Christopher J Roberts

List of Publications by Year
in descending order

88 papers	5,020 citations	81900 39 h-index	95266 68 g-index
103 all docs	103 docs citations	103 times ranked	3203 citing authors

#	Article	IF	Citations
1	Electrostatically Driven Proteinâ€“Protein Interactions: Quantitative Prediction of Second Osmotic Virial Coefficients to Aid Antibody Design. Journal of Physical Chemistry Letters, 2022, 13, 1366-1372.	4.6	14
2	High-Pressure, Low-Temperature Induced Unfolding and Aggregation of Monoclonal Antibodies: Role of the Fc and Fab Fragments. Journal of Physical Chemistry B, 2022, 126, 4431-4441.	2.6	6
3	Comparison of Huggins Coefficients and Osmotic Second Virial Coefficients of Buffered Solutions of Monoclonal Antibodies. Polymers, 2021, 13, 601.	4.5	9
4	A Rapid, Small-Volume Approach to Evaluate Protein Aggregation at Air-Water Interfaces. Journal of Pharmaceutical Sciences, 2021, 110, 1083-1092.	3.3	12
5	Toward a Suite of Coarse-Grained Models for Molecular Simulation of Monoclonal Antibodies and Therapeutic Proteins. Journal of Physical Chemistry B, 2021, 125, 3574-3588.	2.6	14
6	Challenges for design of aggregation-resistant variants of granulocyte colony-stimulating factor. Biophysical Chemistry, 2021, 277, 106630.	2.8	1
7	In Situ Monitoring of Protein Unfolding/Structural States under Cold High-Pressure Stress. Molecular Pharmaceutics, 2021, 18, 4415-4427.	4.6	5
8	Temperature Dependence of Protein Solution Viscosity and Proteinâ€“Protein Interactions: Insights into the Origins of High-Viscosity Protein Solutions. Molecular Pharmaceutics, 2020, 17, 4473-4482.	4.6	17
9	Characterizing aggregate growth and morphology of alanine-rich polypeptides as a function of sequence chemistry and solution temperature from scattering, spectroscopy, and microscopy. Biophysical Chemistry, 2020, 267, 106481.	2.8	0
10	Kinetics and Competing Mechanisms of Antibody Aggregation via Bulk- and Surface-Mediated Pathways. Journal of Pharmaceutical Sciences, 2020, 109, 1449-1459.	3.3	16
11	In situ neutron scattering of antibody adsorption during protein A chromatography. Journal of Chromatography A, 2020, 1617, 460842.	3.7	6
12	Light Scattering to Quantify Proteinâ€“Protein Interactions at High Protein Concentrations. Methods in Molecular Biology, 2019, 2039, 23-37.	0.9	0
13	Predicting High-Concentration Interactions of Monoclonal Antibody Solutions: Comparison of Theoretical Approaches for Strongly Attractive Versus Repulsive Conditions. Journal of Physical Chemistry B, 2019, 123, 5709-5720.	2.6	18
14	Identifying Key Residues That Drive Strong Electrostatic Attractions between Therapeutic Antibodies. Journal of Physical Chemistry B, 2019, 123, 10642-10653.	2.6	11
15	Electrostatically Mediated Protein-Protein Interactions for Monoclonal Antibodies: A Combined Experimental and Coarse-Grained Molecular Modeling Approach. Journal of Pharmaceutical Sciences, 2019, 108, 120-132.	3.3	27
16	Freezing of Aqueous Solutions and Chemical Stability of Amorphous Pharmaceuticals: Water Clusters Hypothesis. Journal of Pharmaceutical Sciences, 2019, 108, 36-49.	3.3	18
17	How Well Do Low- and High-Concentration Protein Interactions Predict Solution Viscosities of Monoclonal Antibodies?. Journal of Pharmaceutical Sciences, 2019, 108, 142-154.	3.3	58
18	Biophysical characterization and molecular simulation of electrostatically driven selfâ€association of a singleâ€chain antibody. Protein Science, 2018, 27, 1275-1285.	7.6	11

