Matthew B Francis

List of Publications by Year
in descending order

135 papers	9,875 citations	34076 52 h-index	37183 96 g-index
149 all docs	149 docs citations	149 times ranked	8944 citing authors

#	Article	IF	Citations
1	Choosing an effective protein bioconjugation strategy. Nature Chemical Biology, 2011, 7, 876-884.	3.9	530
2	Dual-Surface Modification of the Tobacco Mosaic Virus. Journal of the American Chemical Society, 2005, 127, 3718-3723.	6.6	471
3	Self-Assembling Light-Harvesting Systems from Synthetically Modified Tobacco Mosaic Virus Coat Proteins. Journal of the American Chemical Society, 2007, 129, 3104-3109.	6.6	364
4	N-Terminal Protein Modification through a Biomimetic Transamination Reaction. Angewandte Chemie - International Edition, 2006, 45, 5307-5311.	7.2	335
5	Interior Surface Modification of Bacteriophage MS2. Journal of the American Chemical Society, 2004, 126, 3718-3719.	6.6	313
6	A Three-Component Mannich-Type Reaction for Selective Tyrosine Bioconjugation. Journal of the American Chemical Society, 2004, 126, 15942-15943.	6.6	309
7	Targeting the N terminus for site-selective protein modification. Nature Chemical Biology, 2017, 13, 697-705.	3.9	277
8	Tyrosine-Selective Protein Alkylation Using Ï€-Allylpalladium Complexes. Journal of the American Chemical Society, 2006, 128, 1080-1081.	6.6	270
9	Selective Tryptophan Modification with Rhodium Carbenoids in Aqueous Solution. Journal of the American Chemical Society, 2004, 126, 10256-10257.	6.6	265
10	One-step site-specific modification of native proteins with 2-pyridinecarboxyaldehydes. Nature Chemical Biology, 2015, 11, 326-331.	3.9	248
11	Impedance-Based Detection of Bacteria. Chemical Reviews, 2019, 119, 700-726.	23.0	217
12	Integrated microfluidic bioprocessor for single-cell gene expression analysis. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 20173-20178.	3.3	216
13	Viral Capsid DNA Aptamer Conjugates as Multivalent Cell-Targeting Vehicles. Journal of the American Chemical Society, 2009, 131, 11174-11178.	6.6	213
14	Sequence Programmable Peptoid Polymers for Diverse Materials Applications. Advanced Materials, 2015, 27, 5665-5691.	11.1	199
15	Dual-Surface Modified Virus Capsids for Targeted Delivery of Photodynamic Agents to Cancer Cells. ACS Nano, 2010, 4, 6014-6020.	7.3	194
16	Dual-Surface-Modified Bacteriophage MS2 as an Ideal Scaffold for a Viral Capsid-Based Drug Delivery System. Bioconjugate Chemistry, 2007, 18, 1140-1147.	1.8	184
17	Programmable Cell Adhesion Encoded by DNA Hybridization. Angewandte Chemie - International Edition, 2006, 45, 896-901.	7.2	165
18	High Relaxivity Gadolinium Hydroxypyridonateâ€"Viral Capsid Conjugates:â€‰ Nanosized MRI Contrast Agents¹. Journal of the American Chemical Society, 2008, 130, 2546-2552.	6.6	165

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19	Using Synthetically Modified Proteins to Make New Materials. Accounts of Chemical Research, 2011, 44, 774-783.	7.6	142
20	Direct Cell Surface Modification with DNA for the Capture of Primary Cells and the Investigation of Myotube Formation on Defined Patterns. Langmuir, 2009, 25, 6985-6991.	1.6	135
21	Genomeâ€Free Viral Capsids as Multivalent Carriers for Taxol Delivery. Angewandte Chemie - International Edition, 2009, 48, 9493-9497.	7.2	117
22	Optimization of a Biomimetic Transamination Reaction. Journal of the American Chemical Society, 2008, 130, 11762-11770.	6.6	116
23	Multivalent, High-Relaxivity MRI Contrast Agents Using Rigid Cysteine-Reactive Gadolinium Complexes. Journal of the American Chemical Society, 2011, 133, 14704-14709.	6.6	115
