Georg Meisl

List of Publications by Year
in descending order

79 papers	5,853 citations	94433 37 h-index	85541 71 g-index
97 all docs	97 docs citations	97 times ranked	5350 citing authors

#	Article	IF	Citations
1	Molecular mechanisms of protein aggregation from global fitting of kinetic models. Nature Protocols, 2016, 11, 252-272.	12.0	546
2	Lipid vesicles trigger Î±-synuclein aggregation by stimulating primary nucleation. Nature Chemical Biology, 2015, 11, 229-234.	8.0	532
3	Differences in nucleation behavior underlie the contrasting aggregation kinetics of the AÎ²40 and AÎ²42 peptides. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 9384-9389.	7.1	405
4	Secondary nucleation in amyloid formation. Chemical Communications, 2018, 54, 8667-8684.	4.1	323
5	Mutations associated with familial Parkinsonâ€™s disease alter the initiation and amplification steps of Î±-synuclein aggregation. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 10328-10333.	7.1	252
6	A natural product inhibits the initiation of Î±-synuclein aggregation and suppresses its toxicity. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, E1009-E1017.	7.1	231
7	Dynamics of oligomer populations formed during the aggregation of Alzheimerâ€™s AÎ²42 peptide. Nature Chemistry, 2020, 12, 445-451.	13.6	223
8	Î±-Synuclein strains target distinct brain regions and cell types. Nature Neuroscience, 2020, 23, 21-31.	14.8	195
9	Secondary nucleation of monomers on fibril surface dominates<i>Î±</i>-synuclein aggregation and provides autocatalytic amyloid amplification. Quarterly Reviews of Biophysics, 2017, 50, e6.	5.7	183
10	Chemical Kinetics for Bridging Molecular Mechanisms and Macroscopic Measurements of Amyloid Fibril Formation. Annual Review of Physical Chemistry, 2018, 69, 273-298.	10.8	161
11	Kinetic fingerprints differentiate the mechanisms of action of anti-AÎ² antibodies. Nature Structural and Molecular Biology, 2020, 27, 1125-1133.	8.2	123
12	The AÎ²40 and AÎ²42 peptides self-assemble into separate homomolecular fibrils in binary mixtures but cross-react during primary nucleation. Chemical Science, 2015, 6, 4215-4233.	7.4	121
13	Trodusquemine enhances AÎ²42 aggregation but suppresses its toxicity by displacing oligomers from cell membranes. Nature Communications, 2019, 10, 225.	12.8	111
14	Kinetic diversity of amyloid oligomers. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 12087-12094.	7.1	103
15	On the role of sidechain size and charge in the aggregation of A <i>Î²</i> 42 with familial mutations. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, E5849-E5858.	7.1	98
16	Physical determinants of the self-replication of protein fibrils. Nature Physics, 2016, 12, 874-880.	16.7	90
17	Multistep Inhibition of Î±-Synuclein Aggregation and Toxicity <i>in Vitro</i> and <i>in Vivo</i> by Trodusquemine. ACS Chemical Biology, 2018, 13, 2308-2319.	3.4	86
18	Quantitative analysis of intrinsic and extrinsic factors in the aggregation mechanism of Alzheimer-associated AÎ²-peptide. Scientific Reports, 2016, 6, 18728.	3.3	77