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19	Predicting Protein-Protein Interactions of Concentrated Antibody Solutions Using Dilute Solution Data and Coarse-Grained MolecularÂModels. Journal of Pharmaceutical Sciences, 2018, 107, 1269-1281.	3.3	45
20	Parallel chromatography and in situ scattering to interrogate competing protein aggregation pathways. Protein Science, 2018, 27, 1325-1333.	7.6	7
21	Weak IgG selfâ€•and heteroâ€association characterized by fluorescence analytical ultracentrifugation. Protein Science, 2018, 27, 1334-1348.	7.6	27
22	Viscosities and Protein Interactions of Bispecific Antibodies and Their Monospecific Mixtures. Molecular Pharmaceutics, 2018, 15, 4745-4755.	4.6	12
23	Protein aggregation â€“ Mechanisms, detection, and control. International Journal of Pharmaceutics, 2018, 550, 251-268.	5.2	164
24	Neutron reflectivity measurement of protein Aâ€“antibody complex at the solid-liquid interface. Journal of Chromatography A, 2017, 1499, 118-131.	3.7	13
25	Predicting Protein Interactions of Concentrated Globular Protein Solutions Using Colloidal Models. Journal of Physical Chemistry B, 2017, 121, 4756-4767.	2.6	40
26	Protein Partial Molar Volumes in Multicomponent Solutions from the Perspective of Inverse Kirkwoodâ€“Buff Theory. Journal of Physical Chemistry B, 2017, 121, 5897-5907.	2.6	8
27	Driving Forces for Nonnative Protein Aggregation and Approaches to Predict Aggregation-Prone Regions. Annual Review of Chemical and Biomolecular Engineering, 2017, 8, 139-159.	6.8	52
28	IgG cooperativity â€“ Is there allostery? Implications for antibody functions and therapeutic antibody development. MAbs, 2017, 9, 1231-1252.	5.2	52
29	Connecting high-temperature and low-temperature protein stability and aggregation. PLoS ONE, 2017, 12, e0176748.	2.5	39
30	Acetate- and Citrate-Specific Ion Effects on Unfolding and Temperature-Dependent Aggregation Rates of Anti-Streptavidin IgG1. Journal of Pharmaceutical Sciences, 2016, 105, 1066-1073.	3.3	31
31	Modulating non-native aggregation and electrostatic proteinâ€“protein interactions with computationally designed single-point mutations. Protein Engineering, Design and Selection, 2016, 29, 231-243.	2.1	18
32	Relating Proteinâ€“Protein Interactions and Aggregation Rates From Low to High Concentrations. Journal of Pharmaceutical Sciences, 2016, 105, 1086-1096.	3.3	68
33	An Opportunity for Industryâ€“Academia Partnership: Training the Next Generation of Industrial Researchers in Characterizing Higher Order Protein Structure. Journal of Pharmaceutical Sciences, 2016, 105, 3483-3486.	3.3	4
34	Reply to â€œComment on â€˜Osmolyte Effects on Monoclonal Antibody Stability and Concentration-Dependent Protein Interactions with Water and Common Osmolytesâ€™â€• Journal of Physical Chemistry B, 2016, 120, 11333-11334.	2.6	2
35	Identifying protein aggregation mechanisms and quantifying aggregation rates from combined monomer depletion and continuousÂscattering. Analytical Biochemistry, 2016, 511, 80-91.	2.4	23
36	Predicting unfolding thermodynamics and stable intermediates for alanine-rich helical peptides with the aid of coarse-grained molecular simulation. Biophysical Chemistry, 2016, 217, 8-19.	2.8	12