24	Oxidative Modification of Native Protein Residues Using Cerium(IV) Ammonium Nitrate. Journal of the American Chemical Society, 2011, 133, 16970-16976.	6.6	110
25	Osmolyte-Mediated Encapsulation of Proteins inside MS2 Viral Capsids. ACS Nano, 2012, 6, 8658-8664.	7.3	110
26	Oxidative coupling of peptides to a virus capsid containing unnatural amino acids. Chemical Communications, 2008, , 1205.	2.2	109
27	N-Terminal Modification of Proteins with o-Aminophenols. Journal of the American Chemical Society, 2014, 136, 9572-9579.	6.6	107
28	Site-Specific Protein Transamination Using N-Methylpyridinium-4-carboxaldehyde. Journal of the American Chemical Society, 2013, 135, 17223-17229.	6.6	106
29	Regioselective Labeling of Antibodies through N-Terminal Transamination. ACS Chemical Biology, 2007, 2, 247-251.	1.6	100
30	Impact of Assembly State on the Defect Tolerance of TMV-Based Light Harvesting Arrays. Journal of the American Chemical Society, 2010, 132, 6068-6074.	6.6	100
31	Nanoscale Protein Assemblies from a Circular Permutant of the Tobacco Mosaic Virus. Nano Letters, 2010, 10, 181-186.	4.5	93
32	Molecular Imaging of Cancer Cells Using a Bacteriophageâ€Based ¹²⁹Xe NMR Biosensor. Angewandte Chemie - International Edition, 2013, 52, 4849-4853.	7.2	93
33	Metallothionein-Cross-Linked Hydrogels for the Selective Removal of Heavy Metals from Water. Journal of the American Chemical Society, 2008, 130, 15820-15822.	6.6	92
34	A Xenon-Based Molecular Sensor Assembled on an MS2 Viral Capsid Scaffold. Journal of the American Chemical Society, 2010, 132, 5936-5937.	6.6	89
35	Controlled Integration of Gold Nanoparticles and Organic Fluorophores Using Synthetically Modified MS2 Viral Capsids. Journal of the American Chemical Society, 2013, 135, 3011-3016.	6.6	88
36	Recyclable Thermoresponsive Polymerâ€“Cellulase Bioconjugates for Biomass Depolymerization. Journal of the American Chemical Society, 2013, 135, 293-300.	6.6	88

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37	PET Imaging and Biodistribution of Chemically Modified Bacteriophage MS2. Molecular Pharmaceutics, 2013, 10, 69-76.	2.3	81
38	N-Terminal Labeling of Filamentous Phage To Create Cancer Marker Imaging Agents. ACS Nano, 2012, 6, 6675-6680.	7.3	80
39	Modification of Aniline Containing Proteins Using an Oxidative Coupling Strategy. Journal of the American Chemical Society, 2006, 128, 15558-15559.	6.6	73
40	Proteinâ€Crossâ€Linked Polymeric Materials through Siteâ€Selective Bioconjugation. Angewandte Chemie - International Edition, 2008, 47, 3751-3754.	7.2	72
41	Identification of Highly Reactive Sequences For PLP-Mediated Bioconjugation Using a Combinatorial Peptide Library. Journal of the American Chemical Society, 2010, 132, 16812-16817.	6.6	68
42	Nanoscale Integration of Sensitizing Chromophores and Porphyrins with Bacteriophage MS2. Angewandte Chemie - International Edition, 2009, 48, 9498-9502.	7.2	66
43	Selective Chromium(VI) Ligands Identified Using Combinatorial Peptoid Libraries. Journal of the American Chemical Society, 2013, 135, 17488-17493.	6.6	64
44	Evaluation of Three Morphologically Distinct Virus-Like Particles as Nanocarriers for Convection-Enhanced Drug Delivery to Glioblastoma. Nanomaterials, 2018, 8, 1007.	1.9	64
45	A Designed A. vinelandiiâ€“S. elongatus Coculture for Chemical Photoproduction from Air, Water, Phosphate, and Trace Metals. ACS Synthetic Biology, 2016, 5, 955-961.	1.9	62
46	Energy Transfer Dynamics in Light-Harvesting Assemblies Templated by the Tobacco Mosaic Virus Coat Protein. Journal of Physical Chemistry B, 2008, 112, 6887-6892.	1.2	61
