered High-Density Fiber Optic Microsensor Array Sensors. ACS Symposium Series, 2002, , 129-148.	0.5	1
135	Single-Molecule Dwell-Time Analysis of Restriction Endonuclease-Mediated DNA Cleavage. Journal of Visualized Experiments, 2021, , .	0.3	1
136	Coronavirus antigens as targets of antibody responses. Clinics in Laboratory Medicine, 2021, 42, 97-109.	1.4	1
137	Fiber-Optic Sensors Based on Degradable Polymers. ACS Symposium Series, 1994, , 21-33.	0.5	0
138	Self-Regenerating Fiber-Optic Sensors. ACS Symposium Series, 1995, , 186-196.	0.5	0
139	Novel Colloidal Assembly Methods for the Preparation of Core-Shell Composite Materials. Materials Research Society Symposia Proceedings, 2000, 636, 9171.	0.1	0
140	Robust error correction in infofuses. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2012, 468, 361-377.	2.1	0