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37	Coarse-Grained Antibody Models for â€œWeakâ€•Proteinâ€“Protein Interactions from Low to High Concentrations. Journal of Physical Chemistry B, 2016, 120, 6592-6605.	2.6	75
38	Osmolyte Effects on Monoclonal Antibody Stability and Concentration-Dependent Protein Interactions with Water and Common Osmolytes. Journal of Physical Chemistry B, 2016, 120, 3318-3330.	2.6	37
39	Protein Adsorption, Desorption, and Aggregation Mediated by Solid-Liquid Interfaces. Journal of Pharmaceutical Sciences, 2015, 104, 1946-1959.	3.3	45
40	Aggregation of poly(acrylic acid)-containing elastin-mimetic copolymers. Soft Matter, 2015, 11, 1839-1850.	2.7	10
41	Specific-Ion Effects on the Aggregation Mechanisms and Proteinâ€“Protein Interactions for Anti-streptavidin Immunoglobulin Gamma-1. Journal of Physical Chemistry B, 2015, 119, 5793-5804.	2.6	62
42	Aggregate structure, morphology and the effect of aggregation mechanisms on viscosity at elevated protein concentrations. Biophysical Chemistry, 2015, 207, 21-29.	2.8	34
43	Weak protein interactions and pH- and temperature-dependent aggregation of human Fc1. MAbs, 2015, 7, 1072-1083.	5.2	32
44	Structural Changes and Aggregation Mechanisms for Anti-Streptavidin IgG1 at Elevated Concentration. Journal of Physical Chemistry B, 2015, 119, 15150-15163.	2.6	22
45	Protein aggregation, particle formation, characterization & rheology. Current Opinion in Colloid and Interface Science, 2014, 19, 438-449.	7.4	213
46	Conformational stability as a design target to control protein aggregation. Protein Engineering, Design and Selection, 2014, 27, 157-167.	2.1	23
47	Aggregates of Î±â€chymotrypsinogen anneal to access more stable states. Biotechnology and Bioengineering, 2014, 111, 782-791.	3.3	4
48	Competing aggregation pathways for monoclonal antibodies. FEBS Letters, 2014, 588, 936-941.	2.8	64
49	Reduction of the C191-C220 disulfide of Î±-chymotrypsinogen A reduces nucleation barriers for aggregation. Biophysical Chemistry, 2014, 185, 79-87.	2.8	3
50	Role of Anisotropic Interactions for Proteins and Patchy Nanoparticles. Journal of Physical Chemistry B, 2014, 118, 12599-12611.	2.6	49
51	Protein aggregation and its impact on product quality. Current Opinion in Biotechnology, 2014, 30, 211-217.	6.6	220
52	Proteinâ€“Protein Interactions in Dilute to Concentrated Solutions: Î±-Chymotrypsinogen in Acidic Conditions. Journal of Physical Chemistry B, 2014, 118, 5817-5831.	2.6	76
53	Therapeutic protein aggregation: mechanisms, design, and control. Trends in Biotechnology, 2014, 32, 372-380.	9.3	339
54	Non-Arrhenius Protein Aggregation. AAPS Journal, 2013, 15, 840-851.	4.4	116

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55	Coarse-Grained Model for Colloidal Protein Interactions, B₂₂, and Protein Cluster Formation. Journal of Physical Chemistry B, 2013, 117, 16013-16028.	2.6	44
56	Protein misfolding and aggregation research: Some thoughts on improving quality and utility. Biotechnology Progress, 2013, 29, 1109-1115.	2.6	20
57	Effects of Temperature and Osmolytes on Competing Degradation Routes for an IgG1 Antibody. Journal of Pharmaceutical Sciences, 2013, 102, 3556-3566.	3.3	25
58	Folding and aggregation of a multi-domain engineered immunotoxin. Biochemical Engineering Journal, 2013, 81, 8-14.	3.6	0
59	Aggregation of anti-streptavidin immunoglobulin gammaâ€1 involves Fab unfolding and competing growth pathways mediated by pH and salt concentration. Biophysical Chemistry, 2013, 172, 26-36.	2.8	76
60	Coarse-Grained Modeling of Protein Second Osmotic Virial Coefficients: Sterics and Short-Ranged Attractions. Journal of Physical Chemistry B, 2013, 117, 763-770.	2.6	54
61	Thermodynamics of amyloid dissociation provide insights into aggregate stability regimes. Biophysical Chemistry, 2012, 168-169, 10-18.	2.8	14
62	Size-Exclusion Chromatography with Multi-angle Light Scattering for Elucidating Protein Aggregation Mechanisms. Methods in Molecular Biology, 2012, 899, 403-423.	0.9	94
63	Osmotic virial coefficients for model protein and colloidal solutions: Importance of ensemble constraints in the analysis of light scattering data. Journal of Chemical Physics, 2012, 136, 175102.	3.0	12
64	Aggregation and pHâ€“Temperature Phase Behavior for Aggregates of an IgG2 Antibody. Journal of Pharmaceutical Sciences, 2012, 101, 1678-1687.	3.3	54
65	Relating particle formation to saltâ€•and pHâ€dependent phase separation of nonâ€•native aggregates of alphaâ€chymotrypsinogen a. Journal of Pharmaceutical Sciences, 2012, 101, 3651-3660.	3.3	16
66	Conformational and Aggregation Properties of a PEGylated Alanine-Rich Polypeptide. Biomacromolecules, 2011, 12, 2184-2192.	5.4	27
67	Computational Design and Biophysical Characterization of Aggregation-Resistant Point Mutations for Î³D Crystallin Illustrate a Balance of Conformational Stability and Intrinsic Aggregation Propensity. Biochemistry, 2011, 50, 628-639.	2.5	43
68	Predicting solution aggregation rates for therapeutic proteins: Approaches and challenges. International Journal of Pharmaceutics, 2011, 418, 318-333.	5.2	128
69	Nonnative Aggregation of an IgG1 Antibody in Acidic Conditions, Part 2: Nucleation and Growth Kinetics with Competing Growth Mechanisms. Journal of Pharmaceutical Sciences, 2011, 100, 2104-2119.	3.3	74
70	Nonnative Aggregation of an IgG1 Antibody in Acidic Conditions: Part 1. Unfolding, Colloidal Interactions, and Formation of High-Molecular-Weight Aggregates. Journal of Pharmaceutical Sciences, 2011, 100, 2087-2103.	3.3	103
71	Predicting accelerated aggregation rates for monoclonal antibody formulations, and challenges for low-temperature predictions. Journal of Pharmaceutical Sciences, 2011, 100, 4234-4243.	3.3	66
72	Reexamining proteinâ€“protein and proteinâ€“solvent interactions from Kirkwood-Buff analysis of light scattering in multi-component solutions. Journal of Chemical Physics, 2011, 134, 225103.	3.0	86