47	Rapid Chemoselective Bioconjugation through Oxidative Coupling of Anilines and Aminophenols. Journal of the American Chemical Society, 2011, 133, 16398-16401.	6.6	60
48	Site-Specific Bioconjugation through Enzyme-Catalyzed Tyrosineâ€“Cysteine Bond Formation. ACS Central Science, 2020, 6, 1564-1571.	5.3	60
49	Self-assembled cellular microarrays patterned using DNA barcodes. Lab on A Chip, 2007, 7, 1442.	3.1	59
50	Influence of Electrostatics on Small Molecule Flux through a Protein Nanoreactor. ACS Synthetic Biology, 2015, 4, 1011-1019.	1.9	58
51	DNAâ€Coated AFM Cantilevers for the Investigation of Cell Adhesion and the Patterning of Live Cells. Angewandte Chemie - International Edition, 2008, 47, 8473-8477.	7.2	57
52	Cucurbit[6]uril-Promoted Click Chemistry for Protein Modification. Journal of the American Chemical Society, 2017, 139, 9691-9697.	6.6	56
53	Quantifying Hormone Disruptors with an Engineered Bacterial Biosensor. ACS Central Science, 2017, 3, 110-116.	5.3	52
54	Tyrosinase-Mediated Oxidative Coupling of Tyrosine Tags on Peptides and Proteins. Journal of the American Chemical Society, 2020, 142, 5078-5086.	6.6	51

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55	Biodistribution of Antibody-MS2 Viral Capsid Conjugates in Breast Cancer Models. Molecular Pharmaceutics, 2016, 13, 3764-3772.	2.3	50
56	Development of Oxidative Coupling Strategies for Site-Selective Protein Modification. Accounts of Chemical Research, 2015, 48, 1971-1978.	7.6	49
57	Cytosolic Delivery of Proteins Using Amphiphilic Polymers with 2-Pyridinecarboxaldehyde Groups for Site-Selective Attachment. Journal of the American Chemical Society, 2019, 141, 2376-2383.	6.6	49
58	Rotaxane-mediated suppression and activation of cucurbit[6]uril for molecular detection by ¹²⁹Xe hyperCEST NMR. Chemical Communications, 2016, 52, 3119-3122.	2.2	47
59	Stable Disk Assemblies of a Tobacco Mosaic Virus Mutant as Nanoscale Scaffolds for Applications in Drug Delivery. Bioconjugate Chemistry, 2016, 27, 2480-2485.	1.8	46
60	N-terminal specific conjugation of extracellular matrix proteins to 2-pyridinecarboxaldehyde functionalized polyacrylamide hydrogels. Biomaterials, 2016, 102, 268-276.	5.7	46
61	Development of peptoid-based ligands for the removal of cadmium from biological media. Chemical Science, 2015, 6, 4042-4048.	3.7	45
62	DNA-barcode directed capture and electrochemical metabolic analysis of single mammalian cells on a microelectrode array. Lab on A Chip, 2009, 9, 2010.	3.1	44
63	Quantitative characterization of all single amino acid variants of a viral capsid-based drug delivery vehicle. Nature Communications, 2018, 9, 1385.	5.8	43
64	Mild Bioconjugation Through the Oxidative Coupling of orthoâ€Aminophenols and Anilines with Ferricyanide. Angewandte Chemie - International Edition, 2014, 53, 1057-1061.	7.2	42
65	Chemical strategies for the covalent modification of filamentous phage. Frontiers in Microbiology, 2014, 5, 734.	1.5	40
66	Photoactivated Bioconjugation Between ortho-Azidophenols and Anilines: A Facile Approach to Biomolecular Photopatterning. Journal of the American Chemical Society, 2014, 136, 12600-12606.	6.6	39
67	Site-Selective Oxidative Coupling Reactions for the Attachment of Enzymes to Glass Surfaces through DNA-Directed Immobilization. Journal of the American Chemical Society, 2017, 139, 1967-1974.	6.6	39
68	Rotaxane probes for protease detection by ¹²⁹Xe hyperCEST NMR. Chemical Communications, 2017, 53, 1076-1079.	2.2	38