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19	Origin of metastable oligomers and their effects on amyloid fibril self-assembly. Chemical Science, 2018, 9, 5937-5948.	7.4	76
20	In vivo rate-determining steps of tau seed accumulation in Alzheimerâ€™s disease. Science Advances, 2021, 7, eabh1448.	10.3	70
21	Measurement of Tau Filament Fragmentation Provides Insights into Prion-like Spreading. ACS Chemical Neuroscience, 2018, 9, 1276-1282.	3.5	68
22	Self-assembly of MPG1, a hydrophobin protein from the rice blast fungus that forms functional amyloid coatings, occurs by a surface-driven mechanism. Scientific Reports, 2016, 6, 25288.	3.3	67
23	Physical Determinants of Amyloid Assembly in Biofilm Formation. MBio, 2019, 10, .	4.1	66
24	Î²-Synuclein suppresses both the initiation and amplification steps of Î±-synuclein aggregation via competitive binding to surfaces. Scientific Reports, 2016, 6, 36010.	3.3	65
25	Scaling behaviour and rate-determining steps in filamentous self-assembly. Chemical Science, 2017, 8, 7087-7097.	7.4	65
26	Identification of on- and off-pathway oligomers in amyloid fibril formation. Chemical Science, 2020, 11, 6236-6247.	7.4	64
27	Modulation of electrostatic interactions to reveal a reaction network unifying the aggregation behaviour of the AÎ²42 peptide and its variants. Chemical Science, 2017, 8, 4352-4362.	7.4	60
28	Phage display and kinetic selection of antibodies that specifically inhibit amyloid self-replication. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 6444-6449.	7.1	60
29	Transthyretin Inhibits Primary and Secondary Nucleations of Amyloid-Î² Peptide Aggregation and Reduces the Toxicity of Its Oligomers. Biomacromolecules, 2020, 21, 1112-1125.	5.4	59
30	Solvent and conformation dependence of amide I vibrations in peptides and proteins containing proline. Journal of Chemical Physics, 2011, 135, 234507.	3.0	58
31	N-Terminal Extensions Retard AÎ²42 Fibril Formation but Allow Cross-Seeding and Coaggregation with AÎ²42. Journal of the American Chemical Society, 2015, 137, 14673-14685.	13.7	58
32	The Influence of Pathogenic Mutations in Î±-Synuclein on Biophysical and Structural Characteristics of Amyloid Fibrils. ACS Nano, 2020, 14, 5213-5222.	14.6	58
33	The role of fibril structure and surface hydrophobicity in secondary nucleation of amyloid fibrils. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 25272-25283.	7.1	58
34	Electrostatically-guided inhibition of Curli amyloid nucleation by the CsgC-like family of chaperones. Scientific Reports, 2016, 6, 24656.	3.3	51
35	Oligomer Diversity during the Aggregation of the Repeat Region of Tau. ACS Chemical Neuroscience, 2018, 9, 3060-3071.	3.5	50
36	Thermodynamic and kinetic design principles for amyloid-aggregation inhibitors. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 24251-24257.	7.1	49

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37	Autocatalytic amplification of Alzheimer-associated AÎ²42 peptide aggregation in human cerebrospinal fluid. Communications Biology, 2019, 2, 365.	4.4	46
38	Mechanism of Secondary Nucleation at the Single Fibril Level from Direct Observations of AÎ²42 Aggregation. Journal of the American Chemical Society, 2021, 143, 16621-16629.	13.7	38
39	Ultrastructural evidence for self-replication of Alzheimer-associated AÎ²42 amyloid along the sides of fibrils. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 11265-11273.	7.1	37
40	Squalamine and Its Derivatives Modulate the Aggregation of Amyloid-Î² and Î±-Synuclein and Suppress the Toxicity of Their Oligomers. Frontiers in Neuroscience, 2021, 15, 680026.	2.8	34
41	Antibody Affinity Governs the Inhibition of SARS-CoV-2 Spike/ACE2 Binding in Patient Serum. ACS Infectious Diseases, 2021, 7, 2362-2369.	3.8	32
42	Kinetic barriers to Î±-synuclein protofilament formation and conversion into mature fibrils. Chemical Communications, 2018, 54, 7854-7857.	4.1	31
43	Plant Polyphenols Inhibit Functional Amyloid and Biofilm Formation in Pseudomonas Strains by Directing Monomers to Off-Pathway Oligomers. Biomolecules, 2019, 9, 659.	4.0	30
44	The C-terminal tail of Î±-synuclein protects against aggregate replication but is critical for oligomerization. Communications Biology, 2022, 5, 123.	4.4	30
45	The molecular processes underpinning prion-like spreading and seed amplification in protein aggregation. Current Opinion in Neurobiology, 2020, 61, 58-64.	4.2	26
46	Super-resolution imaging reveals Î±-synuclein seeded aggregation in SH-SY5Y cells. Communications Biology, 2021, 4, 613.	4.4	26
47	The catalytic nature of protein aggregation. Journal of Chemical Physics, 2020, 152, 045101.	3.0	24
48	Surface-Catalyzed Secondary Nucleation Dominates the Generation of Toxic IAPP Aggregates. Frontiers in Molecular Biosciences, 2021, 8, 757425.	3.5	24
49	Microfluidic characterisation reveals broad range of SARS-CoV-2 antibody affinity in human plasma. Life Science Alliance, 2022, 5, e202101270.	2.8	24
50	Direct Observation of Murine Prion Protein Replication in Vitro. Journal of the American Chemical Society, 2018, 140, 14789-14798.	13.7	23
51	Direct observation of prion protein oligomer formation reveals an aggregation mechanism with multiple conformationally distinct species. Chemical Science, 2019, 10, 4588-4597.	7.4	22
52	Scaling analysis reveals the mechanism and rates of prion replication in vivo. Nature Structural and Molecular Biology, 2021, 28, 365-372.	8.2	22
53	Physical principles of filamentous protein self-assembly kinetics. Journal of Physics Condensed Matter, 2017, 29, 153002.	1.8	21
54	Absolute Quantification of Amyloid Propagons by Digital Microfluidics. Analytical Chemistry, 2017, 89, 12306-12313.	6.5	21