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73	Multi-variate approach to global protein aggregation behavior and kinetics: Effects of pH, NaCl, and temperature for Î±-chymotrypsinogen A. Journal of Pharmaceutical Sciences, 2010, 99, 645-662.	3.3	85
74	Comparative Effects of pH and Ionic Strength on Proteinâ€“Protein Interactions, Unfolding, and Aggregation for IgG1 Antibodies. Journal of Pharmaceutical Sciences, 2010, 99, 4830-4848.	3.3	188
75	Molecular Level Insights into Thermally Induced Î±-Chymotrypsinogen A Amyloid Aggregation Mechanism and Semiflexible Protofibril Morphology. Biochemistry, 2010, 49, 10553-10564.	2.5	17
76	Structure and thermodynamics of colloidal protein cluster formation: Comparison of square-well and simple dipolar models. Journal of Chemical Physics, 2009, 131, 125104.	3.0	13
77	Principles, approaches, and challenges for predicting protein aggregation rates and shelf life. Journal of Pharmaceutical Sciences, 2009, 98, 1246-1277.	3.3	257
78	Characterization of High-Molecular-Weight Nonnative Aggregates and Aggregation Kinetics by Size Exclusion Chromatography With Inline Multi-Angle Laser Light Scattering. Journal of Pharmaceutical Sciences, 2009, 98, 3997-4016.	3.3	90
79	Lumryâ^'Eyring Nucleated-Polymerization Model of Protein Aggregation Kinetics. 2. Competing Growth via Condensation and Chain Polymerization. Journal of Physical Chemistry B, 2009, 113, 7020-7032.	2.6	120
80	Nucleation, Growth, and Activation Energies for Seeded and Unseeded Aggregation of Î±-Chymotrypsinogen A. Biochemistry, 2008, 47, 2397-2403.	2.5	43
81	Modulation of Self-Association and Subsequent Fibril Formation in an Alanine-Rich Helical Polypeptide. Biomacromolecules, 2008, 9, 1595-1603.	5.4	18
82	Non-Native Aggregation of Î±-Chymotrypsinogen Occurs through Nucleation and Growth with Competing Nucleus Sizes and Negative Activation Energies. Biochemistry, 2007, 46, 7558-7571.	2.5	68
83	A Lumryâ^'Eyring Nucleated Polymerization Model of Protein Aggregation Kinetics:â€‰ 1. Aggregation with Pre-Equilibrated Unfolding. Journal of Physical Chemistry B, 2007, 111, 7897-7913.	2.6	205
84	Nonnative Protein Polymers: Structure, Morphology, and Relation to Nucleation and Growth. Biophysical Journal, 2007, 93, 4392-4403.	0.5	60
85	Nonâ€native protein aggregation kinetics. Biotechnology and Bioengineering, 2007, 98, 927-938.	3.3	292
86	Nonnative Protein Aggregation. , 2006, , 17-46.		15
87	Irreversible aggregation of recombinant bovine granulocyte-colony stimulating factor (bG-CSF) and implications for predicting protein shelf life. Journal of Pharmaceutical Sciences, 2003, 92, 1095-1111.	3.3	80
88	Kinetics of Irreversible Protein Aggregation:â€‰ Analysis of Extended Lumryâ^'Eyring Models and Implications for Predicting Protein Shelf Life. Journal of Physical Chemistry B, 2003, 107, 1194-1207.	2.6	148