69	Synthetically Modified Viral Capsids as Versatile Carriers for Use in Antibody-Based Cell Targeting. Bioconjugate Chemistry, 2015, 26, 1590-1596.	1.8	36
70	Enzymatic Modification of N-Terminal Proline Residues Using Phenol Derivatives. Journal of the American Chemical Society, 2019, 141, 3885-3892.	6.6	36
71	Exploiting Chromophoreâ€"Protein Interactions through Linker Engineering To Tune Photoinduced Dynamics in a Biomimetic Light-Harvesting Platform. Journal of the American Chemical Society, 2018, 140, 6278-6287.	6.6	35
72	Enzyme Activated Gold Nanoparticles for Versatile Site-Selective Bioconjugation. Journal of the American Chemical Society, 2021, 143, 7342-7350.	6.6	34

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73	Hierarchical Assembly of Plasmonic Nanostructures Using Virus Capsid Scaffolds on DNA Origami Templates. ACS Nano, 2014, 8, 7896-7904.	7.3	33
74	Direct Attachment of Microbial Organisms to Material Surfaces Through Sequenceâ€Specific DNA Hybridization. Advanced Materials, 2012, 24, 2380-2385.	11.1	32
75	Capture and Recycling of Sortaseâ€...A through Siteâ€Specific Labeling with Lithocholic Acid. Angewandte Chemie - International Edition, 2016, 55, 8585-8589.	7.2	31
76	Self-Assembling Micelles Based on an Intrinsically Disordered Protein Domain. Journal of the American Chemical Society, 2019, 141, 4291-4299.	6.6	31
77	Viral Capsids as Self-Assembling Templates for New Materials. Progress in Molecular Biology and Translational Science, 2011, 103, 353-392.	0.9	30
78	Direct Electrochemical Bioconjugation on Metal Surfaces. Journal of the American Chemical Society, 2017, 139, 12610-12616.	6.6	30
79	A thylakoid membrane-bound and redox-active rubredoxin (RBD1) functions in de novo assembly and repair of photosystem II. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 16631-16640.	3.3	30
80	Molecular Sensing Using Hyperpolarized Xenon NMR Spectroscopy. Israel Journal of Chemistry, 2014, 54, 104-112.	1.0	29
81	Direct observation of ion emission from charged aqueous nanodrops: effects on gaseous macromolecular charging. Chemical Science, 2021, 12, 5185-5195.	3.7	29
82	An Affinity-Based Method for the Purification of Fluorescently-Labeled Biomolecules. Bioconjugate Chemistry, 2006, 17, 869-872.	1.8	28
83	Near-Quantitative Aqueous Synthesis of Rotaxanes via Bioconjugation to Oligopeptides and Proteins. Journal of the American Chemical Society, 2016, 138, 15307-15310.	6.6	28
84	ortho-Methoxyphenols as Convenient Oxidative Bioconjugation Reagents with Application to Site-Selective Heterobifunctional Cross-Linkers. Journal of the American Chemical Society, 2017, 139, 3767-3773.	6.6	28
85	DNA-Mediated Assembly of Protein Heterodimers on Membrane Surfaces. Journal of the American Chemical Society, 2013, 135, 5012-5016.	6.6	27
86	Multivalent Viral Capsids with Internal Cargo for Fibrin Imaging. PLoS ONE, 2014, 9, e100678.	1.1	27
87	DNA Hybridization To Interface Current-Producing Cells with Electrode Surfaces. ACS Central Science, 2018, 4, 880-884.	5.3	27
88	Synthetically modified Fc domains as building blocks for immunotherapy applications. Chemical Science, 2013, 4, 266-272.	3.7	26
89	Systematic Engineering of a Protein Nanocage for High-Yield, Site-Specific Modification. Journal of the American Chemical Society, 2019, 141, 3875-3884.	6.6	25
90	Optimization and Expansion of a Site-Selective N-Methylpyridinium-4-carboxaldehyde-Mediated Transamination for Bacterially Expressed Proteins. Journal of the American Chemical Society, 2015, 137, 1123-1129.	6.6	24