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55	Microfluidic Diffusion Platform for Characterizing the Sizes of Lipid Vesicles and the Thermodynamics of Proteinâ€"Lipid Interactions. Analytical Chemistry, 2018, 90, 3284-3290.	6.5	20
56	Extrinsic Amyloid-Binding Dyes for Detection of Individual Protein Aggregates in Solution. Analytical Chemistry, 2018, 90, 10385-10393.	6.5	20
57	Mechanism of Fibril and Soluble Oligomer Formation in Amyloid Beta and Hen Egg White Lysozyme Proteins. Journal of Physical Chemistry B, 2019, 123, 5678-5689.	2.6	20
58	Templating S100A9 amyloids on AÎ² fibrillar surfaces revealed by charge detection mass spectrometry, microscopy, kinetic and microfluidic analyses. Chemical Science, 2020, 11, 7031-7039.	7.4	20
59	Kinetic and Thermodynamic Driving Factors in the Assembly of Phenylalanine-Based Modules. ACS Nano, 2021, 15, 18305-18311.	14.6	19
60	Proliferation of Tau 304â€"380 Fragment Aggregates through Autocatalytic Secondary Nucleation. ACS Chemical Neuroscience, 2021, 12, 4406-4415.	3.5	19
61	Effects of sedimentation, microgravity, hydrodynamic mixing and airâ€"water interface on Î±-synuclein amyloid formation. Chemical Science, 2020, 11, 3687-3693.	7.4	18
62	Kinetic Analysis of Amyloid Formation. Methods in Molecular Biology, 2018, 1779, 181-196.	0.9	16
63	Increased Secondary Nucleation Underlies Accelerated Aggregation of the Four-Residue N-Terminally Truncated AÎ²42 Species AÎ²5â€"42. ACS Chemical Neuroscience, 2019, 10, 2374-2384.	3.5	16
64	In situ kinetic measurements of Î±-synuclein aggregation reveal large population of short-lived oligomers. PLoS ONE, 2021, 16, e0245548.	2.5	16
65	The binding of the small heat-shock protein Î±B-crystallin to fibrils of Î±-synuclein is driven by entropic forces. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	15
66	Kinetic analysis reveals that independent nucleation events determine the progression of polyglutamine aggregation in <i>C. elegans</i>. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	13
67	On-chip measurements of protein unfolding from direct observations of micron-scale diffusion. Chemical Science, 2018, 9, 3503-3507.	7.4	11
68	Alpha Synuclein only Forms Fibrils In Vitro when Larger than its Critical Size of 70 Monomers. ChemBioChem, 2021, 22, 2867-2871.	2.6	10
69	Microfluidic Antibody Affinity Profiling Reveals the Role of Memory Reactivation and Cross-Reactivity in the Defense Against SARS-CoV-2. ACS Infectious Diseases, 2022, 8, 790-799.	3.8	8
70	Mechanistic Models of Protein Aggregation Across Length-Scales and Time-Scales: From the Test Tube to Neurodegenerative Disease. Frontiers in Neuroscience, 0, 16, .	2.8	8
71	Preventing peptide and protein misbehavior. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 5267-5268.	7.1	7
72	Autoantibodies against the prion protein in individuals with <i>PRNP</i> mutations. Neurology, 2020, 95, e2028-e2037.	1.1	7

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73	Pulsed Hydrogenâ€"Deuterium Exchange Reveals Altered Structures and Mechanisms in the Aggregation of Familial Alzheimerâ€™s Disease Mutants. ACS Chemical Neuroscience, 2021, 12, 1972-1982.	3.5	7
74	A method of predicting the in vitro fibril formation propensity of AÎ²40 mutants based on their inclusion body levels in E. coli. Scientific Reports, 2019, 9, 3680.	3.3	6
75	Dynamics and Control of Peptide Self-Assembly and Aggregation. Advances in Experimental Medicine and Biology, 2019, 1174, 1-33.	1.6	6
76	The Pathological G51D Mutation in Alpha-Synuclein Oligomers Confers Distinct Structural Attributes and Cellular Toxicity. Molecules, 2022, 27, 1293.	3.8	6
77	Diffuse transition state structure for the unfolding of a leucine-rich repeat protein. Physical Chemistry Chemical Physics, 2014, 16, 6448.	2.8	4
78	Acceleration of Î±-synuclein aggregation. Amyloid: the International Journal of Experimental and Clinical Investigation: the Official Journal of the International Society of Amyloidosis, 2017, 24, 20-21.	3.0	4
79	An Environmentally Sensitive Fluorescent Dye as a Multidimensional Probe of Amyloid Formation. Journal of Physical Chemistry B, 2016, 120, 2087-2094.	2.6	3