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91	Targeted Molecular Imaging of Cancer Cells Using MS2-Based ¹²⁹Xe NMR. Bioconjugate Chemistry, 2016, 27, 1796-1801.	1.8	23
92	A modular platform to develop peptoid-based selective fluorescent metal sensors. Chemical Communications, 2017, 53, 3477-3480.	2.2	23
93	A Peptoid-Based Combinatorial and Computational Approach to Developing Ligands for Uranyl Sequestration from Seawater. Industrial & Engineering Chemistry Research, 2016, 55, 4187-4194.	1.8	22
94	Vascular Cell Adhesion Molecule-Targeted MS2 Viral Capsids for the Detection of Early-Stage Atherosclerotic Plaques. Bioconjugate Chemistry, 2018, 29, 2526-2530.	1.8	22
95	Improving metabolite production in microbial coâ€cultures using a spatially constrained hydrogel. Biotechnology and Bioengineering, 2017, 114, 1195-1200.	1.7	19
96	Rotaxane Probes for the Detection of Hydrogen Peroxide by ¹²⁹Xe HyperCEST NMR Spectroscopy. Angewandte Chemie - International Edition, 2019, 58, 9948-9953.	7.2	19
97	Experimental Evaluation of Coevolution in a Self-Assembling Particle. Biochemistry, 2019, 58, 1527-1538.	1.2	19
98	Synthesis of Multi-Protein Complexes through Charge-Directed Sequential Activation of Tyrosine Residues. Journal of the American Chemical Society, 2021, 143, 13538-13547.	6.6	18
99	Bioconjugation of Gold Nanoparticles through the Oxidative Coupling of ortho-Aminophenols and Anilines. Bioconjugate Chemistry, 2014, 25, 1888-1892.	1.8	17
100	Investigation of DOTAâ€“Metal Chelation Effects on the Chemical Shift of ¹²⁹Xe. ChemPhysChem, 2015, 16, 3573-3577.	1.0	17
101	Simultaneous selection and counterâ€selection for the directed evolution of proteases in E. coli using a cytoplasmic anchoring strategy. Biotechnology and Bioengineering, 2016, 113, 1187-1193.	1.7	17
102	Supramolecular strategies for protein immobilization and modification. Current Opinion in Chemical Biology, 2018, 46, 91-98.	2.8	17
103	Grassroots Efforts To Quantify and Improve the Academic Climate of an R1 STEM Department: Using Evidence-Based Discussions To Foster Community. Journal of Chemical Education, 2019, 96, 2149-2157.	1.1	17
104	Site-Selective Protein Immobilization on Polymeric Supports through N-Terminal Imidazolidinone Formation. Biomacromolecules, 2019, 20, 3933-3939.	2.6	17
105	Hyperpolarized Xenon-Based Molecular Sensors for Label-Free Detection of analytes. Journal of the American Chemical Society, 2014, 136, 164-168.	6.6	16
106	DNA Hybridization to Control Cellular Interactions. Trends in Biochemical Sciences, 2019, 44, 342-350.	3.7	15
107	Effects of Conformational Changes in Peptideâ€“CRM₁₉₇ Conjugate Vaccines. Bioconjugate Chemistry, 2019, 30, 47-53.	1.8	15
108	Capture and Recycling of Sortaseâ€…A through Siteâ€Specific Labeling with Lithocholic Acid. Angewandte Chemie, 2016, 128, 8727-8731.	1.6	14

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109	Engineering a Virus-like Particle to Display Peptide Insertions Using an Apparent Fitness Landscape. Biomacromolecules, 2020, 21, 4194-4204.	2.6	13
110	Covalent capture and electrochemical quantification of pathogenic E. coli. Chemical Communications, 2021, 57, 2507-2510.	2.2	13
111	Redirecting RiPP Biosynthetic Enzymes to Proteins and Backbone-Modified Substrates. ACS Central Science, 2022, 8, 473-482.	5.3	13
112	Structural Regulation of a Neurofilament-Inspired Intrinsically Disordered Protein Brush by Multisite Phosphorylation. Biochemistry, 2018, 57, 4019-4028.	1.2	12
113	Manipulating Excited-State Dynamics of Individual Light-Harvesting Chromophores through Restricted Motions in a Hydrated Nanoscale Protein Cavity. Journal of Physical Chemistry B, 2015, 119, 6963-6973.	1.2	11
114	New Techniques for the Generation and Analysis of Tailored Microbial Systems on Surfaces. Biochemistry, 2018, 57, 3017-3026.	1.2	10
115	Tyrosinase-Mediated Synthesis of Nanobodyâ€“Cell Conjugates. ACS Central Science, 2022, 8, 955-962.	5.3	10
116	Effects of NIPAm polymer additives on the enzymatic hydrolysis of Avicel and pretreated Miscanthus. Biotechnology and Bioengineering, 2014, 111, 1792-1800.	1.7	9
117	Controlled levels of protein modification through a chromatography-mediated bioconjugation. Chemical Science, 2015, 6, 2596-2601.	3.7	9
118	Improving the Academic Climate of an R1 STEM Department: Quantified Positive Shifts in Perception. ACS Omega, 2021, 6, 14410-14419.	1.6	8
119	Secondary modification of oxidatively-modified proline N-termini for the construction of complex bioconjugates. Organic and Biomolecular Chemistry, 2020, 18, 1881-1885.	1.5	7
120	Protein-Embedded Metalloporphyrin Arrays Templated by Circularly Permuted Tobacco Mosaic Virus Coat Proteins. ACS Nano, 2021, 15, 8110-8119.	7.3	7
121	Lithiumâ€Chelating Resins Functionalized with Oligoethylene Glycols toward Lithiumâ€Ion Battery Recycling. Advanced Sustainable Systems, 2021, 5, 2000230.	2.7	7
122	Proteins as adsorbents for PFAS removal from water. Environmental Science: Water Research and Technology, 2022, 8, 1188-1194.	1.2	7
123	Direct detection of nitrotyrosine-containing proteins using an aniline-based oxidative coupling strategy. Chemical Communications, 2016, 52, 10036-10039.	2.2	6
124	Encapsulation of Negatively Charged Cargo in MS2 Viral Capsids. Methods in Molecular Biology, 2018, 1776, 303-317.	0.4	6
125	Determination of Antibody Population Distributions for Virus-Antibody Conjugates by Charge Detection Mass Spectrometry. Analytical Chemistry, 2020, 92, 1285-1291.	3.2	6
126	Dual Surface Modification of Genome-Free MS2 Capsids for Delivery Applications. Methods in Molecular Biology, 2018, 1776, 629-642.	0.4	5

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127	Rotaxane Probes for the Detection of Hydrogen Peroxide by 129 Xe HyperCEST NMR Spectroscopy. Angewandte Chemie, 2019, 131, 10053-10058.	1.6	5
128	Molecular Mechanics Simulations and Improved Tight-Binding Hamiltonians for Artificial Light Harvesting Systems: Predicting Geometric Distributions, Disorder, and Spectroscopy of Chromophores in a Protein Environment. Journal of Physical Chemistry B, 2018, 122, 12292-12301.	1.2	3
129	Shaping the Future of Higher Education: Practical, Community-Driven Initiatives to Improve Academic Climate. ACS Central Science, 2021, 7, 910-916.	5.3	2
130	Mismatch in Perceptions of Success: Investigating Academic Values among Faculty and Doctoral Students. Journal of Chemical Education, 0, , .	1.1	2
131	Preparation of Bioderived and Biodegradable Surfactants Based on an Intrinsically Disordered Protein Sequence. Biomacromolecules, 2022, 23, 1462-1470.	2.6	2
132	Methods for Generating Microbial Cocultures that Grow in the Absence of Fixed Carbon or Nitrogen. Methods in Molecular Biology, 2018, 1772, 45-60.	0.4	1
133	Extravasation of PEGylated Spherical Nanoparticles through a Circular Pore of Similar Size. Macromolecules, 2020, 53, 2991-3006.	2.2	1
134	Antibody Modification of p-Aminophenylalanine-Containing Proteins. Methods in Molecular Biology, 2018, 1798, 195-201.	0.4	0
135	Rational Design of pH Sensitive MS2 Virusâ€Like Particles for Drug Delivery Applications. FASEB Journal, 2018, 32, .	0.2	0